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KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

**INFORMATION SERVICE PROVISION FOR THE PEOPLE
WITH VISUAL AND PHYSICAL IMPAIRMENTS IN
PUBLIC UNIVERSITY LIBRARIES IN KENYA**

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DECLARATION

I, Beatrice Wamaita Kiruki, declare that:

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ABSTRACT

The study investigated information service provision to the people with visual and physical impairments in public university libraries in Kenya. The study was underpinned by the International Federation of Libraries Associations and Institutions (IFLA) Access to Libraries for Persons with Disabilities Checklist, and the Social Model of disability. A pragmatic paradigm that supports the mixed methods approach was used to underpin the study. The population comprised libraries of six public universities. The data was collected from the students with visual impairments, the students with physical impairments, the staff of the Disability Mainstreaming department, the library staff who provide services to students with impairments, the Systems Librarians and the University Librarians. The data was collected using questionnaires, interviews, focus groups, and observation. The findings revealed a blatant exclusion of the people with visual and physical impairments in the library policies which impacted negatively on other aspects of information services provision such as budgeting, assessment of users' needs, planning of services, marketing of services, provision of information and ICT services, and the design and the layout of the library building. The study made the following recommendations: The libraries should formulate policies regarding the provision of information services to the people with impairments; formulate a special budget to cater for the needs of the people with impairments; assess the needs of the people with impairments; explore effective strategies for marketing the services for the people with impairments; evaluate the services provided to the people with impairments; create a disability services page in their library websites to provide information specific to the people with impairments; ensure that the library staff providing services to the people with impairments are adequately trained; explore the possibilities of information resource sharing amongst themselves and with other organisations providing services to people with impairments; provide special reading rooms equipped with the necessary equipment/resources for the people with impairments; involve the people with impairments in planning for their information services as well as in the policy formulation; and provide special library orientation as well as information literacy (IL) training to the people with impairments.

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DEDICATION

This work is dedicated to all the people with different types of impairments. May this thesis go a long way in contributing towards the improvement of information services in academic libraries by people with any forms of impairments.

“Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family.”

Kofi Annan

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LIST OF ACRONYMS

ACRL	Association of College and Research Libraries
ADA	American Disability Act
ALIA	Australian Library and Information Association
ASCLA	Association of Specialized and Cooperative Library Agencies
AT	Assistive Technology
CILIP	Chartered Institute of Library and Information Professionals
CRPD	Convention on the Rights of Persons with Disabilities
CUE	Commission for University Education
DAISY	Digital Accessible Information System
EEOC	Equal Employment Opportunity Commission
EU	Egerton University
GCE	Global Campaign for Education
GTI	Government Training Institute
ICA	International Communication Association
ICT	Information Communication Technologies
IFLA	International Federation of Library Association and Institutions
IL	Information Literacy
ILO	International Labour Organization
ILO	International Labour Organization
ITU	International Telecommunications Union
JAWS	Job Access with Speech
JKUAT	Jomo Kenyatta University of Agriculture
KISE	Kenya Institute of Special Education
KNCHR	Kenya National Commission for Human Rights
KU	Kenyatta University
LIA	Letters of Interim Authority
MDESE	Massachusetts Department of Elementary and Secondary Education
MSU	Maseno University
MU	Moi University
NACOSTI	Commission for Science, Technology and Innovation
NCPWD	National Council for Persons with Disabilities
NICHCY	National Dissemination Center for Children with Disabilities

OPAC	Online Public Access Catalog
PCSU	Public and Commercial Service Union
PDA	Persons with Disabilities Act
PDF	Portable Document Formats
UKZN	University of KwaZulu-Natal
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organizations
UoN	University of Nairobi
UPIAS	Union of the Physically Impaired against Segregation
WECIL	West England Center for Inclusive Living
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The term impairment refers to “loss or abnormality of psychological, physiological, or anatomical structure or function” (World Health Organization (WHO), 1980, p. 47). In contrast, the Social Model of disability defines impairment as a characteristic, feature or attribute within an individual which is long term and may, or may not, be the result of disease, genetics or injury (Thomas, Gladwel, & Markham, 1997, p. 2). The term physical impairment, refers to the difficulty or delay of a person’s physical capacity to move, coordinate actions, or perform physical activities and it is exhibited by difficulties in either physical and motor task, independent movement, and performing basic life functions (Massachusetts Department of Elementary and Secondary Education, 2006, para. 1), that require use of devices or mobility aids such as crutches, canes, wheelchairs and artificial limbs to obtain mobility (Disabled World, 2015, para. 3; Jaffe, 2018, para. 1). This study focused on the people using crutches, canes, wheelchairs and those with artificial limbs.

The term visual impairment on the other hand, covers “all degrees of vision loss, including total blindness, that affect a person’s ability to perform the usual tasks of daily life” (Bailey & Hall, 1989, p. 2). This study focused on the people with partial loss of vision and total loss of vision (the blind).

There are more than one billion people with impairments worldwide (World Health Organization, 2011, p. xi) who face discrimination and exclusion from participating fully and effectively as equal members of society (Kitchin, 1998, p. 343; United Nations, 2007, p. 1). This exclusion is perpetuated by inadequate policies and standards where policy design ignore the needs of the people with impairments, or where existing policies and standards are not enforced (World Health Organization, 2011, p. 9).

The lower income countries tend to have a higher prevalence of disability than high income countries (McGurk, n.d., p. 6; World Health Organization, 2011). The World Health Organization/World Bank report on data gathered in 59 countries revealed that the global prevalence of disability was 16%, ranging from 12% in higher income countries to 18% in lower income countries (United Nations, 2015, p. 38). Moreover, there are around 12.3 million the people with impairments in United Kingdom of whom 2 million have

visual impairment, while 10 million have hearing impairment (Disabled Living Foundation, 2017). In the context of United states, there are 56.7 million people (18.7% of US population) with impairments of whom 19.9 million (8.2%) have physical impairments; 15.2 million (6.3%) have cognitive, mental, or emotional impairment; 8.1million (3.3%) have vision impairment, while 7.6 million (3.1%) have hearing impairment (Interactive Accessibility, 2015).

In the developing countries, there are about 400 million people with impairments (Africa Studies Center Leiden, 2016, para. 2) of whom 80 million live in Africa (Africa Studies Center Leiden, 2016, para. 2; Disabled World, 2017, para. 1). According to Disabled World (2017, para. 3), majority of people in Africa acquire impairments through malnutrition and illness, natural disasters, traffic accidents, industrial disasters, and violent conflicts/wars. In Kenya, the number of the people with impairments is estimated at 3.5% (1.3 million) in a population of about 39 million people (Githinji, 2013, p. 3). Out of the people with impairments 31% (413,698) have physical impairment, 25% (331,594) have visual impairments and 14% (187,818) have hearing impairment (Githinji, 2013, p. 3).

This study investigated information service provision to the people with visual and physical impairments in public university libraries in Kenya. Those with visual impairments consist of people with low vision and those with total loss of vision (the blind). Similarly, those with physical impairments consist of people using crutches, wheelchairs, and those with artificial limbs. The study did not cover the people with hearing impairments because the universities did not have interpreting services for the deaf students (Odoyo, 2007, p. 2), and the few deaf students who managed to join universities had to employ their own sign language interpreters in order to participate in class (Adhiambo, 2015, para. 14).

1.1.1 University education in Kenya

The expansion of university education in Kenya since independence in 1963, has resulted in the establishment of 49 public and private chartered universities. Among the public chartered universities are University of Nairobi (UoN), Kenyatta University (KU), Jomo Kenyatta University of Agriculture and Technology (JKUAT), Moi University (MU), Egerton University (EU), Maseno University (MSU), Kisii University (KSU), Masinde Muliro University of Science and Technology (MMUST), Pwani University (PU), and

Technical University of Kenya (TUK) (Commission for University Education (CUEA), 2018) and others (see Appendix 35).

The private chartered universities on the other hand include among others the Catholic University of Eastern Africa, Kabarak University, United States International University, Strathmore University, University of Eastern Africa-Baraton, Kenya Methodist University, African Nazarene, and Scott Christian University (CUE, 2015). A chartered private or public university is one that has been bestowed with the instruments that define the objects, powers, officers and statutory bodies of the university by the Commission for University Education in Kenya (Republic of Kenya, 2013a, para. 14). Besides the chartered universities, there are other universities operating under Letters of Interim Authority (LIA) (CUE, 2015). The LIA is a letter granted to an institution that has applied for accreditation after Commission for University Education has inspected and assessed the resources of the institution and established that the institution meets the requirements of the Universities Act (Republic of Kenya, 2013a). There are currently 14 universities operating on LIA in Kenya. They include for example Aga Khan University, Riara University, Presbyterian University of East Africa and East African University among others (see Appendix 35).

1.1.2 The study area

Six public chartered universities were chosen for the study because of their long tradition of offering degree programmes to students with visual and physical impairments. These universities are described below.

1.1.2.1 University of Nairobi (UoN)

The history of the University of Nairobi can be traced back in 1961 with the establishment of the Royal Technical College in Nairobi. The Royal Technical College later became the University College of Nairobi in 1963 with the establishment of University of East Africa which had three constituent colleges in Nairobi, Dar es Salaam and Kampala (Makerere) (Nyaigotti-Chacha, 2004, p. 3). In 1970, the University of East Africa was disbanded and this saw each of the three East African countries establishing their own national university. Consequently, the University College, Nairobi changed name to University of Nairobi and thus became the first national university in Kenya (Kavulya, 2004; Nyaigotti-Chacha, 2004). Throughout the 1970s, the government strengthened and expanded the University of Nairobi as an effort to ensure university education to all qualified Kenyans,

and as an effort to support both the private and public sector through the development of the needed human resource (Nyaigotti-Chacha, 2004). After undergoing a major restructuring in 1983, the university administration was decentralized and six campus colleges headed by principles were established. The university offers degree programmes in agriculture and veterinary services, architecture, engineering, biological and physical sciences, education, health sciences, humanities and social sciences among others (University of Nairobi, 2015, para. 1). The University of Nairobi main campus is located in Nairobi City, Nairobi County (see Figure 1).

1.1.2.2 Kenyatta University (KU)

The inception of Kenyatta University can be traced back with conversion of the Templar Barracks in Kahawa to Kenyatta College in 1965, when the British government gave the Barracks to the newly established government of Kenya (Kenyatta University, 2013, para. 1). In 1972, Kenyatta College became a constituent college of the University of Nairobi and the name was changed to Kenyatta University College which enrolled the first group of students for the bachelor degree in education (Kavulya, 2004). Kenyatta University College became a fully-fledged university in 1985, and was renamed Kenyatta University (Kenyatta University, 2013, para. 4). Kenyatta University has since grown to establish twelve campuses spread all over the country. The university offers degree programmes in humanities and social sciences, visual and performing arts, education, pure and applied science, engineering and technology, environmental studies, law, agriculture, medicine, public health applied human sciences, hospitality and tourism among others. Kenyatta University main campus is located in Ruiru, Kiambu County (see Figure 1.)

1.1.2.3 Jomo Kenyatta University of Agriculture and Technology (JKUAT)

The history of the Jomo Kenyatta University of Agriculture and technology can be traced back to 1977, when the Kenyan government started plans to establish a Middle Level College, the Jomo Kenyatta College of Agriculture and Technology (JKCAT). These plans were realised in early 1978 when late Mzee Jomo Kenyatta donated part of his land for the establishment of the college. In 1981, Jomo Kenyatta College of Agriculture and Technology was established by the government through the generous assistance from the Japanese Government. The college was officially opened in 1982. In 1988, it was declared a constituent college of Kenyatta University and changed the name to Jomo Kenyatta University of Agriculture and Technology (JKUAT). In 1994, it became a fully-fledged

university. The university has since expanded and established nine campuses in Kenya, Tanzania. The university offers degree programmes in engineering, human resource development, architecture and building science (Jomo Kenyatta University of Agriculture and Technology (JKUAT), 2017). JKUAT main campus is located in Juja, Kiambu County (see Figure 1.).

1.1.2.4 Moi University (MU)

Moi University was established in mid-1984 but was inaugurated in 1985. Since then the University has grown and established four campuses. The university has constituent colleges in Garissa and Rongu, and Satellite campuses in Nairobi, Kitale, Alupe, and Coastal city of Mombasa. Moi university offers degree programmes in aerospace sciences, agriculture and natural resources, arts and social science, biological and physical sciences, business and economic, education, engineering, information science, law tourism, hospitality and events management (Moi University, 2017). Moi University main campus is situated in Eldoret Uasin, Gishu County (see Figure 1).

1.1.2.5 Egerton University (EU)

The inception of Egerton University can be traced back to 1939 when Lord Maurice Egerton of Tatton, a British settler established a Farm School. The school started offering diploma courses after being upgraded to an Agricultural College in 1950. Thereafter in 1955, the Egerton Agricultural College Ordinance was passed. In 1986, the College was gazetted as a constituent college of the University of Nairobi and thereafter in 1987; the Egerton University became a fully-fledged university through an Act of Parliament. The University offers degree programmes in agriculture, engineering and technology, science and veterinary medicine, commerce, arts and social sciences among others. Currently, Egerton University is comprised of three campuses and one Campus College. The main campus is located in Njoro, Nakuru County (Egerton University, 2015). Figure 1 shows the location of the Nakuru County.

1.1.2.6 Maseno University (MSU)

The history of Maseno University can be traced back with the merge between the Maseno Government Training Institute (GTI) and Siriba Teacher's Training College that formed Maseno University College under Moi University. Maseno University was instituted by an Act of Parliament in 1991, and thereafter got its full status as a university in 2001. Currently, Maseno University has four campuses, one college and one constituent college.

The university offers degree programmes in Arts and social sciences, education, biological and physical sciences, health sciences, development and strategic studies business and economics, medicine, agriculture and food security, mathematics and actuarial science, computing and informatics, planning and architecture and gender studies among others. Maseno University Main Campus is located in Maseno, Kisumu County (Maseno University, 2017).

Figure 1 illustrates the geographical location of these universities.

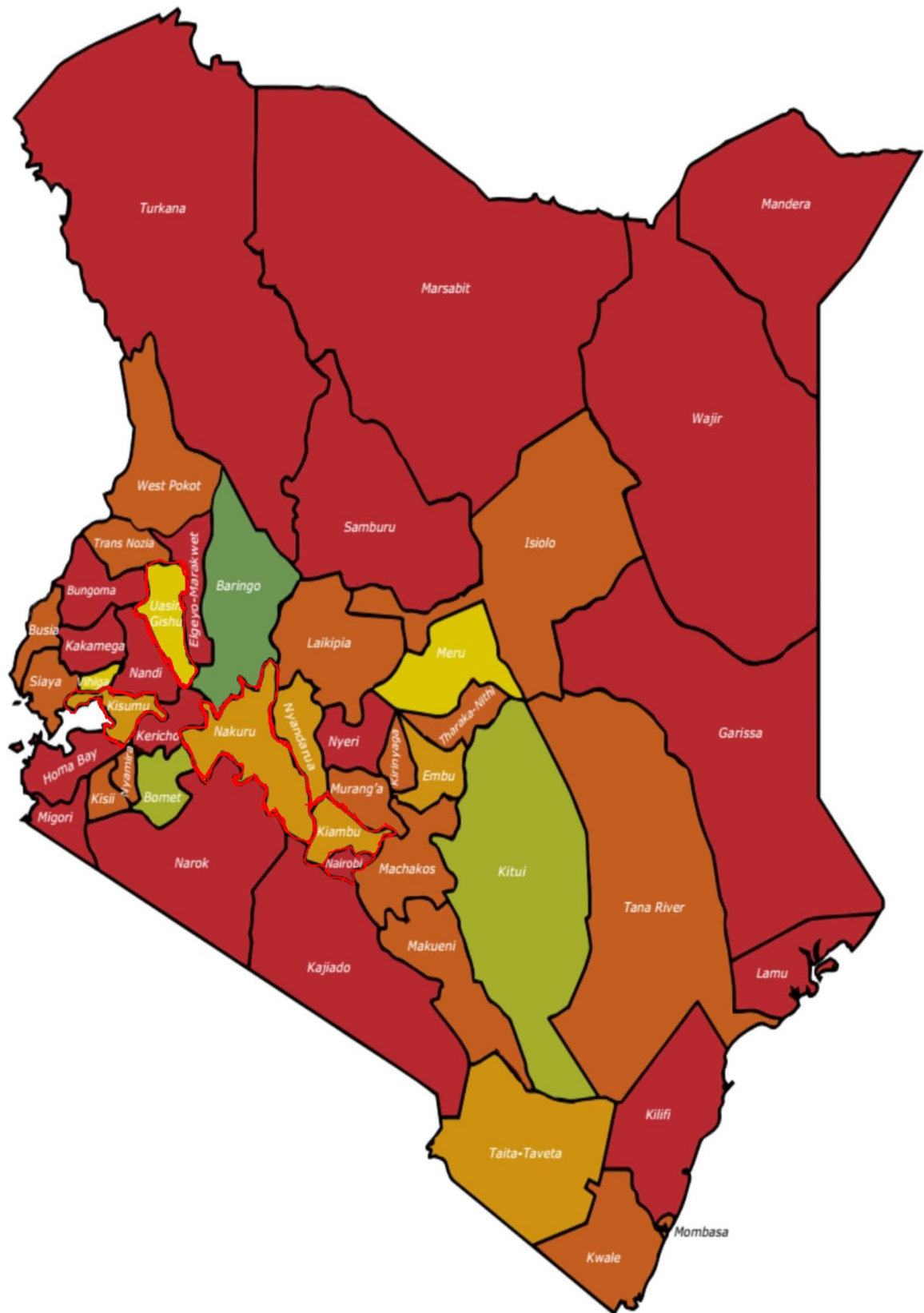


Figure 1: Kenya county map (Source: International Budget Partnership (IBP), 2018, para. 3)

1.1.3 University libraries in Kenya

The university library system in Kenya comprises the libraries of the 49 public and private universities. The libraries are established to provide information services to support learning, teaching, research and extension. Consequently, university libraries play a fundamental role in the progress of the country by providing information and services to build human capital (Ojiambo & Kasalu, 2015, p. 9). The university libraries therefore should be catalysts for facilitating full participation of the people with impairments by removing barriers of access and use of information (American Library Association (ALA), 2001).

1.2 Statement of the problem

Anambo (2007), Kariba (2009), Ochoggia (2004), Njoroge (2013), and Kiambati (2015) revealed that university libraries in Kenya have to a large extent excluded the people with visual and physical impairments from benefiting fully from information services because of various institutional and attitudinal barriers. However, the extent of this exclusion is not known due to lack of statistics. Mukhwana, Oure, Kiptoo, Kande, Njue, Too and Some (2016, p. 55-56) estimate that 645 students with impairments were enrolled in all universities in Kenya in the year 2015. Out of this number, 540 were reported enrolled in public universities, while 105 were enrolled in private universities. The impairments were categorized as sensory, physical, visual, mental, hearing, and learning among others. However, the authors did not disaggregate the distribution of the impairments by university or by impairment.

Ochoggia (2003), Kiambati (2015) and Kariba (2009) reported that the people with visual impairments at Kenyatta University are faced with problems of inadequate Braille books and recorded books, and lack of staff with disability training to offer services to the people with impairments. Kenyatta University has a longer tradition of offering degree programmes to the people with visual impairments in Kenya than any other university in the country but still falls far short of the expectation of IFLA's Access to Libraries for Persons with Disabilities Checklist. Therefore the situation in other universities may be worse as attested by Njoroge (2013) that Kenyan university libraries are only partially accessible to the people with impairments.

Therefore this study aimed at gaining a holistic understanding of the extent of exclusion of the people with visual and physical impairments in order to proffer important data for

decision making. The term “extent of exclusion” here is taken to mean the degree and scope of exclusion. The indicators of the exclusion or inclusion include scope of access to and use of services, scope of use of assistive technologies, availability of policies, availability of alternative formats of information, availability of ramps, lifts/elevators, and signage among others.

1.3 Aim of the Study

The aim of this study was to investigate information service provision for the people with visual and physical impairments in public university libraries in Kenya with a particular focus on policies, information services, information communication technologies (ICT), attitude of library staff, and the library building.

1.4 Objectives of the study

The study sought to address the following research objectives:

- 1) To investigate how the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya.
- 2) To determine the information services available for the people with visual and physical impairments in public university libraries in Kenya.
- 3) To find out how ICT is applied to facilitate access and use of information by the people with visual and physical impairments in public university libraries in Kenya.
- 4) To assess how the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya.
- 5) To examine how the building design affects provision of information services for the people with visual and physical impairments in public university libraries in Kenya.
- 6) To suggest measures that need to be taken in order to ensure access to and use of information services by the people with visual and physical impairments in public university libraries in Kenya.

1.5 Research questions

The study addressed the following research questions:

- 1) How does the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 2) What information services are available for the people with visual and physical impairments in public university libraries in Kenya?
- 3) How is ICT applied to facilitate access and use of information by the people with visual and physical impairments in public university libraries in Kenya?
- 4) How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 5) How does the library building design affect the provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 6) What measures do the public university libraries in Kenya need to take to ensure inclusive information services for people with visual and physical impairments?

1.6 Research assumptions

The study made the following research assumptions:

- 1) The availability or lack of policies regarding information service provision for people with visual and physical impairments directly affects the way the information services are provided to this category of people.
- 2) The application of ICT in university libraries impacts the accessibility and use of information by the people with visual and physical impairments.
- 3) Inadequate provision of information services affects the perception of the people with visual and physical impairments about the library.
- 4) The design and layout of the library building impacts the accessibility and use of information services information by people with visual and physical impairments.
- 5) The attitude of the library staff has an effect on the access and use of information services by the people with visual and physical impairments.

1.7 Significance of the study

The study is of value to the policy makers, researchers, stakeholders and organisations dealing with the people with impairments. The study has the potential to influence the university libraries to develop policies that will provide guidelines on provision of information services to the people with impairments and to help the university libraries to apply best practices in their operations. The recommendations advanced in this study can be used to improve services in institutions that provide services to the people with visual and physical impairments.

Moreover, the study contributes to bridging the gaps identified in the literature by providing empirical evidence about the extent of exclusion of people with visual and physical impairments in the provision of information service by the public university libraries in Kenya.

1.8 Delimitation of the study

This study was limited to libraries of public chartered universities because they have a long history of offering degree programmes to the people with visual and physical impairments. The universities covered include University of Nairobi (UoN) (established in 1970), Kenyatta University (KU) (established in 1985), Maseno University (MSU) (established in 2001), Moi University (MU) (established in 1984), Egerton University (EU) (established in 1987), and Jomo Kenyatta University of Agriculture and Technology (JKUAT) (established in 1994).

The study focused on the provision of information services for the people with visual impairments (those living with low vision and total loss of vision) and the people with physical impairments (those using crutches, artificial limbs and wheelchairs). The population of the study comprised students with visual and physical impairments; Library staff who provided services to the students with visual and physical impairments, the University Librarians, the Systems Librarians, and the staff of the Disability Mainstreaming departments.

The researcher experienced some challenges in the course of study including:

1. Some officers in some universities were hesitant to disclose contact details of the people with visual and physical impairments and insisted on contacting them which caused delays in accessing them.

2. Some library staff in some universities agreed to participate in the research but for some reasons best known to them, never filled the questionnaires, and efforts to contact them were futile.
3. A number of staff in the universities were unwilling to participate in the study.

1.9 Structure of dissertation

Chapter 1: Introduction

This chapter presents the background of the study, statement of the research problem, objectives of the study, research questions, significance of the study, and delimitations of study.

Chapter 2: Theoretical framework

This chapter describes the various models used to underpin the study namely: IFLA Access to Libraries for Persons with Disabilities Checklist (Irvall & Nielsen, 2005) and Social Model of disability (Oliver, 1990). Others that relate to the study are also discussed such as the Medical Model of disability and the Charity Model of disability.

Chapter 3: Literature review

This chapter reviews empirical and theoretical literature from books, journals, conference proceedings, and online resources. The literature is reviewed on library policies, information services, library buildings design and layout, and application of ICT in facilitating access to information by the people with visual and physical impairments.

Chapter 4: Research methodology

This chapter presents the research methodology and methods including: research paradigm, research approaches, research design, population of the study, sampling methods, data collection methods, data analysis and presentation, reliability and validity of the instruments and ethical issues.

Chapter 5: Data analysis and presentation of findings

This chapter analyses and presents the results of quantitative and qualitative data. The quantitative data is analysed using SPSS to generate descriptive and inferential statistics while the qualitative data is analysed through thematic analysis.

Chapter 6: Discussion of findings

This chapter discusses the findings supported by extant literature and theory. The framework for organising the discussion of findings is the research questions.

Chapter 7: Summary, conclusion and recommendations

This chapter presents the summary of the findings, conclusion and recommendations of the study, and the originality and contribution of the study. In addition, the chapter provides further areas of study.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

A theoretical framework refers to the theory that a researcher adopts to guide him/her in an investigation. It is the utilisation of a theory or concepts drawn from the same theory, to offer an explanation of an occurrence or phenomenon (Imenda, 2014, p. 189). A theoretical framework serves as the support for the rationale for the research, the problem statement, the purpose, the significance and the research questions. In addition, it provides the grounding for the literature review, the methods, and analysis (Grant & Osanloo, 2014, p. 12). According to Sekaran & Bougie (2016), a good theoretical framework distinguishes and characterises the important variables in the situation that relates to the problem and subsequently depicts and clarifies the interconnections among these variables.

This study is underpinned by the IFLA Access to Libraries for Persons with Disabilities Checklist and the Social Model of disability. Other models relevant to the study that include the Charity Model of disability and the Medical Model of disability are also discussed.

2.2 The International Federation of Library Associations and Institutions (IFLA)

Access to Libraries for Persons with Disabilities Checklist

The IFLA Access to Libraries for Persons with Disabilities Checklist is a useful tool for all kinds of libraries for evaluating current levels of accessibility to buildings, services, resources and programs and to further increase accessibility where required (Irvall & Nielsen, 2005, p. 3). The aim of the IFLA Access to Libraries for Persons with Disabilities Checklist is to provide guidance to libraries in making their services more accessible to the people with impairments (Forrest, 2006, p. 13). The IFLA Access to Libraries for Persons with Disabilities Checklist comprises of items listed under three groupings including physical access which address outside and inside the library building, access to resources and services; media formats to support the needs of the people with impairments; staff awareness, training about impairments, and more (Forrest, 2006, p. 13).

The IFLA Access to Libraries for Persons with Disabilities Checklist requires libraries to have marked parking for the people with impairments and pathways leading from the

parking to the library building that are accessible to the people with impairments. In addition, it suggests that buildings be made accessible to the people with impairments by fitting them with lifts, ramps, and automatic doors; providing physical facilities such as reading spaces, toilets, and circulation desks. Moreover, information should be accessible through materials in special media and computers. The IFLA Access to Libraries for Persons with Disabilities Checklist also covers training for staff responsible for providing special services to the people with impairments (Irvall & Nielsen, 2005).

This study chose to use the IFLA Access to Libraries for Persons with Disabilities Checklist as its conceptual framework underpinning because it has been used by several other related studies. A study in the UK by Forrest (2007) demonstrated how the IFLA Access to Libraries for Persons with Disabilities Checklist can be used in an academic library to improve accessibility for users with impairments. The assessment was done at the School of Nursing and Midwifery Library at the Fife Campus of University of Dundee. Bodaghi and Zainab (2007) examined the views of architects and the people with physical impairments on the accessibility of 14 public and university library buildings in Iran. Bano, Shah, and Masud (2013) used the Social Model of disability to evaluate the provisions and support for disabled students in libraries of special education Degree Awarding Institutions (DAIs) and Rehabilitation Centres (RCs) working in Lahore under standard guidelines provided by the International Federation of Library Associations and Institutions (IFLA). Phukubje and Ngoepe (2017) used the IFLA Access to Libraries for Persons with Disabilities Checklist to evaluate the suitability and accessibility of library services for students with disabilities at the University of Limpopo in South Africa. In the context of Kenya, Njoroge (2013) used the IFLA Access to Libraries for Persons with Disabilities Checklist to assess the status of library access for the people with impairments in Kenyan academic libraries by examining the buildings, services, materials, and staff.

In this study, the IFLA Access to Libraries by Persons with Disabilities Checklist was used to address the following research questions: What information services are available for the people with visual and physical impairments in public university libraries in Kenya? How is ICT applied to promote access and use of information by the people with visual and physical impairments in public university libraries in Kenya? How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya? How does the

library building design affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?

The key variables of the IFLA Access to Libraries for Persons with Disabilities Checklist include services, access, information communication technologies, training, and library buildings and layout.

2.2.1 Services

The IFLA Access to Libraries for Persons with Disabilities Checklist states that libraries should provide information materials in special formats for individuals with impairments, as well as offer them guided library tours, special services such as home delivery service for those unable to come to the library and reading services for patrons with reading difficulties (Irvall & Nielsen, 2005). In this regard, libraries should provide alternative formats such as large print, audio tape, CDs/DVD, or DAISY, Braille books, e-books; and accessible websites for the people with visual impairments on one hand, while on the other hand, provide information in audio/video tape or DAISY format and accessible websites for the people with physical impairments (Irvall & Nielsen, 2005). However, where information in alternative formats is not adequate or available, libraries should be able to borrow them from other libraries (Irvall & Nielsen, 2005, p. 9). Moreover, the library should provide special services for the people with impairments. These services include home delivery services for those incapable of coming to the library, reading services or scanning texts to make them readable on a computer installed with screen reading software for the people with reading difficulties, and regularly schedule consultations for persons with reading difficulties among others (Irvall & Nielsen, 2005, p. 12).

2.2.2 Access

The IFLA Access to Libraries for Persons with Disabilities Checklist requires that the surroundings of the library, the entrance, toilets, stairways, elevator and special reading rooms should be accessible for persons with various types of impairments (Irvall & Nielsen, 2005, p. 4). The IFLA Access to Libraries for Persons with Disabilities Checklist advocates for accessible parking, clear pathways to and throughout the facilities, wide doors or automatic doors, handrails, ramps and elevators, accessible tables, clear signage, accessible toilets, and accessible shelves for the people with impairments (Irvall & Nielsen, 2005).

Regarding access to materials and services, the IFLA checklist states that all library materials should be accessible for all patrons through provision of information materials in different formats for example, talking books, video/DVD books with subtitles and /or sign language, braille books, accessible e-books, easy to read books or other non-print materials and computers (Irvall & Nielsen, 2005, p. 9). Robertson (n.d., p. 38) highlights some of the accessibility elements such as physical access for the people with mobility problems, such as reach-height for switches, handles, and leaflets among others for the people using wheelchairs; signage and direction for the people with various kind of impairments; acoustics for the people with hearing impairments; accessibility of print or e-resources for the people with upper limb impairments, visual impairments, or learning impairments; and accessibility of equipment and computers among others.

Bodaghi and Zainab (2012, p. 241) and Todaro (2005, p. 254) argue that access to information sources is a fundamental human right which enables an individual to develop their capacity and be able to actively participate in the society, fully exercising his/her rights and duties. In this regard, libraries are the most significant sources of information. Consequently, libraries serving the people with impairments ought to develop the standards for fully accessible, useful information systems that effectively meet information and educational needs of the people with impairments (Igwebuike & Agbo, 2015). Moreover, equitable access is an idea that benefits not only the people who have impairments, but also those who do not have impairments (Carter, 2004, p. 18).

2.2.3 Information communication technology (ICT)

The IFLA Access to Libraries for Persons with Disabilities Checklist states that computers, catalogs, websites, and e-books should be accessible for the individuals with impairments (Irvall & Nielsen, 2005). In this regard, enlargement software and screen readers should be provided with them. Fast and consistent technical support should be provided for both computers, and assistive equipment used by the people with visual impairments and with other impairments (Irvall & Nielsen, 2005). Also, libraries should provide computer workstations adapted for the people with impairments, adaptive keyboards or keyboard overlays for people with motor impairments, computers fitted with screen reading software, screen enlargement software, and synthetic speech. In addition, computers fitted with spelling, and other instructional software suitable for the people with visual impairments and other impairments should be provided. Moreover, the library should provide information about access, services, materials and programs in alternative

formats so that people who may not be able to read this information in print can access it in the alternative formats such as large print, audio tape, CD/DVD, or DAISY, Braille or on the library's accessible website (Irvall & Nielsen, 2005)

2.2.4 Training

The IFLA Access to Libraries for Persons with Disabilities Checklist suggests that the library staff should be clear and precise when communicating with the people with impairments. In addition, the library staff should create a welcoming atmosphere so that the people with impairments feel comfortable and encouraged to return. In this regard, the library staff should take into consideration the people with impairments and help them to overcome physical and psychological barriers. All library staff should be trained and well-informed about various types of impairments and how to handle the people with such impairments (Irvall & Nielsen, 2005, p. 11). All technological solutions to information service provision in the libraries may be wonderful but they are useless if the library staff are not committed to serving their users with impairments (Wade, 2003, p. 311). According to Hannon (2006, p. 7), the major barrier to full participation of the people with impairments is attitude toward impairments; as long as negative attitude persists in the society, full acceptance of the people with impairments is unlikely. Carter (2004, p. 16) notes that the interaction between the people with impairments and the library staff is the most significant element to providing equitable access to services. Wade (2003) argues that while librarians help the library users, they are susceptible to prejudice and misconceptions about the people with impairments.

Massie (2006), cited in Hannon (2007, p. 7) opines that pity, discomfiture and fear, negative expectations about what the people with impairments can offer, stereotypical and negative attitudes always prevent people from offering their best to the people with impairments. Deines-Jones (1999, p. 153), cited in Carter (2004)) opines that negative attitude inhibits many prospective library users from frequenting the library. This is because negative staff attitude makes the people with impairments feel disfavored and/or that their requirements are inadequately met, hence they avoid the library (Bick, 2015, p. 7). Therefore, libraries should ensure that they cultivate a positive attitude among their staff through training opportunities for all the staff and volunteers in order to sensitise them on matters relating to the people with impairments and to provide them with the necessary skills for providing services to this category of people (American Library Association (ALA), 2001).

2.2.5 Library building and layout

The IFLA Access to Libraries for Persons with Disabilities Checklist directs that libraries should ensure that the library space is well-organised with clear signage and a floor plan posted close to the entrance, and service desks should be located close to the entrance. The paths in the library should be wide and clear to allow wheelchairs to move around within the library. If libraries have more than one floor, lifts or ramps should be installed to make the floor accessible to the people with impairments. In addition, there should be no doorsteps in the library, all doors should have automatic openers, and shelves should be reachable from a wheelchair (Irvall & Nielsen, 2005, p. 6). Furthermore, both study and computer tables should be of different heights throughout the library, aisles between bookcases should be unobstructed, and the fire alarm should be visible and audible (Irvall & Nielsen, 2005, p. 6). Similarly, Roy and Bandyopadhyay (2009) stress that the library building, its departments and other areas and facilities such as washrooms, drinking water areas and staircases should be well planned following the standard guidelines in order for them to accommodate the people with impairments.

The IFLA access to Libraries for persons with Disabilities Checklist does not address the question on how availability or lack of policies affect information service provision to the people with visual and physical impairments. Therefore the Social Model of disability will help fill this gap.

2.3 The Social Model of disability

The Social Model of disability was conceived from the writings of the Union of the Physically Impaired against Segregation (UPIAS) entitled Fundamental Principles of Disability published in the mid-1970s (Oliver, 2004; Oliver, 2013). The Social Model locates disability within the society instead of within the individual. The model posits that it is not individual limitations that cause disability but the failure of the society to respond in an appropriate way by availing needed services and by including the needs of the people with impairments in its social organisation (Slikker, 2009, p. 12). UPIAS defined disability as an interaction between the people with impairments and a segregative society, but not as an impairment or shortfalls of the body or brain, as perceived by the Medical Model of disability (Shakespeare, 2004, p. 9). UPIAS perceives society's failures as the disabling factors. It is the society that unnecessarily isolates and excludes the people with impairments from participating fully and thus oppressing them (Shakespeare (2014, p. 16)

In 1976, UPIAS accepted the medical model's definition of impairment as lacking all or part of a limb or having a limb, organism or mechanism of the body that is defective. However, UPIAS added that disability is the disadvantage or limitation of activity as a result of the modern social organisation paying no or little attention to the people with impairments, therefore excluding them from participating in normal activities of the society (Oliver, 1996, p. 22)

The Social Model was launched in Western academia by Mike Oliver in 1990. Oliver called for a social theory of disability to challenge the medical and charity Models. Vic Fenkelstein and Oliver developed the definition of disability as "a relationship between peoples' impairments and a disabling society" (Shakespeare, 2004, p. 9). The Social Model of disability was developed by the people with impairments to identify and challenge their oppression and exclusion. It was developed as a direct challenge to the predominant models of disability that perceived disability as an individual, medical problem that needed to be prevented, treated or controlled; and /or as a charitable issue where the people with impairments were perceived as unfortunate and consequently requiring pity and care from often segregative charitable services (Inclusion London, 2016, para. 9). The Social Model of disability recognised three major barriers that confront individuals with impairments namely physical, attitudinal, and institutional (French & Swain, 2013, p. 192; Pierson & Thomas, 2010, p. 487).

The physical barriers are in the form of exclusion from the built environment which covers a variety of barriers that prevent equal access such as stairs/ steps, narrow passageways and doorways, curbs, inaccessible toilets, inaccessible housing, poor lighting, poor seating, broken lifts or mismanaged street and public spaces (Inclusion London, 2016, para. 15); institutional barriers in the form of systematic exclusion or neglect in social or legal aspects such as library opening hours, rules and regulations, charging policies, collection development policies, which do not relate to the needs of the people with impairments (Muddiman, Durran, Dutch, Linely, Pateman & Vincent, 2000, p. 19); and attitudinal barriers in form of negative valuations of the people with impairments by people without impairments (French & Swain, 2011; Harris & Enfield, 2003). According to Inclusion London (2016, para. 14), the social, cultural attitudes and assumptions about the people with impairments elucidate, defend and perpetuate prejudice, discrimination and exclusion in society. For example, assumptions that the people with certain impairments are

incapable of working, cannot be independent, require protection or are childlike, are dangerous and should not be seen because they are upsetting.

According to Albrecht (2006) the main concern of Social Model of disability is removal of barriers and social inclusion rather than medicine or rehabilitation. Instead of special provisions based on impairments, the Social Model of disability suggests that barriers should be removed to enable the people with impairments to access mainstream services. Rather than counting the numbers of the people with impairments, the Social Model of disability suggests that the focus should be on discrimination and prejudice. In the same vein, Moore, Carter, and Nietward (2011, p. 2002) opine that the people with impairments are ordinary citizens who have a right to be treated as normal and be provided with facilities that have been designed with careful consideration of their needs. Moreover, social attitudes should be altered so that the people with impairments are not treated in a demeaning manner but as normal members of the society.

According to Zajadacz (2015, p. 192), removal of barriers limiting the people with impairments improves the quality of life and creates equal opportunities in relation to the section of the society that has no impairments.

The Social Model of disability has been hailed for the impact it has made in the disability movement. Shakespeare (2006, p. 30) highlights the strengths of the Social Model of disability namely:

1. The Social Model of disability which insists on the removal of barriers became a political approach with which to liberate the people with impairments. If it is the society that disabled the people with impairments, then it is imperative that priority be given to the removal of the disabling obstacles in order to promote inclusion of the people with impairments in the mainstream society. Consequently, removal of barriers became the foundation for anti-discrimination legislation and practice.
2. The Social Model of disability enabled the academia who focused on the medical sociology that dealt with issues such as individual adjustment to impairment, to turn their focus on issues such as discrimination and the relationship between disability and industrial capitalism among others. Disability studies broadened their attention from studying individuals to uncovering broader social and cultural processes.

3. The Social Model of disability shifted the discussion about disability within academia away from medical sociology, which focused on “sick” and “disabled” individuals, and towards a study that explored social and cultural processes.
4. The Social Model of disability impacted on the people with impairments themselves. Replacing a traditional deficit approach with a social oppression understanding was and remains very liberating for the people with impairments. It has made individuals with impairments to understand that it is not their impairment that is disabling but the society which needs to change and not the people with impairments. It has enabled the people with impairments to assert themselves and demand for their rights to equality. In a similar vein, Inclusion London (2016) argues that the Social Model of disability reveals real life experience of the people with impairments and suggests practical measures of eliminating their exclusion and oppression that do not require the people with impairments to change who they are for them to qualify for rights and opportunities enjoyed by the people without impairments.

Likewise, Eleweke and Ebenso (2016, p. 114) observe that the Social Model of disability has been an important instrument in the struggle to guarantee the fundamental human rights of the people with impairments in many developed countries including the United Kingdom, United States, and Canada among others.

Despite these strengths, the Social Model of disability has generated much discussion and debate within the field of disability studies and has received a lot of criticism in various aspects such as:

1. It is argued that the Social Model of disability has not gone far enough in its implementation. The advocates of the Social Model of disability have spent a lot of time talking about the Social Model of disability, its usefulness, and limitations and have not dedicated enough time to implement it (Mallet & Runswick-Cole, 2014, p. 11).
2. The Social Model of disability has been accused of devaluing and being hostile to medicine. Oliver (1990) believes that disability is an association between peoples’ impairments and a disabling society and as such, it is not the impairment that a person has that disables him, but the barriers that are created by the society (Mallet & Runswick-Cole, 2014, p. 12).

3. The main focus of the Social Model of disability is the removal of social and physical barriers that hinder the people with impairments from participating in society. However critiques have argued that removal of barriers alone cannot end discrimination against the people with impairments (Mallet & Runswick-Cole, 2014, p. 14).
4. The Social Model of disability has been criticised for failing to take into consideration issues of multiple or simultaneous oppression. The people with impairments may experience disadvantage related to gender, age, race and sexuality (French & Swain, 2011; Mallet & Runswick-Cole, 2014, p. 14; Marks, 1999; Oliver, 2013, p. 1025; Terzi, 2004, p. 54).
5. The Social Model of disability has been criticised for focusing so much on physical impairments and failing to include people who experience emotional distress, communication difficulties or learning impairments (Albert, 2004, p. 7; Mallet & Runswick-Cole, 2014, p. 14; Marks, 1999, p. 88).
6. The Social Model of disability has been perceived as being a western ideology that is imposed on the context of developing countries. This is because, the Social Model of disability is associated with the development of British Disability Studies (Albert, 2004, p. 6; Mallet & Runswick-Cole, 2014, p. 15).

Notwithstanding these criticisms, Oliver and Barnes (2010) stress that the Social Model of disability is significant to understanding and explaining the economic, political and social barriers encountered by the people with impairments. It advocates for equal rights and opportunity for the people with impairments in education, health services, employment, information and other public services (Babalola & Yacob, 2011, p. 143). Furthermore, this model has influenced international organisations such as the United Nations, which in 1993 sanctioned the UN standard Rules on the Equalization of Opportunities and the Conventions on the Rights of Persons with Disabilities (Griffo, 2014; Oliver & Barnes, 2010). It also influenced the initiative sponsored by the World Health Organisation known as “Rethinking Care from the Perspective of Disabled People” (2001). Similarly, Inclusion London (2016, para. 8) argues that over the last 40 years, the Social Model of disability has been extended, refined and criticised but it remains both the best explanation of disability and the best tool for attaining equality and real social change of the people with impairments. Figure 2 presents the Social Model of disability.

The social model of disability



Figure 2: Social Model of disability (Source: Harris and Enfield, 2003, p. 172)

The Social Model of disability is therefore suited to this study as it is key to understanding how institutional, attitudinal and environmental barriers affect provision of information services to the people with visual and physical impairments in public university libraries. Several studies have used the Social Model of disability as their theoretical underpinning. Seyama (2009) used the Social Model of disability to investigate the information seeking behaviour of blind and visually impaired students and whether the services provided by the University of KwaZulu- Natal on its Pietermaritzburg campus accommodated the information seeking behaviors of the blind and visually impaired students. Chaputula and Mapulanga (2017) used the Social Model of disability to investigate the provision of library services to the people with impairments in Malawi. Slikker (2009) in his study in Ghana used the Social Model of disability as a framework to understand and investigate the status of the people with impairments in Ghana. Rugara, Ndinde, and Kadodo (2016) used the Social Model of disability to assess whether tertiary and university libraries in Masvingo urban in Zimbabwe were fulfilling their role to support inclusivity using infrastructural and informational accessibility for all users. Matonya (2016) used the Social Model of disability to investigate how women with disabilities participated in higher education and what enabled them to succeed in their studies in Tanzania where library services were assessed amongst other areas of focus. Majinge, (2014) combined the Social Model of disability and International Classification of Functions to investigate library service provision for the people with visual impairments and in wheelchairs in

academic libraries in Tanzania with reference to access to information resources and the layout of the library.

In the context of Kenya, Githinji (2013) used the Social Model of disability to investigate the nature of barriers facing the people with physical, visual and hearing impairments in four universities in Kenya. The Social Model of disability also underpins UK disability discrimination legislation and the Quality Assurance Agency Code of Practice for disabled students (QAA1999) (Robertson, n.d.). In a nutshell, the Social Model of disability was suitable for this study because it was helpful in identifying where there were problems in the practice of public university libraries in Kenya and the solution that needed to be applied to ameliorate these problems. Indeed, Hernon and Calvert (2006, p. 53) recognise the Social Model of disability as a valuable tool for pinpointing where change is necessary in order to create a more inclusive environment for the people with impairments.

The Social Model of disability recognises that attitudes towards impairments create unnecessary barriers that hinder inclusion of the people with impairments (Public and Commercial Services Union, 2006, para. 4). According to Slikker (2009, p. 13), attitudes are an important factor in explaining the situation and position of the people with impairments in the society. Harris and Enfield (2003, p. 11) opine that attitudes perpetuated by fear and ignorance on the part of people without impairments who consequently use negative and pejorative language about the people with impairments, and low expectations of what the people with impairments can achieve, often socially exclude the latter.

Forrest (2006) notes that attitudinal barriers compared to physical barriers create more difficulties for the people with impairments. This is because attitudes affect all areas of service provision and social life of the people with impairments (World Health Organization, 2011). Moreover, societal attitudes govern the way personal, social, educational and psychological needs of the people with impairments are met (Munyi, 2012).

The Social Model of disability advocates for the removal of attitudinal barriers such as prejudice and stereotyping, and inflexible organisational practices that exclude the people with impairments from participating in the society (Public and Commercial Services Union, 2006, para. 6).

As for policies, the Social Model of disability advocates for the removal of institutional barriers such as policies and procedures that prevent full participation of the people with impairments within education, the work place and the wider community (Thomas, Lewis, & Lewis, 2010, p. 5). McCaskill and Goulding (2001) opine that inconsiderate policies, practices and procedures including those regarding staffing can make a service unreasonably difficult to access by the people with impairments. Babalola and Yacob (2011, p. 145) suggest that libraries need to appraise their policies to reflect their commitment to the provision of library and information service for the people with impairments.

The Social Model of disability as far as technology is concerned, acknowledges that ICTs have the potential to be liberating and can help to eliminate the barriers encountered by the people with impairments (Varney, 2013, p. 20). Varney further argues that the adoption of a Social Model of disability in the regulation of ICTs would focus on tackling the social barriers faced by the people with impairments in accessing and using ICT products and services. Varney further argues that the Social Model of disability does not only concern itself with tackling environmental and attitudinal barriers but also with tackling technical barriers caused by the increasing complexity of ICTs.

The Social Model of disability also provides for removal of barriers that prevent the people with impairments from accessing buildings. For example, if a wheelchair user cannot climb the stairs, practical modifications can be made such as installing a ramp or a lift (Carson, 2009, p. 17). Many built environments such as public accommodation, and transport are not accessible to all and that is the reason why the people with impairments are discouraged from seeking work or accessing services (World Health Organization, 2011, p. 10). The Americans with Disability Act (ADA) 1990 recommends that library buildings and facilities must be accessible to the people with impairments. Consequently, libraries must remove architectural barriers in existing facilities and communication barriers that are structural in nature, including modifying parking spaces and curbs, entrances, doorways, both reading and computer tables, desks; and public convenience such as rest rooms, drinking fountains, and public telephones among others (American Library Association (ALA), 2001).

2.4 The Medical Model of disability

The Medical Model of disability was first advanced in 1951 by T. Parsons (Zajadacz, 2015, p. 192). According to Sullivan (1991, p. 258), medicine associates disability with disease and pathology, hence disability is seen to be inherent in individuals who are biologically defective and thus negatively changed both physically and psychologically; above all it is their own personal tragedy (Mitra, 2006; Moore, 2002). As a result, the people with impairments are perceived as not only looking different but as being different in their cognitive processes, responses, and actions and as such they must be treated differently, approached with caution or controlled through exclusion. The Medical Model of disability considers the people with impairments as persons with physical complication directly caused by disease, trauma, or other health conditions which need to be cured or which need rehabilitation of the individuals in order to repair the defect so that one can be restored closer to normal (Slikker, 2009, p. 11; Solarsh & Hofman, 2006; Sullivan, 2011).

The strength of the Medical Model of disability lies in the role it plays in bringing the person back or close to the normalcy through healthcare and rehabilitation services (Mitra, 2006). This fact is also echoed by Harris and Enfield (2003, p. 15) when they argued that medical intervention through for example surgery, support and intervention for the people with impairments who have medical condition, can significantly lessen the effect of disability. In addition, deterrent measures to decrease the occurrence of disability and to promote its early detection are also valuable ways of reducing the magnitude of effects of disability.

The Medical Model of disability also presents challenges that include the fact that:

1. It reduces the people with impairment to objects of study by the medical professional trying to look for a cure to treat the impairment (Eyler, 2010, p. 4). Harris and Enfield (2003, p. 15) argue that the search for cure is often a long one, painful and unnecessary and at times healthcare professionals may be unwilling to inform the patients and their families that cure for their condition does not exist, so that they can keep on hoping that one day they might be normal.
2. It devalues the people with impairments by focusing only on the causes of impairments. This is because, a person with impairments may feel stigmatised and of less value to the society in general if seen only from the perspective of their dysfunction (Zajadacz, 2015).

3. The isolation of the people with impairments in hospitals nurtures a perception of them being passive recipients of aid; dependent, powerless and always in need of help from people who have no impairments. The people with impairments become less than humans in the eyes of the wider community and as such are referred to as invalids (Sullivan, 1991, p. 258). Consequently, within the thinking of the Medical Model of disability, the society is somehow perceived as not having any basic responsibility to accommodate the people with impairments and instead, they must adapt themselves to the prevailing conditions with intervention from medical professionals who provide treatment or rehabilitation.
4. The Medical Model does not consider the people with impairments who do not seek or even wish for a cure (Eyler, 2010, p. 4).
5. The people with impairments have rejected the Medical Model of Disability on the grounds that it creates low self-worth, underdeveloped skills for survival, poor education and consequently high levels of unemployment. Moreover, the people with impairments have recognised that the Medical Model of disability isolates them from their families, communities and society at large (Crabtree, 2013).
6. The Medical Model of disability overlooks the contribution of the physical environment, attitudes, policies and technology in disabling the people with impairments (Roberts, 2013, p. 65).

The Medical Model of disability is presented in Figure 3 below.

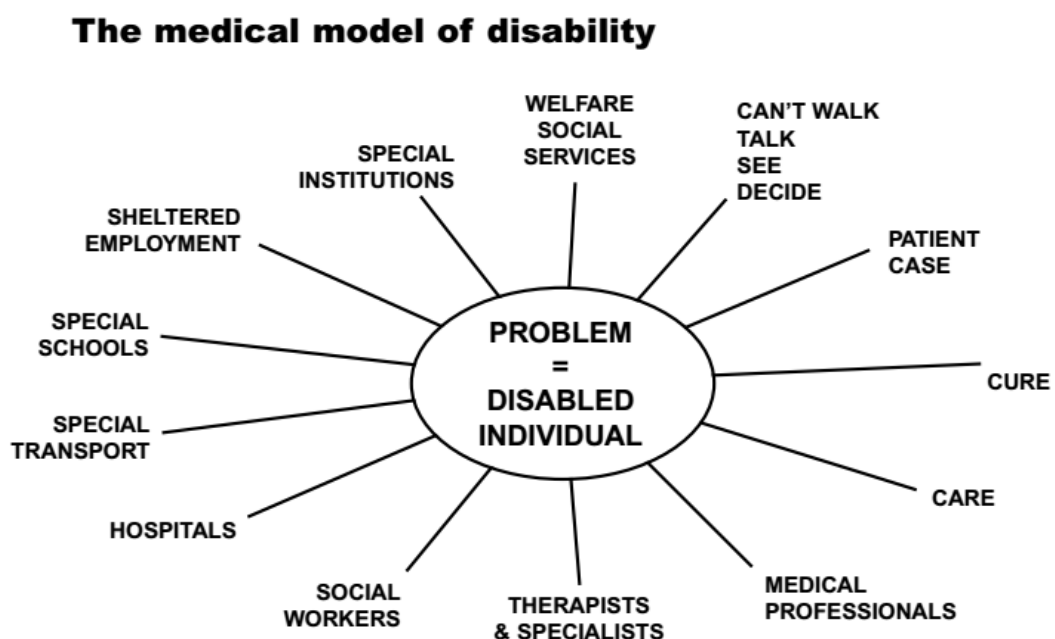


Figure 3: Medical Model of disability (Source: Harris & Enfield, 2003, p. 172)

The Medical Model of disability does not take into consideration the barriers caused by the society that hinder access to services and equal participation in society by the people with impairments and therefore this model is not suitable in this study.

2.5 The Charity Model of disability

The Charity Model of disability also referred to as Charitable Model (Clare & Stuart, 2018; Das & Das, 2010; Harris & Enfield, 2003; O'Brien, 2005) dates from the Middle Ages and still survives today in various social and cultural contexts. The Charity Model of disability sees the problem of disability as inherent in the person who has the impairment and the individual is seen as sad, tragic, and passive; or bitter, twisted and aggressive if they question the status quo; or brave, courageous, and encouraging if they managed, against all odds to overcome some of the challenges that they encounter (Amponsah-Bediako, 2013, p. 124; Harris & Enfield, 2003, p. 16). The model interprets the condition of the persons with impairments within the context of poverty, abandonment by families and social vulnerability (Griffo, 2014). The Charity Model perceives the people with impairments as victims of their impairments. The people with impairments are neither able to help themselves nor lead an independent life and hence they are beneficiaries of charity, alms and services for which they should be grateful (Harris & Enfield, 2003, p. 16; Slikker, 2009, p. 12).

The Charity Model of disability has been criticised in the following manner:

1. One of the weaknesses of the Charity Model of disability lies in its focus on social support mechanisms and benevolence, instead of focusing on justice, equality and self-determination (Amponsah-Bediako, 2013, p. 124; Arnott, 2011).
2. The Charity Model of disability has been criticised for its support for establishment of charitable institutions which take in the people with impairments as residents therefore bringing with it segregatory practices of social exclusion and institutionalisation. This leads to stigmatisation of the people who reside in the institutions and also makes them socially undesirable (Amponsah-Bediako, 2013, p. 24).
3. Critics argue that the Charity Model has not made much achievement in improving the lives of the people with impairments considering the levels of poverty, abuse, marginalisation and discrimination that they face worldwide yet the model has determined experiences of the people with impairments for centuries (Harris & Enfield, 2003, p. 16).

4. Critics argue that the Social Model has contributed to lowering of the self-esteem of the people with impairments because of its perception that the people with impairments are beneficiaries of charity, alms and services (Amponsah-Bediako, 2013, p. 124).

Just like the Medical Model of disability, the Charity Model does not take into account the barriers caused by the society that hinder the people with impairments from societal participation and therefore it is not suitable in this study. The Charity Model of disability is presented in figure 4 that follows.

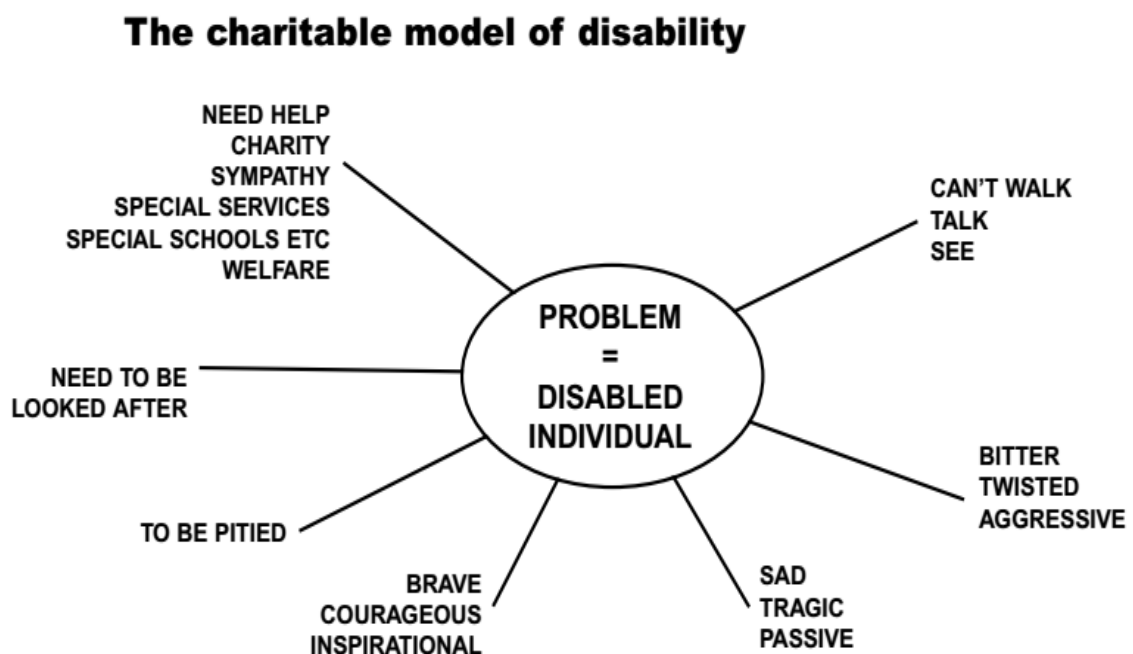


Figure 4: Charity Model of disability (Source: Harris & Enfield, 2003, p. 172)

2.6 Summary

This chapter analysed and discussed theoretical models that underpin this study namely, the IFLA access to Libraries by Persons with Disabilities Checklist, and the Social Model of disability. Other models relevant to this study were also discussed namely, the Medical Model of disability and Charity Model of disability. An overview of the models was presented, their strengths and weaknesses as well as how the models were suited for this study. The main understanding emanating from these models is that the barriers that the people with impairments face in our libraries in their quest for information are as a result of the way the society is organised. It is the libraries that fail to provide accommodative services through their policies and procedures, physical facilities, library buildings, staff attitudes and information services. The Social Model of disability provides an

understanding that it is not the person's impairments that disable them but rather the society through inaccessible, services, transport, buildings, policies, and negative attitudes. The IFLA Access to Libraries for Persons Living with Disabilities Checklist provides us with basis on which we assess the accessibility of our libraries with regard to access to library buildings design and layout, information services, facilities, and staff and communication. For the libraries to provide equitable information services, it is imperative that the libraries rethink their role in promoting equality of opportunities and enjoyment of human rights of the people with impairments. This can only be achieved through review of policies regarding provision of service for the people with impairments, changing the attitudes of the library staff, and making the library building accessible to the people with impairments as well as providing information in accessible formats and adaptive technologies.

The next chapter provides an in-depth analysis of the empirical and theoretical literature. Theoretical models that have been presented above form the foundation for the discussion of the literature.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

Literature review according to Trochim, Donnelly, and Arora (2016, p. 11) is “a systematic compilation and written summary of all of the literature published in scientific journals that is related to a research topic of interest.” This definition does not mention literature published in books, reports and other published works. However, the explanation advanced by Bryman (2016, p. 91) completes this by arguing that a literature search relies on careful reading of books, journals, and reports. Literature review helps the researcher in understanding the current state of knowledge about a topic (Rubin, Rubin, & Haridakis, 2010, p. 236).

Gall (2006) cited by Saunders, Lewis, & Thornhill (2009, p. 61) argues that the purpose of reviewing literature is to enable the researchers to improve their searcher questions and objectives, to avoid duplicating research that has already been done, to highlight research areas that have been ignored, and to determine recommendations for further research among others.

The purpose of this study was to examine information service provision for the people with visual and physical impairments in public university libraries in Kenya. The following research questions were addressed: How does the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya? What information services are available for the people with visual and physical impairments in public university libraries in Kenya? How is ICT applied to promote access and use of information by the people with visual and physical impairments in public university libraries in Kenya? How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya? How does the library building design affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya? What measures do the public university libraries in Kenya need to take to ensure inclusive information services for people with visual and physical impairments?

Kothari (2004) categorises literature into two types, namely the conceptual literature which concerns itself with concepts and theories, and the empirical literature that is concerned with discussion of studies related to the variables of the current study. Empirical and conceptual literature reviewed in this chapter was obtained from primary, secondary and tertiary literature sources such as books, journals, thesis, conference proceedings, government publications, and others. Saunders et al. (2009) and Blankenship (2010, p. 45) argue that the sources of literature can be categorised into primary, secondary, and tertiary sources as shown in Figure 5.

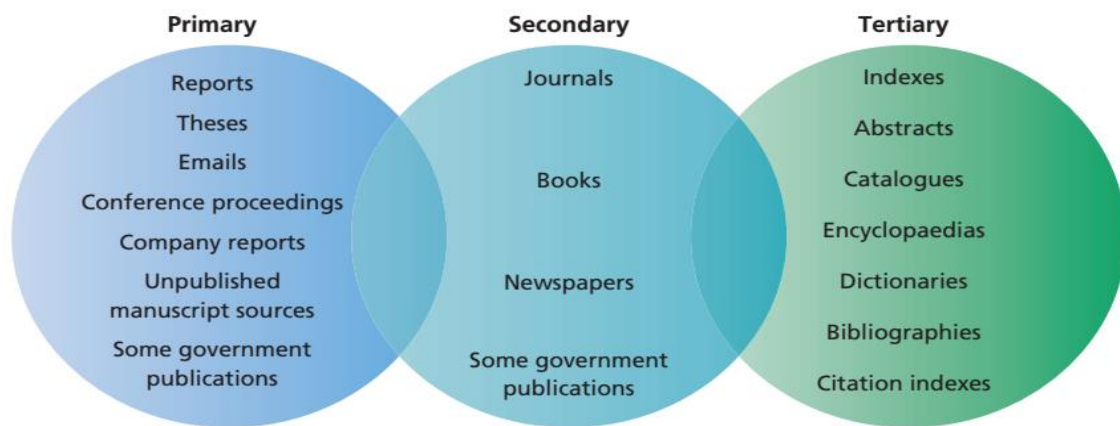


Figure 5: Sources of literature in a research study (Source: Saunders, Lewis & Thornhill, 2009, p. 69)

The chapter is organised around the themes of research questions. Thematic areas from the research questions include library policies, library building design and layout, application of ICT to promote access to information, information services, and staff attitude towards the people with visual and physical impairments. In addition, the key variables from the underlying theories are: information services, access, attitude, information communication technologies (ICTs), library building and layout, and policies. Within each theme, the international context is reviewed followed by regional and local contexts.

3.2 Library policies

The Social Model of disability advocates for the removal of institutional barriers such as policies and procedures that prevent full participation of individuals with impairments within education, the work place and the wider community (See section 2.3 of chapter 2 of this thesis).

According to Equal Rights Trust (2008, p. 33) “it is fundamental to human rights that human beings are equal in dignity and rights and that they are entitled to rights without

distinction of any kind”. In this regard, the people with impairments are right-holders who can and should determine the course of their lives just like any other member of society (Global Campaign for Education (GCE), n.d., p. 1). However the people with impairments are isolated and segregated. The Americans with Disabilities Act of 1990, notes that the people with impairments face various forms of discrimination including absolute deliberate exclusion, discrimination caused by architectural, transportation, and communication barriers. In addition, the people with impairments face discrimination related to overprotective rules and policies, failure to make adjustments to existing facilities and practices, exclusionary qualification standards and criteria, and segregation. Moreover, the people with impairments are relegated to lesser services, programs, activities, benefits, jobs or other opportunities (Equal Employment Opportunity Commission (EEOC), n.d).

Access to information and freedom of expression are recognised as one of the fundamental human rights (Price & Richardson, 2014, p. 15). Access to information means the right of entry to a library or its collection (Samek, 2007, p. 69). The right to access to information and ideas is basic for any society as well as to freedom of expression (Vijayakumar & Vijayakumar, 2000). The International Federations of Library Associations and Institutions (IFLA) (2007, p. 3) argues that the primary responsibility of the library and the information professionals is guaranteeing intellectual freedom. The libraries and librarians play an important role in facilitating the right to access information that the people with impairments require in order to participate in the developing information society. However, the people with impairments are excluded as far as information services are concerned (Babalola & Yacob, 2011, p. 141). This exclusion and discrimination is caused by attitudinal, physical and policy barriers related to lack of awareness or implementation of existing laws and regulations that require programmes and activities to be accessible to the people with impairments (Centers for Disease Control and Prevention, 2016).

Accessibility involves accessible formats and services, as well as both computer-generated and physical library settings (Hill, 2013). University libraries can be instrumental in breaking the existing barriers inhibiting easy access to information resources by the people with impairments (Anatola, 2007, p. 95) by using strategies based upon the principles of universal design to ensure that policies, resources and services meet the needs of all people (Roberts & Smith, 2010). In this regard, Bodaghi (2013, p. 40) opines that libraries must develop inclusive policies. To achieve this, libraries should always involve the

people with impairments in all conversations about policies and procedures for accessibility to services and facilities (Gibson, 2006; Small, Myhill, & Herring-Harrington, 2015). This is because persons with impairments are themselves one of the best resources for providing information on how to create an accessible environment (Chittenden & Dermody, 2010) and at the same time, they should ensure that the policies and procedures are easily accessible to the people with impairments (Chittenden & Dermody, 2010) preferably by posting them on the library website (Gibson, 2006, p. 26). Gibson further argues that the policies would inform the people with impairments on what adjustments to services and facilities are already available to the people with impairments; what can be done for them on an individual basis; and the procedures to access these services or facilities. Moreover, policies serve as commitment on the part of libraries in making programmes, services and resources accessible to the people with impairments (Burgstahler, 2012, p. 4). In this regard, libraries must establish a process to provide feedback on the provision of library services to the people with impairments probably through direct feedback system, focus groups, and surveys (Chittenden & Dermody, 2010; Gibson, 2006).

Consequently, library managers should ensure that policies include the aims and objectives, strategic plans, procedures, and arrangements for allocating the necessary resources. They should also address appropriate performance targets, monitoring procedures and accountability, as well as promotion and partnership (Kavanagh & Skold, 2005, p. 23). Kavanagh and Skold further argue that there should be effective process for ensuring quality of services. Burgstahler (2012) adds that libraries must acquire, develop and use accessible products as well as provide adjustments whenever products are inaccessible to the people with impairments. Consequently, libraries should be adequately funded to provide better facilities and services for the people with impairments (Igwebuike & Agbo, 2015, p. 1). According to Anatola (2007, p. 97) it is of paramount importance for the University Librarians to conduct physical access audits, assess needs of the people with impairments and ensure proper funding of the required physical alterations in buildings, procurement of special equipment, and staff training to ensure all their patrons including those with impairments benefit. However, review of literature revealed that the issue of policy regarding provision of information services for the people with impairments has not received enough attention in many countries in the world. Kinnell, Yu, and Creaser (2000) investigated public library services for the people with visual

impairment in the United Kingdom (UK) with the aim of informing the political decision makers and managers of public library service provision for the people with visual impairments. The study employed a postal questionnaire survey of all UK public library authorities. The study revealed that out of 141 respondents, 42 percent had no written disability policy. They also found that there was low priority given to market research; user needs analysis, evaluation of services, and budget for the people with visual impairments. This was linked to the lack of disability policies. The shortcomings of employing quantitative epistemology in the study is that it made the study lack the in-depth understanding of the phenomenon which would have been achieved if it would have been combined with qualitative methods. The current study combined both qualitative and quantitative methods to understand provision of information service to the people with visual and physical impairments.

Heaven (2004) conducted five case studies which involved five Higher Education (HE) libraries in UK. The study employed both interviewing and observation methods. The study revealed that none of the case studies had written disability policy relating specifically to library and information provision. However the study revealed that all the institutions studied relied on the university wide policies which incorporated attention to disability issues. The policies highlighted significant areas of library provision such as telephone points for library disability support contacts, the accessibility of library building, an overview to special software and the availability of alternative formats of information.

A study conducted in Scotland by Bick (2015) assessed the accessibility of library services offered to the people with impairments in Scottish public libraries. The study employed quantitative methods where data was collected through Freedom of Information (FOI) requests sent to 32 local authorities in Scotland, self-completion surveys via twitter and Facebook pages of two Scottish disability organisations and self-completion surveys emailed to librarians. The study revealed that majority of the respondents did not have a specific policy in place concerning the people with impairments. Only a minority 2(6%) had such policies. Lack of the policies was attributed to lack of nationwide guidelines concerning this user group. In the context of Greece, a study conducted by Koulikourdi (2008) investigated how Greek libraries responded to the needs of individuals with disabilities; the level of their library services; the disability awareness training among the staff; the provision of assistive technologies and other alternatives to standard equipment.

The study employed a quantitative method. The study revealed that 66.63 per cent of libraries that were surveyed were not providing equal services for all patrons and had not implemented any accessibility policy. Only 10.63 per cent of the libraries had developed policy statements. In the context of Armenia, Khachatryan (2014) examined digital services provision and their marketing to library users with impairments at the national Library of Armenia. The study employed qualitative methods. The study found that the library had a circulation policy with exceptions that allowed patrons with impairments to check out materials that a regular library user could only use in the library and extended lending period for library users with impairments. However, this led to compromise situations where materials were recalled from users without impairments to lend to library users with impairments. The study therefore suggested that library policies addressing varied needs of library users with impairments, and a proper promotion strategy or written communication, as well as marketing plan for the library needs to be formulated.

In the context of Ethiopia, a study conducted by Dugasa (2016) assessed the information services available for students with impairments in Haramaya University. The study employed both quantitative and qualitative methods. The study revealed that the library did not have a policy to provide guidelines on services provision to the people with impairments. In the context of Tanzania, studies conducted by Majinge (2014) and Majinge and Stilwell (2014) examined library services provision for the people with visual impairments and in wheelchairs in academic libraries with regard to information resources and buildings layout. The study employed mixed methods approach. The studies revealed that there was lack of policies regarding provision of library services to the people with impairments in academic libraries in Tanzania.

In the Kenyan context, a study by Anambo (2007) examined the challenges faced by students with impairments seeking information services at the Jomo Kenyatta Memorial Library at the University of Nairobi. The study employed both qualitative and quantitative methods. The study revealed that the library did not comply with the national and international policy frameworks as there was no disability policy in place. Similarly, a study conducted by Ochoggia (2004) examined the range and quality of library and information services available for the people with visual impairments at Kenyatta University library. The study found that the library had no written policy regarding provision of information services for the people with visual impairments. This is despite several legislations in existence relating to the promotion of rights and equalisation of

opportunities for the people with impairments. Among these is the Persons with Disabilities Act (2003) revised in 2012 which provides a legislative framework for access to services and inclusion of the people with impairments in all aspects of their life including education, health and employment among others (Kenya National Commission on Human Rights (KNHCR), 2014, p. 14).

Similarly, the Constitution of Kenya (2010) provides a firm basis for policy and legislation on disability as per the universal standards for promotion and protection of fundamental freedoms of the people with impairments (East African Community, 2012; Nyagundi, 2012). Article 27 (3) of the constitution guarantees equal treatment, including the right to equal opportunities in political, economic, cultural, and social arenas. Article 54 (1) states that a person with impairments is entitled “to access to educational institutions and facilities for persons with disabilities that are integrated into society to the extent compatible with the interests of the person to overcome constraints arising from the person’s disability” (Republic of Kenya, 2010).

In 2008, Kenya ratified the Convention of the Rights of Persons with Disability (CRDP) the purpose of which is promotion, protection and equal enjoyment of all human rights by persons with impairments and respect of their inherent dignity. Article 4 (b) of the CRPD provides that state parties shall undertake “all measures, including legislation, to modify or abolish existing laws, regulations, customs and practices that constitute discrimination against persons with disabilities” (United Nations, 2008b, p. 5); article 4 (c) states that state parties shall “take into account the protection and promotion of the human rights of persons with disabilities in all policies and programmes” (United Nations, 2008b, p. 5). Though the studies by Anambo (2007), Ochoggia (2004), and Njoroge (2013) revealed that libraries lacked policies on provision of services to people with impairment, they did not clearly elaborate how lack of policies affected provision of services to the people with impairments. The question that sought to address this gap in this study is how does the availability or lack of policies impact on the provision of services to the people with visual and physical impairments?

3.3 Information services

Library and information services are the key factors in providing unrestricted access to vital resources for economic and cultural development thereby contributing effectively to development and maintenance of intellectual freedom, safeguarding democratic values and

universal civil rights (IFLA, 2003, p. 1). Consequently, the libraries should ensure that library resources are accessible to all people including those with impairments.

3.3.1 Library orientation and Information Literacy (IL) training programs

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that libraries should offer guided tours of the library for both individuals and groups of people with special needs (see section 2.2.1 of chapter 2 of this thesis).

According to Herson and Calvert (2006, p. xi), academic libraries are service organisations that attend to the information needs of the populations they serve as well as developing the information literacy abilities of students to become life-long learners capable of locating, retrieving, evaluating, and applying information as they convert it into knowledge. However, the library instructional programs according to Applin (1999) cited in Carter (2004, p. 14) are often not designed taking consideration of the needs of the people with impairments; it is only when such services are requested that the libraries try to gather the necessary background information, tools, and /or suitable equipment to offer adequate learning experiences.

In order to improve the quality of services for the patrons with impairments, emphasis should be given to IL training. IL is a critical component of this information age (Bandyopadhyay, 2008). IL plays a vital role in enabling one to actively participate in the information society and it is also part of the basic human right of life-long learning (Rimmerman, 2013) According to Nuut (n.d, p. 2004) the aim of teaching of IL is to raise the level of competency for information retrieval, analysis and use. Nuut further argues that IL also includes the knowledge of ICT, systematic retrieval methods, and databases' search technologies. The Australian Library and Information Association (ALIA) (2003) cited by Tilley, Bruce, and Hallam (2007, p. 65) argues that IL skills can contribute to acquisition of skills, innovation and enterprise, as well as creation of knowledge. Moreover, IL can contribute to personal, vocational, corporate and organisational empowerment leading to a participative citizenship and thus contributing to social inclusion.

A study by Kumar and Sanaman (2013) examined the perspective of the library patrons on orientation and training programme for the people with impairments in the leading academic and special National Capital Region (NCR) libraries in India. The study used quantitative methods to collect data. The study revealed that the majority of users were not

aware of any library orientation programme organised in their libraries. Only a few library users said they had attended the orientation programme and they had found it useful. The study also revealed that the training areas of the library orientation included basic computer applications, mobility training for the people with visual impairments, basic training in lip reading, training and sign language, storage and access of e-resources and access to internet resources and services. The other areas that were suggested for training by the respondents include: training on effective use of the assistive technology and devices, using search engines, using the OPAC and library portals among others.

According to Schiff (2009) information literacy for students with impairments is of paramount importance. Students will be extremely disadvantaged if they lack working knowledge of the new information technologies and the relevant IL competencies required to access information in this era of digital technology. The study conducted by Seyama (2009) investigated the information seeking behaviour of students with visual impairments and whether the services provided by the University of KwaZulu-Natal on its Pietermaritzburg campus accommodated the information seeking behaviors of the blind and visually impaired students. The study used both quantitative and qualitative methods. The study revealed that Students at UKZN frequently used and considered the World Wide Web as an important source of information. However, the major obstacle for student with visual impairments was using a computer confidentially and skillfully with limited vision. The study revealed that special instructional programmes were needed to give the students skills and confidence to formulate and conduct searches effectively. According to the study, although library orientation programmes were offered at the beginning of the year or whenever the need arose, the specific needs of student with visual impairments were not catered for in the orientations.

Chaputula and Mapulanga (2017) investigated the provision of library services to the people with impairments in Malawi. Mixed methods approach was employed in the study. The study revealed that the majority of respondents (71.4%) were not given orientation on how to access the library. Only 21.4% had received an integrated orientation but no special orientation was done for them. The reasons why some students did not receive orientation included: some library staff did not recognise the necessity of special library orientation; the library staff were either negligent or lacked interest of special library orientation; the people with impairments themselves did not demand for such services; and some students were unable to access the upper floor where the orientation took place.

A study conducted in South Africa by Phukubje and Ngoepe (2017) examined the convenience and accessibility of library services to students with disabilities at the University of Limpopo in South Africa. The study used quantitative methods. The study revealed that only 2(38%) of the 92(100%) respondents had received user education, while the majority (29, 53%) had not received any training. Those that received the training indicated that it entailed how to search the catalogues and books from the shelves, how to reference, how to use the photocopying machine, and how to print using the remote printer. Kotso and Mohammed (2011) investigated information resources and services provision to the people with physical impairments in Plateau State Special Educational Institutions in Nigeria. The study employed quantitative methods. The study revealed that none of the special schools' libraries provided IL training to the people with impairments. Another study conducted in Nigeria by Olaopa (2017) investigated the factors affecting the utilisation of information materials by the people with visual impairments in eight secondary schools. The study used quantitative methods. The study revealed that the level of IL skills of the people with visual impairments in the eight secondary schools was extremely low.

In the Kenyan context, a study conducted by Kiambati (2015) explored the challenges that students with visual impairments faced in accessing e-resources at the Post Modern University Library at Kenyatta University. The study used both qualitative and quantitative methods and data was collected using questionnaires and interviews. The study found that 57% of students with visual impairments had not received user education (IL training) while 43% said they had received such training. Those who did not attend the IL training gave various reasons for not attending the IL training including: they lacked awareness on provision of such training at the library; others said there were no such trainings organised at the section for users with special needs; and others said that IL training was provided using a projector which could not benefit the people with visual impairments.

3.3.2 Trained staff

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that all library staff should be trained to become conversant with various types of impairments and how to best assist the people with impairments (See section 2.2.4 of chapter 2 of this thesis).

Brannen, Milewski, and Mack (2017, p. 66) opine that training the library staff working directly with the people with impairments can be an effective way to improve interactions between the people with impairments and the library staff. Training can include sensitivity training to improve interpersonal communication and resource training to boost the confidence of the library staff in knowing what services, equipment and resources are available, how to assist, whom to refer questions, and where additional services can be found. Besides having disability training, it is important for the library staff to acquire skills in use of both hardware and software that the people with impairments may require within the library (Charles, 2005, p. 455; Williamson, Schauder, Stockfield, Wright, & Bow, 2001, p. 162).

A study conducted in US by Nelson (1996) examined the information services provided by the academic health sciences libraries for the people with impairments with the aim of determining what they were doing to provide access to their programmes by the people with impairments. The study used quantitative methods. The study revealed that minority of the 131 libraries (less than a third) had a staff member designated for services to the people with impairments. Only 39% of the responding libraries indicated that the staff was trained to provide services to the people with impairments. Training in the use of special equipment was often provided by someone outside the library. Sanaman and Kumar (2015) in India examined user's awareness and level of satisfaction with Assistive Technologies provided in National Capital Region (NCR) libraries. The study employed the quantitative methods and a total of 375 users in all the 15 libraries were surveyed. The survey found that assistive technology plays an important role in facilitating access to information by the people with impairments as well as enabling them to accomplish their task independently and in a more refined manner. However, the study found most of the NCR libraries were not in a position to serve the people with impairments due to insufficient Assistive Technology devices and lack of training on use of the Assistive Technology devices by both librarians and the people with impairments.

In the context of Ghana, a study conducted by Ayiah (2007), examined provision of library and information services to the people with visual impairments in University of Ghana, Legon. The study employed both qualitative and quantitative methods. The study revealed a lack of information in alternative formats, inadequate and outdated braille books, lack of readers and trained reference personnel to offer services to the people with visual impairments. A study conducted by Eskay & Chima (2013) in Nigeria investigated

the library and service delivery for the blind and the people with physical impairments in University of Nsukka. The study revealed that all the libraries studied did not have trained personnel to handle the people with visual impairments. Similarly, the study conducted by Kiambati (2015) at Kenyatta University Post Modern Library revealed that the people with visual impairments were not able to retrieve e-resources independently because they lacked training on how to access the e-resources and assistive technology; the staff providing services to them had average skills in assistive technology, hence they were inadequately helpful.

3.3.3 Special services

The IFLA Access to Libraries for Persons with Disabilities Checklist suggest that libraries should provide guided library tours and home delivery services for those unable to visit the libraries as well as provide outreach services to people in institutions such as prisons, hospitals and care facilities. Moreover, reading services should be provided to the people with reading difficulties or scanning of texts should be done to make them accessible using computer fitted with screen reading software. In addition, scheduled consultations with people with reading difficulties should be provided (See section 2.2.1 of chapter 2 of this thesis).

In addition to this, libraries should provide services such as extended loan period, waived overdue fines, extended reserve periods, book by mail, reference services by fax or email, remote access to the OPAC as well as electronic access to library resources (ASCLA, 2016, para. 7; Gibson, 2006, p. 63). Barker (2011) adds that the staff may offer assistance through retrieving information from shelves, information searches and photocopying.

The study conducted in South Africa by Phukubje and Ngoepe (2017) revealed that the library did not provide book delivery service to students with multiple impairments and mobility impairments who were not able to visit the library. Akolade, Tella, Akanbi-Ademolake, & Adisa (2015) examined the level satisfaction of the undergraduates with physical impairments with library and information services in Kwara State Higher Education Institutions. The study revealed that the libraries did not provide transcription services, online reference services for users who had mobility problems. The services such as inter-library loan services, designated staff for services to the people with physical impairments, guided tours, orientation programmes and special library network with the physically challenged students were not provided. The study however, revealed that the

library provided reference services, abstracting and indexes services, Current Awareness Service, and book reservation services. Another study conducted in Nigeria by Iroeze, Umunnakwe, and Eze (2017) examined the library services provided to the people with physical impairments in South-East, Nigeria. The study revealed that one of the two libraries that were studied provided advisory services, reference and instructions on how to use Braille services. The second library provided advisory services, consultancy services, reference, instructions on the use of Braille, use of the library, and information literacy skills. The study conducted by Ayiah (2007) in Ghana revealed that University of Ghana library had no reader employed to provide reading services to the people with visual impairments. However provision of reader service was dependent on the resource persons and volunteer readers. The study also revealed that the library staff provided literature search service by retrieving documents and related materials requested by the people with impairments. The reference services were provided at the Braille Library at the request of the people with visual impairments. In addition, transcription service was done at the Braille Library.

A study by Njoroge (2013) investigated the status of library access for individuals with impairments in academic libraries in Kenya. The study revealed that most university libraries in Kenya did not provide special services to the people with impairments. The study revealed that 60% of the libraries did not provide inter-library-loan service, 70% of the libraries did not provide readers and research assistants, 70% of the libraries did not have staff trained to serve the people with impairments. In addition they did not provide selective dissemination of information among others.

3.3.4 Information in alternative formats

The IFLA Access to Libraries for Persons with Disabilities Checklist states that libraries should provide information in alternative formats such as large print, audio tape, CDs/DVD, or in Digital Accessible Information System (DAISY) format, Braille books, e-books and accessible websites for the people with visual impairments and physical impairments (Irvall & Nielsen, 2005). However, where information in alternative formats is not adequate or available, libraries should be able to borrow them from other libraries (see section 2.2.1 of chapter 2 of this thesis).

The American Library Services for the People with Disabilities Policy of 2001 implores that libraries should not discriminate against the people with impairments. In this regard

libraries should ensure that such people are afforded equal access to library resources. This can be achieved through provision of material in formats and assistive technology, supplementary devices and physical assistance, as long as such facilities are reasonable, do not change library services or result into undue burden on the library (Association of Specialized and Cooperative library Agencies (ASCLA), 2018, para. 12).

Lack of information in accessible format can be a major barrier for the people with impairments in libraries. Yoon and Kim (2011, p. 382) posit that materials in alternative formats are precondition for guaranteeing the people with impairments access to information which is a fundamental human right. Yoon and Kim (2011) further argue that inadequate materials in alternative format and poor accessibility would lead to widening the information gap and lead to social exclusion. In this regard, developing and providing information materials in alternative format contributes to eliminating the gap between the people with impairments and those without impairments. Such alternative formats include talking books, talking newspapers, talking periodicals, Video/DVD book with subtitles and or sign language, Braille books, large prints, accessible e-books, easy to read books, tactile picture books or other non-print materials (Solanki & Mandaliya, 2016, p. 259). Solanki and Mandaliya further state that libraries should facilitate information exchange and resource sharing so that they can improve provision of services to the people with impairments. In addition, the staff may offer assistance by retrieving information from shelves, information searches and photocopying (Barker, 2011).

A study carried out in South Africa by Fakoya-Michael and Fakoya (2015) investigated the challenges faced by students with visual impairments in their quest for information in rural university context. The study focused on the University of Limpopo Turfloop Campus. The study found that students were faced with problems of inadequate information resources, lack of information in alternative formats such as braille, and lack of assistive technology such as magnification software, magnifying glasses. In addition, there was no librarian trained to provide service to the people with visual impairments. The study conducted in Nigeria by Olaopa (2017) revealed that there was an acute shortage of variety of alternative formats of information required by the people with visual impairments in the eight secondary schools in the study. Braille materials formed the bulk of information in alternative formats in the schools, but they were said to be outdated, therefore not relevant to their information needs. A study conducted in Nigeria by Adetoro (2014) assessed the provision of information materials in alternative formats for the people

with visual impairments in public libraries in South-West Nigeria. The study employed qualitative methods and data was collected by use of interview schedule and observation checklist. The study revealed that the public library systems in Nigeria were inadequately equipped to serve the people with visual impairments. The alternative formats of information available in the libraries such as audio recording, large prints, and braille books were inadequate in quantity and variety. Moreover, there were no e-resources in the libraries.

Similarly Eskay and Chima (2013) in their studies in Nigeria, indicated that libraries were not equipped to adequately serve the people with visual impairments. The libraries had no Braille books, assistive technologies, talking books as well as talking newspapers. The only available audio books had come with most of the text books and encyclopedia that were acquired by the libraries. In the Ghanaian context, the study by Ayiah (2007) revealed a lack of information in alternative formats, inadequate and outdated braille books, lack of readers and trained reference personnel to offer services to the people with visual impairments. Similarly the study conducted in Zimbabwe by Rugara et al. (2010) revealed that there was lack of information in alternative formats such as large print and Braille books in all the four academic libraries that were studied. The study conducted in Ethiopia by Dugasa (2016) revealed that the students with impairments at Haramaya University had challenges accessing information services at the university library due to lack of information in alternative formats.

In the Kenyan context, the studies by Anambo (2007) and Njoroge (2013) revealed that the libraries did not provide information in alternative formats such as talking books, larger print books, Braille books, Video/DVD books with subtitles and or sign language for use by the people with impairments. Similarly, a study conducted by Githinji (2013) investigated the nature of barriers faced by the people with physical, visual and hearing impairments in four universities in Kenya namely University of Nairobi, Kenyatta University, Catholic University of Eastern Africa, and United States International University of Africa. The study was underpinned by the Social Model of disability and theory of Justice proposed by Rawal (1971). The study revealed that most of the libraries did not provide alternative formats of information. Among the four universities, Kenyatta University library was the most accommodative in terms of provision of assistive technologies. The library had a resource room for the visually impaired. There were computers fitted with adaptive software, Braille embosser and scanner to convert text to

soft copy. However, these resources were inadequate as Kenyatta University had a high number of students with visual impairments. The libraries of the other three universities had neither braille materials nor assistive technology for use by the people with visual impairments.

3.4 Staff attitude

The Social Model of disability insists on removal of attitudinal barriers such as prejudice and stereotyping, and inflexible organisational practices that exclude the people with impairments from participating in the society (See section 2.3 of chapter 2 of this thesis).

The people with visual and physical impairments undergo social discrimination and cultural prejudice that negatively influence their information seeking behavior (Babalola & Yacob, 2011, p. 143). This discriminatory attitude emanates from the society's perception of disability. According to Rugara et al. (2016, p. 195) attitudinal segregation together with prejudice views, are deep-rooted in cultural and religious beliefs, and they often weaken and erode the self-confidence of the people with impairments of what they can achieve from their own individual efforts, therefore creating a dependency syndrome and subsequently diminishing, self-assertiveness and leading to self-pity and blame. Attitudes are "a complex collection of beliefs, feelings, values and dispositions which characterise the way we think or feel about certain people or situations and they are transient and change from person to person, from group to group, and even within groups over time" (Aiden & McCarthy, 2014, p. 6).

Perception on the other hand is "the process of selecting, organising, and interpreting information inputs to produce meaning" (Pride, Ferrell, Lukas, Niininen, & Schembri, 2015). Michener, DeLamater, and Myers (2004, p. 106) define perception as the practice by which people form impressions of other people's characters and personalities. Perception is said to be the only most important determinant of human behaviour (Sulphrey, 2014, p. 25). For instance, the proponents of the Charity Model perceives the people with impairments as victims of their impairments who are sad, bitter, and passive and need pity and help in charities (Harris & Enfield, 2003). The Medical Model of disability assumes that disability is connected to the individual features of a given person and is above all their own personal tragedy; hence the people with impairments require treatment to cure the impairment, rehabilitation and sometimes institutionalisation (Mitra, 2006; Moore, 2002). On the contrary, the Social Model of disability perceives disability as

a product of the unequal relationship within a society in which the requirements of the people with impairments are often given little or no attention. Subsequently, the people with impairments are disabled by the exclusion they face related to physical, organisational and attitudinal barriers that prevent them from participating in the mainstream society (Carson, 2009, p. 11).

Quinn (2004, p. 6) opines that disability is the result of treatment, attitudes and social structures where the impairments of the victim does not matter at all except for being a vent for prejudice and stigma. Prejudice is “any attitude, emotion, or behaviour towards members of a group, which directly or indirectly implies some negativity or antipathy towards a group” (Brown, 2010, p. 7). According to Cotter (2009, p. 9), prejudice in its most extreme, results to unjust denial of groups benefits and rights or, on the contrary, unfairly showing superfluous favour toward others. Jaeger and Bowman (2005, p. 5) argue that prejudice drives exclusion and helps determine the levels of access that the society allows the people with impairments. It plays a role in how the people with impairments are classified by the society and also fuels the way in which society reacts to individuals with impairments.

According to Thomas (1982) cited in Jaeger and Bowman (2005, p. 5) the people with impairments are regarded in terms of a range of stereotyping, and oppressive perceptions, particularly insincere concern, sopiness, indifference, or outright hostility. The way society perceives other people can lead to misjudgements such as stereotyping among others. Stereotyping is judging or drawing a conclusion about a person based on the perception about the group to which he or she belongs and can lead to discrimination (Sulphery, 2014, p. 27). Perceptions of the people with impairments such as disparaging stereotypes and beliefs that the people with impairments have a lesser position in society, or that they have a reduced capacity to contribute to the society due to their impairments, greatly influence their inclusion in their communities and their ability to achieve basic goals (Thompson, Fisher, Purcal, Deeming, & Sawrikar, 2011, p. 2). Croce (1999) cited in Haihambo and Lightfoot (2010, p. 77) opines that cultures can have both positive and negative perceptions about impairments which impacts on the way the society treats the people with impairments (Stone-MacDonald & Butera, n.d.). For example, according to Haffter (1968) as cited in Barnes (1991), the medieval Europe associated disability with evil and witchcraft where children with impairments were seen as challenging or the devil’s surrogates for human children as a result of their parents’ involvement in black arts

or sorcery. These children were declared the product of their mothers' intercourse with Satan by the *Malleus Maleficarum* of 1487, an action that led to ridicule and discrimination of the people with impairments (Colin Barnes, 1991).

In Ghanaian culture, the perception towards the people with impairments is influenced by the interaction between social status and religion. Impairments are perceived as curses or punishments for sins committed either by the people with impairments, their parents or their ancestors (Slikker, 2009, p. 14). Slikker further argues that Ghanaian communities believe in human reincarnation. Consequently, some people believe that some families are punished by gods for disregarding the general principles of nature. Slikker (2009) gives an example where a pregnant woman is not allowed to eat eggs to protect her against giving birth to a child with impairments. Any child born with any impairment is seen as a violation of such traditional belief system and as a result the family will be discriminated against by the rest of the community. The misconception of impairments through myths commonly elicits negative response from society towards the people with impairments. For example in some parts of Ghana there is a belief that blind and crippled persons lack completeness and some minorities with impairments are mentally sub-normal (Agyemang & Delle, 2013, p. 54).

In Nigeria, like in Ghana, disability has traditionally been perceived as a religious matter. It is generally believed that a person with impairments is either a curse from the gods or an act of witchcraft and this leads to stigmatisation of his or her family (Akhidenor, 2007, p. 2). Akhidenor further argues that families with a relative with impairments dealt with impairment and its associated causes by looking for divine intervention where they consulted oracles and offered prayers and sacrifices to the gods after which the families typically excluded and/or segregated the affected individuals from the rest of the community for fear of stigmatisation and ridicule. In Namibia, communities perceive impairments as caused by supernatural causes such as sorcery, and/or a mother's unsuitable relationships. Consequently the people with impairments are referred to in a disparaging manner; denied basic human needs and subsequently excluded from participating in social activities both at family and community levels. Moreover, their families are stigmatised isolated and rejected (Haihambo & Lightfoot, 2010).

In the Kenyan context, Ogechi and Ruto (2002, p. 72) argue that the Kisii and the Nandi communities perceive impairments as caused by either others through witchcraft and sorcery, evil eye, curses among others; and by oneself when one breaches social relations

or provokes the ancestors. The Kenya National Bureau of Statistics (2007) cited in Ndurumo, van Zanten, & Manager (n.d.) argues that communities in the Coast, Nyanza, Western, Eastern, and Rift valley regions of Kenya perceive an impairment as a curse and disgrace to the families of those with impairments. Communities do not talk about those with impairments or even mentioning their names and when they refer to them they use pejorative terms. In addition, the people with impairments are perceived as a burden that cannot do anything on their own, their families are accused of witchcraft and possessing genes that transmit impairments, their mothers are perceived to have conceived from outsiders or strangers and the impairments are perceived as a punishment. Consequently, children with impairments are taken to children's homes or special schools as a way of lessening the stigma and burden that they impose on the families.

According to Hannon (2006, p. 7), attitudes to disability are the major barrier to full participation of the people with impairments and as long as negative attitudes persist, the full rightful acceptance of the people with impairments is unlikely. The major role of libraries serving the people with impairments is the "development of the standards for fully accessible, highly efficient information system" (Kerscher, 2006, p. 101). Carter (2004, p. 16) notes that the most important element to ensure equitable access to information services is the interaction between the people with impairments and the library staff. Wade (2003) further states that while librarians interact with the library users, they are susceptible to prejudice and misconceptions about the people with impairments. Massie (2006) cited in Hannon (2007, p. 7), opines that pity, awkwardness and fear, low expectations about what the people with impairments can offer, stereotypical and negative attitudes prevent people from offering their best to the people with impairments.

Deines-Jones (1999, p. 153) cited in Carter (2004), opines that negative attitudes prevent many prospective library patrons from frequenting the library. To buttress this, Bick (2015, p. 7) argues that negative staff attitude makes the people with impairments feel disfavoured and/or that their requirements are unsatisfactorily met making them avoid the library. In this regard, libraries should make concerted efforts to remove attitudinal barriers that face the people with impairments. To achieve this, the library should provide training opportunities for its staff and volunteers in order to make them aware of matters affecting the people with impairments and to equip them with effective skills for providing services to the people with impairments (American Library Association (ALA), 2001). Deines-Jones, (1999) cited in Carter (2004, p. 16), classified staff training into attitudinal

training intended to improve awareness of and sensitivity to disability related issues; facility training intended to train staff to design accessible programs and services for all people; and legal training that is concerned with the requirements of the law.

The IFLA Access to Libraries for Persons with Disabilities Checklist asserts that library staff should be trained to be well-informed about various types of impairments and the effective way to assist the patrons leaving with impairments (Irvall & Nielsen, 2005). Similarly, Joint (2005) opines that emphasis should be given to the training of library staff in order to improve the quality of services for the people with impairments. In addition, induction for new staff would ensure that they are aware of relevant legislations, policies, procedures and current practices regarding service provision for the people with impairments (Gibson, 2006, p. 63). Furthermore, the main objective of library disability program according to Green and Blair (2011, p. 121), should be to eradicate illegal discrimination, to promote equality of opportunity for the people with impairments and to develop policies and best practices to meet the needs of the people with impairments.

A study conducted in UK by McCaskill and Goulding (2001), examined public library compliance with the Disability Discrimination Act (1995). The study employed qualitative methods. The findings revealed that there was considerable attitudinal discrimination towards the people with impairments by library staff who were impatient, discourteous and patronising. In contrast, a survey carried out in US by Brodsky (2011) examined the attitude of staff of Public Library Division of the Alabama Library Association towards the people with impairments. The study found that library staff who had received training had a more positive attitude than those who had not received any training. In this regard, Booth (2012) and Mates (2012, p. 9) insist that it is important for library staff to have a working knowledge of the various types of impairments their user population may have so that they can tailor their services and tools most effectively. In Malaysian context, a study conducted by Bodaghi, Cheong, Zainab, & Riahikia (2016) examined the librarians' support provided to the people with visual impairments in Malaysian libraries. The study employed qualitative methods. The study found that negative attitudes of librarians towards individuals with impairments, their lack of disability awareness, or disability training, and communication skills prevented them from providing a welcoming atmosphere.

In the Kenyan context, Article 54 (1) of the Constitution of Kenya states that persons with impairments have a right to be treated with dignity and respect and to be spoken to and be

mentioned in a manner that is not demeaning (Republic of Kenya, 2010). However, the studies conducted by Anambo (2007) and Kariba, (2009) found that the library staff at Jomo Kenyatta Memorial Library at the University of Nairobi and Kenyatta University had a negative attitude towards the people with impairments. Kariba (2009) suggested that an investigation of factors that contribute to staff negative attitude and perceptions towards the people with visual impairments be done. The current study sought to address this gap by investigating the kind and level of training given to librarians who provided services to the people with visual and physical impairments in public university libraries in Kenya.

3.5 Application of ICT to promote access to information

The IFLA Access to Libraries for Persons with Disabilities Checklist states that computers, catalogs, websites, and e-books should be accessible for individuals with impairments (Irvall & Nielsen, 2005). In this regard, libraries should provide designated computers fitted with screen reading software, screen enlargement software, synthetic speech, spelling software, and other instructional software appropriate for the people with visual impairments and with other impairments. In addition, fast and consistent technical support should be provided for both computers and adaptive equipment (see section 2.2.3 of chapter 2 of this thesis). Similarly, the Social Model of disability acknowledges that ICTs have the potential to be liberating and can help remove obstacles faced by the people with impairments. In this regard, libraries should focus on removal of social barriers faced by the people with impairments in accessing and using ICT products and services (see section 2.3 of chapter 2 of this thesis).

Information and communication technologies (ICTs) “is the hardware and software that enables data to be digitally processed, stored and communicated” (Ongori & Mburu, 2010, p. 020). ICTs are the most influencing factors in today’s information society (Qutab, Bhatti, & Ullah, 2014) because they make it easy to identify, gather, store, process and disseminate information (Islam & Islam, 2006; Rahman, Uddin, & Akhter, 2004, p. 608). Moreover, “the birth and rapid growth of digital technology heralded a new era of information equality” (Mates, 2012, p. 7) Consequently, information has become the key driver of any kind of research and development and it is a fundamental resource that is crucial in today’s competitive world; therefore its value in every human endeavor cannot be overemphasised (Vijayakumar & Vijayan, 2011). The fast-tracked implementation and use of ICT has resulted in the globalisation of information and knowledge resources (Islam & Islam, 2006). Moreover, ICTs have taken the center stage

and converted the whole world into a global village with global economy, driven by creativity and distribution of information (Singh & Nazim, 2008b). According to Myhill (2002, p. 176), ICTs have both enhanced and hindered access to information. On one hand, ICT has made it easier to store, sort and retrieve information and on the other hand, the cost and complexity of the technology presents the risk of an information gap developing between the persons who possess the skills, opportunities and resources essential for accessing the new technologies and those who do not possess them.

Information and communication technologies (ICTs) have the potential for making tremendous improvements in the lives of individuals with impairments, enabling them to improve their social and economic integration in communities by broadening their scope of activities available for them (United Nations Educational Scientific and Cultural Organization, 2015, p. 6). ICTs have the potential to present the people with impairments with unparalleled levels of access to education, skills, training and employment, as well as the opportunities to participate in the economic, cultural and social life in their communities (International Telecommunications Union, 2013, p. 3).

Moreover, access to ICTs have become a major determinant of how rich or poor a country is in terms of information (Akolade et al., 2015, p. 4). Libraries have been at the heart of the information society since the early days of the ICT revolution, continuously adapting to new means of communication to fulfil their mandate of providing universal access to information (International Federation of Library Associations and Institutions (IFLA), 2016, para. 1). According to Rahman et al. (2004, p. 611), libraries meet the educational, cultural, leisure, and general information needs of society. They are one of the most heavily used institutions in managing, disseminating and preserving knowledge. Moreover, by using ICTs, libraries play a fundamental role in facilitating access to global information and knowledge resources (Islam & Islam, 2006). According to Power and LeBeau (2009) academic libraries and their users are now relying greatly on database and electronic resources for their information needs and these resources just like other library materials must be accessible to the people with impairments. Besides, the people with impairments have the same needs and desires for information to conduct their daily lives just like those without impairments (Akolade et al., 2015; Bonnici, Maatta, Brodsky, & Steele, 2015; Lawal-Solarin, 2012a).

Varney (2013) opines that the people with impairments risk facing barriers when ICT products and services are designed or developed without considering accessibility for the

people with impairments. The barriers include limited availability of accessible content and restricted choice of services among others. Libraries as providers of physical space and digital content can and should help promote equitable access to all users, irrespective of their abilities. Failure by the libraries to make information fully accessible will hinder people from participating fully in the learning process and more important, accessing documents fundamental to their well-being (Mates, 2012, p. 8). Consequently, libraries should ensure equitable access to web-based resources, e-journals, e-books and e-databases (Heaven, 2004, p. 24). Computers are the essential tools in enabling access to information in the said formats while Assistive Technology (AT) is the key to using the computers (Sanaman & Kumar, 2014, p. 3).

Assistive technology enables the people with impairments to overcome the barriers of learning (Robertson, n.d., p. 51). According to Igwebuiké and Agbo (2015, p. 3) technology has eliminated many barriers to education for the people with impairments as they are now able to complete homework, do research and take tests and read books just like their counterparts without impairments. Assistive technology does not cure a person's impairment but it compensates for impairments and enables people to accomplish tasks more independently (Hopkins, 2004, p. 1).

Assistive Technologies and devices make tremendous contribution in equalising opportunities for the people with impairments in educational, economic, social and political life, and are very important in libraries as they enable the people with impairments to make use of the traditional information resources and services (Koulikourdi, 2008a, p. 387). According to Southwell & Slater (2014) and UNESCO (2013), Assistive Technology (hardware and software) available for the people with visual impairments include: Braille translation and output, overly keyboards, scanners, speech input/output, Qwerty keyboards, Word processing, and Audio Technology such as Job Access with Speech (JAWS) and Window-Eyes; and Vision technology that include screen magnification software such as zoom texts. On the other hand the Assistive Technology products for the people with physical impairments include: screen magnifiers, large-key keyboards, touch screen displays, sticky keys, key repeat, and mouse control software/features, word prediction software and speech recognition programs and text readers among others (Tilley et al., 2007, p. 4; UNESCO, 2013, p. 81).

Despite the role that ICTs play in enabling people realise their full potential in economic, education, social and political spheres, literature reveals that the people with impairments

in libraries are disadvantaged as far as ICTs and other related technologies are concerned. A survey conducted in Argentina by Todaro (2005) examined the status of library services for the people with visual and physical impairments. The survey used both qualitative and quantitative methods. The survey revealed that provision of library services for the people with visual and physical impairments was limited by lack of ICT, Online Public Access Catalogs (OPAC), assistive and adaptive technology such as screen readers, JAWs, Zoom Text, and computers. In the context of Canada, Dermody and Majekodunmi (2012) examined the searching experience of university students with visual impairments using screen reading software to navigate three proprietary databases was carried out. The study employed quantitative methods where Field data were collected before and after the database search. The study revealed that respondents experienced difficulties searching the databases using screen readers. The respondents rated their experience of searching with screen readers as either difficult or somewhat challenging. Moreover, their comments indicated a high level of frustration as a result of inaccessible Portable Document Formats (PDFs), unreadable links as well as too many links.

A survey conducted in India by Kumar and Sanaman (2013) investigated the preferences and use of e-resources by the people with visual impairments in the leading National Capital Region (NCR) libraries. The survey was conducted in five libraries and data was collected using survey questionnaire. The study revealed that ICT plays a major role in the lives of the people with impairments as it enables them to work independently and with confidence. The most preferred electronic resources included audio books on CDs/DVDs, Daisy books and the internet. However, the study found that the major challenges experienced included problems of screen design, the use of font size, color, as well as the use of patterns in screen backgrounds that made text difficult to read. Moreover, the use of large amount of hyperlinks and excessive graphics posed a challenge. Other challenges included lack of sufficient ICT and infrastructure facilities, lack of sufficient ICT skills and staff support, and poor internet connectivity.

Another survey conducted by Sanaman and Kumar (2015) in India examined user's awareness and level of satisfaction with Assistive Technologies available in National Capital Region (NCR) libraries. The survey was conducted in 15 libraries with a total of 375 respondents. The survey revealed that assistive technology plays a tremendous role in facilitating access to information by the people with impairments and enabling them to accomplish their task in a more refined independent way. However, the study found that

most of the NCR libraries were not in a position to serve the people with impairments due to insufficient Assistive Technology devices as well as lack of training on the use of the Assistive Technology devices by both librarians and the people with impairments. Similarly, another study conducted still in India by Sanaman, & Kumar (2014) examined the status of various Assistive Technology facilities available for the people with impairments in National Capital Region Libraries. The study employed survey methodology. The study revealed that libraries did not have Assistive Technology facilities which made it very difficult for the people with impairments to access information.

Haynes and Linden (2012) and Steel, Layton, Foster, and Bennett (2014) posit that Assistive Technology (AT) can improve the quality of life of the people with impairments and increase their participation by enabling them to complete daily personal tasks and subsequently helping increase their overall participation in society.

In the context of South Africa, the studies conducted by Seyama (2009) and Seyama, Morris, and Stilwell (2014) at the University of KwaZulu-Natal Pietermaritzburg Library revealed that the library did not provide assistive devices to enable the students to access and use the information resources in the library. In addition, the Zoom Text facilities were not available on the Online Public Access Catalog (OPAC) and computers in the main library were not installed with Job Access with Speech (JAWs) software. A survey carried out in Nigeria by Ekwelem (2013) examined the use of electronic resources by the people with impairments in South-East Nigeria. A total of nine federal and state universities were studied. The study used qualitative methods where data was collected through focus groups discussions. The survey revealed that the libraries were established to serve only the people without impairments because the libraries lacked assistive technology and devices to enable especially the people with visual impairments to access electronic information resources.

In the context of Zimbabwe, the study conducted by Rugara et al. (2010) revealed that there was lack of assistive technology including speech to text and text to speech computer software speech synthesisers, and magnification equipment in all the four academic libraries that were studied making it very difficult for the people with visual impairments to access information. A study conducted by Munemo and Tom (2013) investigated the access and support of assistive technology for the people with visual impairments in Open and Distance Learning Institutions in Zimbabwe. The study employed qualitative methods.

The findings revealed that the institutions did not have assistive technology and devices which inconvenienced the people with impairments. The study conducted in Ethiopia by Dugasa (2016) revealed that the people with impairments had challenges accessing information services at the university library due to lack of computers and shortage of assistive technology and devices.

In the context of Kenya, the study conducted by Njoroge (2013) revealed that 70 percent of the libraries that were surveyed did not have computers equipped with screen reading software, print enlargement technology, and synthetic speech. Similarly, a study conducted by Githinji (2013) revealed that most of the libraries did not provide assistive technology and devices.

The studies by Njoroge (2013), Kiambati (2015), and Githinji (2013) showed that the requirements of legislations existing in Kenya had not been fully implemented in educational institutions. For instance, Article 9 (g) of the CRPD requires the state parties to undertake the promotion of access for individuals with impairments to ICTs as well as the internet, while Article 20 (b) requires the state parties to take effective measures to facilitate access to quality assistive technologies and adaptive devices for the people with impairments (United Nations, 2008b). The literature reviewed in the Kenyan context also revealed that literature is lacking on the application of ICT in promoting access to information services by the people with visual and physical impairments and this study therefore attempted to address this gap by the question: how is ICT applied to facilitate access by the people with visual and physical impairments?

With regard to the library website, the IFLA Access to Libraries for Persons with Disabilities Checklist provides that libraries should make available information concerning access, services, materials as well as programs in alternative formats so that people who may not be able to read this information in print can access it in alternative formats such as large print, audio tape, CD/DVD, or DAISY, Braille or on the library's website (see section 2.2.3 of chapter 2 of this thesis).

Green and Blair (2011, p. 137) argue that library disability services link or web page should include information on facilities such as campus accessibility maps, facilities accommodation (restrooms, drinking fountains, parking, elevator locations and carrels, with wheelchair access), conference and meeting room access, emergency exits and emergency plans for people with impairment. In addition, the website should include

information on accessing library materials such as photocopying and microfilm services, book finding and retrieval services, interlibrary loan service and home delivery services.

A study conducted in US by Cassner, Maxey-Harris, and Anaya (2011) reviewed academic library websites for the people with impairments. The study was underpinned by the Library Services for The people with Disabilities Policy (2001). The study was conducted in 99 academic libraries. The study revealed that 87 (88%) of the libraries had web pages for the people with impairments. Majority of the home pages were easy to access, while others were not. Majority of the libraries with home pages provided information on assistive technology and mission statement specific to the people with visual impairments on their public website. The core services listed on the websites included: information retrieval, photocopying circulation services, research services, interlibrary loan services, and proxy services among others. Regarding the facilities, majority of the websites listed communication about equipment and service options for example assistive hardware, software, peripherals and TTD/TTY phones among others. The websites also contained information on parking for the people with impairments, information on structural modifications, toilets, elevators, and a few mentioned what to do in emergency situations.

Similarly, Power and LeBeau (2009) conducted a study in the United States to investigate how well university library websites guided the people with visual impairments in the use of database and how libraries generally served the people with visual impairments through their websites. The study examined 33 academic library websites. The study revealed that only 5 of 33 libraries cited database availability in their websites but the information that was provided was inadequate such that it could not be helpful to the people with impairments. The study also revealed that only seventeen libraries had good disability services page by virtue of their accessibility and the importance of information that they provided but majority of them were rated as poor because they were either difficult to locate or they availed very little or no information at all. Majority of libraries provided general contact details for the library instead of providing contact details for the individuals who would have been of more help to the library users. Services such as photocopying, information retrieval, research and consultations among others were mentioned in the library home pages. The libraries also provided information regarding parking and entrance to the buildings such as elevators, but rarely provided information about toilets, drinking fountains, the book stacks, and reading areas among others.

Assistive technologies were mentioned in the majority of library home pages but very minimal information regarding hardware and software in use was provided; something that did not go well with the people with visual impairments. Some library home pages just mentioned hardware and software programs while very few provided an overview on both.

3.6 Library building design and layout

The IFLA Access to Libraries for Persons with Disabilities Checklist implores that libraries provide accessible parking close to the library building, clear paths of travel to and throughout the facilities, as well as unobstructed openings or automatic doors for the people with impairments. The libraries should construct ramps instead of steps and the ramps should have handrails. Moreover, lifts, accessible tables, clear signage, accessible toilets, as well as accessible shelves should be provided (Irvall & Nielsen, 2005, p. 4). With regard to the library layout, the space in the library should be arranged in a way that makes sense to the people with impairments. The floor map and the service desks should be located near the library entrance and the paths in the library should allow wheelchairs to maneuver around the inside of the library. In addition, the books stacks should have shelves which should be accessible to people using wheelchairs. Reading tables and computer desks should be of varying height throughout the library, aisles between bookcases should be unobstructed, and the fire alarm should be visible and audible (see section 2.2.5 of chapter 2 of this thesis). Similarly, the Social Model of disability provides for elimination of obstacles hindering the people with impairments from accessing buildings, for example, if a wheelchair user cannot climb the stairs, reasonable adjustments can be made such as installing a ramp or a lift (see section 2.3 of Chapter 2 of this thesis). According to Waterman and Bell (2011, p. 30), it is important for facilities managers to think of access beyond the building in which their services are located and consider how clients living with different types of impairments are able to access their premises. The term access encompasses physical access as well as access to information resources and the aids and appliances used to access those resources (Roy & Bandyopadhyay, 2009). Physical access means access to and exiting from the facilities such as parking, buildings or public transport, as well as use of services within the building (Robertson, n.d., p. 46). According to Waterman and Bell (2011, p. 3) routes that are easily negotiable can be achieved by improving or providing external lighting, car-parking facilities, clear and well-positioned signage and obstacle-free paths with even and

non-slip surfaces. Barker (2011, p. 13) highlights design considerations for people using wheelchairs including:

- a) Ensuring continuous accessible path of travel by avoiding abrupt vertical changes of level such as curbs and steps.
- b) Avoiding unnecessary slope on pathways that would interfere with the control of the wheelchair.
- c) Providing adequate space under sinks, counters, and tables to allow wheelchair to fit under them including the wheelchair footrests and front wheels.
- d) Providing wide doors and adequate space inside rooms to allow wheelchairs to access them and comfortably turning around.
- e) Avoiding surface finishes that would interfere with wheelchair mobility such as pebbles, grass or carpets with long fibers, and surfaces that do not provide sufficient traction as well as polished surfaces.
- f) Identifying access dangers related to doors, such as need to operate a handle while using a mobility aid as well as problems such as moving fast through swing doors.
- g) Minimising injuries by providing non-slip surface finishes that are evenly laid.
- h) Avoiding cluttering the street by placing signs and bill board away from the main pedestrian flow.

Waterman and Bell (2011, p. 30) posit that routes that are easily negotiable by people using wheelchairs, or other types of mobility aids such as crutches, sticks or walking frames would make access to the building easier for other people such as those using pushchairs. Waterman and Bell further argue that a car is essential for many people with impairments and accessible parking facilities must be provided wherever reasonable. In this regard, the parking space should be marked with a clearly visible sign consisting of the international white symbol on a blue background. Moreover, enough parking spaces should be provided and located near the building entrance and if practical under cover. In addition, the circulation routes to the main entrance of the library building should be hazard-free when passing close to the building especially for people using mobility aids such as walking frames, wheelchairs and crutches (Waterman & Bell, 2011, p. 30). In addition, the people with physical or visual impairments will find moving through the library quite easy if isles are clean, signs are clear, and guidance is provided (Tilley et al., 2007).

A study conducted in UK by Heaven (2004, p. 28) examined the library services provided to students with impairments by Higher Education (HE) libraries. The study used both qualitative and quantitative methods. The study revealed that library signage was inadequate as none of the libraries provided information in braille, tactile information or universally recognised pictograms. Book stacks labelling was too high and difficult to read especially by the people with visual impairments or dyslexia. The signage was poorly done; safety signage was placed too high for wheelchair users and the people with visual impairments. Moreover, the floor plans were small and illegible due to the use of inappropriate background colour, text, as well as inappropriate use of fonts such as italics. Small, Myhill, and Herring-Harrington (2015) stress that all libraries should concentrate on improving design and modification of the library physical space to accommodate the people with impairments. According to Irvall & Nielsen (2005) design improvements/modification can be implemented at very small cost or with no cost at all. For example, the library signage can be redesigned using large font size, graphic icons and Braille so that the people with visual impairments can be able to read the signs (Small et al., 2015, p. 79). Signage affects all users of a facility or service. Signage would greatly facilitate access for all users if properly done with minimal and relevant wording in the appropriate size and in a clear font on a well contrasted background (Waterman & Bell, 2011, p. 28).

Another study conducted in UK by Howe (2011) examined disability provision in higher education libraries in England. The study used mixed methods approach. The study revealed that some institutions had designated parking for the people with impairments and some did not because they were based on the main roads with no parking facilities. None of the institutions had all their shelving at accessible heights. In addition the study revealed that some reasonable adjustments had not been implemented as some libraries did not have automatic doors while one had an extremely heavy door to push thus hindering access to both the people with impairments and those without.

A study conducted in Iran by Bodaghi and Zainab (2012) examined the views of architect and the people with physical impairments regarding accessibility of library buildings of 14 public universities. The study used quantitative methods. The study was based on standards set by the IFLA Access to Libraries for Persons with Disabilities Checklist and the American Disability Act. The study revealed that more than half of the selected libraries did not have ramps and exclusive space for the people with impairments. Another

study conducted in Malaysia by Bodaghi (2013) examined the perceptions and experiences of the people with visual impairments with study carrels in the university library. The study used qualitative methods. The study found that the respondents found carrels as their second home. They were quite, convenient, and comfortable places to interact with their student volunteers, who recorded, read and scanned their reading materials. However, the study revealed that the respondents were not comfortable sharing the carrels with their peers due to distractions and therefore libraries needed to make adjustments to create more space for use by the people with impairments.

The study conducted in Zimbabwe by Rugara et al. (2016), revealed that half of the libraries had installed ramps as an after-thought. One of the libraries had the entry and exit points fitted with full height turnstile which did not accommodate people using wheelchairs and also posed access problems to those using crutches, hence they relied on their friends to borrow library materials. At another library, the people with impairments were confined to the ground floor because it didn't have a lift. The study also revealed majority of the libraries did not have restrooms and height-adjustable tables for use by the people with impairments. In addition, access to some work stations and service desks was not assured for some people with impairments due to the infrastructural design.

A study conducted by Lawal-Solarin (2012b) investigated the information and services provided to wheelchair users in academic libraries in Nigeria and how the services could be improved. The study employed both qualitative and quantitative methods where data was collected through questionnaire and interview. The study revealed that among the 20 academic libraries in the study, majority of the libraries that had more than one floor did not have elevators/lifts. Only minority (9, 45%) had elevators. Majority of the libraries were too small to accommodate student using wheelchairs (15, 75%). In addition, out of the 20 academic libraries, 17(85%) had narrow doorways and high shelves that were not accommodative for people using wheelchairs.

Similarly, the study by Majinge (2014) in Tanzania revealed that the libraries offered services to the people with visual impairments and in wheelchairs but the services did not meet the universal standards. The libraries had no working lifts or ramps, there were no toilets designated for the people with impairments, and the shelves were not accessible by people using wheelchairs due to their height and the spacing between them. In Kenya, the Persons with Disabilities Act (PDA) (2003) states that the people with impairments are entitled to a disability friendly and barrier free environment to facilitate their access to the

buildings. Consequently, the PDA insists that owners of public buildings should ensure that the buildings are suitable for the people with impairments (Republic of Kenya, 2003, p. 12). Similarly, the Universities Standards and Guidelines state that library “buildings shall be convenient for all including users with special needs” (CUE, 2014, p. 102). Article 9 (1) of the Convention on the Rights of Persons with Disabilities (CRPD) which Kenya signed and consented in 2008, requires the state parties to identify and eliminate all hindrances that make buildings, means of transport, and schools among others inaccessible, in order to enable the people with impairments to live independently and contribute fully in the society. In addition, the state parties shall ensure barriers hindering access to information, communications and other services such as electronic services and emergency services are eliminated (United Nations, 2008a).

However, studies conducted in Kenya indicate non-compliance with these requirements in institutions of higher learning. A study by Kariba (2009) investigated how educational and other information needs of the people with visual impairment were met at Kenyatta University Library. The study employed both qualitative and quantitative methods. The study revealed that the library layout was not convenient for the people with visual impairment. The study by Kariba (2009) used Fanonian Theory of Revolution that helped to understand how lack of appropriate information resources impacted on the people with visual impairment but did not delve into understanding how library buildings can be a barrier to accessing information services. The current study combined the IFLA Access to Libraries for Persons with Disabilities Checklist and the Social Model of disability in order to understand the institutional, attitudinal and physical barriers of access to information services in university libraries. Similarly, Anambo's (2007) study revealed challenges of structural inadequacy, lack of lifts and spacious ramps at the Jomo Kenyatta Memorial Library at the University of Nairobi.

Anambo (2007) and Kariba (2009) researches were case studies, therefore the results could not be generalisable. A research of a wider scope like the current study was needed to provide in-depth understanding of the research problem and to generate results that could be generalisable. Therefore, the current study was conducted in six public universities. Moreover, Anambo (2007) noted that provision of information services for the people with impairments goes beyond structures, attitudes and policy environments and suggested that future studies should widen scope to cover other aspects. The current study focused on the application of ICT in promoting information access by the people

with visual and physical impairments besides focusing on library policy, library staff attitude and library building design and layout. Njoroge (2013) investigated the status of library access for individuals with impairments in academic libraries in Kenya. The study utilised a survey website Qualtrics.com by emailing survey questionnaires to 32 librarians. The survey questionnaire contained 25 items derived from IFLA Access to Libraries for Persons with Disabilities Checklist. The study revealed that university libraries in Kenya were partially accessible to users with impairments and did not meet majority of IFLA Access to Libraries for Persons with Disabilities Checklist.

Methodologically, the study by Njoroge (2013) used quantitative epistemology, hence it lacked in-depth understanding of the problem that would have been provided by interviews and /or focus groups. Anambo (2007) suggested that other studies need to include use of qualitative approaches. The current study used interview guide (to collect data from the Systems Librarians, the University Librarians and the staff from disability units), a focus groups schedule (to collect data from the people with visual impairment), survey questionnaires (to collect data from the people with physical impairments and library professionals and paraprofessionals who provide services to the people with impairments), and an observation schedule (to collect data on library buildings design, layout and physical facilities). The data collection methods were triangulated to validate the results. By combining both statistical trends and stories of individuals with visual and physical impairments, in public university libraries, the study gained a better understanding of the problem than using either statistical trends or stories alone.

3.7 Summary

This chapter presented a review of empirical and descriptive literature from different parts of the globe. The literature was gathered from primary sources such as reports, thesis, conference proceedings, and company reports; secondary sources such as journals, books, newspapers and government publication; and tertiary sources such as encyclopedias, and biographies among others. The literature review was guided by the themes emanating from the models underpinning the study, and the research questions. The following issues were discussed: library policies, information services, library staff attitude, application of ICT in facilitating access to information, and library building design and layout.

The literature revealed that the people with impairments face discrimination and exclusion the world over emanating from inadequate policies and standards; negative attitude; poor

services and service delivery; lack or inadequacy of funding to implement policies and plans for addressing the needs of the people with impairments; and physical barriers such as the lack of access to buildings. The literature reviewed revealed that policies guiding the provision of services to the people with impairments are very important because policies impact on funding, staffing, services, evaluation of services, marketing of services, and the needs assessment of the people with impairments.

The literature also revealed that ICT plays an unprecedented role in facilitating access to and use of information by the people with impairments as it enables them to access vast majority of information independently as well as it makes their work easier and faster. The literature also revealed that negative attitudes towards the people with impairments hinders their access to and use of information services and that it is of paramount importance that university libraries provide awareness and training in special needs (disability training) to the library staff that provide services to the people with impairments so that they can be aware of the various types of impairments, how to handle them as well as how to provide services to them.

The literature reviewed revealed some gaps. The studies by Anambo (2007), Ochoggia (2004), and Njoroge (2013) revealed that libraries lacked policies on provision of services to the people with impairments. However, the studies did not clearly elaborate how lack of the policies affected provision of services to the people with impairments. The question that sought to address this gap in this study is how does the availability or lack of policies impact on the provision of services to the people with visual and physical impairments?

Most studies in Kenya were case studies and hence the results could not be generalised. This study was conducted in six public universities that have a long history admitting the people with impairments. The study formed a basis on which the situation in other public universities could be understood.

The study by Njoroge (2013) focused on several universities in Kenya. However, the study applied quantitative epistemology; hence it did not provide a comprehensive understanding of the phenomena that was studied that would have been provided by combining qualitative and quantitative methods. This study employed mixed method approach where data was collected using focus group discussion, interviews, questionnaire and observation in order to understand the phenomena that were being studied in depth and breadth and to validate the results.

The reviewed studies in the context of Kenya did not explore the application of ICT in facilitating access to information by the people with impairments. This gap was addressed by the question: how is the ICT applied to promote access and use of information by the people with

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

Kothari (2004) and Bhattacharjee (2012) define research methodology as a well ordered or logical approach to solve a problem. Kothari (2004, p. 8) further notes that research methodology can be perceived as the science of studying how research is conducted in a systematic or methodical way in which the researcher adopts various steps to enable him to examine his research problem. Moreover, the reasoning behind the adoption of these steps is studied. Research methodology can also be defined as the general principle that guides a researcher's study. It is the approach that he/she uses to study a topic and includes the issues he/she has to consider such as constraints, dilemmas and the ethical issues related to the research (Dawson, 2002, p. 14). Kothari (2004, p. 8) explains that when a researcher talks about research methodology, he or she refers to the research methods used in his/her research study as well as the reasoning behind the methods he/she chooses, the reason why he/she prefers to use a certain method or technique over the other so that research results can be evaluated by the researcher him/herself or his/her peers. The aim of research methodology is to provide an outline of steps of the research process (Rajasekar, Philominathan, & Chinnathambi, 2002, p. 5). The purpose of this study was to examine information service provision for the people with visual and physical impairments in public university libraries in Kenya.

The study sought to address the following specific research questions: How does the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya? What information services are available for the people with visual and physical impairments? How is ICT applied to facilitate access and use of information by the people with visual and physical impairments? How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya? How does the library building design affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya? What measures do the public university libraries in Kenya need to take to ensure inclusive information services for people with visual and physical impairments?

This chapter is organised into 11 thematic sections: paradigm, research methods, research design, population of study, sampling procedures, data collection procedures, data analysis strategies, validity and reliability of data collection instruments, ethical considerations and summary.

4.2 Paradigm

A research paradigm can be defined as a way of exploring a social event/occurrence with the aim of gaining an understanding of the occurrence and subsequently attempt to provide an explanation of this occurrence (Saunders et al., 2009, p. 18). In contrast, Mertens (2005, p. 7) defines a paradigm as a way of looking at the world using certain logical assumptions that guide and direct reasoning and action. Similarly, Neuman (2007, p. 41) describes a paradigm as a combined set of assumptions, beliefs as well as models of undertaking good research, and procedures for collecting and analysing data. It organises basic ideas, theoretical frameworks, and research methods. This definition fits well in Kuhn's explanation of a paradigm and its components.

Kuhn (1970) cited in Mouton and Marais (1996, p. 146), highlights four components of paradigm namely the conceptual, theoretical, instrumental, and methodological and each researcher has four commitments in those components. Mouton and Marais (1996, p. 146) explain these commitments as follows – first, the researcher commits themselves to a specific theory of law, or a set of theories of laws. The specific theory (theories) forms the core of a paradigm; secondly, the researcher adopts a given methodology or research techniques that are dependent on the paradigm; thirdly, the researcher commits himself to particular philosophical assumptions regarding the research object (that which ought to be studied), and to the assumptions relating to the way in which it ought to be researched. There are several research paradigms used in research namely, positivist paradigm, interpretivist paradigm and pragmatic paradigm.

4.2.1 Positivist paradigm

Positivism is a philosophy that involves to a great extent positive assessment of science and scientific methods which place a lot value on the conviction that there is a common reality that serves for clarification and prediction (Yavuz, 2012, p. 58). The positivist approach involves testing a hypothesis (Burton & Bartlett, 2009). Positivism may be used to study the social world in the same way as natural world (Cohen, Manion, & Morrison, 2007; Mertens, 2005; Neuman, 2007). In addition, positivists believe that research aims at

recounting our experiences through observation and measurement in order to predict and control the forces that surround us (O'Leary, 2003, p. 5); and that science provides us with the clearest conceivable ideal knowledge (Cohen et al., 2007). The positivists assume that social reality is comprised of unbiased realities that value-free researchers can accurately measure a phenomenon and employ statistics to test causal theories (Neuman, 2007, p. 42). Moreover, we discover and verify knowledge by directly observing and measuring phenomena. On the other hand truth is proven by separating the phenomena into its component parts and then examining those component parts (Krauss, 2005, p. 759). The positivists maintain that reality is fixed and that unbiased knowledge can be created by using rigorous methodology (Broom & Willis, 2007, p. 759). Consequently, the positivists go out into the world in an objective manner, to discover absolute knowledge about the unbiased reality (Scotland, 2012, p. 10). The researcher and the researched are independent entities and therefore meaning does not reside in the subjective feeling of the researcher but in the objects. Therefore the researcher aims at obtaining the meaning. A positivist researcher becomes a neutral observer who does not involve himself in the happenings that are being studied and he will try as much as possible to be neutral and independent throughout the research process (Jonker & Pennink, 2010, p. 70; Krauss, 2005, p. 759). Neuman (2007, p. 42) argues that positivists place importance on the principle of replication and ultimate test of reality because they have a conviction that different researchers observing the same facts will get the same results as long as they carefully specify their ideas, measure the facts accurately and maintain the principle of unbiased research.

Mertens (2005, p. 12) argues that qualitative methods can be employed within this paradigm though the quantitative methods are predominant. Similarly, Burton and Bartlett (2009) argue that the positivist researchers present data as statistical tables to enable other researchers to understand how the data have been interpreted as well as allow for more accurate comparisons, for the purpose of generalising the findings.

According to Cohen et al. (2007, p. 18) positivism has been criticised because it ignores the human's ability to interpret their experiences and present them to themselves. Human beings do construct theories about themselves and their world and then act on these theories. The failure of positivism to recognise this is to disregard the philosophical differences it has to the natural sciences.

4.2.2 Interpretivists/constructivist paradigm

The interpretivists believe that it is not possible to study human life using the principles of science from the natural science because human life is qualitatively different from other things studied by science; therefore, the need to create a special type of human and one that can really capture human life (Neuman, 2007, p. 43). Neuman argues that interpretivists assume constructionist perspective of the world, which believes that human social life is established less on unprejudiced, hard, factual reality than on the ideas, beliefs, and perceptions that individuals hold about reality.

The interpretivists believe that “reality is constructed” (Mertens, 2005, p. 12) and so people socially and symbolically construct and sustain their own realities, hence social scientists will understand social life only if they study how people go about constructing social reality (Bjarnason, 2004; Klenke, Martin, & Wallace, 2015). Because as people mature they interact, and live their daily lives, they continuously generate ideas, create relationships, symbols, and roles that they consider significant (Neuman, 2007, p. 43).

The ideas expressed above can be summarised in the four tenets found in examples of interpretivist inquiry as highlighted by Bjarnason (2004, p. 37) namely:

- 1) Reality is constructed and intentional. From this point of view, reality is always a process of social construction. People act in response to “meanings” of situations to them, and meanings are socially constructed.
- 2) Splitting subject and object is impossible. Within the interpretivist paradigm is a fundamental challenge to the subject-object dualism if everything is unavoidably subjective.
- 3) Splitting facts and value is impossible, because within the paradigm, facts do imply values; they are, in fact, values, and they must be interpreted.
- 4) The goal of research is, understanding. Because of the interpretivist paradigm firmly believes in multiple realities of social construction, the objective of interpretivist researchers is to describe, interpret and understand the phenomenon.

Neuman (2007, p. 43) opines that interpretivists trust and support qualitative data. They believe that qualitative data can more accurately capture data about social reality that would otherwise be very difficult to capture by other means. Similarly, Bryman (2004, p. 3) argues that the interpretivist worldview is concerned with subjective methods and therefore, the interpretivist researchers examine the behaviour, views, feelings as well as

experiences of people, and what lies at the center of their lives. de Vaus (2002, p. 6) adds that qualitative methods capture and present rich data about real life of individuals and situations and help researchers to comprehend behavior and to understand it within its wider setting. Burton and Bartlett (2009, p. 21) argue that the interpretivists prefer more naturalistic forms of data collection, taking advantage of individual accounts and biographies, often including detailed accounts to give a feeling of the environment. Burton and Bartlett further argue that the interpretivists favour informal interview and observations as they allow the situation to be as ordinary as possible and for that matter, the researcher has to be reflexive in the research process.

Critiques of the interpretivist paradigm argue that the subjective nature of interpreting people's thoughts and feelings raises concerns over reliability and validity as well as trustworthiness, credibility and authenticity. Moreover, the findings are less likely to be generalised to the other settings due to the small number of cases involved in research, In addition, conducting research within the interpretivist paradigm involves a lot of resources which makes it a very expensive endeavor (Burton & Bartlett, 2009, p. 28).

4.2.3 Pragmatism paradigm

Pierce (1878) cited in Queiroz and Merrell (2006, p. 38) defined the pragmatic paradigm as a rule to explain thoughts, concepts, and propositions. It is based on the premise that knowledge is an instrument of organising experience and it is deeply concerned with the combination of theory and practice (Queiroz & Merrell, 2006). Pragmatism is a practical approach to solving problems in the real life (Cameron, 2011; Feilzer, 2010). Johnson, Onwuegbuzie, and Turner (2007, p. 125) opine that the pragmatism paradigm is a strong and attractive philosophy for mixing viewpoints and methods to understand a phenomena.

The pragmatism paradigm supports the use of both qualitative and quantitative approaches to study the same phenomenon (Klenk, 2008, p. 26) and it is not biased towards any one system of thinking and reality (Creswell, 2009). Denscombe (2008, p. 273) concurs with Creswell when he argues that the pragmatism paradigm provides a set of assumptions about knowledge and inquiry that support the mixed methods approach and distinguishes the approach from purely quantitative and purely qualitative approaches. This study applied the pragmatic paradigm. The choice of this paradigm is because it provided breadth and depth in understanding (Onwuegbuzie, Bustamante, & Nelson, 2010, p. 56)

the lived experiences of the people with visual and physical impairments in the library environment.

4.3 Research methods

Bhattacharya (2006, p. 17) defines research methods as procedures used by researchers in conducting research. Similarly, Bryman and Buchanan (2009) and Bryman (2016) define research method as a tool, procedure or approach for collecting and organising data. It involves use of specific research instruments such as survey questionnaire, structured interview schedule as well as observation schedule to collect data (Bryman, 2016, p. 38). There are three research approaches namely qualitative, quantitative and mixed methods approaches.

4.3.1 Qualitative methods

The qualitative methods is a comprehensive term that can be applied to various research approaches whose theoretical origins lie within a range of disciplines such as anthropology, sociology, and philosophy among others (Moriarty, n.d., p. 12). The qualitative research enables the researchers to recognise issues from the point of view of the research participants, comprehend the issues from the perspective of the study participants, and understand meanings and explanations they attach to their behavior, occurrences or objects (Hennink, Hutter, & Bailey, 2011). Moreover, the qualitative research aims at capturing qualities that are unquantifiable, such as emotions, opinions, and experiences as opposed to the concepts related to interpretive approaches (Bricki & Green, 2007; Gratton & Jones, 2010), by using in-depth interviews, focus group discussions, observations, content analysis and life histories or biographies (Hennink et al., 2011). In addition, the qualitative methods aim at answering questions about “what” “how” or “why” of a phenomenon (Bricki & Green, 2007). Gratton and Jones (2010) argue that qualitative research utilises non-numerical data gathered within a long period of time and analysed to describe and comprehend concepts. Such concepts cannot be expressively converted into numbers and therefore, what is of importance to the qualitative researcher is the data that is in form of words which he has to interpret. Because the experiences of people are influenced by their life settings such as social, economic, and cultural among others, the qualitative researchers observe individuals in their natural settings in order to understand how their lives are affected by such settings. The researchers try to decipher the phenomena in terms of the meanings the individuals

attach to them (Hennink et al., 2011, p. 9). Consequently, the qualitative research calls for rigorous, long-time observation in a normal setting, as well as accurate and detailed recording of the happenings in the setting. Moreover, the data is interpreted and analysed using description, narratives quotes, charts and tables (Hussain, 2011).

The qualitative research approach is criticised because of the small number of cases involved in the study which may not be representative of the whole population and therefore the results are difficult to generalise or replicate to the whole population. Moreover, the results in the qualitative research lack scientific rigor. There is no way of telling if the findings are influenced by the researcher's bias (Bricki & Green, 2007, p. 2). However, despite the criticism, the qualitative methods provide comprehensive understanding of matters that embrace the perspectives of the study population and the context in which they live, as well as examining sensitive topics, as the process of rapport building provides a comfortable atmosphere for participants' disclosure (Hennink et al., 2011, p. 10).

4.3.2 Quantitative methods

The quantitative research methods were initially developed in natural sciences to examine natural phenomena with the aim of capturing relevant facts and explaining them with empirical- analytical methods (Ernst, 2003, p. 2). Habib, Pathik, and Maryam (2014), and Creswell (2014) opine that quantitative research is an investigation into an already identified problem, based on hypothesis testing by investigating the connection between variables measured with numbers, and analysed using statistical techniques. Consequently, the quantitative research is often referred to as hypothesis-testing research (Glenn, 2010; Jha, 2008; Kauda, 2012) in which the researcher begins by stating the relevant theories that determine the problems to which researchers address in the form of hypotheses derived from general theories (Bryman, 2003, 2016; Glenn, 2010). For a quantitative researcher, it is of paramount importance to state one's hypotheses and then test them with empirical data which is in form of numbers to see if those hypothesis are supported (Ernst, 2003; Johnson & Christensen, 2013; Thomas, 2003).

The quantitative research involves a large number of respondents thus, the measurements used must be objective, quantitative, and statistically valid (Habib et al., 2014). The instruments used to collect data in quantitative research include questionnaires or structured interviews (Dawson, 2002, p. 2015). Muijs (2004, p. 9) asserts that the

advantage of quantitative research is that it provides information in breadth from a large number of units. However, the quantitative research is too shallow in exploring a research problem because it provides scanty details on motivation, attitudes as well as the behavior of the respondents.

4.3.3 Mixed methods

Various definitions have been developed to describe the mixed method research approach. For instance, Johnson, Onwuegbuzie, and Turner (2007, p. 118) define the mixed methods research as a type of research that involves combination of components of qualitative and quantitative research approaches with the aim of getting breadth and depth of understanding the research problem, and for the purpose of validation of results.

Similarly, Creswell and Clark (2007, p. 5) define the mixed methods research as a research design with logical assumptions as well as methods of inquiry. As a methodology, it involves use of logical assumptions that guide how data is collected and analysed as well as mixing of qualitative and quantitative approaches in various phases in the research process. As a method, it focuses on collecting, analysing, and combining both quantitative and qualitative data in a single study, or a number of studies. The reasoning behind the mixed method is that combining both the quantitative and qualitative approaches provides a better understanding of research problems than either approach alone.

The advantage of mixing research techniques is that the researcher can use the strengths of an additional method to overcome the weaknesses in another by using both in a research study (Brewer & Hunter, 1989; Creswell, 2012; Denscombe, 2008; Feilding & Fielding, 1986; Gall, Gall, & Borg, 2007; Johnson et al., 2007; Kumar, 2014). The mixed research produces a more complete picture of the nature of the problem being studied by combining information from different types of data sources which complement one another; it also enhances accuracy of data collected as well as provides an opportunity for triangulation which provides stronger evidence for a conclusion of findings. Moreover, the mixed research helps to increase generalisability of the results which would have been impossible when qualitative methods alone are employed. In addition, the mixed methods provided depth and breadth of understanding of the phenomena thus allowing for a more complete knowledge necessary to inform theory and practice (Brewer & Hunter, 1989; Denscombe, 2008; Feilding & Fielding, 1986; Johnson et al., 2007). Mixing research methods can be

used to address various research questions since the researcher is not tied to a single research method or approach (Johnson et al., 2007, p. 21). Moreover, the findings of one method can guide the researcher in formulating research instruments, selecting a case to observe, and analytic strategies of another (Brewer & Hunter, 1989; Feilding & Fielding, 1986). In addition, mixing the qualitative and quantitative research techniques enables researchers to address the varied and often complex hypothesis involved in any given research topic (Trahan & Stewart, 2013, p. 61).

This study used the mixed method approach because the approach provides an enriched, elaborated understanding of the problem as well as allows for generalisation of the findings. Green and Caracelli (2003) cited in Trahan and Stewart (2013, p. 61) argue that combining the qualitative and quantitative methods allows researchers to take advantage of representative and generalisability of quantitative findings, and the rich contextual nature of qualitative findings. Moreover, triangulation allows for validation of results. According to Kumar (2014, p. 386) triangulation is characterised by utilisation of similar set of data from numerous sources, to involving the use of the same set of data from multiple sources to attain the goal of the study. It is based on the argument that utilising the same set of data, gathered through diverse approaches to draw inferences, and its examination from different perspectives provides a better understanding of a problem, situation, phenomenon, or issue.

This process of corroboration of data increases validity by combining numerous perspectives or methods (Yeasmin & Rahman, 2012, p. 156). This study employed methodological triangulation involving both the qualitative and quantitative techniques. According to Casey and Murphy (2009, p. 42) triangulation has many advantages including the potential to yield more complete, insightful data; it helps in enhancing trust in the results and providing an enhanced clarification of the research problem. In addition, it helps the researcher in overcoming the bias residing in single-method research approach as well as increasing validity of the study. Moreover, combining methods allows the researcher to take advantage of the strengths while overcoming shortcomings of each method.

4.4 Research design

Degu and Yogzaw (2006, p. 25) define a research design as the process that guides researchers on how to collect, analyse and interpret observations. It is a logical framework

that guides the researcher in the various stages of the research. In other words, it is a practical plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically (Kumar, 2014, p. 381). Research design is the “glue that holds various elements of a research project together” (Trochim et al., 2016, p. 206). It represents a structure that guides the application of a research method and the analysis of data (Bryman, 2016, p. 37). According to Wa Teresia (2011, p. 14) a good research design is the one that minimises bias and maximises the reliability of the data collected. Wa Teresia further suggests that when choosing an appropriate design for a particular research problem, one has to put into consideration the means of obtaining information, the skills employed in carrying out research, the objective of the research problem, the nature of the research problem as well as the availability of time and resources.

This study employed survey research design. Survey research design is a study design that uses the results from a survey simply for description of the variable that is being studied; its goal is to obtain an accurate picture of the individuals being studied (Gravetter & Forzano, 2012). The results from a survey are expected to be generalisable. In addition, the study used the qualitative study design. The qualitative study design provides an in-depth analysis of the problem that is being investigated.

4.5 Population of study

A population is the total number of subjects or the total environments of interest to the researcher (Oso & Onen, 2009, p. 79). Similarly, Wa Teresia (2011, p. 50) defines population as “the entire collection of people or things you are interested in”. Trochim et al. (2016) and Bryman (2016) define a population as the universe of units or a group that a researcher wants to generalise to, and from which a sample is selected. From the above definitions, a population can be said to be the entire collection of people or things a researcher is interested in from which a sample is selected for analysis.

The population in this study was 49 universities of which 31 were public chartered universities, while 18 were private chartered universities. The other 14 universities operated under Letter of Interim Authority (LIA) (CUE, 2015).

This study was limited to six public chartered universities that had a long tradition of offering degree programmes that also enrolled students with visual and physical impairments (Kochung, 2011, p. 148; Moi University, 2012, p. 31; Nabende, n.d., p. 1). These universities included University of Nairobi (UoN) (established in 1970), Kenyatta

University (KU) (established in 1985), Maseno University (MSU) (established in 2001), Moi University (MU) (established in 1984), Egerton University (EU) (established in 1987), and Jomo Kenyatta University of Agriculture and Technology (JKUAT) (established in 1994).

Within the six universities, the population consisted of:

- a) The people with visual impairments (those with total and partial loss of vision).
- b) The people with physical impairments (using wheelchairs and crutches).
- c) The library professionals (holders of bachelors and master’s degree qualifications) and para-professional (holders of certificate and diploma qualification in library or information science) who provided services to the people with visual and physical impairments.
- d) The University Librarians.
- e) The staff of the Disability Mainstreaming departments.
- f) The Systems Librarians.

The total population of the study was 518 respondents consisting of 109 students with visual impairments, 193 students with physical impairments, 198 library staff who provided services to the people with visual and physical impairments, 6 University Librarians, 6 staff of the Disability Mainstreaming departments and 6 Systems Librarians as shown in Table 1.

Table 1: Population distribution of respondents in universities

Respondents	University						Total
	A	B	C	D	E	F	
University Librarian	1	1	1	1	1	1	6
Systems Librarians	1	1	1	1	1	1	6
Staff of Disability Mainstreaming department	1	1	1	1	1	1	6
Library Staff	31	34	32	36	35	30	198
The people with Visual Impairment	11	0	63	18	10	7	109
The people with Physical Impairment	41	20	57	28	21	26	193
Total	86	57	155	85	69	66	518

4.6 Sampling procedures

According to Oso and Onen (2009, p. 81) a sample refers to “a part of the target (or accessible) population that has been procedurally selected to represent it”. Similarly, Hussain (2011), Bryman (2016), Walliman (2016), and Trochim, Donnelly, and Arora (2016) argue that a sample is a part or the subset of the whole group that represents the

population which will have all the characteristics of the population and which is selected for observation and analysis.

Sampling on the other hand, involves a systematic selection of a sample or units (such as people, groups, artifacts, settings) from the population of interest based on probability or non-probability sampling (Bryman, 2016; Hussain, 2011; Teddlie & Tashakkori, 2009; Trochim et al., 2016). The sampling procedures or techniques refer to “a description of the strategies which the researcher will use to select representative elements/subjects/respondents from the target/accessible population” (Oso & Onen, 2009, p. 82). There are several sampling techniques used in research namely: The probability sampling that consists of stratified random sampling, simple random sampling, systematic random sampling, cluster (area) random sampling, and multistage sampling. The non-probability sampling in contrast, consists of accidental, haphazard, or convenience sampling, purposive sampling, quota sampling, snowball sampling (Bryman, 2016; Hussain, 2011; Leedy & Ormrod, 2001; Oso & Onen, 2009; Sanaman & Kumar, 2014; Trochim et al., 2016) and expert sampling (Trochim et al., 2016).

However according to Henry (2009, p. 77), not all studies involve sampling, for example, in Census surveys where the entire population is studied. Census refers to selecting the entire population as the sample (Given, 2008; Henry, 2009; Israel, 2009; Walliman, 2016). Similarly, Wa Teresia (2011, p. 50) defines a census as a measurement of all the units in the population”. Gay and AisAsian (2003) cited in Leedy and Ormrod (2005) and Israel (2009) maintain that when the population has few people or units there is no need of sampling and census should be considered.

This study employed purposive sampling to select the public university libraries. The purposive sampling is used to select individuals, groups of individuals and institutions based on specific purposes associated with answering a research study’s questions (Sharp, Mobley, Hammond, Stringfield, & Stipanovic, 2012; Tashakkori & Teddlie, 2009). The purposive sampling was chosen because it guarantees that only the typical and suitable cases are chosen as well as ensuring that the researcher uses his/her time efficiently to collect rich data (Blankenship, 2010). Consequently the homogeneous type of purposive sampling was applied to select a homogeneous sample of universities which admit the people with visual and physical impairments. According to (Baran & Jones, 2016, p. 118), homogeneous sampling aims at achieving a homogeneous sample whose units such as people, and cases share the same qualities or attributes such as age, gender, background,

and occupation among others. The criteria for selecting the universities were based on the fact that the universities have a long history of admitting students with visual and physical impairments into their degree programmes.

The census method was employed in this study to ensure that the entire population was studied. All the respondents in each library were included in the study. This is because the populations were relatively small and did not require other type of sampling. Israel (2009, p. 2) states that census is attractive for small populations of up to 200 and less.

However, when the researcher went to the field she found out that the population of respondents during the period of data collection had either increased or decreased from the earlier identified population. As far as the people with visual and physical impairments are concerned, the researcher established that some of them had cleared with the institutions by the time data collection commenced. Secondly, some people had temporary physical impairments for example those who had suffered broken limbs and spinal injuries and had recovered. Therefore they were no longer registered as the people with physical impairments. The researcher also established that some people with visual and physical impairments were not in session during the period of study and therefore only students in session participated in the study. Table 2 presents the number of the people with visual and physical impairments registered in the universities and the number of those that were in session during the data collection period.

Table 2: Population of the people with visual and physical impairments during the data collection period

Category of respondents	University	No. Registered in the University	No in session
The people with physical impairments	University A	65	51
	University B	28	11
	University C	68	28
	University D	23	17
	University E	20	7
	University F	3	3
	Total		207
The people with visual impairments	University A	16	11
	University B	0	0
	University C	87	51
	University D	10	9
	University E	19	8
	University F	7	7
	Total		139

(Source: Field data, 2017)

For the library staff population, while the numbers increased in some universities, in others there was a marked decrease in numbers of library staff providing services to the people with visual and physical impairments. For instance, the number of library staff in University A rose from 31 to 39 and in University C the number rose from 32 to 35 library staff. This was commensurate with the growing number of the people with impairments in the universities. In University B, University E and University F, the numbers went down from 34, 36, and 30 to 28, 25 and 24 respectively as some library staff were no longer working at the service points where they got into contact with the people with visual and physical impairments. At university D the researcher established that the initial population of 35 was inclusive of satellite campuses while the actual population in the main campus was 17. Table 3 presents the population distribution of the respondents during the period of the study.

Table 3: Population of distribution of respondents during the data collection period

Respondents	University						Total
	A	B	C	D	E	F	
University Librarian	1	1	1	1	1	1	6
Systems Librarians	1	1	1	1	1	1	6
Staff of Disability Mainstreaming department	1	1	1	1	1	1	168
Library Staff	39	28	35	17	25	24	168
The people with Visual Impairment	11	0	51	9	8	7	86
The people with Physical Impairment	51	11	28	17	7	3	117
Total	104	42	117	45	43	37	389

(Source: Field data, 2017)

4.7 Data collection techniques

Data collection techniques enable the researcher to systematically gather information about the objects of their study such as people, objects, and phenomena and about the settings in which they occur (Sani, 2013). This study employed several data collection techniques including interview, questionnaire, Focus Groups, and observation.

4.7.1 Interview

Interviewing “is collecting data through guided conversations with people” (Mvumbi & Ngumbi, 2015, p. 95). An interview involves one-on-one discussion between an interviewer and an individual, and it is meant to gather information on a specific set of topics (Harrell & Bradley, 2009, p. 6). It involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses (Kothari, 2004, p. 97). A face to face interview has the following characteristics: face to face communication between an interviewer and an interviewee; the interviewer asks questions guided by an interview protocol; and it involves recording of the answers using an electronic gadget (Anderson & Arsenault, 1998, p. 167). The interview permits both the interviewer and the interviewee autonomy as well as making sure that the significant themes are taken care of and all essential information is captured (Corbetta, 2003).

This study used interview schedule (see Appendices 1, 2, and 3) to collect qualitative data from the University Librarians, the staff of the Disability Mainstreaming departments and the Systems Librarians. The researcher visited every university library to seek permission from the University Librarian to talk to the Systems Librarians and request them to participate in the interviews. In addition, the researcher requested the University

Librarians and the Staff of the Disability Mainstreaming departments to participate in the interview.

The data that was collected include: policy framework, budget, marketing of services, evaluation of the needs of the people with visual and physical impairments, services for the people with visual and physical impairments, staff training, use of ICT in facilitating access to information, access to building and facilities and more. The interview schedule measured attitudes, opinions, behaviour and perceptions of the respondents towards the information services provision by the university libraries. The results helped to interpret: the level of satisfaction of the people with impairments with the information services provided to them; the adequacy of access to the university library buildings and facilities; the policies for promoting information services to the people with visual and physical impairments; the level of training provided to the library staff to provide services to the people with visual and physical impairments; the level of awareness of the library staff on the needs of the people with visual and physical impairments; the budget allocated for provision of services for the people with visual and physical impairments in public university libraries; the range of information services available to the people with visual impairments; the factors that hindered or facilitate access to information services by the people with visual and physical impairments; and the extent to which library building and layout enabled or hindered access to information services by the people with visual and physical impairments.

The interview was audio recorded with the consent of the respondents. Audio recording was very useful because it allowed the interviewer to not only capture what people said but also how they said it, which was fundamental in the analysis. The interviewer asked questions and at the same time was highly alert in what was being said. Therefore, audio recording prevented unnecessary distractions of the interviewer trying to write the responses down which would have resulted in some important data not being captured. Another reason for audio recording interviews is to eliminate bias in research which might occur when the interviewer relies on his/her own memory (Driscoll, 2011, p. 165). The audio recorded data was transcribed into written form so that it could be analysed thematically (Bailey, 2008). Moreover, verbatim transcriptions provide a permanent record of what was said (Gill, Stewart, Treasure, & Chadwick, 2008, p. 293).

4.7.2 Focus groups

A focus group is a qualitative measurement method that involves collection of views about focus topics from participants in a small group setting. Normally, the discussion is structured and directed by a moderator or a facilitator (Trochim et al., 2016, p. 175). Similarly, Anderson and Arsenault (1998), and Stewart, Shamdasani, and Rook (2009) opine that a focus group involves a group discussion of a pre-determined issue or topic. A focus group discussion is generally planned for the purpose of research (Gill et al., 2008, p. 293) in which data is collected from a group of participants who have been carefully selected and assembled by the researcher to discuss and give their views from their personal experience of the topic that is the subject of the research (Powell & Single, 1996, p. 449). The focus group members share certain common characteristics (Anderson & Arsenault, 1998; Casey & Krueger, 2000). The aim of focus group is to capture the attitudes, feelings, experiences and reactions which would have been impossible to achieve using other methods such as observation, face-to face interviewing, or survey questionnaires (Gibbs, 1997). Focus groups are used for generating information on collective views, and the meanings that lie behind those views (Gill et al., 2008, p. 293). One of the major strength of focus group is the high level of contribution that participants make to the research (Sagoe, 2012, p. 5). This is because the focus group permits the respondent the opportunity to give their views about the topic and also react and build on the views of other participants thus generating data or ideas that might not have been uncovered in individual interviews (Stewart et al., 2009).

This study used focus groups discussion schedule to collect qualitative data from the people with visual impairments. The researcher sought permission from the director/head of Disability Mainstreaming departments and obtained details (names, physical address and telephone contacts) of the people with visual impairments. The researcher used lists of the people with visual impairments to contact and request them to participate in the focus group discussion. The data collected from this category included: the services for the visually impaired; use of ICT in facilitating access to information; access to building and physical facilities; and staff attitude towards the people with visual impairments among others (see Appendix 4). A total of nine focus groups discussions were conducted in all the universities. The number of participants in each group ranged from six to twelve. Freitas, Oliveira, Jenkins, and Popjoy (1998, p. 11) opine that a focus group should be reasonably small to allow everybody to share their views and big enough to provide diversity of

opinions. When the number of the focus group exceeds twelve, the group should be divided. The respondents were organised into groups within the universities, with the assistance from the Disability Mainstreaming departments. Since majority of the people with visual impairments were accommodated within the universities, the focus group discussions were held in a room assigned by either the Disability Mainstreaming departments or the Disabled Students Representative in the respective universities. Only in one instance did the researcher provide transport to a participant who was residing outside one of the universities. Before the commencement of the focus group discussions, the researcher and the focus group participants agreed on ground rules with regard to use of mobile phones in the discussion room, contributing to the discussion, and talking to one another. The researcher moderated the focus group discussion, while the research assistant wrote down the responses. Each focus group discussion lasted 45-60 minutes. Like in the interviews, focus groups discussions were audio recorded with the consent of the respondents.

4.7.3 Questionnaire

A questionnaire is any printed set of questions that are self-administered to participants to answer the questions (Thomas, 2003, p. 66; Trochim et al., 2016, p. 172). The most commonly used and abused method of data collection is questionnaire (Anderson & Arsenault, 1998; Mvumbi & Ngumbi, 2015). Mvumbi and Ngumbi further argue that in order to avoid confusing the respondents, questionnaires should be well structured. In addition, they should be designed in a way that permits the researcher to address the specific objects, research questions and the hypothesis of the study. Anderson and Arsenault (1998, p. 170) opine that if well designed, a questionnaire can collect reliable and reasonably valid data in a simple, cheap and timely manner.

In this study, survey questionnaires (see Appendix 5 & 6) were used to collect quantitative data from the library staff that provided services to the people with visual and physical impairments, and the people with physical impairments respectively. The researcher visited every university library to seek permission from the University Librarians to talk to the library staff that provided services to the people with impairments and request them to participate in the survey, and to distribute the questionnaire. Similarly, the researcher sought permission from the heads of the Disability Mainstreaming departments and obtained details (names, physical address, and telephone contacts) of the people with physical impairments. The researcher used the lists of the people with physical

impairments to contact and request them to be part of the survey, and to distribute the questionnaire. The questionnaire was distributed by the researcher and the research assistant in conjunction with the Disability Mainstreaming departments. In some institutions, the questionnaire was distributed in the library and in other universities, the questionnaire was distributed in the Disability Mainstreaming departments. The respondents were given a week to complete the questionnaire after which they dropped the completed questionnaire at the library and the Disability Mainstreaming department in their respective university where the researcher picked them.

The data that was collected from this category included: services for the people with visual and physical impairments, access and use of assistance technologies and devices, e-books, e-databases, websites, staff awareness about the information needs of the people with visual and physical impairments, staff attitude, staff training and more. The data provided statistics such as the number of the people with visual and physical impairments that were registered in the library, the number of the people with visual and physical impairments using the library, the frequency of use of information services by the people with visual and physical impairments, the number of people with visual and physical impairments using e-books, e-databases, and websites, the frequency by which the people with visual and physical impairments use the e-books, e-databases, and websites, use of assistive technologies, the number of students registered in the universities' Disability Mainstreaming departments, the number of library staff that had awareness and / training in special needs, and the number of public university libraries that had ramps, accessible doors, lifts/ elevators among others.

The advantage with questionnaire method is that it is free from interviewer bias and the answers are in the respondents' own words, easier/quicker to administer, cheaper to administer, and has no interviewer variability. In addition, it allows the respondents adequate time to give well thought out answers (Bryman, 2016; Kothari, 2004).

4.7.4 Observation

The study used observation schedule (see Appendix 7) to collect quantitative data on design and layout of the library building and physical facilities such as availability of ramps, lifts, parking, accessible doors, toilets for the people with visual and physical impairments, external and internal signage among others. Observation method of data collection which is most commonly employed in studies relating to behavioral science

(Kothari, 2004, p. 96). According to Marshall (2006, p. 98) observation is characterised by “systematic noting and recording of events, behaviour, and artefacts (objects) in the social setting chosen for study.” Observation qualifies as a scientific tool and a method of data gathering if it satisfies an articulated research purpose, is systematically planned, documented, and is subject to checks and controls on validity and reliability (Kothari, 2004, p. 96). Consequently, this study used structured observation in which an observation schedule was used with a fixed number of points to observe in a pre-determined number of situations (Bentley, Boot, Gittelsohn, & Stallings, 1994, p. 5). The study employed unobtrusive observation where various aspects of the library building were observed as opposed to involving the respondents. Unobtrusive measures are methods of data collection which do not interfere with the lives of the respondents, meaning that they may not even be aware that they are being observed and this minimises the biases that result from the interference of the researcher or measurement instrument (Trochim et al., 2016, p. 25). Moreover, the advantage with observation method of data collection is that subjective bias is avoided if observation is conducted correctly; the data gathered using this method relates to what is currently happening; it is not influenced by either the past behavior or future intentions or attitudes; and the method is not dependent on the participants willingness to respond (Kothari, 2004, p. 96).

4.8 Data analysis strategies

Data analysis involves “separation of data into constituent parts or elements, and examination of the data to distinguish its component parts or elements separately in relation to the whole” (Oso & Onen, 2009, p. 99). Similarly, Bryman (2003, p. 11) opines that data analysis is concerned with reducing the large body of information that the researcher has gathered so that he can make sense of it.

In this study, quantitative data collected through questionnaires and the observation was analysed using IBM SPSS to generate descriptive and inferential statistics. Descriptive statistics reports summary data such as measures of central tendency including the mean, median, mode, deviation from the mean, variation, percentage and correlation between variables (Oso & Onen, 2009). The current study generated the mean, standard deviation, and percentages. The inferential statistics on the other hand examine the relationships between variables within a sample, and then makes generalisations or predictions about how those variables will relate within a larger population (Trochim et al., 2016). Cross tabulations were generated to display the relationship that existed in the six universities

with regard to some aspects of information service provision. This relationship was determined through the Chi-Square test produced by the cross tabulations. The results of the analysis were presented by the use of frequency tables, contingency tables (cross tabulations), percentages, bar graphs and pie charts for easier interpretation of the findings.

On the other hand, the qualitative data collected by use of interview guide and focus group guide was analysed using qualitative thematic analysis (Bryman, 2016; Trochim et al., 2016) where data was sorted, coded, and then categorised into themes and tallied accordingly. Such themes include: attitude of library staff toward the people with visual and physical impairments; accessibility of the library building; type and level of training of library staff; budget allocation for provision of services for the people with visual and physical impairments; types of assistive technologies available for use by the people with visual and physical impairments; library policies and their support on provision of information services; access and use of library websites; access and use of e-databases; perception of the people with visual impairments on accessibility of e-databases and e-resources; frequency of use of databases and e-resources; and type of information services provided for the people with visual and physical impairments among others. Narrative and interpretive reports were used to present the results of the qualitative data.

4.9 Data collection procedures

The researcher, after obtaining the research permit (see Appendix 12) from the National Commission for Science, Technology and Innovation (NACOSTI), wrote to the relevant Deputy Vice Chancellors of the universities in the study to seek permission to access the institutions, the staff and the students in the study. Once permission was granted, the researcher reported to the office of County Commissioners and County Directors of Education in the respective counties where research was to be conducted. Authority was granted to conduct research in those counties (see Appendix 25-34).

Once the letters were obtained the researcher visited every university to report to the concerned DVCs that she was ready to begin the research. The researcher then booked an appointment with each university librarian and the director/head of the Disability Mainstreaming departments in each university. The researcher then visited the University Librarians for introduction sessions with the Systems Librarians and the Library staff who provided services to the people with visual and physical impairments. After the introduction, the researcher explained to the library staff about the research and requested

them to participate in the research. Upon their willingness to participate, the researcher administered the questionnaire to them. The Systems Librarians, who were ready to be interviewed the same day, were interviewed. Otherwise, a different day was set for those who were not ready on that particular day. The University Librarians were interviewed at their own convenient time. The interviews with all the University Librarians were audio recorded with their signed consent. For the Systems Librarians, majority did not want the interview to be audio recorded.

The researcher also visited the directors/heads of the Disability Mainstreaming departments (or their representatives) and formal introductions were made and the researcher briefed them about the research and asked them to participate in the research. In one institution the head of the Disability Mainstreaming department was not willing to participate in the research. For those who were willing, dates for interviews were set and the interviews were conducted and audio recorded with the signed consent from the officers. As for the people with visual and physical impairments, the researcher was introduced to the representative of the people with visual and physical impairments with whom the researcher was going to work in contacting the people with visual and physical impairments. Once the people with visual and physical impairments were contacted and they agreed to participate in the research, the questionnaire was distributed to the people with physical impairments while dates for the Focus Group Discussion with the people with visual impairments were set. Most of the FGD were conducted on Saturday and Sunday in order not to interfere with lectures as the people with visual impairments attended lectures at different times during the week. This also ensured a good turnout of the participants. Before the commencement of the FGDs, the researcher and the participants agreed on the ground rules with regard to noise and use of phones in the discussion room. The researcher asked for consent from the participants to record the discussions to which most of the FGs agreed apart from one that did not want to be audio recorded. However, all the FGs agreed to the audio recording while the researcher was reading the informed consent to them.

4.10 Validity and reliability

Validity and reliability are ways that demonstrate and communicate rigour of research processes as well as trustworthiness of research findings (Roberts, Priest, & Traynor, 2006, p. 41). Validity is defined by the degree by which any measurement instrument measures what it is expected to measure (Bryman, 2016, p. 118; Kothari, 2004, p. 53;

Roberts et al., 2006, p. 41; Tavakol & Dennick, 2011, p. 53; Zohrabi, 2013). In other words validity is concerned with whether the research is believable and true and whether it is evaluating what it is supposed or purports to evaluate (Zohrabi, 2013, p. 258). Reliability on the other hand, is the degree to which an experiment or measurement yields the same results when performed on different occasions and under different situations (Drost, 2011, p. 106). Reliability describes the extent to a test, procedure or tool, such as a questionnaire will produce similar results in different circumstances, assuming that things remain constant (Roberts et al., 2006, p. 41).

To ensure validity and reliability of the data collection instruments in this study, a pilot study was carried out. Polit and Beck (2008, p. 217) define a pilot study as “a small-scale version or trial run designed to test methods to be used in a larger, more rigorous study”. Pilot studies are important in that they provide knowledge about the feasibility and acceptability of research methods because pilot data are needed to justify use of specific methods proposed in the applications for full-scale study. In a similar vein, Moore, Carter, and Nietward (2011, p. 2) define pilot studies as “preparatory studies designed to test the performance characteristics and capabilities of study designs, measures, procedures, recruitment criteria, and operational strategies that are under consideration for use in a subsequent, often, larger study.” Moreover, pilot study can reveal logistical issues before embarking on the main study (Feeley & Cossette, 2016, p. 199; Hazzi & Maldaon, 2015, p. 53). In short, pilot study can caution the researcher in advance regarding the areas where the main research study could fail, where research procedures may not be followed as well as whether protocols may not be followed, or whether the planned methods or tools are unsuitable or too complex (van Teijlingen & Hundley, 2001). Brace (2008, p. 177) identifies five types of pilot studies namely *informal pilot* which is conducted with a small number of colleagues; *cognitive interviewing* in which the questionnaire is tested amongst respondents; *accompanied interviewing* which may be used to test for interviewer and routing errors; *large-scale pilot* studies where a large number of interviews can be used to test for completeness of brand lists or incidence of sub-groups; and *dynamic pilots*, where question wording is changed between interviews to test alternatives based on responses received.

This study applied the cognitive interviewing pilot survey in which a small sample group of respondents from a university that was not included in the main study but whose respondents had characteristics similar to the respondents in the main study. Cognitive

interviewing helps to detect how well the questions are measuring what they are intended to measure, how they are failing, and determine how to rectify the problems identified in the instruments (Willis, 2005). The size of the pilot sample was determined based on 10 percent of the main study sample which translated to sixteen library staff, nine the people with visual impairments, twelve the people with physical impairments, one systems librarian, one staff of the Disability Mainstreaming department, and one University Librarian. Connelly (2008) proposes that the pilot study sample should constitute 10 percent of the sample proposed for the large main study. The pilot testing provided a trial run for the data collection procedure.

The pilot data was analysed and generated a Cronbach value of 0.74 for the library staff questionnaire and 0.78 for the questionnaire for the people with physical impairments. Coefficient Alpha is used to approximate the amount of variance that is systematic or consistent in a set of test scores; the higher the alpha value, the higher the reliability of the test items (Brown, 2002, p. 17; Tavakol & Dennick, 2011, p. 53). George and Mallery (2003) cited in Gliem and Gliem (2003, p. 87) provides the following range of values as a rule of thumb: $\alpha > 0.9$ -Excellent, $0.9 > \alpha > 0.8$ -Good, $0.8 > \alpha > 0.7$ -Acceptable, $0.7 > \alpha > 0.6$ -Questionable, $0.6 > \alpha > 0.5$ -Poor, $\alpha < 0.5$ -Unacceptable. Based on this, the alpha values generated in the pilot study were good.

Similarly, a focus group discussion was conducted with nine the people with visual impairments and interviews were conducted with a University Librarian, the System Librarian, and a staff of the Disability Mainstreaming department. The researcher transcribed the interviews and the FGD, did thematic analysis and with other researchers (peers) went through the interview, the FGD schedules and the findings to see if the results portrayed the phenomenon that was being studied (Bryman, 2016, p. 118); and whether the questions were ambiguous or vague. Polit and Beck (2008, p. 51) posit that before implementation of research, researchers normally subject their research plan to critique by peers, consultant or other reviewers so that they can receive their feedback on pitfalls and shortcomings that otherwise might not have been recognised. The questions in the two research tools were found to be okay and thereafter, minor corrections were made on the research instruments such as numbering and grammatical errors.

By using more than one data collection method in this study, this promoted validity of results based on several viewpoints and methods (Yeasmin & Rahman, 2012, p. 156).

Methodological triangulation allows for evaluation of the extent to which an internally consistent picture of the phenomenon emerges (Polit & Beck, 2008, p. 432).

4.11 Ethical considerations

The major ethical issues in conducting research include informed consent respect for privacy/confidentiality; avoidance of unnecessary deception, minimisation of harm; and respect for persons (Bryman, 2016; Creswell, 2014). According to Trochim, Donnelly, and Arora (2016, p. 40) informed consent is a rule of enlightening the research participants about the procedures applied in the research as well as the risks involved in the research. It suggests that all participants must consent before participating in research. It pertains to a person consciously, willingly and intelligently, and in a clear and obvious way, giving his consent to participate in research (Bryman, 2016, p. 529). The right to voluntary participation is core in research. It allows the research participants to decide whether to participate in research or not without being forced. It also allows them to pull out of the research at any time without form of disadvantage (Trochim et al., 2016, p. 41). On the other hand, deception is the deliberate use of dishonest or distorted information in study procedures (Bryman, 2016; Trochim et al., 2016). If there is any deception that is used in study, it is important for the researcher to justify it on scientific grounds and make sure to provide complete debriefing about the actual nature of the study once it has been completed (Trochim et al., 2016, p. 43). According to Diener and Crandall (1978) cited in Bryman (2016), harm pertains to physical harm, loss of self-esteem, stress and inducing subjects to perform acts during the research. As for privacy, the right to privacy is a principle that many people treasure; breach of this right in research is unacceptable (Bryman, 2016; Creswell, 2014). Privacy in research pertains to protection of personal information about the participants. This is done by adhering to confidentiality procedures that specify who can have access to personally identifying data, as well as use of anonymous data in which no personally identifying information is ever collected (Trochim et al., 2016, p. 42).

For the purpose of this study, the researcher sought approval to conduct research in the said universities from the National Council for Science, Technology and Innovation (NACOSTI) as well as from the relevant authorities in the universities where data was collected. The study also complied with the University of KwaZulu-Natal ethical protocol which requires the researcher to apply for ethical clearance which was granted before the commencement of the study. Upon receipt of ethical clearance, the researcher sought

approval to conduct research from the County Commissioners and County Directors of Education in all the Counties where the universities were located. The researcher met the participants and conducted research within the universities where the respondents conduct their daily business. Before distributing questionnaires and conducting the focus group discussions, the researcher obtained the age of the respondents to determine if there were respondents who were under 18. The Constitution of Kenya, 2010 considers a person who has attained 18 years as an adult and one below 18 years as a child (Republic of Kenya, 2010). All the respondents were over 18 years so the researcher did not have to obtain consent from the guardian/parent of the respondents. The researcher availed the survey questionnaire and the focus group schedule to be reviewed by the directors of the Disability Mainstreaming departments to ensure that the questions were acceptable. The participants were briefed beforehand about the nature of the research, how it would benefit them, and about their rights to participate or not to participate, and the right to withdraw from the study at any time if they so wished without any sanctions.

Consent was sought from participants for audio-recording of the focus group discussion and interviews. The researcher read the informed consent to the participants with visual impairments in the presence of a representative from the Disability Mainstreaming department in the respective universities. All the respondents signed the consent form as a commitment that they understood the nature of the research and that they were willing to participate. Since it proved difficult to provide refreshments during the focus group discussion, the researcher and the participants agreed on a token of appreciation in form of cash to be paid to each participant at the end of the focus group discussion. Krueger and Casey (2015) opine that incentives are needed because it takes effort to participate in a focus group. Moreover, providing incentives motivates people to participate in research, serves as an acknowledgement for their time and effort, and indicates that the focus group is important (Litosseliti, 2003, p. 38).

The reasons why researchers require ethical approval for research with human participants as highlighted by Canterbury Christ Church University (2014, p. 3) include:

1. To protect the rights and welfare of participants and minimise the risk of physical and mental discomfort, harm and/ or danger from research procedures.
2. To protect the right of the researcher to carry out any legitimate investigation, as well as the reputation of the university, for research conducted and /or sponsored by it.

3. To minimise the possibility of claims of negligence against individual researchers, the university and any collaborating persons or organisations.

4.12 Summary

This chapter discussed the research methodology used in the research, the paradigm, research methods, research design, population of study, sampling procedures, data collection procedures, data analysis strategies, validity and reliability of data collection instruments and ethical considerations. The study used the pragmatic paradigm that supports the mixed method approach in which qualitative and quantitative research methods are used concurrently. The study used survey research design. In addition, purposive sampling was used to select the universities where data collection was conducted. Furthermore, due to the small number of population in the respective universities, the study adopted census where the entire population in the respective universities was studied. Data was collected using survey questionnaire, interview schedule, focus group discussion schedule, and observation schedule. Quantitative data was analysed using IBM SPSS software, while the qualitative one was analysed thematically. Reliability and validity was ensured through pilot testing and triangulation of qualitative and quantitative methods which allowed for validation of the study results.

CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION OF FINDINGS

5.1 Introduction

Data analysis is “the application of statistical techniques to data that have been collected” (Bryman, 2016, p. 10). Monette, Sullivan, and DeJong (2011, p. 376) argue that data analysis means deriving some meaning from the observations made during a research project. It is the process of computing various summaries and derived values from the given collection of data (Mirkin, 2011, p. 1). According to Hatch (2002, p. 148) “data analysis is a systematic search for meaning. Analysis means organising and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanation, make interpretation, mount critiques, or generate theories.”

This chapter presents the research findings. The aim of the study was to examine information service provision for the people with visual and physical impairments in public university libraries in Kenya. The study sought to address the following specific research questions:

1. How does the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
2. What information services are available for the people with visual and physical impairments?
3. How is ICT applied to facilitate access and use of information by the people with visual and physical impairments?
4. How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
5. How does the library building design affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
6. What measures do the public university libraries in Kenya need to take to ensure inclusive information services for people with visual and physical impairments?

The study was underpinned by the IFLA Access to Libraries for Persons with Disabilities Checklist, and the Social Model of disability. The study was based on the pragmatic paradigm that uses the mixed methods approach. The study was conducted in six public university libraries in Kenya namely Egerton University, University of Nairobi, Kenyatta University, Moi University, Jomo Kenyatta University of Agriculture and Technology, and Maseno University. Data was collected from the people with physical impairments, the people with visual impairments, the library staff that provided services to the people with impairments, the University Librarians, the Systems Librarians and the staff of the Disability Mainstreaming department. Data collection tools included survey questionnaires which were administered to the people with physical impairments and the library staff who provided services to the people with impairments. In addition, interview schedule was used to collect data from the University Librarians, the Systems Librarians and the staff of the Disability Mainstreaming department. Moreover, focus group discussion schedule was used to collect data from the people with visual impairments in each of the six universities. Last but not least, an observation schedule was used to collect data about the structures and facilities in the library.

5.2 Response rate

According to Bryman (2016, p. 141) response rate is the percentage of a sample that consents to participate in a research. Babbie (1992, p. 266) argues that response rate is a guide to the representativeness of the sample and if a high response rate is achieved, there is less chance of significant response bias than if a low response rate is achieved. Curtis, Murphy, and Shields (2014, p. 63) argue that there are no rules and guidelines about what constitutes an acceptable response rate because response rates differ within social research depending on the methods used, the nature of the respondents and the types of issues being investigated. However, Mangione (1995, p. 60-1) cited in Bryman (2016, p. 178) and Walliman (2016, p. 125) suggests that over 85% response rate is excellent, 70%-85% is very good, 60%-69% is acceptable, 50%-59% barely acceptable, while below 50% is not acceptable.

Cargan (2007, p. 101) is of the opinion that a response rate of 50% is acceptable and that higher rates of 60% and 70% are good. This is supported by Rubbin and Babbie (2011, p. 388), and Maxfield and Babbie (2015, p. 245) who suggest that a response rate of at least 50% is usually considered adequate for analysis and reporting. A response of at least 60% is good, while a response rate of 70% is very good.

5.2.1 Response rate of survey questionnaires

A survey questionnaire (see Appendix 5) was administered to 168 library staff that provided services to the people with visual and physical impairments, and another one (see Appendix 6) was administered to 117 the people with physical impairments. Out of the 168 questionnaires administered to the library staff, 133 were filled and returned yielding a response rate of 79.17%, while 91 out of the 117 that were administered to the people with physical impairments were filled and returned yielding a response rate of 77.78% as shown in Table 4. This was a very good response rate. The high response can be attributed to the follow-ups made by the researcher.

Table 4: Response rate of survey questionnaires

Category of respondents	University	No of Questionnaires distributed	No of Questionnaires returned	Response rate (%)
The people with physical impairments	University A	51	33	64.71
	University B	11	7	63.64
	University C	28	26	92.86
	University D	17	15	88.24
	University E	7	7	100
	University F	3	3	100
	Total		117	91
Library staff	University A	39	33	84.62
	University B	28	19	67.86
	University C	35	26	74.29
	University D	17	17	100
	University E	25	21	84
	University F	24	17	70.83
	Total		168	133

(Source: Field data, 2017)

5.2.2 Response rate from interviews

Six interviews were conducted with the University Librarians from the six public universities giving a response rate of 100%, five out of six interviews with staff from the Disability Mainstreaming department in the six public universities yielding a response rate of 88.33%. The staff in the Disability Mainstreaming department in University D was too

busy to be interviewed. In addition, five out of six interviews with the Systems Librarians in the six public universities were conducted yielding a response rate of 88.33%. Again in University D, there was no Systems Librarian. Table 5 presents a summary of interview response rate. Overall, the response rate was excellent.

Table 5: Response rate of interviews

Category of respondents	University	No of Interviews targeted	No of Interviews conducted	Response rate (%)
University Librarians	University A	1	1	100
	University B	1	1	100
	University C	1	1	100
	University D	1	1	100
	University E	1	1	100
	University F	1	1	100
	Total		6	6
Systems Librarians	University A	1	1	100
	University B	1	1	100
	University C	1	1	100
	University D	1	0	0
	University E	1	1	100
	University F	1	1	100
	Total		6	5
Staff of Disability Mainstreaming department	University A	1	1	100
	University B	1	1	100
	University C	1	1	100
	University D	1	0	0
	University E	1	1	100
	University F	1	1	100
	Total		6	5

(Source: Field data, 2017)

5.3 Biographical information

This section presents the biographical information of the respondents in the six public universities that were studied.

5.3.1 Academic programmes undertaken by the people with visual and physical impairments

The study sought to find out the level of education of the respondents. The people with visual and physical impairments were required to indicate the academic programmes they were undertaking. The response indicates that majority (87, 95.60%) of the people with physical impairments were taking Bachelor degree courses with 3(3.30%) taking Master’s degree course, and only 1(1.10%) taking a Diploma courses as presented in Table 6. Besides offering degrees programmes, universities in Kenya offer diploma and certificate courses in various disciplines (Republic of Kenya, 1985, 1986, 1987, 1988, 1994, 2000). The diploma and certificate courses require lower entry requirements than the degree courses (Oduor, 2018, para. 18). A diploma is the level of qualification below degree and above the certificate while the certificate is the level of qualification below diploma or its equivalent (Republic of Kenya, 2013b).

Table 6: Academic programmes undertaken by the people with physical impairments

	Frequency (n)	Percent (%)	Cumulative (%)
Bachelors	87	95.60	95.60
Masters	3	3.30	98.90
Diploma	1	1.10	100
Total	91	100	

(Source: Field data, 2017)

As for the people with visual impairments who participated in the FGDs, majority (69, 86.25%) were taking Bachelor degree courses, 10(12.50%) were taking Diploma Courses and one (1.25%) was taking a Master’s degree course.

5.3.2 Level of education of library staff

For the level of education of the library staff, almost half of them possessed Bachelor degrees at a frequency of 57(42.86%) followed by Diploma certificate holders with 39(29.32%), Master’s Degree holders with 33(24.81%) and Certificate holders (3, 2.26%). Only one of the respondents had attained a PhD degree accounting for one (0.75%) as shown in Table 7.

Table 7: Level of education of the library staff (n=133)

	Frequency(n)	Percent (%)	Cumulative (%)
Degree	57	42.86	42.86
Diploma	39	29.32	72.18
Masters	33	24.81	96.99
Certificate	3	2.26	99.25
PhD	1	0.75	100
Total	133	100	

(Source: Field data, 2017)

For the University Librarians, 3(50%) Most of the Systems Librarians (3, 60%) were holders of Master’s degree, while 2(40%) were Bachelor’s degree holders. As for the staff of the Disability Mainstreaming department, 2(40%) were Master’s degree holders, 2(40%) were Diploma certificate holders, and 1(20%) was a PhD degree holder.

5.3.3 Gender of the respondents

The majority of the people with physical impairments (64, 70.33%) were male with only 27(29.27%) being female. This reflects a great gender disparity in terms of enrolment of students with physical impairment in public universities in Kenya. In contrast, the current national statistics on the people with impairments indicates that there are 1,330,312, people with physical impairments of whom 647,689 (48.7%) are males while 682,623 (51.3%) are females (Kenya National Bureau of Statistics (KNBS), 2018). This shows that there are more females with physical impairments than males in Kenya. However, fewer females than males are enrolled in public universities. For the people with visual impairments, there was a slight gender disparity in the respondents of FGDs. Most of the respondents (47, 58.75%) were male, while 33(41.25%) were female.

With regard to the library staff there was an element of gender parity in the responses with 69(51.88%) of the total respondents being male and 64(48.15%) being female. This also shows an element of gender equity in terms of employment of the staff who served the people with visual and physical impairments in public university libraries. This resonates well with the constitutional requirement of the two-thirds gender rule as well as the social justice of gender fairness between males and females when it comes to employment entrenched in chapter four – Bill of rights of the Constitution of Kenya 2010 (Republic of Kenya, 2010). For the University Librarians, there was a balance between male and female

at a frequency of 3(50%) each. Most of the Systems Librarians 3(60%) were male, while 2(40.00%) were female. As for the staff of the Disability Mainstreaming departments, 3(60%) were female, while 2(40%) were male.

5.3.4 Age of respondents

The study sought to find out the age of the respondents. Most of the people with physical impairments (42, 46.15%) were between 21 and 23 years with 24(26.37%) aged between 24 and 26 years. Those aged between 18 and 20 years received a frequency of 17(18.68%) while those between 27 and 30 years had a frequency rate of 6(6.59%). The oldest in the group at 2(2.20%) were aged above 30 years. This result shows that half of the people with physical impairments were aged between 18 years and 23 years. This can be explained by the fact that majority of the people with physical impairments were undergraduates whose age bracket was expected to be between 18 years and 26 years as shown in Figure 6 below.

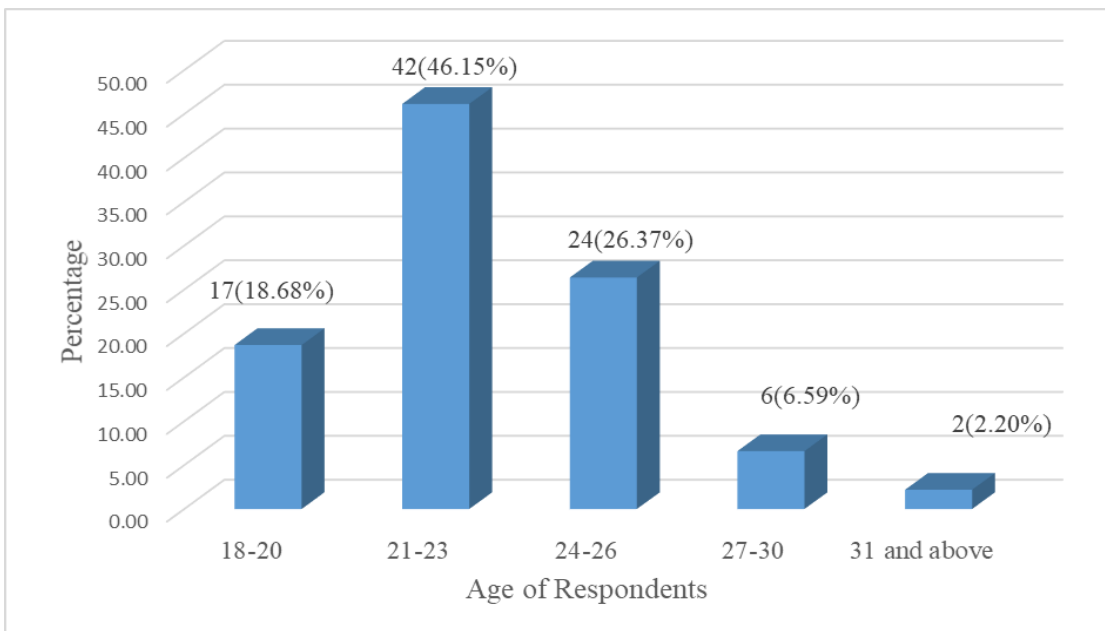


Figure 6: Age of the people with physical impairments (Source: Field data)

For the people with visual impairments, the respondents aged between 21 and 23 years and 24 and 26 years, were 28(35%) in each age category, while those aged between 27 and 29 years were 5(6.25%). The oldest in the group aged over 30 years were 5(6.25%). The youngest aged between 18 and 20 years were 14(17.50%). This indicates that more than half of the people with visual impairments in the studied institutions were aged between 21 and 26 years.

For the library staff, it is evident from the responses that a good number 43(32.33%) were between 41 and 50 years age group followed closely by those aged between 31 and 40 years (38, 28.57%). Those between the age of 20 and 30 years received a frequency of 31(23.31%), while the oldest library staff (21, 15.17%) were above 50 years. This result points to the fact that a sizeable number of the staff were approaching the retirement age. However, more than half of the employees were aged between 20 and 40 years as shown in Figure 7 below.

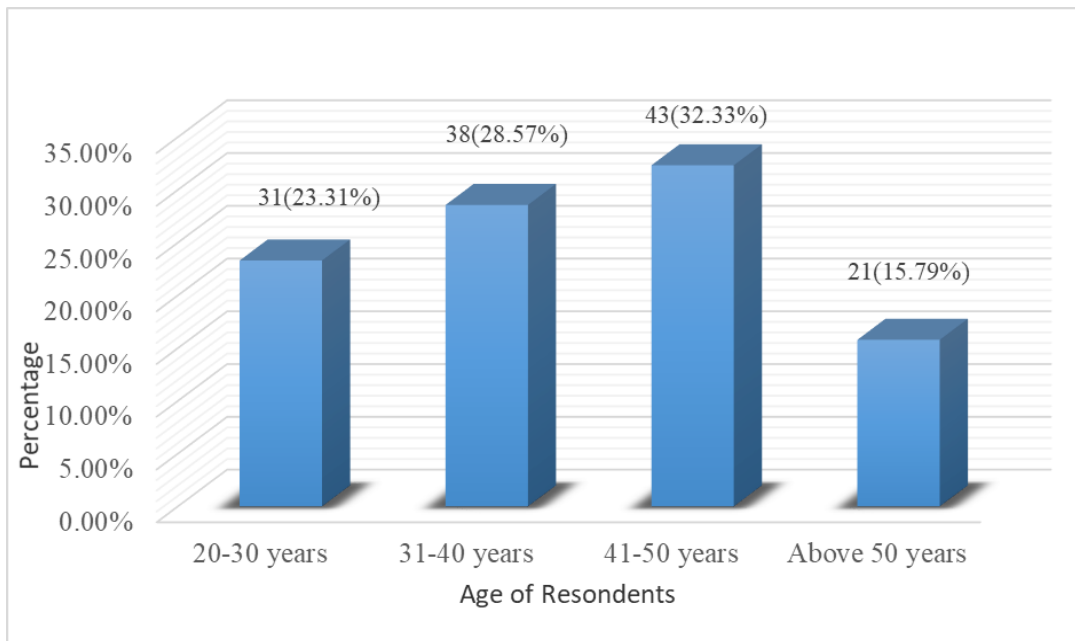


Figure 7: Age of the library staff (n=133) (Source: Field data)

As for the University Librarians, most of the respondents (4, 66.67%) were aged between 41 and 50 years, while 2(33.33%) were aged above 50 years. Most of the Systems Librarians (4, 80%) were aged between 41 and 50 years, while 1(20%) was above 50 years age bracket. As for the staff of the Disability Mainstreaming, most of the respondents (3, 60%) were above 50 years, while 2(40%) were in the 31-40 years age bracket.

5.3.5 Work experience of respondents

The study sought to find out the number of years worked by the library staff that provided services to the people with visual and physical impairments. They included the University Librarians, the Disability Mainstreaming department, and the Systems Librarians. Majority (89, 66.92%) of the library staff had worked in their respective institutions between 1- 10 years. Those that had worked for between 21-30 years were 34(25.56%), while 10(7.52%) had worked between 31-40 years. This result points to the fact that any

training should focus on the new library staff given that they are the majority in the institutions. Figure 8 presents the result on the years worked by the library staff.

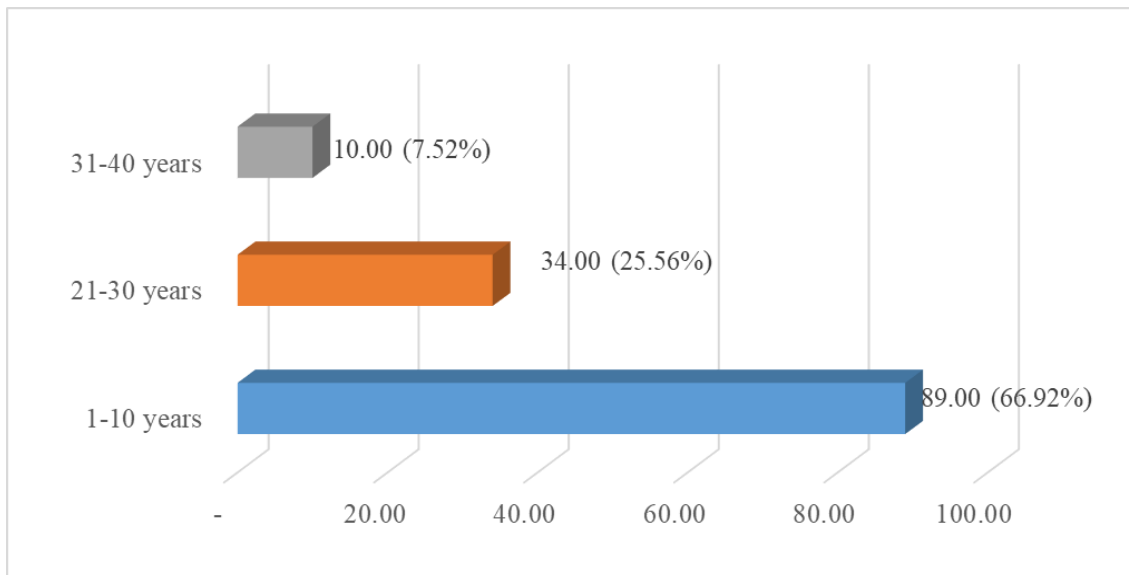


Figure 8: Years worked by the library staff (n=133) (Source: Field data)

For the University Librarians, 4(66.67%) had worked between 1 and 10 years, 1(16.67%) had worked the longest period between 21 and 30 years, while 1(16.67%) had worked for the shortest period of five months. For the Systems Librarians all 5(100%) had worked between 1-10 years. As for the staff of the Disability Mainstreaming department, (4, 80%) had worked between 1-10 years, while 1(20%) had worked between 21-30 years.

5.4 Library policies and inclusive information services

The study sought to find out from the University Librarians if the libraries had policies on provision of library and information services for the people with visual and physical impairments. All the respondents in the six public university libraries stated that the libraries did not have a standalone policy regarding information service provision for the people with impairments. The respondents were asked to explain how they provided services to the people with visual and physical impairments without a written policy guideline. Most of the respondents in University A, University B, University C, University E and University F stated that provision of information services to the people with impairments in the university libraries was guided by the university wide Disability Mainstreaming Policy. They also indicated that issues of impairments had become part of performance contracting in the universities where all the departments set targets, and indicated how they were going to meet those targets. Therefore, the libraries set targets on

how they are going to meet the needs of the people with impairments. One of the University Librarians in this regard remarked:

“...Uum..well... uum... provision of services to the customers with impairments is actually taken care of within the performance contract. Various departments actually sign performance contract in the university management so we provide services to the people with physical challenges like for example in the library department... we set that as the performance contract target and articulate to actually meet that target within the stipulated time which is within one financial year”(UL3).

The respondents in University E and University F said that besides the Disability Mainstreaming Policy there was a clause in the library’s circulation policy that touched on provision of services to the people with impairments. As for what the policy aimed to achieve, the respondents indicated that it made sure there was dedicated and trained staff, of facilities such as braille, computers, and space for the people with impairments in the library. It also ensured compliance with the national non-discrimination laws.

Furthermore, the University Librarians were asked if there was a budget for extending information services to the people with visual and physical impairments in their respective universities. All the respondents in the six public universities said that there were no specific budgets dedicated to provision of information services to the people with visual and physical impairments. The respondents stated that budgeting for the people with impairments was done when needs arose as one of them observed:

“....there is no separate or dedicated budget for that. However internally we make sure that the relevant resources are provided. Uum... whenever need arises, uum... for example if we want to buy extra computers or software for them we make sure that they (university) provide” (UL2).

When asked how the libraries assessed the needs of the people with visual and physical impairments, all the respondents said the libraries had no structured measures of evaluating the needs of the people with visual and physical impairments as remarked by one of them:

“...uum of course they are part of our users. But we have not done any (evaluation) so far specifically for them. I think that is a good idea...we can be able to do that” (UL4).

However, University A, University B and University C respectively stated that they used survey for the general users, customer feedback registers where library users could register their concerns, and one of them said the library did face to face discussions with the people with impairments to try and understand their needs. In University F, the respondent said the library used suggestion boxes and online self help desk where the people with impairments posted their concerns.

The study also sought to find out from the University Librarians what other units in their respective universities collaborated with the libraries in providing specialised services to the people with visual and physical impairments. Most of the respondents in University A, University B, University C, and University F said the libraries collaborated with the Disability Mainstreaming departments, the Faculties, ICT departments, the student body, and the Directorate of Student Affairs so that the libraries could establish how many the people with impairments were admitted in the university, the type of impairments they had, the kind of facilities they required and the kind of information they required and in what format. The library in University C also collaborated with, the National Council for Persons with Disabilities, and the Kenya Institute of Education. The respondents in University D and University E said the libraries collaborated with the School of Education. The Interviews with staff from Disability Mainstreaming departments confirmed that they collaborated with the university libraries in various aspects. The respondents in University A, University B, University C and University E confirmed that the Disability Mainstreaming departments incorporated at least one library staff in the Disability Mainstreaming Committee so that they could work together to provide better services to the people with impairments using the library. In addition, the Disability mainstreaming departments provided transport to take the people with impairments to the library and had also facilitated the procurement and installation of JAWs screen reading software and the open source Non-Visual Desktop Access (NVDA) in several computers in the library. The departments also supported training in braille and sign language and organising sensitisation workshops for the library staff. In University B the respondent said that the Disability Mainstreaming department facilitated the installation of a ramp at the library building entrance and a lift within the library; and ensured that spacing between

the shelves was done properly to allow accessibility by the people with physical impairments. In addition the office carried out regular accessibility audits in the library. The office also created a space with a bed within the library for use by people who had problems that could not allow them to sit for long.

5.5 Provision of information services to the people with visual and physical impairments

This section sought to examine the provision of information services to the people with physical impairments in public university libraries.

5.5.1 Library orientation

An enquiry from the library staff on whether the public university libraries provided specialised library orientation programme to the people with visual and physical impairments revealed that 76(57.14%) of the library staff were in agreement that such training was in place and indeed offered with 57(42.86%) being of the contrary opinion.

The people with physical impairments were required to indicate if they had received library orientation programme. A cross tabulation of university and receipt of library orientation was generated. Across the universities, majority of the people with physical impairments with a frequency of 72(79.12%) stated that they had received library orientation services with only 19(20.88%) having not received such services. An analysis of the individuals universities revealed that all the respondents in University B and University F had received library orientation at a frequency of 7(100%) and 3(100%) respectively. University E, University C, and University D came second with a frequency of 6(85.71%), 22(84.62%), and 12(80%) respectively. University A came last with a frequency of 22(66.67%). The probability value calculated at 95% level of confidence is 0.269. The chi-square calculated value was 6.4037. This shows that there was no significant difference among the universities with regard to the people with physical impairments on whether they had received or had not received library orientation as shown in Table 8.

Table 8: A cross tabulation of university and receipt of library orientation

	Receipt of Library Orientation		Total	
		No		Yes
A	f(n)	11	22	33
	%	33.33	66.67	100
B	f(n)	0	7	7
	%	0	100	100
C	f(n)	4	22	26
	%	15.38	84.62	100
D	f(n)	3	12	15
	%	20	80	100
E	f(n)	1	6	7
	%	14.29	85.71	100
F	f(n)	0	3	3
	%	0	100	100
Total	f(n)	19	72	91
	%	20.88	79.12	100
Pearson chi2(5) = 6.4037 Pr = 0.269				

The receipt of library orientation by the people with visual and physical impairments was confirmed by majority of the respondents in the FGDs, who stated that they were given library orientation when they joined the university. However, some of the respondents reiterated that they were never given any specialised library orientation; what they were given was just aimed at the general users. One of the FGD respondent observed:

“.... the orientation I have attended for the library they do it just on the integrated basis. They dont consider that others are disabled. So they just do it. May be they would have shown us how to use the area for visually impaired and other things but instead they just do it like any other orientation”(FDG1).

5.5.1.1 Content of the library orientation programme

An enquiry from the library staff on the content of the library orientation programme provided to the people with visual and physical impairments indicates that most of the respondents (30, 22.56%) mentioned assigning of reading aids (readers) to the people with

visual impairments as one of the major content. Training on sign language came second at 27(20.30%). Other contents of the programme mentioned by the staff include braille and sign language training (20, 15.79%), training on how to access information (20, 15.04%), how to use the Online Public Access Catalog (OPAC), and training on mobility within the library at a frequency of 10(7.52%) each as shown in Figure 9.

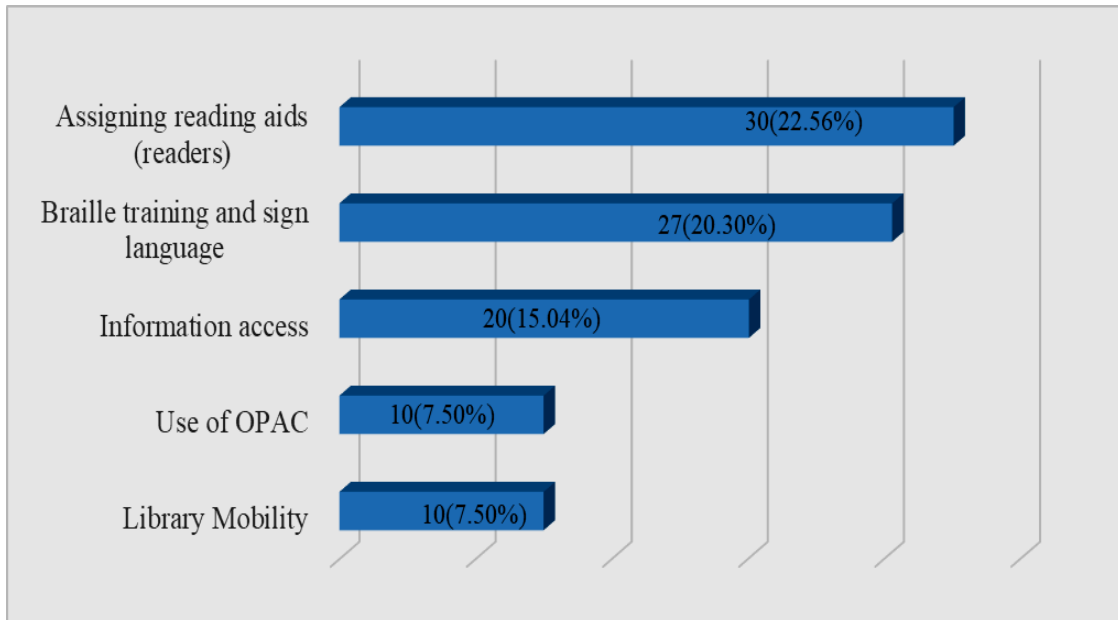


Figure 9: Response of library staff on the content of library orientation programme (n= 133) (Source: Field data)

For the people with physical impairments who had received the library orientation services, more than half pointed out that they had received training on access to internet resources and services (49, 53.85%). A fair number of them responded that they had received orientation on how to use internet and web resources (41.76%), orientation on the usage of the Online Public Access Catalog (OPAC) (41, 45.05%), tour of the library building upon admission (39, 42.86%) as well as the orientation on the basics of computer applications (37, 40.66%). From the analysis, orientation on the use of Assistive technology and devices, Storage and access of online study materials did not come out very strongly. Orientation on the usage of the search engines came out least at 20(21.98%). The results call for beefing up of orientation programmes in the public university libraries and ensure that students with impairments are taken through all the training that they require to be able to access and use information resources and services. A summary of the responses is presented in Table 9 below.

Table 9: Response of the people with physical impairments on content of orientation programme (n=91)

	Frequency (n)	Percent (%)
Training on access of internet resources and services	49	53.85
Using the Online Public Access Catalog (OPAC)	41	45.05
Tour of the library building	39	42.86
How to use internet and web resources	38	41.76
Basics of computers applications	37	40.66
Training on the effective use of Assistive technology and devices	33	36.26
Storage and access of online study materials	31	34.07
How to use search engines	20	21.98

(Source: Field data, 2017)

For the people with visual impairments, majority of respondents in the FGDs indicated that the content of the library orientation entailed a tour of the library where they were shown the facilities such as the lifts and how to operate them, how to use the computers and the assistive technology and devices, the washrooms, the place where they were to sit and introduction to the staff who would attend to them. They were also shown where to find drinking water and turning the taps on and off. In addition, they were shown the emergency exits in case of fire or flooding. The respondents also said they were counselled to enable them cope with campus life. One of the FGD in this regard remarked:

“They provide us with some advice on how to cope up with the campus life or challenges that will be facing you when you are alone.” (FGD7)

This implies that the people with visual and physical impairments were provided with specialised library orientation, a fact that was confirmed by the University Librarians as one of them observed:

“...there is always that other part from the orientation when they first come (in their first year). For the people with disability we link with the departments and get to know.... and the student body, director of student affairs to know all those students with

disabilities then we call them...umm to discuss with them umm... the areas of disabilities they haveumm... and how we can help them...it is through this that we are able to provide them with that training. Eeeh... you can't orient them like any other students. So theirs is special we just tell them this is what we have within the library and it is meant for you, this is the space which is there for you, these are the members of the staff who are supposed to deal with you, if you have issues, this is the place to go.” (UL6).

However as indicated earlier in section 5.5.2 above, some respondents in the FGDs reiterated that they were not provided with specialised library orientation that would suit their needs. In addition, respondents in one of the FGDs said they were never given any library orientation in their institution.

5.5.1.2 Frequency of use of the library by the people with visual and physical impairments

An inquiry on the frequency of use of the library by the people with visual and physical impairments indicates that a substantial number of the people with physical impairments (38, 41.35%) often used the library with 24(26.37%) using the library always, while 21(23.08%) used the library sometimes. Thus, more than half of the people with physical impairments used the library as much as possible. This would therefore call for proper equipment of the libraries, given their high level of usage among the people with physical impairments. However, 3(3.30%) of the respondents rarely used the library and 5(5.49%) said they never utilised the library, citing mobility problems. Table 10 presents the responses.

Table 10: Frequency of use of the library by the people with physical impairments (n=91)

	Frequency (n)	Percent (%)	Cumulative (%)
Often	38	41.76	41.76
Always	24	26.37	68.13
Sometimes	21	23.08	91.13
Never	5	5.49	91.21
Rarely	3	3.30	100
Total	91	100	

(Source: Field data, 2017)

Regarding the people with visual impairments, majority of the respondents in the FGDs said that they used the library services regularly, while others stated that they used the library services occasionally. However, respondents in one FGD said they rarely used the library because the services for the people with visual impairments were not available. This was confirmed by the University Librarian who observed:

“...currently we do not have any (services) but uum... when I look around, the university has provided for ramps at the entry to all buildings including the library so I regard that one as first step” (SL1).

5.5.2 Staff awareness and / special needs training

The study sought to find out whether the library staff who provided services to the people with visual and physical impairments in public university libraries had received awareness/ special needs training. The response indicates that a good number (82, 61.65%) of the library staff who provide services to the people with visual and physical impairments had not received special needs training with 51(38.35%) indicating that they had received such training as shown in Table 11.

Table 11: Staff awareness and / special needs training (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
No	82	61.65	61.65
Yes	51	38.35	100
Total	133	100	

(Source: Field data, 2017)

5.5.2.1 Type of awareness and /training in special needs

For the library staff who said they had received staff awareness and /training in special needs, the study sought to find out what type of training they had received. The findings indicate that (34, 66.67%) of the respondents pointed out that they had received training and awareness on the use of assistive and adaptive technology followed by awareness and special training on handling the people with impairments (10, 19.61%) and training in sign language (7, 13.73%) coming third as presented in Table 12 below.

Table 12: Type of awareness and /training (n=133)

	No	Yes	Total
None	82	0	82
Assistive and adaptive technology	0	34	34
Sign language	0	7	7
Special training in handling the people with impairments	0	10	10
Total	82	51	51

(Source: Field data, 2017)

The interviews with the University Librarians and the staff of the Disability Mainstreaming departments confirmed that some library staff had training in braille and sign language, while majority had received disability awareness training. This training and awareness was organised by Disability Mainstreaming departments in the respective universities. However, the University Librarians observed that the trained staff were inadequate and there was need to train more, though some library staff had taken their own initiative to privately enrol and pay for sign language and braille training as one of the University Librarians observed:

“...Yes we need to train again a good number of staff with sign language....most of them pay for themselves just to be unique

because this is a new area which we feel is selling. It adds value in their CV” (UL6)

5.5.2.2 Rating the relevance of training in assisting the people with impairment

The library staff ranking of the relevance of the training revealed that (35, 68.63%) of those who had received the training consider the training as very relevant, while 16(31.37%) consider the training relevant as shown in Figure 10

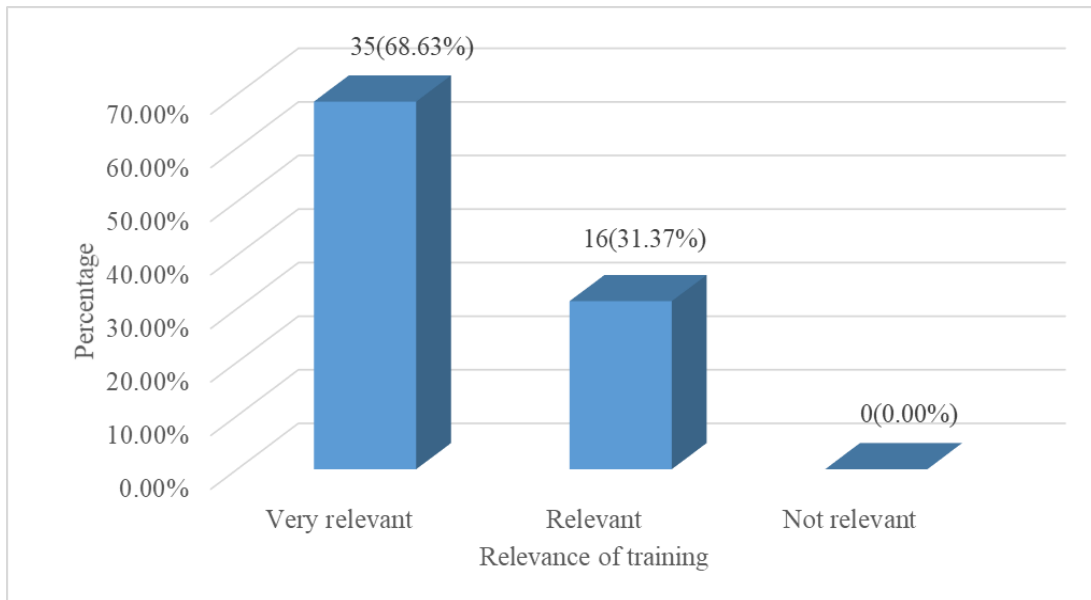


Figure 10: Rating of the relevance of staff training (n=133) (Source: Field data)

5.5.2.3 Importance of information sources provided by the library

The study sought to find out how the people with physical impairments rated the importance of information sources provided by the library. A three point Likert scale of 1= not important, 2=moderately important and 3=important was used to rate the information sources. Most of respondents rated most of the information sources as important. Text books received a frequency of 65(71.43%), print journals (58, 63.74%), Institutional repository (47, 51.65%), Online Public Access Catalog (OPAC) (75, 82.42%), e-databases (66, 69.23%), internet (80, 87.91%), e-books (63, 69.23%), e-journals (61, 67.03%), audio-visual materials (70, 76.92%) and dictionaries (54, 63.74%). However, only 38(41.76%) said that C-D ROMs were very important. This implies that all these information sources were useful to the students with physical impairments as shown in Table 13. For the people with visual impairments, these resources were important however most of them could not access them due to lack of assistive technology and devices such

as scanner, and screen readers among others. In some institutions audio-visual material and CD-ROMs were not available.

Table 13: Importance of information sources (n=91)

	Not important	Moderately important	Important
Internet	2 (2.20)	9 (9.89)	80 (87.91)
Online Public Access Catalog (OPAC)	2 (2.20)	14 (15.38)	75 (82.42)
Audio-visual materials	7 (7.69)	14 (15.38)	70 (76.92)
e-databases	3 (3.30)	22 (24.18)	66 (72.53)
Text books	0 (0.00)	26 (28.57)	65 (71.43)
E-books	6 (6.59)	22 (24.18)	63 (69.23)
e-journals	9 (9.89)	21 (23.08)	61 (67.03)
Print journals	2 (2.20)	31 (34.07)	58 (63.74)
Institutional repository	5 (5.49)	39 (42.86)	47 (51.65)
Dictionaries	4 (4.40)	29 (31.87)	58 (63.74)
CD-ROMs	18 (19.78)	35 (38.46)	38 (41.76)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

5.5.3 Information literacy (IL) training

The study sought to find out from the library staff if the university libraries were providing Information literacy (IL) training to the people with visual and physical impairments. Most of the respondents (80, 60.15%) indicated that the public university libraries were providing IL training to the people with visual and physical impairments. However, 53(39.85%) indicated that the university libraries were not providing IL training to the people with visual and physical impairments.

An enquiry into whether the people with physical impairments were provided with information literacy (IL) training indicates that a substantial number of the respondents (54, 59.34%) had not received any IL training from their institutions, with 37(40.66%) being in agreement that they had received IL training. For the people with visual impairments, all the FGDs said they had not received any information literacy training.

5.5.3.1 Content of information literacy training

The library staff were further required to indicate the content of the IL training in their respective university libraries. A cross tabulation of university and the content of IL training was generated. The responses across the universities indicate that training on how to cite and reference (52, 39.10%), as well as training on how to identify relevant literature (52, 39.10%) were the top content in the IL programme. In addition, training on how to extract relevant information (46, 34.59%) and how to identify an information need (47, 35.34%) appeared to be crucial content of the IL training as well. The least mentioned were the training on how to organise ideas (20, 15.04%) and how to write term papers (26, 19.55%).

In the individual universities, University F scored the highest on how to cite and reference and how to identify relevant literature at a frequency of 16(12.03%) each, followed by how to identify relevant information, and how to identify an information need at a frequency of 12(9.02%) each. University B came second with the scores on how to identify literature (11, 8.27%), how to identify an information need (10, 7.52%), how to cite and reference (7, 5.62%) and how to identify relevant information (6.77%). University A came third with how to cite and reference (9, 6.77%), how to identify relevant literature, how to identify relevant information, and how to identify an information need at a frequency of 7(5.62%) each. University D got a frequency of 8(6.02%) on how to cite and reference, while how to identify relevant literature and how to write term paper got a

frequency of 7(5.62%) each. University C scored on how to identify relevant information, how to identify relevant literature, and how to identify an information need at a frequency of 6(4.51%) each as shown in Table 14.

Table 14: A cross tabulation of University and content of information literacy training - Library Staff questionnaire (n=133)

Content of information literacy training		UNIVERSITY						Total
		A	B	C	D	E	F	
How to identify an information need	f (n)	7	10	6	6	6	12	47
	%	5.26	7.52	4.51	4.51	4.51	9.02	35.34
How to identify relevant literature	f (n)	7	11	6	7	5	16	52
	%	5.26	8.27	4.51	5.26	3.76	12.03	39.10
How to identify relevant information from literature	f (n)	7	9	6	6	6	12	46
	%	5.26	6.77	4.51	4.51	4.51	9.02	34.59
How to organize ideas	f (n)	3	0	0	5	6	6	20
	%	2.26	0	0	3.76	4.51	4.51	15.04
How to write term paper	f (n)	4	0	1	7	6	8	26
	%	3.01	0	0.75	5.26	4.51	6.02	19.55
How to cite and reference	f (n)	9	7	3	8	9	16	52
	%	6.77	5.26	2.26	6.02	6.77	12.03	39.10

(Source: Field data, 2017)

Furthermore the people with physical impairments who had received IL training were asked to indicate the content of the training. The response indicates that training on how to extract relevant information from the literature at 35(38.46%), followed by training on how to locate the relevant literature (33, 36.26%), and how to identify an information need (31, 34.07%) was the major content of IL training. Others that were mentioned include training on how to evaluate and identify relevant literature (23, 25.27%), how to reference (27, 29.67%), and how to cite information sources (26, 28.57%). Training on how to organise ideas had the lowest frequency score at 22(24.18%) as shown in Table 15.

Table 15: Response of the people with physical impairments on content of IL training (n=91)

	Frequency (n)	Percent (%)
How to extract relevant information from the literature	35	38.46
How to locate literature	33	36.26
How to identify an information need	31	34.07
How to write term papers	29	31.87
How to reference	27	29.67
How to cite	26	28.57
Evaluating and identifying relevant literature	23	25.27
How to organize ideas	22	24.18

(Source: Field data, 2017)

5.5.3 Assistive hardware facilities/ devices provided for the people with visual and physical impairments

The people with visual and physical impairments were required to indicate the assistive hardware facilities/devices that were provided to them by the library. The responses of the people with physical impairments across the universities indicate that (45, 49.45%) cited the adaptive furniture as the core assistive hardware facilities. Walkers and walking frames were also fairly mentioned at 31(34.44%) and 31(34.07%) respectively as assistive hardware facilities/devices that were provided by the libraries. Others included manual wheelchairs (23, 25.27%), adaptive keyboard (21, 23.08%), electric/motorised wheelchairs (16, 17.58%), automatic door openers as well as prosthetic and orthotic devices at a frequency of 13(14.29%) and 11(12.09%) respectively. For individual universities, University A scored high in walkers (15, 16.48%), walking frames (18, 19.78%), Adaptive furniture (20, 29.99%) and adaptive keyboards at 10(10.99%). Electric/motorised wheelchairs got a frequency of 8(8.79%), while Automatic Door openers and prosthetic and orthotic devices got 7(7.69%) each. University C came second with the highest score being Adaptive furniture (16, 17.58%), while walkers, Manual wheelchairs, and electric/motorised wheelchair got a frequency of 8(8.79%) each. Adaptive keyboards and walking frames got a frequency of 7(7.69%). From the responses, scooters are rarely provided in the public libraries as shown in Table 16.

Table 16: A cross tabulation of assistive hardware facilities/devices and universities scored by the people with impairments (n=91)

Assistive Hardware Facilities/ Devices	UNIVERSITIES							
		A	B	C	D	E	F	
Walkers	f(n)	15	0	8	4	3	1	31
	%	16.48	0	8.79	4.40	3.30	1.10	34.07
Walking frames	f(n)	18	1	7	4	0	1	31
	%	19.78	1.10	7.69	4.40	0	1.10	34.07
Manual Wheelchairs	f(n)	11	1	8	1	2	0	23
	%	12.09	1.10	8.79	1.10	2.20	0	25.27
Electric/Motorized Wheelchairs	f(n)	8	0	8	0	0	0	16
	%	8.79	0	8.79	0	0	0	17.58
Automatic Door Openers	f(n)	7	1	4	1	0	0	13
	%	7.69	1.10	4.40	1.10	0	0	14.29
Adaptive Furniture	f(n)	20	4	16	4	0	1	45
	%	21.98	4.40	17.58	4.40	0	1.10	49.45
Adaptive Keyboard	f(n)	10	1	7	1	2	0	21
	%	10.99	1.10	7.69	1.10	2.20	0	23.08
Prosthetic and Orthotic Devices	f(n)	7	0	3	1	0	0	11
	%	7.69	0	3.30	1.10	0	0	12.09
Scooters	f(n)	2	1	1	0	0	0	4
	%	2.20	1.10	1.10	0	0	0	2

(Source: Field data, 2017)

As a matter of fact, the interviews with the University Librarians, Systems Librarian and the staff of the Disability Mainstreaming departments confirm that the libraries did not provide assistive facility and devices. The only assistive facility that was provided by

some public university libraries were some adaptive furniture like tables and service desks. One of the Systems Librarian remarked:

“... usually the library does not provide the facilities for them and you find most of them come with electronic wheelchairs which they have been given by the university ...uum...others come with crutches but ...uum...there is one table I don't know whether you have visited the section which is used by people without limbs especially hands. There are students who have learnt to use their foot there is a particular table which the library has acquired, which they use to place a book and write. Uum...but I don't know whether you call that a technology...” (SL6).

The interviews with the staff of the Disability Mainstreaming departments indicate that the departments provided some assistive facilities and devices on lending basis to the people with visual and physical impairments who did not have them until they were able to acquire their own.

“ ... We do have other people again who give us donations for example the National Fund for the Disabled of Kenya. They donated what you see here. The special chairs, the wheelchairs, uum... the white canes that have of course gone they are not here they are being used. They have crutches, Uum... shoulder crutches, arm crutches all those. They donated them to us. What we do with these ones we don't give them out. We lend. We lend students so that as they prepare to get their own, they can still be mobile... once they acquire their own then they return ours. Then we are able to lend them again to other people. We have also got some especially these special chairs ... So they were able to get all these special chairs, bathing chairs, stools, commodes” (DM6).

5.5.4 Assistive software facilities provided by the library for the people with visual and physical impairments

The people with visual and physical impairments were required to indicate all the assistive software facilities provided to them by the library. From their responses, Voice Recognition software appeared to be commonly provided within the public university libraries at a frequency of 30(32.97%). Word prediction-completion and On-screen Keyboard are also fairly provided at a frequency of 20(21.98%). The least provided include Dragon Naturally Speaking (17, 18.68%) and DAISY (Digital Accessible Information System) reader at 18(19.78%). However, from the responses, assistive software facilities and devices for the people with physical impairments seem not to be in much provision within the public university libraries thus calling for an urgent need to reflect on their provision. The frequency Table 17 summarises their responses.

Table 17: Assistive software facilities provided by the library (n=91)

	Frequency (n)	Percent (%)
Voice recognition software	30	32.97
On-screen Keyboard	20	21.98
Word prediction-completion	20	21.98
DAISY (Digital Accessible Information System) reader	18	19.78
Dragon Naturally Speaking	17	18.68

(Source: Field data, 2017)

5.5.5 Importance of assistive technology and devices in enabling access to information in the library

The respondents were required to rate the importance of the assistive technology and devices in enabling them to access information in the library. The findings indicate that (66, 72.53%) of the respondents with physical impairments rated such technology and devices as very important, with 20(21.98%) perceiving such technologies and devices as important. Only a mere 5(5.49%) of the respondents deemed such technologies and devices as being moderately important implying that provision of assistive technology and devices is core in the modernisation of the libraries to cater for the needs of the people with visual and physical impairments in the public universities. Figure 11 presents the responses.

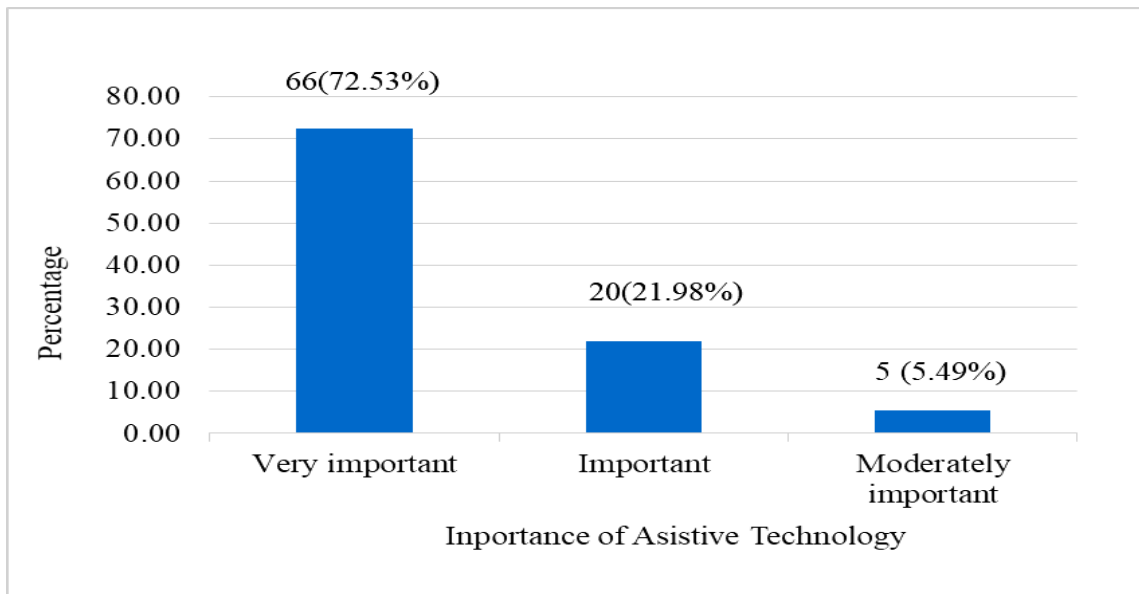


Figure 11: Response of the people with physical impairments on importance of assistive technology and devices (n=91) (Source: Field data, 2017)

5.5.6 Special services provided to the people with visual and physical impairments

The people with physical impairments and the library staff were asked to indicate the information services provided by the libraries for the people with visual and physical impairments. The response from the library staff indicate that remote electronic access (81, 60.90%) strongly appeared as one of the core services offered by the library to the people with visual and physical impairment followed by volunteer readers (58, 43.61%), book delivery services being third (56, 42.11%) with extended loan period (55, 41.35%) cited as the fourth major service provided. The least services provided were retrieval of materials from the stacks (7, 5.26%), waived fines (5, 3.76%) as well as the extended reserve periods (2, 1.50%) as shown in Figure 12.

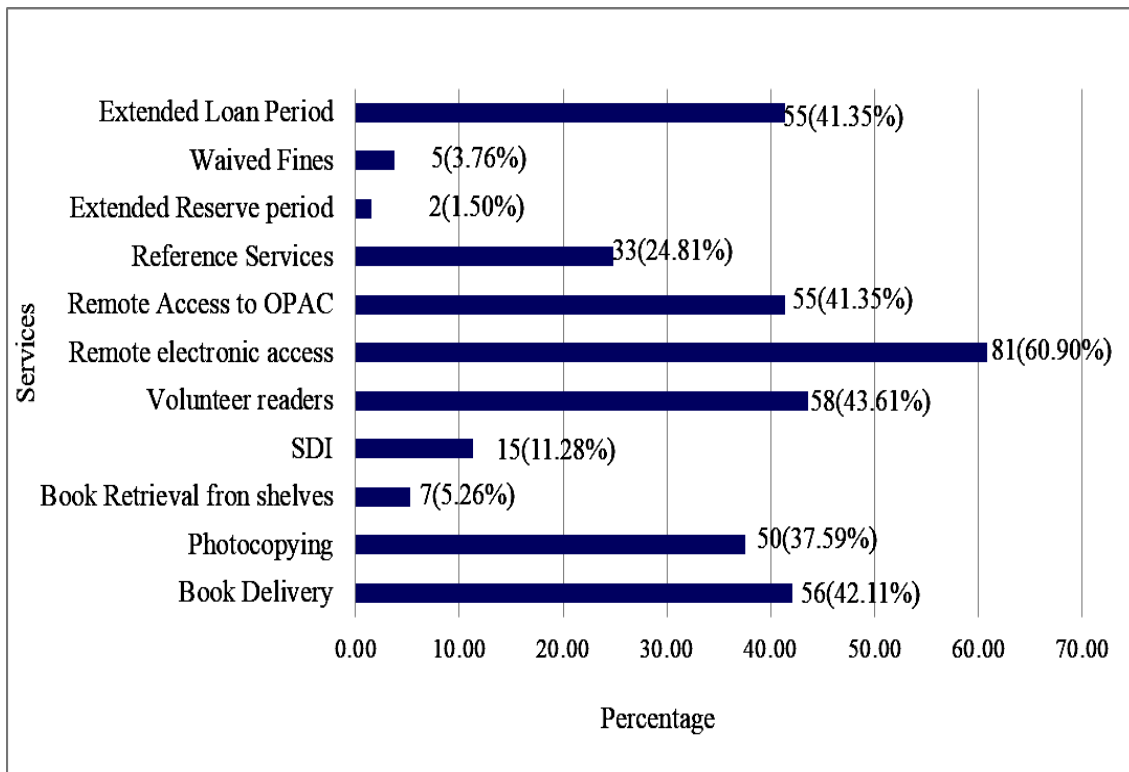


Figure 12: Response of library staff on services provided for the people with visual and physical impairments (n=133) (Source: Field data, 2017)

The library staff also suggested other inclusive information services needed for the people with visual and physical impairments including creation of awareness on the availability of information resources (39, 29.32%) followed by provision of braille translators (30, 22.56%). Other services that were suggested include investing in modern facilities and assistive technology (22, 16.54%), investing more on the physical facilities (16, 12.03%), installing ramps in all floors for easy movement and establishing reference desk for the people with physical impairments at a frequency of 10(7.52%) each, and provision of sign language interpreter (6, 4.51%) as shown in Table 18.

Table 18: Other inclusive information services (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
Create awareness on availability of resources	39	29.32	29.32
Braille translators	30	22.56	51.88
Modern facilities and assistive technology	22	16.54	68.42
Invest more on resources for the physical facilities	16	12.03	80.45
Ramps in all floors for easy movements	10	7.52	87.97
Reference desk for physically challenged	10	7.52	95.49
Sign language interpreter	6	4.51	100
Total	133	100	

(Source: Field data, 2017)

An enquiry from the people with physical impairments on the special services provided by the library indicates that computers (61, 67.03%), staff assistance in retrieval of information from shelves (56, 61.54%), and library orientation (55, 60.44%) are the core information services provided by public university libraries. The current awareness service at 46(50.55%), designated staff for services to the people with physical impairments (45, 49.45%) and book delivery services to the rooms (39, 42.86%) came second. However, the information services that seem least provided include telephone requests and reservations at a frequency of (19, 20.88%) each, inter library loan service and waived fines (12, 13.19%) and flexible loan period (14, 15.38%). Table 19 presents the responses.

Table 19: Services provided to the people with physical impairments (n=91)

	Frequency (n)	Percent (%)
Computers	61	67.03
Staff assistance in retrieval of information from shelves	56	61.54
Library orientation	55	60.44
Current Awareness Service	46	50.55
Designated staff for services to the people with physical impairment	45	49.45
Book delivery services to the rooms	39	42.86
Remote access to OPAC	34	37.36
Photocopying services	34	37.36
Online reference services for those with severe mobility problems	34	37.36
Information Literacy training	31	34.07
Special library networks with the physically challenged students	31	34.07
Selective Dissemination of Information	21	23.08
Telephone requests	19	20.88
Reservations	19	20.88
Flexible Loan period	14	15.38
Waived fines	12	13.19
Inter Library Loan Service	12	13.19

(Source: Field data, 2017)

The FGDs were asked to explain the services that were provided to them by their libraries. The respondents in University C mentioned photocopying services, computers, and information in alternative formats such as large print books, Braille books, audio books, and braille maps. The library also provided Assistive Technology and devices such as scanners, braille machines, braille transcribing machine, braille embossers, Braille papers, CCTV enlargement software, JAWS and NVDA screen reading software among others. Other services include, sign language interpreter, readers, internet services, ramps at the entrance of the building, escalators, lifts, internet resources, orientation services, Book

fetching/retrieval from shelves by staff, and trained staff to assist them, though the respondent said that some library staff did not have skills in the use of assistive technology. University A provided computers installed with JAWS and installed ramps at the entrance of the library building. The library in University E provided computers installed with NVDA, braille books, readers and book fetching services. In University F, the FGD respondents said the library provided services like scanning and extended loan period for which one had to request the Circulation Librarian. However, the respondents reiterated that they were not aware of any other services due to lack of orientation.

5.5.7 Alternative formats of information provided for the people with visual and physical impairments by the libraries

When asked to indicate the alternative formats of information materials provided by the library for the people with visual and physical impairments, the library staff overwhelmingly cited braille books (87, 65.41%) with large print material coming second (59, 44.36%). Talking newspapers and DAISY were cited the least alternative format information materials by the respondents at a frequency of 8(6.02%) and 5(3.76%) respectively as shown in Figure 13.

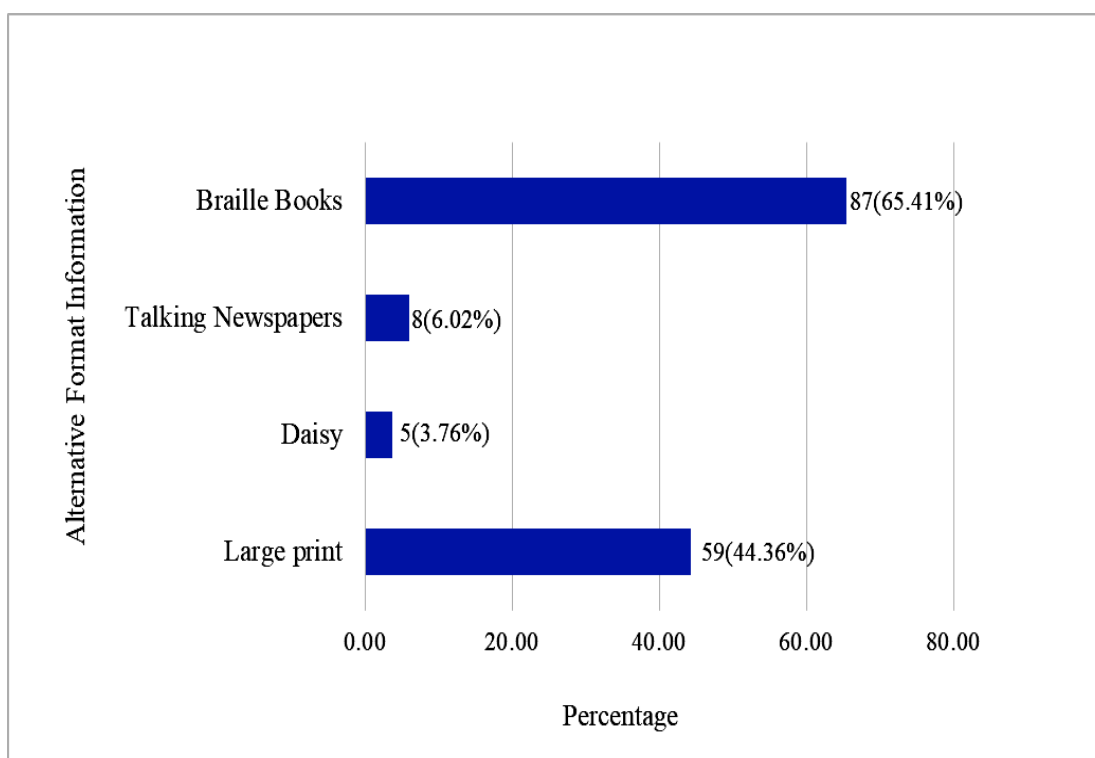


Figure 13: Alternative formats of information provided by the library (n=91)
(Source: Field data, 2017)

The response from the FGDs indicate that the respondents in majority of public university libraries were not aware of any alternative formats of information provided for the people with visual impairments by their libraries as one of the FGDs remarked:

“...the only alternative format that is available in the library currently is just your colleague nothing else. That is the only alternative. If it is not..... I mean books are there yes I cannot read them, I have to go with another person to read for me. That is the only alternative” (FGD3).

However, the respondents in one of the six universities stated that there were audio books, soft copy notes, YouTube materials, braille books (Kenya constitution and the bible) large print and sign language tactile.

5.5.8.1 The level of use of alternative formats of information

Further, the study sought to find out the level of use of the alternative formats of information provided for the people with visual and physical impairments. Most of library staff rated all the alternative formats of information as very low in terms of the level of use. Large print materials, talking books and braille books received a frequency of 55(41.35%) each. While the DAISY received 54(40.60%). This result suggests that in as much as the respondents call for the alternative format of information materials, their level of use is low. This could be occasioned by either inadequacy of marketing strategies of information services available for the people with visual impairments or inadequacy of the alternative formats. This is confirmed by the interviews with the University Librarians in the six universities whose response indicated that the only way the university libraries were marketing their services to the people with visual and physical impairments was through the student orientation that was offered to the students in their first year when they joined the university. However, the respondent in University F indicated that the library was using the library website beside the library orientation. A summary of the responses is presented in Table 20.

Table 20: Level of use of alternative formats of information (n=133)

	Very Low	Low	Moderately Low	High	Very High	Total
Large Print materials	55 (41.35)	15 (11.28)	27 (20.30)	28 (21.05)	8 (6.02)	133 (100%)
Talking newspaper	55 (41.35)	9 (6.77)	38 (28.57)	23 (17.29)	8 (6.02)	133 (100%)
DAISY	54 (40.60)	7 (5.26)	28 (21.05)	33 (24.81)	11 (8.27)	133 (100%)
Braille books	55 (41.35)	8 (6.02)	27 (20.30)	22 (16.54)	21 (15.79)	133 (100%)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

5.5.8 Challenges encountered by the library staff in providing services to the people with visual and physical impairments

In terms of the challenges faced by the library staff when providing services to the people with visual and physical impairments, inadequacy of equipment (51, 38.35%) tops the list of the challenges. Inadequacy of information materials (39, 29.32%) came second. Inadequate training of staff (32, 24.06%) also emerged as a key challenge. These results concur with the answers in the previous questions where inadequate training was critically pointed out among the staff dealing with the people with visual and physical impairments. The least challenge mentioned was the communication barrier which got a frequency of 11(8.2%). This also can be attributed to the inadequacy of disability training and awareness. Table 21 summarises the responses.

Table 21: Challenges encountered by staff in providing services to the people with impairments (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
Inadequate equipment	51	38.35	38.35
Inadequate information materials	39	29.32	67.67
Inadequate training	32	24.06	91.73
Communication barriers	11	8.27	100
Total	133	100	

(Source: Field data, 2017)

These challenges can be explained by the interviews with the University Librarians. Their responses indicate that the major challenge facing all the six university libraries in providing information services to the people with visual and physical impairments was financial limitations as no specific budget was set aside to cater for the needs of the people with impairments. The University Librarians also pointed out that other challenges include inadequacy of facilities /equipment for the people with visual and physical impairments. Beside these challenges, all the universities libraries experience a challenge of inadequacy of staff with disability training as a problem that was also caused by staff turnover, as one of the University Librarians remarked:

“...staff turnover after we train them, they become very marketable, they go away we are not able to retain them” (UL6).

Also three out of the six university libraries experienced a challenge in accessing some floors of the library building due to either lack of ramps, and lifts to those floors. Also some floors were inaccessible by lifts. Another challenge that was mentioned by the respondents in one of the six university libraries was lack of braille books and non-mainstreaming of the people with visual and physical impairments by the university administration as one of the University Librarian observed:

“...Yeah. The challenges are many. One is uum... inadequate staff, inadequate facilities especially uum... those that require continuous updating and upgrading uum... the technologies that help these people. Uum... the other challenge is the non-mainstreaming of this group of students by the university. They get to think about them as an afterthought quite often. And then of course with their

specialized needs in terms of braille materials, the kind of books they require I think this one requires a lot of money. Uum... also providing additional skills to the staff who serve them because the staff often require continuous exposure” (SL2).

5.5.9.1 Addressing the challenges encountered by library staff

On the possible solutions to the challenges outlined above, the respondents cited training of staff (40, 30.08%) as top solution mainly to solve the inadequate training challenge which has arisen now and then. Training would also help address the communication barrier. Provision of more funding came second (30, 22.56%). More funding would be core in bridging the gaps in terms of training and development of staff, purchase of more equipment, and equipping library with the modern facilities among others. Provision of information resources for the people with visual and physical impairments was also pointed out as a key solution to the challenge of inadequacy of information resources at a frequency of (31, 23.31%). Also mentioned were employment of more staff as well as extending the reading space at a frequency of (18(13.53%) and 14(10.53) respectively as shown in Table 22. On the other hand, all the University Librarians suggested that the libraries should have a special budget dedicated to provision of information services to the people with visual and physical impairments. This budget would take care of all the challenges that the libraries were facing.

Table 22: Addressing the challenges encountered while providing services to the people with visual and physical impairments (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
Training of the staff	40	30.08	30.08
Provide more funding	30	22.56	52.64
Provision of Information resources	31	23.31	75.94
Employment of more staff	18	13.53	89.48
Extension of reading space	14	10.53	100
Total	133	100	

Source: Field data, 2017

5.6 Library staff attitude towards the people with physical impairments

The people with physical impairments were required to indicate their agreement on a number of statements with regard to the attitude of library staff towards them. The findings indicate that (50, 54.95%) of respondents strongly agreed that library staff were polite and communicated clearly to the people with physical impairments; In addition, (62, 69.23%) also strongly disagreed that Library staff were rude to them, that the library staff were unapproachable (49, 53.85%), and that the library staff did not respond to their greetings (47, 51.65%). A substantial number of respondents (41, 45.05%) disagreed that the library staff were unfriendly, while a fair number of respondents (38, 41.76%) disagreed that the library staff lacked adequate knowledge of the needs of the people with physical impairments, and that the library staff were too busy to help them (38, 41.76%). There was agreement among the people with physical impairments that library staff looked at them directly when they were communicating (37, 40.66%), and Library staff always greeted the people with physical impairments when approached by them (39, 42.86%). From the results, it seems that library staff fairly handled persons with physical impairments in public university libraries. Table 23 below summarises the responses.

Table 23: Rating of staff attitude (n=91)

	Strongly disagree	Disagree	Somehow agree	Agree	Strongly agree	Total
Library staff are polite and communicate clearly to me	0 (0)	1 (1.10)	10 (10.99)	30 (32.97)	50 (54.95)	91 (100)
Library staff lack adequate knowledge of the needs of the people with physical impairments	23 (25.27)	38 (41.76)	15 (16.48)	10 (10.99)	5 (5.49)	91 (100)
Library staff are rude at me	62 (69.23)	17 (18.68)	3 (3.30)	8 (8.79)	0 (0)	91 (100)
Library staff look at me directly when we are communicating	0 (0)	10 (10.99)	25 (27.47)	37 (40.66)	19 (20.88)	91 (100)
Library staff always greet me when I approach them	0 (0)	12 (13.19)	9 (9.89)	39 (42.86)	31 (34.07)	91 (100)
Library staff smile at me when I approach them for service	1 (1.10)	16 (17.58)	12 (13.19)	26 (28.57)	36 (39.56)	91 (100)
Library staff do not respond to my greetings	47 (51.65)	32 (35.16)	5 (5.49)	7 (7.69)	0 (0)	91 (100)
Library staff have intimidating tone of voice	21 (30.77)	34 (37.36)	14 (15.38)	15 (16.48)	0 (0)	91 (100)
Librarian staff are too busy to help me	35 (38.46)	38 (41.76)	7 (7.69)	8 (8.79)	3 (3.30)	91 (100)
Library staff are unfriendly	41 (45.05)	42 (46.15)	8 (8.79)	0 (0)	0 (0)	91 (100)
Library staff are unapproachable	49 (53.85)	29 (31.87)	4 (4.40)	7 (7.69)	2 (2.20)	91 (100)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

Similarly, in the FGDs the respondents in all the universities stated that the attitude of library staff was positive, the library staff were accommodating, patient and respectful apart from a few library staff that were rude due to lack of awareness. The respondents also reported that the library staff were helpful but most of them lacked the necessary disability training and awareness to enable them to handle the people with visual impairments, as one of the FGD remarked:

“Overall, I can say they are helpful and would be willing to help and where they can they do well but the challenges is that they are not aware of how to meet all the needs of people who have disabilities. So I think there is lack of awareness on their part. But if this was provided by the institution in form of trainings may be they would be in very good position to even give more” (FGD1).

5.6.1 Awareness of library staff of the information needs of the people with visual and physical impairments

The attitude of the library staff can be influenced by their level of awareness of the needs of the people with visual and physical impairments. This study sought to explore the awareness of library staff of information needs of the people with visual and physical impairments. The library staff were required to indicate their agreement with statements with regard to information needs of the people with visual and physical impairments. The responses were coded as 1= strongly disagree, 2= disagree, 3= somehow agree, 4= agree, 5= strongly agree. While scoring the questionnaires, the lowest possible score for each item on the Likert scale was 1.0 points and the highest was 5.0. The lowest possible mean score for a respondent was 1.0 and the highest was 5.0. The midpoint was taken to be 3.0 and this was used to categorise responses as either “agree” or “disagree”. For each item a mean and standard deviation was calculated.

The responses indicate that the most important needs of the people with visual and physical impairments were that: library staff require special needs training in order to serve the people with visual and physical impairments; the people with visual impairments require books in special format; and Websites are vital tools in accessing information by the people with visual and physical impairments (mean 4.579) each; followed by the people with visual and physical impairments require assistive technology to facilitate access to information (mean 4.571). The people with visual and physical impairments

require a special room or space within the library to access information (mean 4.474) came third. The fourth important needs were that the people with visual and physical impairments require selective dissemination of information and there is need to conduct user needs assessment to identify the needs of individuals with visual and physical impairments (mean 4.399) each; while the library should have special rest rooms (mean 4.353) came fifth; followed by the people with visual and physical impairments require extended loan period (mean 3.805) as shown in Table 24.

Table 24: Rating by the library staff awareness of the information needs of the people with visual and physical impairments (n=133)

	Strongly disagree	Disagree	Somehow agree	Agree	Strongly agree	Mean	S/D
Library staff require special needs training in order to serve the people with visual and physical impairments	4 (3.01)	3 (2.26)	29 (21.80)	80 (60.15)	17 (12.78)	4.594	0.862
The people with visual and physical impairments require extended loan period	3 (2.26)	17 (12.78)	24 (18.05)	48 (36.09)	41 (30.83)	3.805	1.083
The people with visual and physical impairments require waived fines	2 (1.50)	44 (33.08)	2 (1.54)	33 (24.81)	32 (24.06)	3.368	1.215
The people with visual and physical impairments require selective dissemination of information	5 (3.76)	0 (0.00)	8 (6.02)	44 (33.08)	76 (57.14)	4.399	0.904
The people with visual and physical impairments require books delivery service to their residence	5 (3.76)	32 (24.06)	34 (25.56)	34 (25.56)	28 (21.05)	3.361	1.170
The people with physical impairments require specialized tables	0 (0)	0 (0)	7 (5.26)	40 (30.08)	86 (64.66)	3.361	1.170
The people with visual impairments require books in special formats	3 (2.26)	2 (1.50)	2 (1.50)	35 (26.32)	91 (68.42)	4.594	0.591
The people with visual and physical impairments require assistive technology to facilitate access to information	3 (2.26)	2 (1.50)	2 (1.50)	34 (25.56)	92 (69.17)	4.571	0.800
Websites are vital tools in access to information by the people with visual and physical impairments	1 (0.75)	7 (5.26)	9 (6.77)	37 (27.82)	79 (59.40)	4.579	0.800
There is need to conduct user needs assessment to identify the needs of individuals with visual and impairments	0 (0)	4 (3.01)	4 (3.01)	40 (30.08)	85 (63.91)	4.399	0.887
It is important to evaluate the information services provided to the people with visual and physical impairments	1 (0.75)	3 (2.26)	5 (3.76)	47 (35.34)	77 (57.89)	4.549	0.701
The people with visual and physical impairments require a special room or space within the library to access information	0 (0.00)	7 (5.26)	6 (4.51)	53 (39.85)	67 (50.38)	4.474	0.745
The library should have special rest rooms	3 (2.26)	2 (1.50)	2 (1.50)	36 (26.32)	90 (68.42)	4.353	0.799

***Note: frequencies in percentages in brackets (Source: Field data, 2017)**

From the results in Table 24 above, it is evident that the library staff were aware of the needs of the people with visual and physical impairments. However, the FGDs respondents had challenges with the way some library staff handled their needs. They reiterated that some library staff did not have the necessary skills or knowledge on how to handle the people with visual and physical impairments, as one of the FGDs remarked:

“...Uum... If I can give my experience to some extent they have tried to bring out the issues of inclusivity very well but more needs to be done on the same because at times you go there uuum... those people that are handling the people with disability are not well acquainted with information or they do not have the adequate information on how to handle the people with disability. For example you might go there may be you are not able to use the computer or maybe you are not able to access the books because they use what we call the call numbers. So sometimes when you try to approach them and tell them I cannot see this book they are not aware they tell you “go look for that book”... so I think also in the manner of their language they should work on it because uuum... most of us are discouraged going there because you know the first visit you go there and language is not good then you develop that attitude that uum... that is not the best place for me. So most of the students prefer to read from their rooms” (FGD2).

5.7 Application of ICT in facilitating access to information by the people with visual and physical impairments

The people with physical impairments were asked to rate the importance of ICT in facilitating access to information services on a scale of important, moderately important and not important. Majority of the respondents (73, 80.22%) were of the view that Information Communication Technologies (ICT) is important in facilitating access to information by the people with physical impairments as compared to 15(16.48%) that indicated that ICT is moderately important. However, a minority (3, 3.30%) were of the opinion that ICT is not important in facilitating access to information as presented in Figure 14 below.

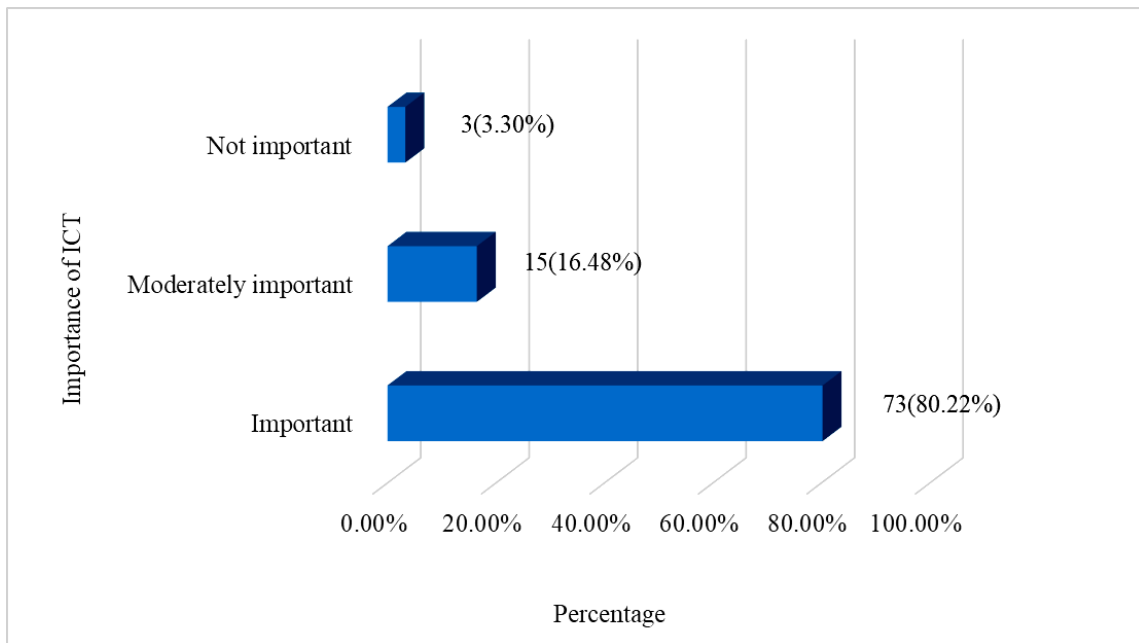


Figure 14: Rating of importance of ICT in facilitating information access by the people with physical impairments (n=91) (Source: Field data, 2017)

The respondent in all the FGDs recognised that ICT enabled them to become independent. It made work easier and they could access any kind of information as one of the FGDs observed:

“...ICT is very important because we can now use various software that are installed in computers to access any information on our own and listen to it instead of using our friends to do it for us. We can also communicate with our friends easily using emails and calling. ICT has enabled the people with disabilities to be on the same landing with people who have no disabilities” (FGD4).

This was confirmed by the interviews with University Librarians who stated that ICT was very important because the people with visual impairments could use screen reading technology to read any information independently including that in print because it was very easy to use technology to convert it to soft the format for them to read. One of the University Librarians observed:

“...that (ICT) we have been able to use because we realized that ICT has become very handy. Uum... beforehand we used to have students coming to read for the people with disabilities. In fact that is why we had these sound proof rooms for them to read. But we have realized now with ICT we don't have to go through that. Okay,

so we can convert the work so long as we can convert them in digital, then we can use JAWS or NVDA that they can listen instead of some people reading for them” (UL6).

5.7.1 How ICT was being applied in libraries to facilitate access to information

An enquiry from the library staff into how ICT was being applied in the library to facilitate information access by the people with visual and physical impairments indicates that ICT was strongly being used for internet access (109, 81.95%) followed by searching the websites (107, 80.45%), searching the OPAC (97, 72.93%), e-books (93, 69.92), and emailing (92, 69.17%). Use of ICT for searching e-journals received a frequency of 75(56.39%) while word processing received a frequency of 32(24.06%). Table 25 presents a summary of the responses.

Table 25: Response of library staff on the application of ICT (n=133)

	Frequency (n)	Percent (%)
Internet	109	81.95
Websites	107	80.45
OPAC	97	72.93
e-Books	93	69.92
Emailing	92	69.17
e-journals	75	56.39
Word processing	32	24.06

(Source: Field data, 2017)

The people with physical impairment were required to indicate the ICT based resources they used in the library. The results indicate that the respondents overwhelmingly used internet sources at a frequency of 82 (90.11%), followed by Facebook (80, 87.91%), library websites (76, 83.52%), Online Public Access Catalog (74, 81.32%) emailing and (72, 79.12%) e-journals (65, 71.43%). Others include Institutional repository, (63, 69.23%), E-books (62, 68.13%) and e-databases (59, 64.84%) as shown in Table 26.

Table 26: Use of ICT based resources by the people with physical impairments (n=91)

Information resources	Frequency (n)	Percent (%)
Internet resources	82	90.11
Facebook	80	87.91
Library websites	76	83.52
Online Public Access Catalog (OPAC)	74	81.32
e-mail	72	79.12
E-journals	65	71.43
Institutional repository	63	69.23
E-books	62	68.13
E-databases	59	64.84

(Source: Field data, 2017)

The FGDs in majority of the universities confirmed that they were applying ICT for typing, social media such as WhatsApp, twitter and Facebook, emailing, surfing the internet, entertainment, and browsing the websites. The University Librarians and the Systems Librarians affirmed this and added that ICT was being applied for e-resources such as e-books, e-databases and e-journals, Institutional repository, and OPAC. However, a University librarian in one of the six university libraries stated that the library had not exploited the use of ICT in providing information services to the people with visual and physical impairments.

On the challenges that faced the people with visual and physical impairments, the majority of the Systems Librarians mentioned lack of headphones, and adapted keyboards, inadequacy of computers and internet downtimes, which mostly inconvenienced the people with visual and physical impairments. One of the Systems Librarians pointed out that some people with visual and physical impairments experience log-in problems especially when they were off campus as they did not know that E-Z proxy existed on the library website. One of the Systems Librarians observed in this regard that:

“...may be one of them is to log in especially if one is not within the campus, you need log in credentials which we provide in the event that one does not have, ...uum...of course they will not be able to access. The reason being most ...almost all the publisher want to be accessed within the institutions which have subscribed the resources. So we have

provided the...uum... with a software to help student to log in the main campus ... the EZ-proxy to help them to access the... but again most of them might not know that facility is there and especially if they don't attend the orientation programmes if there is nobody to bring them to the library” (SL6).

The other problem that was mentioned was to do with internet configuration, especially when they were using their phones and laptops. Sometimes problems with configuration could occur and the student had to look for the systems librarian for troubleshooting. In addressing these challenges, the respondents suggested that the library should procure the necessary equipment and software for example JAWS, CCTV magnification software, additional computers, braille machines, braille embossers, adapted keyboard and headphones. Other suggestions include having a budget dedicated to provision of services for the people with impairments, increasing the internet bandwidth as well as doing a lot of lobbying on behalf of the people with impairments to convince the university administration to put resources and facilities in place for any type of impairments. One of the Systems Librarians remarked:

“...more lobbying to convince the (university) administration that we are anticipating to get students with visual impairments so that they get to have it in their mind that these people will need services, and so resources will be allocated because we do not allocate resources ourselves. We just lobby so that we can be facilitated” (SL5).

Another suggestion from majority of the universities was that all services for the people with visual and physical impairments should be located in one place for ease of access and also the need to market the library services so that the people with visual and physical impairments utilise the library instead of avoiding it. One of the Systems Librarian observed in this regard that

“...there is need to market the library services so that the people with impairments can gain confidence to visit and use the library because most of them believe the library has nothing to offer” (SL3).

At one of the universities, the respondent suggested that the library should come up with ICT policy to give guidelines on provision of ICT services to the people with visual and physical impairments. The respondent also suggested that there was an urgent need for attitude change so that people can anticipate the needs of the people with impairments. One of the Systems Librarians remarked in this regard that:

“...first of all we should have what we call attitude change because without good attitude towards these people, you realize that many things are not put in place for them because many people think these people are not capable of now going to academic institution so we just assume since they are not here we don't make any preparation” (SL3).

In two of the six universities, the respondents suggested that the libraries should undertake a needs assessment and an outreach programme to establish the needs of the people with severe impairments who may not be going to the library because of mobility issues so that the libraries can determine how the needs can be met. One respondent observed:

“... I am sure we are not fully uum... uum... equipped to deal with users with special needs. Because there are some serious challenges which the library cannot be able to handle and possibly will never. I think the university needs to make an initiative to see how those kind of users can be helped just like any other users to access the library facilities whether they are coming to the library or not. There should be an outreach programme to reach them and see the kind of challenges that they are undergoing, to see how they can be addressed. So like these ones without all the limbs, they cannot be mobile they don't have facilities to come to the library, you have to carry them to the library. Am sure most of the times they don't come and they also have information needs. So how can we deal with what they have?” (SL6).

5.7.1.1 Level of accessibility to ICT based information resources

Further, the people with physical impairments were asked to rate the level of accessibility of the ICT based resources that were listed in a table. The responses were coded as 1= poor, 2= fairly good, 3= neutral, 4= good, 5= very good. While scoring the questionnaires

the lowest possible score for each item on the Likert scale was 1.0 points and the highest was 5.0. The midpoint was taken to be 3.0 and this was used to categorise responses as either “poor” or “good”. For each item a mean and standard deviation were calculated. From the responses, it is evident that the most important item was internet (mean 4.462). The rest of the items that were rated good were slightly above the midpoint as follows: Online Public Access Catalog (OPAC) (mean 3.835), websites (mean 3.615), e-journals (mean 3.319), and e-books (mean 3.286) as shown in Table 27.

Table 27: Level of accessibility to ICT based information resources – the people with impairments (n=91)

	Poor	Fairly good	Neutral	Good	Very good	Mean	S/D	N
Web sites	7 (7.69)	18 (19.78)	2 (2.20)	40 (43.96)	24 (26.37)	3.615	1.280	91
E-journals	3 (3.30)	24 (26.37)	14 (15.38)	41 (45.05)	9 (9.89)	3.319	1.074	91
E-books	4 (4.40)	18 (19.78)	25 (27.47)	36 (39.56)	8 (8.79)	3.286	1.025	91
Online Public Access Catalog (OPAC)	1 (1.10)	12 (13.19)	9 (9.89)	48 (52.75)	21 (23.08)	3.835	0.969	91
Internet	0 (0)	1 (1.10)	3 (3.30)	40 (43.96)	47 (51.65)	4.462	0.620	91
e-databases	11 (12.09)	6 (6.59)	19 (20.88)	38 (41.76)	17 (18.68)	3.484	1.223	91

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

5.7.1.2 Level of use of the ICT based information resources

The study sought to establish the level of use of the ICT based information resources. The responses from the library staff indicate that majority of the resources received a rating of low, among them being the use of e-books as well as OPAC at a frequency of 48(36.09%) each; and use of website, word processing and use of video conferencing at a frequency of 47(35.34%) each. A substantial number of the respondents rated moderately high the use

of emailing services (67, 50.38%), the use of e-journals as well as the internet access at a frequency of 62(46.62%) each, and the use of institutional repository (61, 45.86%). For the people with visual impairments accessibility was said to be good in two libraries but poor in majority (three) of libraries due to lack of most of the necessary assistive technology and devices. This rating suggests areas where efforts and resources are needed with regard to ICT services installation within the libraries. Table 28 below is a summary of the responses.

Table 28: Level of use of ICT related resources (n=133)

	Very Low	Low	Moderately High	High	Very High	Total
Website	17 (12.78)	47 (35.34)	25 (18.80)	26 (19.55)	18 (13.53)	133
Email	17 (12.78)	5 (3.76)	67 (50.38)	27 (20.30)	17 (12.78)	133
Word processing	17 (12.78)	47 (35.34)	25 (18.80)	27 (20.30)	17 (12.78)	133
OPAC	17 (12.78)	48 (36.09)	25 (18.80)	25 (18.80)	18 (13.03)	133
E-books	17 (12.8)	48 (36.09)	27 (20.30)	25 (18.80)	16 (12.03)	133
E-journals	17 (12.78)	10 (7.52)	62 (46.62)	27 (20.30)	17 (12.78)	133
Institutional repository	17 (12.78)	14 (10.53)	61 (45.86)	24 (18.05)	17 (12.78)	133
Internet	17 (12.78)	11 (8.27)	62 (46.62)	28 (21.05)	25 (18.80)	133
Video conferencing	19 (14.29)	47 (35.34)	26 (19.55)	24 (18.05)	17 (12.78)	133

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

5.7.2 The library website

The study sought to establish what information meant for the people with visual and physical impairments was included in the library website. The findings indicate that 50(54.95%) of the people with physical impairments indicated that the list of library staff serving the people with impairments was available on the library website. Availability of

the list of specialized library materials received a frequency of 48(52.75%), while online instructions for assistive technology, links to outside resources, and disability services page yielded a frequency of 47(51.65%), 45(49.45%) and 43(47.25%) respectively as shown in the Table 29.

Table 29: Response of the people with physical impairments on availability specialised information on the library website (n=91)

Information	Available	Not Available	Not sure
List of library staff serving the people with impairments	50 (54.95)	16 (17.58)	25 (27.47)
List of specialized library materials	48 (52.75)	16 (16.48)	28 (30.77)
Online instructions for assistive technology software	47 (51.65)	21 (23.08)	23 (25.27)
Links to outside resources	45 (49.45)	16 (17.58)	30 (32.97)
Disability services page	43 (47.25)	25 (27.47)	23 (25.27)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

The analysis of the staff responses differed with that of the people with physical impairments in some aspects. Most of the library staff indicated as available on the library website the service instructions for employees and the policy related to service provision for the people with impairments at a frequency of 96(72.18%) each, and the bibliographies of library materials of interest to the people with visual impairments (95, 71.43%). However, a substantial number of the respondents indicated as not available on the library website the following information: online instructions for assistive technology, list of specialised library materials, and links to external resources at a frequency of 82(61.65%) each, and disability services page (80, 60.90%) as shown in Table 30. This calls for the need for inclusion of the missing information that is core to the people with visual and physical impairments.

Table 30: Response of library staff on the availability of various information on the library websites (n=133)

	Available	Not available	I don't know	Total
Disability services page	47 (35.34)	81 (60.90)	5 (3.76)	133 (100)
Online instructions for assistive technology	46 (34.59)	82 (61.65)	5 (3.76)	133 (100)
List of specialized library materials	46 (34.59)	82 (61.65)	5 (3.76)	133 (100)
Links to external resources	46 (34.59)	82 (61.65)	5 (3.76)	133 (100)
Bibliographies of library materials of interest to the people with visual impairments	95 (71.43)	33 (24.81)	5 (3.76)	133 (100)
Service instructions for employees serving the people with impairments	96 (72.18)	31 (23.31)	6 (4.51)	133 (100)
Policy related to service provision for the people with impairments	96 (72.18)	31 (23.31)	6 (4.51)	133 (100)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

The response of the FGDs indicate that majority of the public university libraries had library websites. However the FGDs in two of the six universities were not aware of the library website. For those who stated that the library website was available, some of them said the library website was inadequate, since it was available only with assistance from friends as one of the FGDs remarked:

“...I can call it substandard. It can only be accessed when being assisted by friends” (FDG2).

However, the respondents said the library website was useful because it provided them with variety of information and they could access e-resources, past papers, reference materials, time tables and the OPAC. As for the type of information meant for the people with visual impairments, the respondents were not aware of any information relating to them on the library website. They reiterated that the websites contained general information for the general users such as the services provided by the library, the OPAC,

and the facilities. This was confirmed by the University Librarians and the Systems Librarians who said that the libraries had websites but there were neither the disability page nor any specific information targeting the people with visual impairments in the websites. The websites provided general users' information for example e-resources, news, Institutional Repository, the mission and the objectives of the library, library rules and regulations, and OPAC among others. Therefore the response of the University Librarians, the FGDs, and the Systems Librarians contradicted the responses of the library staff and the people with physical impairments who claimed that websites had disability page and information specific for the people with visual impairments. A review of the library websites by the researcher confirmed that all the six libraries had library websites but none of the library website had the disability services page or any specialized information targeting the people with impairments.

Regarding the extent of use of the library websites, the respondents in University A, University C, and University F stated that the library websites were moderately used, while the respondents in University B and University E said the library websites were heavily used.

On the challenges that faced the people with visual and physical impairments, while accessing the library websites, the Systems Librarians in University A observed that the people with visual impairments faced problems of power blackout in the library, slow internet connectivity, inadequacy of computers, lack of adapted keyboards and headphones. The respondent in University E said that navigating around many web pages in the library website posed a big challenge to those with visual impairments. In another university, the Systems Librarian observed that some people with visual and physical impairments were not aware that the information they needed existed on the library website. In this regard the respondent noted:

“...one of the challenge they might have is that they are not aware that the information they need exists in the library information portal and I have this fear of calling it library website, but basically you see most of the information that is posted is supposed to be seen or explored and if somebody is not able to explore then of course you know there is a problem there” (SL6).

5.7.3 Assistive technology and devices provided by the library

The use of ICT in the library calls for assistive technology and devices to enable the people with visual and physical impairments to access information. An inquiry from the library staff on the assistive technology and devices provided by the libraries indicates that majority of the respondents mentioned scanners (75, 56.39%), screen magnifiers (74, 55.64%) and screen readers (57, 42.86%) as the major assistive technology and devices provided by public university libraries. Braille embossers (51, 38.35%), Braille writing equipment (51, 38.30%), and Braille translation software (44, 33.08%) come out strongly. Provision of manual and motorised wheelchairs as well as CCTV come least in the list as shown in Table 31.

Table 31: Assistive Technology and Devices provided by the library (n=133)

	Frequency (n)	Percent (%)
Scanners	75	56.39
Screen Magnifier	74	55.64
Screen reader	57	42.86
Braille embosser	51	38.35
Braille Writing equipment	51	38.30
Braille Translation software	44	33.08
Walkers for physical impaired	19	14.29
Motorized wheelchairs	3	2.26
CCTV	2	1.50
Voice Recognition software	2	1.50
Manual wheelchairs	2	1.50

(Source: filed data, 2017)

This was confirmed by the FGDs, the University Librarians and the Systems Librarians. Among the six public university libraries, University C and University E were leading in the provision of Assistive Technology and Devices. Those that were mentioned include NVDA, JAWS, CCTVs, Braille machines, braille embossers, headphones, reading stand, Scanner, slate and stylus; for those who do not know how to use braille machines and computers, Mercury Dolphin Pen, Thunder, adapted rulers, telescopes, magnification lenses, radio for recording, microphones and cameras. A Dolphin Pen is a lightweight pen

drive with a magnification, screen reading and braille support that enables the people with visual impairments to store magnified information, speech and braille information and access them on any computer without having to install any software (Department for International Development (DFID), 2007; Nattiq Technologies, 2013) while a Thunder is an open source screen reading software for the people with visual impairments (Wiazowski, 2009). University A and University E had screen reading technology only, while University B had braille machines only. The University Librarian in University D said that the library did not have any Assistive Technology and Devices. All the University Librarians said the libraries were faced with financial limitations in providing the Assistive Technology and Devices as some of them were very expensive.

The University Librarians were asked to explain the measures they had taken to ensure that Assistive Technology and Devices were accessible to the people with visual and physical impairments. The University Librarians' responses were diverse. The respondent in University A said the library had budgeted for Assistive Technology and Devices. The respondent in University B said the library had made a proposal to the university management to acquire equipment needed by the people with visual and physical impairments. The respondent in University E said the library had liaised with professional bodies like the Kenya Society for the Blind among others so that they could be advised on the emerging technology for serving the people with visual and physical impairments. Another respondent said that the library was to create awareness to both library staff and library users, training of staff, creating awareness to the university administration so the library can justify the budget increase. The University Librarian remarked:

“...creating awareness that is one of the things we are embarking on training of our staff and this is awareness to our staff and other users who are using the library to know that we have these people. Creating awareness to the university management telling them we have these people and it is expensive to cater for them so that the budget can be increased for them” (UL6).

5.7.4 Online Public Access Catalog (OPAC)

The study sought to establish whether the Online Public Access Catalogs (OPAC) in public university libraries were equipped with text enlargement and voice recognition software to enable especially the people with visual impairments to access information. A

majority of the library staff (97, 72.93%) said the OPACs used in their libraries were not equipped with text enlargement and voice recognition software. However, 36(27.07%) of the library staff said their libraries OPACs were equipped with text enlargement and voice recognition software.

For those who responded that the OPACs did not have text enlargement and voice recognition software, the study sought to find out what alternatives to OPAC were available to enable the people with visual and physical impairments to access information in the library. A few (21, 15.79%) of the respondents said there were special computers installed with screen readers dedicated to the people with visual and physical impairments. The other alternative was assistance from the library staff in using the OPAC (16, 12.03%) as shown in Figure 15.

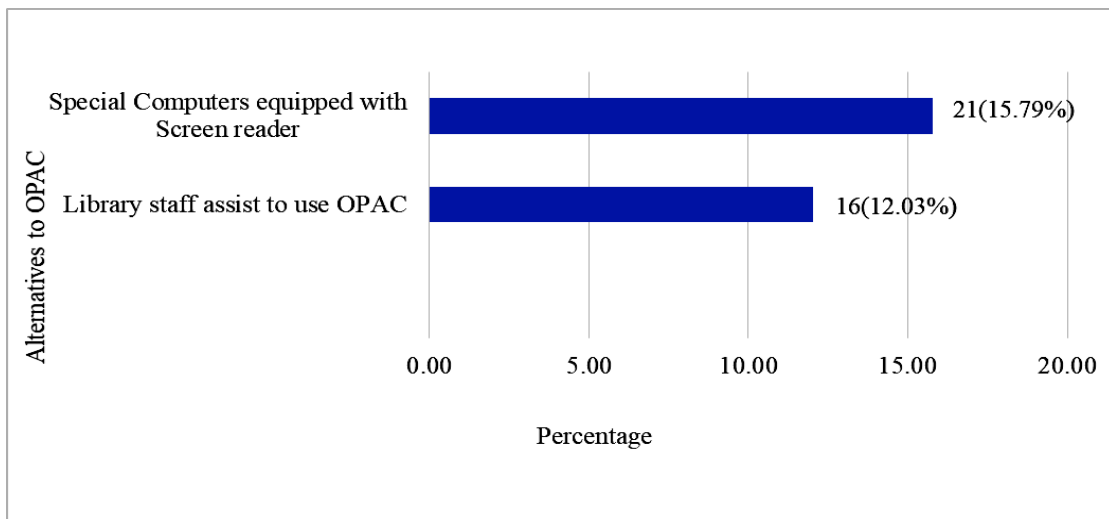


Figure 15: Alternatives available to OPAC (n=133) (Source: Field data, 2017)

5.7.5 Access to library databases

Access to library databases is core for the people with visual and physical impairments. The study sought to establish whether the people with visual and physical impairments were able to access the library databases. The response indicates that majority of the library staff (98, 73.68%) said that the people with visual and physical impairments accessed the library database, while 26(26.32%) responded that they could not access the library. This was confirmed by some of the Systems Librarians who said that some people with visual impairments could access the databases by use of the screen reading readers in their libraries.

The library staff were further required to describe the accessibility to the library databases by people living with visual and physical impairments. Most of respondents (61, 72.18%) pointed out that the library databases were easily accessible, while (37, 27.82%) said that the databases were not easy to access as shown in Table 32.

Table 32: Ease of access of the library databases (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
Not easy to access	37	27.82	27.82
Easily accessible	61	72.18	100
Total	133	100	

(Source: Field data, 2017)

5.7.6 ICT challenges experienced by library staff while providing information service to the people with visual and physical impairments

The study sought to find out the ICT challenges that the library staff encountered in providing services to the people with visual and physical impairments. The response of the library staff indicates that the core challenge was inadequate staff training at a frequency of (33, 24.81%) followed by outdated software at (25, 18.80%). Other ICT challenges that were mentioned include lack of skills in the use of assistive technology (19, 14.29%), internet failure (16, 12.03%), and low internet bandwidth (17, 12.78%). The least mentioned ICT challenges included power failure at 7(5.26%), inadequate facilities and lack of specialised computers at 8(6.02%) each as shown in Table 33.

Table 33: ICT challenges faced by library staff (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
Inadequate ICT facilities	8	6.02	6.02
Inadequate training	33	24.81	30.83
Internet failure	16	12.03	42.86
Lack of skills to use assistive technology	19	14.29	57.14
Lack of specialised computers	8	6.02	63.16
Low internet bandwidth	17	12.78	75.94
Outdated software	25	18.80	94.74
Power failure	7	5.26	100
Total	133	100	

(Source: Field data, 2017)

Most of the challenges mentioned above were confirmed by the respondents in FGDs who reported that they faced challenges of power blackouts, slow internet connectivity, inadequacy of computers installed with screen readers, and lack of library staff with training in the use assistive technology. One FGD remarked In this regard:

“...let me say the library staff cannot even activate the NVDA... now you see... when somebody is not properly trained, they cannot help a special person so they need proper training” (FGD6).

These results were also confirmed by the interview with the Systems Librarians from some universities who pointed out that the universities experienced inadequacy or lack of most of the necessary assistive technology and devices such as CCTV, adopted keyboards, headphones, scanner among others, slow internet connectivity, inadequacy of staff trained on the use of assistive technology and devices and inadequacy of computers, which inconvenienced the people with visual and physical impairments. The other challenge that was pointed out was inadequacy of funding to acquire the necessary resources for the people with impairments.

5.7.6.1 Addressing the ICT challenges

An enquiry on how the above challenges could be alleviated indicate investing in facilities as well as modern technology, as the core solutions to the ICT challenges faced by the library staff at a frequency rate of 33(24.81%) each. Proper training (25, 18.80%) came second followed by increasing the internet bandwidth (19, 14.29%). Other solutions that were suggested include acquisition of compatible software, installation of power back-up,

modernisation of the library, and allocation of more funding at a frequency of (14, 10.53%) each as shown in Table 34 below.

The FGDs were of the same opinion that the libraries should employ more staff with disability training and awareness or train those that are already there. They also suggested that the libraries need to provide more computers installed with screen readers, and increase internet bandwidth or internet routers to improve the internet connectivity. The interviews with the Systems Librarians also had similar suggestions if not more. The respondents suggested that the library should procure the necessary equipment and software, for example JAWS, CCTV magnification software, additional computers, braille machines, braille embossers, adapted keyboard and headphones. Other suggestions included increasing the internet bandwidth as well as coming up with ICT policy spelling out guidelines on provision of ICT services to the people with visual and physical impairments.

Table 34: Solutions to the ICT challenges (n=133)

	Frequency (n)	Percent (%)	Cumulative (%)
Acquire compatible software	14	10.53	10.53
More funding	14	10.53	21.05
Increase the bandwidth	19	14.29	35.34
Invest on facilities as well as modern technology	33	24.81	60.15
Modern library	14	10.53	70.68
Proper training	25	18.80	89.47
Provide power back-up	14	10.53	100
Total	133	100	

(Source: Field data, 2017)

5.8 University library building and access to services

The study sought to determine if the library building design and layout hindered or promoted access to services by the people with visual and physical impairments.

5.8.1 Library design and layout

The people with physical impairments and the library staff were asked to indicate yes, no or not sure regarding the availability of various library building design and layout aspects that were outlined in the survey questionnaire. Majority of the people with physical impairments were in agreement that: the parking for the people with visual and physical impairments was close to the library building (73, 80.22%); there were sufficient parking spaces marked with international symbol for disabled (65, 71.43%); there were well lighted and unobstructed access paths to the library entrance (83, 91.21%); there were ramps with railings next to the stairs (56, 61.54%); the doors were wide enough to allow accessibility by people using wheelchairs (75, 82.42%); there were clear and easy to read signs with pictograms throughout the library (56, 61.54%); there were unobstructed aisles between bookcases (47, 51.65%); there were visible and audible fire alarms within the library (60, 65.93%); there were special well lighted reading room designated for the people with physical impairments (60, 65.93%); shelves were reachable to people on wheelchairs (61, 67.03%); and there were reading and computer tables designed for the people with physical impairments (65, 71.43%). However, majority disagreed that there are well lit elevator buttons and signs in Braille and synthetic speech (40, 43.96%). In addition, a small number of respondents indicated that they were not sure of most of these facilities as shown in Table 35 below. These results suggest the need for public university libraries to effectively market their services to the people with physical impairments.

Table 35: Library building design and layout – the people with physical impairments

Facilities	Yes	No	Not sure
The people with physical impairments			n=91
Parking is close to the library building	73 (80.22)	15 (16.48)	3 (3.30)
There is sufficient spaces marked with international symbol for disabled	65 (71.43)	16 (17.58)	10 (10.99)
There are well lighted and unobstructed access paths to the entrance	83 (91.21)	8 (8.79)	0 (0)
There are ramps with railings next to the stairs	56 (61.54)	35 (38.46)	0 (0)
The doors are wide enough to allow accessibility to the people with wheelchairs	75 (82.42)	16 (17.58)	0 (0)
There are pictograms signs leading to the elevators	44 (48.35)	31 (34.07)	16 (17.58)
There are well lighted elevator buttons and signs in Braille and synthetic speech	29 (31.87)	40 (43.96)	22 (24.18)
There are clear and easy to read signs with pictograms throughout the library	56 (61.54)	26 (28.57)	9 (9.89)
There are unobstructed aisles between bookcases	47 (51.65)	24 (26.37)	20 (21.98)
There are visible and audible fire alarms within the library	60 (65.93)	13 (14.29)	18 (19.78)
There are staff trained to assist individuals with physical impairments in case of emergency	49 (53.85)	21 (23.08)	21 (23.08)
There are special toilets designated for individuals with physical impairments	50 (54.95)	32 (35.16)	9 (9.89)
There is a special well lighted reading room designated for the people with physical impairments	60 (65.93)	22 (24.18)	9 (9.89)
Shelves are reachable to people in wheelchairs	61 (67.03)	21 (23.08)	9 (9.89)
There are reading and computer tables designed for the people with physical impairments	65 (71.43)	10 (10.99)	16 (17.58)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

The response from the library staff on the library building design and layout indicates that, majority of the respondents said the parking designated for the people with visual and physical impairments was close to the library building (110, 82.71%); there were sufficient spaces marked with international symbol for disabled (79, 59.40%); there were well lit and unobstructed access paths to the entrance (91, 68.42%); there were ramps with railings next to the stairs (77, 57.89%); there were visible and audible fire alarms within

the library (81, 60.90%); there were staff trained to assist the people with visual impairments in case of emergency (80, 60.15%); and that there were special toilets designated for the people with visual impairments (78, 58.65%). However, majority disagreed that the glass doors were marked to warn visually impaired individuals (90, 67.67%); the stairs and steps were marked with contrasting colours (103, 77.44%); there were pictograms signs leading to the elevators (96, 72.18%); there were well lit elevator buttons and signs in Braille and synthetic speech (99, 74.44%); there were clear and easy to read signs with pictograms throughout the library (92, 69.17%); and that there was a special well lit reading room designated for the people with visual impairments (90, 67.67%). Table 36 presents a summary of the responses by the library staff.

Table 36: Library building design and layout – library staff

Facilities	Yes	No	Not sure
Library staff			n=133
Parking is close to the library building	110 (82.71)	23 (17.29)	0 (0)
There is sufficient spaces marked with international symbol for disabled	79 (59.40)	44 (33.08)	10 (7.52)
There are well lighted and unobstructed access paths to the entrance	91 (68.42)	32 (24.06)	10 (7.52)
There are ramps with railings next to the stairs	77 (57.89)	48 (36.09)	8 (6.02)
The glass doors are marked to warn visually impaired individuals	28 (21.05)	90 (67.67)	15 (11.28)
Stairs and steps are marked with contrasting colour	19 (14.29)	103 (77.44)	11 (8.27)
There are pictograms signs leading to the elevators	25 (18.80)	96 (72.18)	12 (9.02)
There are well lighted elevator buttons and signs in Braille and synthetic speech	24 (18.05)	99 (74.44)	10 (7.52)
There are clear and easy to read signs with pictograms throughout the library	37 (27.07)	92 (69.17)	4 (3.01)
There are unobstructed aisles between bookcases	55 (41.35)	59 (44.36)	19 (14.29)
There are visible and audible fire alarms within the library	81 (60.90)	36 (27.07)	16 (12.03)
There are staff trained to assist the people with visual impairments in case of emergency	80 (60.15)	40 (30.08)	13 (9.77)
There are special toilets designated for the people with visual impairments	78 (58.65)	49 (36.84)	6 (4.51)
There is a special well lighted reading room designated for the people with visual impairments	41 (30.83)	90 (67.67)	2 (1.50)

**Note: frequencies in percentages in brackets*

(Source: Field data, 2017)

Most of these design aspects were confirmed by the FGDs in the six universities. The respondents in three of the six universities reported that having the services for the people with impairments located on the ground floor of the library building really facilitated easy access to information and services, the libraries entrances had ramps, the doors were wide enough, the libraries were spacious for free movement, there were special toilets designated for the people with impairments, there were comfortable furniture, the libraries were well ventilated and well lit. However only one library had lifts with synthetic speech

and braille buttons and this explains the small response rate that said these facilities were available from the people with physical impairments and the library staff.

5.8.2 Physical barriers hindering access to library and information services by the people with visual and physical impairments

The study sought to find out the physical barriers that prevented the people with visual and physical impairments from accessing the library and information services. Majority of the people with physical impairments said long distance from the hostel (30, 32.97%) followed closely by inadequate library space (29, 31.87%) were the major barriers hindering access to library and information services. Other barriers that were mentioned include mobility difficulty arising from lack of ramps among others (14, 15.38%), lack of wheelchairs (8, 8.87%), as well as lack of special facilities (5, 5.49%) as shown in Figure 16.

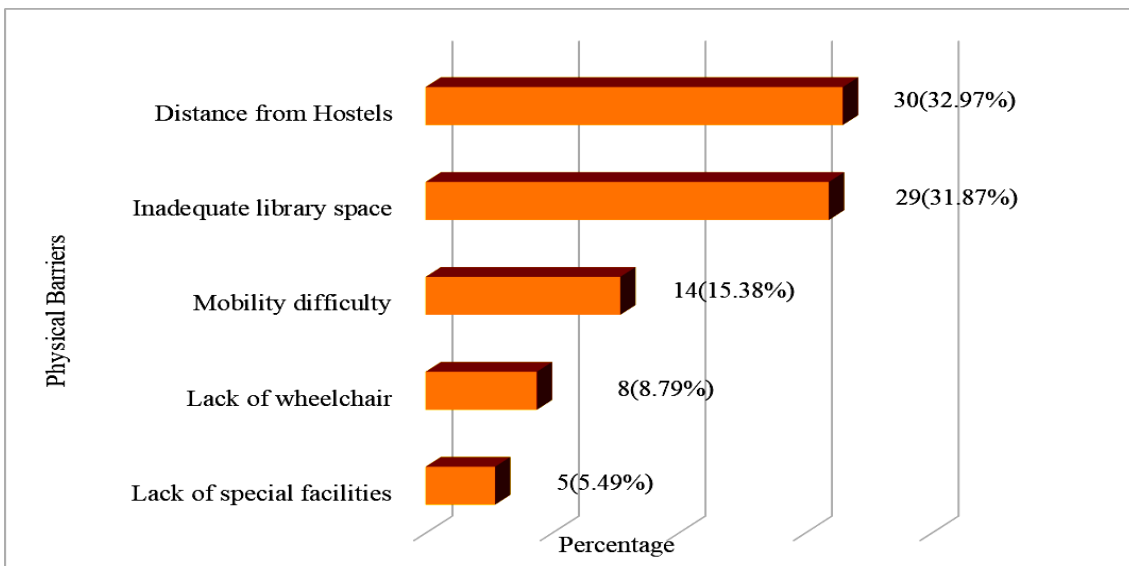


Figure 16: Physical barriers identified by the people with physical impairments (n=91) (Source: Field data, 2017)

The response by library staff on the physical barriers hindering access to library and information service by the people with visual and physical impairments indicate that poor facilities (59, 44.36%) was the major challenge. Other challenges mentioned include lack of ramps inside the library (19, 14.29%), lack of emergency exits (18, 13.53%) and inadequate facilities (16, 12.03%) as shown in Figure 17.

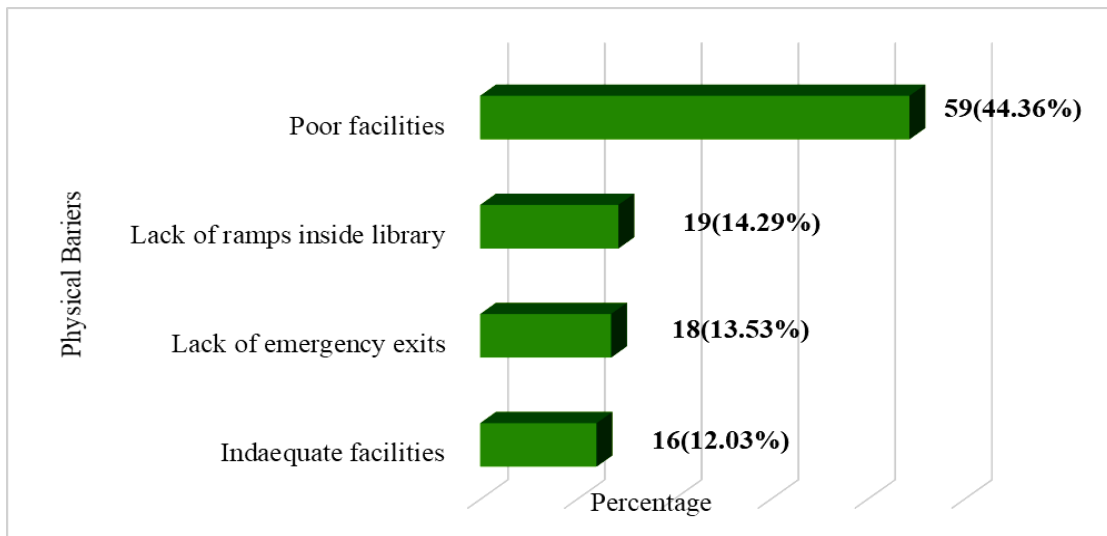


Figure 17: Physical barriers identified by the library staff (n=133) (Source: Field data, 2017)

All the respondents in the FGDs conducted in the six public universities reported some design aspects that were a hindrance in accessing information services in the library. Respondents in University A and University E said that they could not access the upper floors of the library building because there were no lifts or ramps inside the library and the upper floors were only accessible by staircase. The respondents in Universities A, University B, University D, and University F said that the libraries had no special rooms designated for use by the people with visual impairments. The respondents in University D said the library was very small and congested and had no facilities for the people with visual impairments, while in another university the respondent said that the big size of the library coupled with the lack of library orientation made it very difficult for them to maneuver their way around the library to seek services. They reported that one could easily get lost. The FGD remarked:

“...we don’t know the design because we have not been oriented. So lack of orientation would make you not know the correct place to get a particular services unless with the help of someone. You can easily ... that library is big you can easily get lost and find yourself in some ... somehow you are alone. Nobody is passing”
(FGD1).

The respondents in the two universities whose libraries had special rooms designated for the people with visual and physical impairments, observed that the rooms were small and

could not accommodate many people or additional computers given the fact that the rooms were shared by people with different types impairments admitted in the universities.

5.8.2.1 Addressing the physical barriers of access to library and information services

The study sought to find out how the physical barriers of access to information could be addressed from the people with visual and physical impairments and the library staff. The people with physical impairments suggested the following solutions: construction of ramps (34, 37.36%), counselling and therapy at 24(26.37%), repair of lifts (15, 16.48%), construction of modern library (15, 16.48%). Provision of wheelchairs (3, 3.30%) was least suggested as possible solution to addressing physical barriers hampering access to the library and information services as shown in Figure 18.

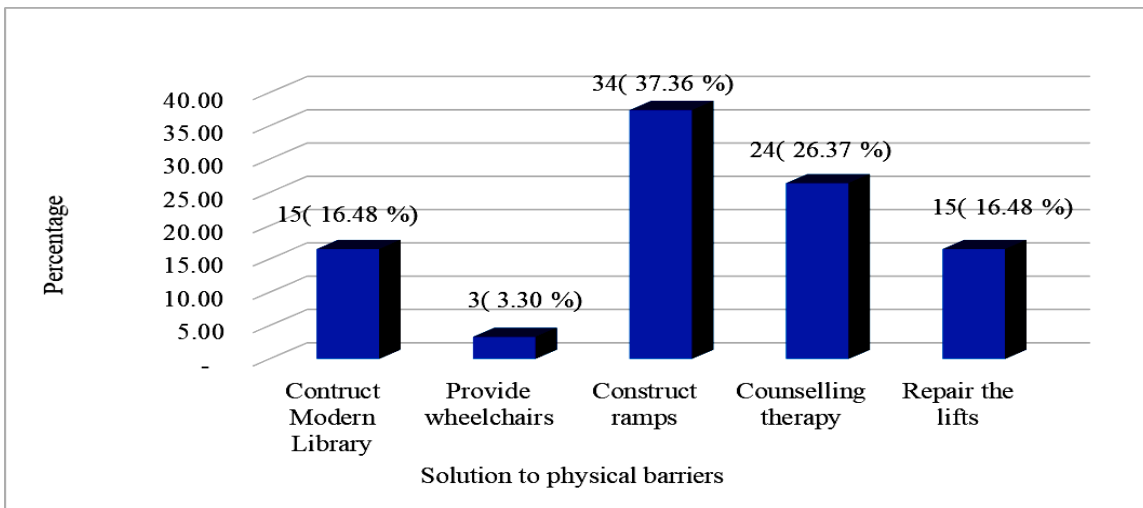
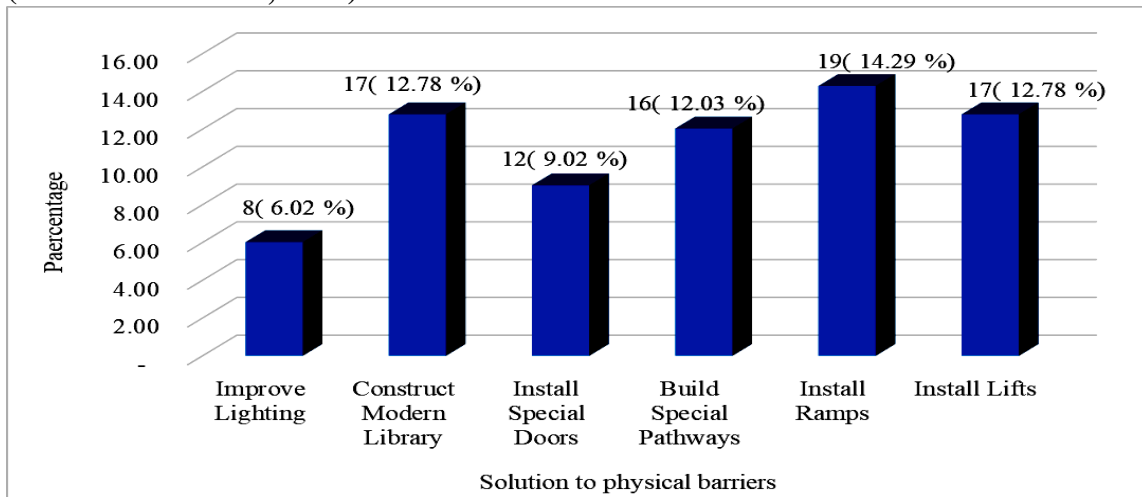


Figure 18: Suggestions by the people with physical impairments on addressing physical barriers of access (n=91) (Source: Field data, 2017)

The suggestions provided by the library staff include construction of modern libraries and installation of lifts at a frequency of 17(12.78%) each, constructing of special pathways (16, 12.03%), installation of special doors (12, 9.02%), installation of ramps (19, 14.29%) and more lighting within the libraries (8, 6.02%) as shown in Figure 19.

**Figure 19: Suggestions by library staff on addressing the physical barriers (n=133)
(Source: Field data, 2017)**



The observation carried out by the researcher using an observation checklist confirms some library design aspects that were mentioned by the people with visual and physical impairments and the library staff which either hindered or facilitated access to information and services by the people with visual and physical impairments (see results in Table 37).

Table 37: Observation of the library building design

Items observed		Frequency (n)	Percent (%)
Parking spaces close to the library	No	1	16.7
	Yes	5	83.3
Parking spaces marked with symbol of access	No	1	16.7
	Yes	5	83.3
Ramps at entrances	Yes	6	100
Hand rails on both side of ramps	No	3	50
	Yes	3	50
Doors allowing clear opening	No	1	16.7
	Yes	5	83.3
Clear signage leading to library	No	5	83.3
	Yes	1	16.7
Working lifts and elevators	No	2	33.3
	Yes	3	50
	N/A	1	16.7
Hand rails on stairways	Yes	5	83.3
	N/A	1	16.7
Floors with non-slip surface	No	1	16.7
	Yes	5	83.3
Wide and flat pathways for wheelchair passage	No	1	16.7
	Yes	5	83.3
Emergency exit plan for the people with impairments	No	5	83.3
	Yes	1	16.7
Warning signals clear to the people with impairments	No	6	100
	Yes	0	0
Rest rooms for the people with impairments	No	2	33.3
	Yes	4	66.7
Wheelchair accessible safety alarms	No	6	100
	Yes	0	0
Room for the people with impairments	No	4	66.7
	Yes	2	33.3
Wheelchair accessible service desk	No	5	83.3
	Yes	1	16.7
Well lighted library	No	0	0
	Yes	6	100
Adequate space between shelves	No	5	83.3
	Yes	1	16.7
wheelchair accessible shelves	No	6	100
	Yes	0	0

(Source: Field data, 2017)

The results of the observation indicate that majority of the university libraries (5, 80.30%) had parking marked with the international symbol of access close to the library, while

1(16.70%) had no parking spaces for the people with impairments like the one shown in Figure 20.



Figure 20: Parking space for people with impairments in one of the libraries (Source: Field data, 2017)

All the libraries (6, 100%) had ramps at the entrances. In three (50%) libraries the ramps had hand rails on both sides like the one shown in Figure 21 below, while in the other 3(50%), the ramps did not have hand rails like the ones shown in Figure 22 and Figure 23.



Figure 21: A ramp with hand rails on both sides (Source: Field data, 2017)



Figure 22: A modified ramp without hand rails at one of the libraries (Source: Field data 2017)



Figure 23: A ramp without hand rails at one of the libraries (Source: Field data, 2017)

The study also found out that in five (83.30%) of the libraries the doors had clear opening and opened easily, while in one (16.70%) the doors were narrow. Figure 24 presents a door with wide opening while Figure 25 presents a door with a narrow opening.



Figure 24: Wide double-door at one of the libraries (Source: Field data, 2017)



Figure 25: A double door closed on one side at one of the libraries rendering it narrow (Source: Field data, 2017)

The findings also indicate that in one (16.70%) of the libraries there was clear signage leading to the library from the parking, while in five (83.30%) of university libraries this was not the case. Additionally, in three (50%) of the libraries, there were working lifts or elevators to access other floors, while in two (33.30%) of the libraries, there were no lifts or elevators to access other floors. However, one (16.70) of the libraries was not a storey building so the issue of lifts or elevators did not apply. Figure 26 and 27 show a lifts and elevator in one of the libraries.



Figure 26: A set of lifts in one of the libraries
(Source: Field data, 2017)



Figure 27: An elevator in one of the libraries
(Source: Field data, 2017)

In addition, the study found out that in five (83.30%) of the libraries, there were hand rails on the stairways like the one shown in Figure 28, while in one (16.70%) library this did not apply as it had only one floor.



Figure 28: A stair case with handrails on both side (Source: Field data, 2017)

Regarding the floor, the study found out that in five (83.30%) of the libraries the floors had non-slip surface, while in one (16.70%) the floor was slippery. It was also observed that two libraries had chipping floor tiles and needed refurbishing, while one library had placed mats at entry and exit points but the mats were not fastened on the floor thus posing a risk of tripping and falling for the people with visual and physical impairments as shown in Figures 29, Figure 30 and Figure 31.



Figure 29: A floor with peeling tiles in one of the libraries (Source: Field data, 2017)



Figure 30: A floor with peeling tiles and chipping ramp in another library (Source: Field data, 2017)



Figure 31: Entry and exit points with pieces of carpet that are not fastened to the floor in one of the libraries (Source: Field data, 2017)

In five (5, 83.30%) of the libraries there was wide and flat pathways to accommodate a person in wheelchair or other kinds of physical impairments, while one (1, 16.70%) did not have wide and flat pathways. In one (16.30%) of the libraries, there was emergency exit plan that caters for the people with impairments, while five (5, 83.30%) did not have emergency exit plan. In all the libraries (100%), there were no warning signals clear to the people with impairments. In four (66.7%) of the libraries, there were rest rooms for the people with impairments, while two (33.30%) did not have restrooms. Figure 32 shows a rest room for the people with impairments in one of the libraries



Figure 32: A toilet designated for people with impairments in one of the libraries (Source: Field data, 2017)

In all the libraries (6, 100%) safety alarms were not within reach for wheelchair users. In one (16.70%) of the libraries the service desks were wheelchair accessible, while in five (83.30%) of the libraries the service desks were not wheelchair accessible. In two (2, 33.30%) of the libraries, there were special rooms designated for the people with impairments, while in four (4, 66.70%) there were no such rooms. In 5(83.3%) of libraries the spacing between the shelves was not adequate for wheelchair users while in one (1, 16.7) the space was adequate. In all the six (6, 100%) libraries, the shelves were high and were books shelved even on the upper shelves hence not wheelchair accessible as shown in Figure 33



Figure 33: High shelves with shallow isles at one of the libraries the libraries (Source: Field data 2017)

5.9 Accessibility of information services

The study sought to determine the overall opinion of the respondents on the accessibility of information services by the people with visual and physical impairments. Majority of the library staff (100, 79.19%) indicated that information services to the people with visual and physical impairment were accessible with 33(24.82%) indicating that information services are not accessible to the people with visual and physical impairments.

On the other hand, majority of the people with physical impairments (85, 93.41%) indicated that information services were accessible, while (6, 6.59%) indicated that information services were not accessible to the people with visual and physical impairments.

5.9.1 Level of accessibility to information services by the people with visual and physical impairments

The people with impairments were asked to rate the level of accessibility of information service in their respective libraries. A cross tabulation of the university and the level of accessibility to information services by the people with impairments was generated. The results in Table 38 reveal that across the universities 39(42.86%) of the people with physical impairments view the accessibility to information services as satisfactory, 24(26.37%) as very satisfactory, and 18(19.78%) rating the accessibility as moderate. However, only a minimal of 5(5.49%) perceived the level of accessibility to information services to be unsatisfactory and very unsatisfactory as presented in Table 39.

As for accessibility in the individual libraries, respondents in University A said accessibility to information services was satisfactory (13, 39.39%) and very satisfactory (11, 33.33%). University B rated the access to information services as Satisfactory (4, 57.14%), moderate (2, 28.57%) and very satisfactory (1, 14.29%). University C rated accessibility to information services as satisfactory (14, 53.85%), very satisfactory (8, 30.77%) and moderate (4, 15.38%). University D rated the accessibility to information services as very unsatisfactory (5, 33.33%), satisfactory and very satisfactory with a frequency of 3(20%) each. University E rated the accessibility to information services as satisfactory (4, 57.14%) and very satisfactory (3, 42.86%). University F rated accessibility to information services as satisfactory (2, 66.67%) and very satisfactory (1, 33.33%).

The probability value calculated at 95% level of confidence is 0.000. The chi-square calculated value was 47.5591. This shows that there was significant difference among the

universities with regard to the responses of the people with physical impairments in rating the level of accessibility of information services as shown in Table 38.

Table 38: A cross tabulation of university and level of satisfaction on the accessibility of information from survey questionnaire returned by the people with physical impairments (n=91)

Level of satisfaction of the accessibility of information services	UNIVERSITY							Total
		A	B	C	D	E	F	
Very unsatisfactory	f(n)	0	0	0	5	0	0	5
	%	0	0	0	5.49	0	0	5.49
Unsatisfactory	f(n)	2	0	0	3	0	0	5
	%	2.20	0	0	3.30	0	0	5.49
Moderate	f(n)	7	2	4	1	4	0	18
	%	7.69	2.20	4.40	1.10	4.40	0	19.78
Satisfactory	f(n)	13	4	14	3	3	2	39
	%	14.29	4.40	15.38	3.30	3.30	2.20	42.86
Very satisfactory	f(n)	11	1	8	3	0	1	24
	%	12.09	1.10	8.79	3.30	0	1.10	26.37
Pearson chi ² (20) = 47.5591 Pr = 0.000								

(Source: Field data, 2017)

Similarly the library staff were asked to rate the accessibility of information services by the people with visual and physical impairments. A cross tabulation of the university and the level of accessibility to information services was generated. The response on Table 39 below reveals that across the universities the respondents rated the accessibility to information services as satisfactory (48, 36.09%). Others said access to information services was moderate and very satisfactory (26, 19.55%) and 12(9.02%) respectively. However, 23(17.29%) of the respondents indicated that access to information services was unsatisfactory and another 24(18.05%) said access to information services was very unsatisfactory. Analysis of the individual universities reveals that majority of the respondents in University A rated accessibility to information resources as moderate (14, 87%). However, some respondents said the accessibility to information services was satisfactory and very unsatisfactory at a frequency of 1(6.25%) each. In University B, majority of the respondents rated accessibility to information services as satisfactory with a frequency of (20, 90.91%); however, 2(9.09%) of the respondents rated access to

information services as unsatisfactory. In University C, majority of the respondents rated accessibility to information services as very unsatisfactory (9, 52.94%), and unsatisfactory (2, 11.76%); however, 6(35.29%) rated the accessibility to information services as very satisfactory as shown in Figure 40.

In University D, most of the respondents rated the accessibility to information services as satisfactory at a frequency of 8(30.77%), and very satisfactory at a frequency of 4(15.38%); those who rated as moderate got a frequency of 5(19.23%). However, 5(19.23%) rated accessibility to information services as very unsatisfactory, while 4(15.38%) rated it as unsatisfactory. In University E, most of the respondents rated accessibility to information services as satisfactory (9, 47.37%) and moderate (2, 26.32%). However, 5(26.32%) rated the accessibility to information services as unsatisfactory and very unsatisfactory was rated by 3(15.79%). In University F, most of the respondents rated accessibility to information services as satisfactory and unsatisfactory with a frequency of 10(30.30%) each, while others rated the accessibility to information services as very unsatisfactory (6, 18.18%), moderate (5, 15.15%) and very satisfactory (2, 6.06%). The probability value calculated at 95% level of confidence is 0.000. The chi-square calculated value was 120.6023. This shows that there was significant difference among the universities with regard to the responses of the library staff in rating the level of accessibility of information services as shown in Table 39.

Level of satisfaction of the accessibility of information services		UNIVERSITY						Total
		A	B	C	D	E	F	
Very unsatisfactory	f(n)	1	0	9	5	3	6	24
	%	0.75	0	6.77	3.76	2.26	4.51	18.05
unsatisfactory	f(n)	0	2	2	4	5	10	23
	%	0	1.50	1.50	3.01	3.76	7.52	17.29
Moderate	f(n)	14	0	0	5	2	5	26
	%	10.53	0	0	3.76	1.50	3.76	19.55
Satisfactory	f(n)	1	20	0	8	9	10	48
	%	0.75	15.04	0	6.02	6.77	7.52	36.09
Very satisfactory	f(n)	0	0	6	4	0	2	12
	%	0	0	4.51	3.01	0	1.50	9.02
Pearson chi2(20) = 120.6023 Pr = 0.000								

(Source: Field data, 2017)

5.10 Summary

This chapter analysed and presented the findings of the study. The main themes in the study included the library policy, information services, application of ICT in facilitating access to information, the attitude of library staff, and the library building design and layout. The study findings indicate that all the public university libraries provide information service to the people with visual and physical impairments but they did not have specific policies giving guidelines on provision of services to the people with visual and physical impairments. However, provision of the services to the people with visual and physical impairments was in line with the Disability Mainstreaming Policy in their respective institutions. The study also found out that ICT was being applied in majority of the public university libraries and was perceived as a very important tool in facilitating access and use of information by the people with visual and physical impairments. However, majority of the libraries did not have assistive technology and devices to facilitate access and use of information by the people with visual impairments. Regarding the library staff attitude toward the people with visual and physical impairments, the study found that the library staff were aware of the needs of the people with visual and physical impairments, and their attitude was positive apart from a few that were said to have a negative attitude related to lack of training and awareness. The study also found that all libraries had made efforts in ensuring access to the library building by installing ramps at the entrance of the buildings. However, there were design aspects that hindered access to information services by the people with visual and physical impairments such as lack of lifts, lack of rest rooms designated for the people with impairments, and lack of special reading room among others. Overall, the study found that information services were partially accessible to the people with visual and physical impairments in majority of the libraries. The next chapter discusses the findings.

CHAPTER SIX

DISCUSSION OF FINDINGS

6.1 Introduction

The preceding chapter presented and analysed the findings from the data collected through survey questionnaires, interviews, focus group discussions, and observation. The findings are discussed in this chapter by extant literature and theory. Besides the Social Model of disability, the IFLA checklist provided a useful conceptual framework for the discussion of the findings. The purpose of discussion in any type of research is to “frame the finding of the current research investigation in light of the previously published research” (Amonette, English, & Kraemer, 2016, p. 79). In the discussion chapter the researcher provides a broader and deeper interpretation of the findings and the possible implications they might have for practice thus giving meaning to what has been found. This means that the discussion chapter tries to explain what the results mean, why things turned out the way they did, and how the results can be used in practice (Polit & Beck, 2003, p. 101). The researcher takes into consideration matters such as the relationship of the findings to the goals of the research, the research questions, the original hypotheses, implications of the research for the relevant theories informing the study and giving alternative explanation of outcomes (Allison, 2002, p. 133; Saunders et al., 2009, p. 537).

The aim of the study was to examine information service provision to the people with visual and physical impairments in public university libraries in Kenya. The study sought to address the following specific research questions:

- 1 How does the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 2 What information services are available for the people with visual and physical impairments?
- 3 How is ICT applied to facilitate access and use of information by the people with visual and physical impairments?
- 4 How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya?

- 5 How does the library building design affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 6 What measures do the public university libraries in Kenya need to take to ensure inclusive information services for people with visual and physical impairments?

The study was underpinned by the IFLA Access to Libraries for Persons with Disabilities Checklist, and the Social Model of disability. The study was based on the pragmatic paradigm that favours the mixed methods approach.

6.2 Profile of the respondents

The data on university of affiliation, gender, age, and academic program was obtained from the people with physical impairments while data on university of affiliation, gender, age, level of education, and work experience was collected from the library staff, the University Librarian, the Systems Librarian and the staff from Disability Mainstreaming departments. This data was meant to help the researcher to understand the current status and the context within which the respondents could be examined and also to help describe the respondents (Cohen & Posner, 1995, p. 94). The population consisted of the people with visual, the people with physical impairments, the University Librarians, the Systems Librarians, and the staff from Disability Mainstreaming department in the respective universities.

The study revealed that (64, 70.33%), of the people with visual and physical impairments in the six public universities under study were males while (27, 29.27%) were females compared to the people with visual impairments who were 47(58.75%) males and 33(41.25%) females. Looking at the two groups it is evident that there was a great gender disparity in terms of enrolment of the people with impairments in public universities in Kenya. This also shows that the public universities enrolled more people with physical impairments than those with visual impairments. The findings also indicate that more males were enrolled in public universities than females.

This result may be attributed to the fact that women and girls are faced with socio-cultural and economic challenges right from their childhood. Opini (2011, p. 70) argues that the problems that hinder women to fully participate in university education are caused by social, economic, cultural and political factors. These include: poverty, risk of sexual abuse and harassment, discrimination, insufficient learning resources and physical access,

accommodation and transport. For the Library staff, there was an element of gender parity where the male were 69(51.88%) while the female were 64(48.15%). This results suggest some gender equity in terms of employment of the staff in the university libraries which also resonates well with the constitutional requirement of the two-thirds gender rule, as well as the social justice of gender fairness between males and females when it comes to employment entrenched in chapter four – Bill of rights of the Constitution of Kenya 2010 (Republic of Kenya, 2010). Looking at the age of the respondents, the study found that majority of the people with physical impairments aged between 21 and 23 years were 42(46.51%) as compared to the people with visual impairments (28, 35%) followed by those aged between 24 and 26 years for the people with physical impairments (24, 26.37%) as compared to 28(35%) with visual impairments. Those aged between 18 and 20 years were 17(18.68%) for the people with physical impairments as compared to 14(17.50%) the people with visual impairments. Those aged between 27 and 30 were 6(6.59%) for the people with physical impairments as compared to 5(6.25%) for the people with visual impairments. Only 2(2.20%) of the people with physical impairments were above 30 years. These findings suggest that majority of the people with visual and physical impairments in the university that were studied were aged between 18 and 26 years.

This result may be explained by the fact that majority of the respondents were undergraduates whose age bracket was expected to be between 18 years and 26 years. The study found that (43, 32.33%) of library staff were aged between 41 and 50years, 38(28.57%) were aged between 31 and 40 years, 31(23.31%) were aged between 20 and 30 years while 21(15.79%) were aged above 50 years. This result suggests that more than half of the library staff were between 20 and 40 years, while a sizeable number of the staff were towards the retirement age. This result also suggests that the library staff who provided services to the people with visual and physical impairments in the studied universities were young and could benefit a lot from disability training to enable them to serve the needs of the people with visual and physical impairments.

In terms of the academic qualification, the findings indicate that the students who were taking Bachelor degree courses were 87(95.60%) for the people with physical impairments, while their counterparts with visual impairments were 69(86.25%). Those who were taking Master's degree programmes were 3(3.30%) for the people with physical impairments, while their counterparts with visual impairments were 1(1.25%). Lastly,

those who were taking Diploma courses were 1(1.10%) for the people with physical impairments while their counterparts with visual impairments were 10(12.50%). The findings also indicate that (57, 42.86%) of the library staff were holders of Bachelor's degree, 39(29.32%) were diploma certificate holders, 33(24.81%) were Master's degree holders, while 3(2.26%) were Certificate holders. Only 1(0.75%) library staff had a PhD degree. The universities in Kenya categorise the library staff with PhD, Masters, and Bachelor degrees as professionals while those with Diploma and certificate qualification are categorised as para-professionals. The findings indicate that majority of library staff who provided services to the people with visual and physical impairments are professionals as presented in Table 8. Consequently, it is expected that they should be in a better position to provide quality services to the people with impairments.

6.3 Library policies

The Social Model of disability advocates for the removal of institutional barriers such as policies and procedures that prevent full participation of individuals with impairments within education, the work place and the wider community (see section 2.3.4.2 of chapter 2 of this thesis). Tinkling, Riddell and Wilson (2004) cited in Bano, Shah, and Masud (2013) opine that the people with impairments deserve special support in education, in both policy and practice. Libraries are part and parcel of the educational system as they act as a hub of information resources and services. Consequently, university libraries can be instrumental in breaking the existing barriers preventing easy access to information resources by the people with impairments (Anatola, 2007, p. 95) by using strategies based upon the principles of universal design to ensure that policies, resources and services meet the needs of all people (Roberts & Smith, 2010). Mooney (2016) notes that policies and procedures that institutions have in place directly impact on how they provide services to students, hence university libraries are not an exception. The policies should explain the standard practices and procedures relating to anti-discrimination, service accommodation, accessible information, accessible customer services training, use of guide dogs, service animals and support persons, assistive technology, equipment and devices, and accessible communication (Canadian Library Association (CLA), 2016, para. 9).

The findings revealed that all the six public university libraries did not have a standalone policy regarding information service provision for the people with impairments. It is therefore inferred from the findings that lack of written policy relating to provision of information services to the people with impairments impacted on the overall provision of

information services for the people with visual and physical impairments. Lack of policy resulted in limited budget, failure to assess the information needs of the people with impairments, inadequate marketing of services for the people with impairments, and lack of involvement of the people with impairments in planning of their services. It would also seem that the university libraries excluded the people with visual and physical impairments in terms of policies. A possible explanation for this could be the lack of drive to develop policies relating to provision of service to the people with impairments by the library administration coupled with lack of support from the university administration. These findings are similar with a study conducted in UK by Kinnell, Yu, and Creaser (2000) which revealed that 42% of the 141 libraries studied had no written disability policy. The study also found that there was low priority given to market research, user needs analysis, evaluation of services and budget for the people with visual impairments and this was attributed to the lack of disability policies. Similarly a study conducted in Ethiopia by Dugasa (2016) revealed that Haramaya University library did not have a policy relating to provision of services to the people with impairments and this seriously affected their services. A study conducted in Tanzania by Majinge (2014) revealed that there was lack of policies regarding provision of library services for the people with impairments in academic libraries in Tanzania. In the Kenyan context, a study by Anambo (2007) revealed a lack of compliance by the library with national and international policy frameworks as there was no disability policy in place at Jomo Kenyatta Memorial Library at the university of Nairobi. Similarly, a study conducted by Ochoggia (2004) revealed that Kenyatta University library had no written policy regarding provision of information services for the people with visual impairments.

The findings further revealed that public university libraries relied on the university wide Disability Mainstreaming Policy which oversees the disability mainstreaming in the universities. It would seem therefore that the libraries did not fully take into account the specific information needs of the people with impairments in the libraries and therefore libraries need to develop their own policies that would cater for the information needs of the people with impairments. These findings are similar with a study by Heaven (2004) who conducted five case studies which involved five Higher Education (HE) libraries in UK. The study revealed that none of the case studies had formal disability policy relating specifically to library and information provision for the people with impairments. However the study found that all the institutions studied had university wide policies on

disability. In addition, the study found that some institutional policies were available in alternative formats such as large print, audiotape and braille. The policies emphasised key areas of library provision such as telephone points for library disability support contacts, the accessibility of library building, a brief introduction to specialist software and the availability of library publications in alternative formats. A study conducted in Armenia by Khachatryan (2014) examined digital services provision and their marketing to patrons with impairments at the national Library of Armenia. The study found that the library had a circulation policy with exceptions that allowed patrons with impairments to check out materials that a regular patron could only use in the reading room and extended lending period for patrons with impairments. However, this led to situations where materials were recalled from patrons without impairments so as to lend to students with impairments. The study therefore suggested that library policies addressing diverse needs of patrons with impairments and a proper marketing strategy or written communication and marketing plan for the library, needed to be formulated.

According to Gibson (2006, p. 61-62), it is imperative that libraries should put in place policies and procedures to guide the interaction between the library staff and the people with impairments. The library staff should be familiar with the policies and procedures of their library and make them accessible to the people with impairments. This would ensure that both the library staff and the people with impairments are aware of their rights and responsibilities under legislation and under the university policies. Gibson further argues that policies would inform the people with impairments on what adjustments to services and facilities are already available to the people with impairments; what can be done for them on an individual basis; and the procedures to access these services or facilities. Moreover, policies serve as commitment on the part of libraries in making programmes, services and resources accessible to the people with impairments (Burgstahler, 2012, p. 4).

6.4 Budgeting

The findings revealed that university libraries in the study did not have specific budgets dedicated to the provision of information services to the people with visual and physical impairments and budgeting was done when needs arose. It would seem that this mode of budgeting interfered with many aspects of information service provision such as equipment, training and recruitment of staff, structural modification, marketing, and facilities. Moreover, this resulted in lots of delays in procuring the required resources. In their study, Grewal, Mcmanus, Arthur, and Reith (2004) opine that if a requisition for a

service or equipment was made at a point when the annual budget was virtually accounted for, this then could lead to delay while awaiting the new financial year. According to Anatola (2007, p. 97) it is of paramount importance for University Librarians to conduct physical access audits, assess needs of the people with impairments and ensure proper funding of the required physical alterations in buildings, procurement of special equipment, and staff training to ensure all their patrons including those with impairments benefit. In their study, Kinnell, Yu, and Creaser (2000) found that having a dedicated policy for the people with visual impairments impacted on the spending for specialist materials, on relationship building with external agencies and on the provision of specialist equipment. The study found that where library authorities had a written policy, they were more likely to focus on meeting a wider range of the special needs of the people with visual impairments.

6.5 Assessment of user needs

The findings revealed that the libraries had no structured means of assessing the needs of the people with visual and physical impairments. These findings seem to suggest that some public university libraries provided services to the people with impairments without fully understanding their information needs; hence providing haphazard information services that inadequately met the needs of the people with impairments. These findings concur with the study by Nelson (1996) which revealed that only 33% of 131 libraries studied had prepared or were preparing a policy describing special services for the people with impairments. Majority of the respondents indicated that no formal needs assessment had been done. Needs were often assessed on a case by case or on demand basis. In order to provide equitable and inclusive services and effective facilities to the people with impairments, librarians need to identify these people, understand their needs, their information seeking behavior and the problems they encounter in the library environment (Koulikourdi, 2008b, p. 203).

6.6 Marketing of services

The findings revealed that overreliance on library orientation as a marketing tool was not an effective method of marketing the library services because some people with impairments said they never received library orientation. Lack of awareness of the library services could be the reason why some people with visual and physical impairments never visited the libraries.

A study conducted in Singapore by Leong and Higgins (2010) explored the public library services for young people who were wheelchair-bound. The study revealed that none of the respondents was aware of the full range of library services and facilities. Non-users of the library knew the least and users who had recent experience of public libraries were more aware. Once the full-range of information services and facilities were explained to the non-users of the library, immediately, they developed an interest to visit the library. Lack of interest in visiting the library was precipitated by their lack of awareness; hence marketing of library services for the people with impairments is very important. However, library orientation in combination with other marketing strategies would be more effective. Besides, the libraries could borrow a leaf from a study conducted in Korea by Noh, Ahn, and Park (2011) that examined the requirements of the public library disability services in order to improve library promotional marketing. The study revealed that the strategies used for promoting disability services included library website, user guide, library newsletter, and library pamphlets. Inadequate marketing of services in libraries in this study could be attributed to limited or lack of funding which is precipitated by lack of library policy guiding on provision of information services to the people with impairments.

The study conducted by Kinnell et al. (2000) in UK attributed the low priority given to market research, user needs analysis, evaluation of services and budget for the people with visual impairments in 42 out of 141 public libraries studied to lack of disability policies in those libraries. Kavanagh and Skold, (2005, p. 23) opine that the library managers should ensure that policies include the aims and objectives, strategic plans, procedures, and arrangements for allocating the necessary resources. They should also address appropriate performance targets, monitoring procedures and accountability, as well as promotion and partnership.

6.7 Planning of services

The University Librarians said that the libraries did not have direct involvement with the people with visual and physical impairments in planning of their services. This would seem to suggest that the people with impairments were excluded in the matters that directly impacted on their use of information services leading to poor information service provision witnessed in majority of the libraries. Herson and Calvert (2006, p. 62), and Wentz, Jaeger, and Bertot (2015) stress that for libraries to be able to provide accessible services, they should always make concerted effort to involve the people with impairments

in all conversations about policies and procedures for accessibility to services and facilities. The people with impairments are themselves one of the best resources for providing information on how to create an accessible environment (Bick, 2015; Chittenden & Dermody, 2010). McCaskill and Goulding (2001, p. 202) argue that it is necessary for libraries to consult the people with impairments about their information needs rather than the libraries assuming they know what is best for them.

6.8 Cooperation/collaboration with other units in the university

The findings indicate that majority of the libraries collaborated with the Disability Mainstreaming departments, the faculties, ICT departments, the student body, and the Directorate of Student Affairs so that the libraries could establish the number of people with impairments admitted in the university, the type of impairments they had, the kind of facilities they required, and the kind of information they required and in what format. Only one of the universities collaborated with external bodies such as the National Council for Persons with Disabilities and the Kenya Institute of Special Education. This collaboration could be attributed to the fact that departments in public universities cannot work in isolation as they work towards achieving the overall objective of the university. Moreover, the presence of the university wide Disability Mainstreaming Policy calls for collaboration between various departments in the university to ensure effective provision of services to the people with impairments. A study conducted in the US by Nelson (1996) examined programmes and services provided for the people with impairments by academic health sciences libraries. The study revealed that approximately half of the 131 libraries studied said they collaborated with other units in providing services for the people with impairments. Heery (1996, p. 8) stresses that libraries must collaborate with other units in the wider community in order for them to be able to deliver effective services to the people with impairments otherwise these services cannot be offered effectively when the libraries operate in isolation.

6.9 Provision of information Services

This section presents the provision of information services to the people with visual and physical impairments in public university libraries.

6.9.1 Library orientation program

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that libraries should offer guided tours of the library for both individuals and groups of the

people with special needs (see section 2.2.1 of chapter 2 of this thesis). Dienes-Jonnes (2007:101) opines that library tours and introductions covering general information about the library should be offered to students with impairments. In addition, special tours should be organised for students to identify any special accommodations of equipment they may need. The findings revealed that the libraries provided library orientation (see results in Figure 11) and majority of the people with visual and physical impairments had received the orientation (see results in Table 12). However, majority of the libraries did not provide specialised orientation tailored to the needs of the people with impairments. The content of the library orientation, include: assigning of reading aids (human readers) to the people with visual impairments, braille and sign language training, training on how to access information, training on how to use the Online Public Access Catalog (OPAC), and training on mobility within the library, training on access to internet resources and services, how to use internet and web resources, tour of the library building, as well as orientation on the basics of computers applications, training on the use of Assistive technology and devices, storage and access of online study materials, and on the use of the search engines (see results in Table 13). Failure to provide specialised library orientation for the people with visual and physical impairments could be attributed to lack of motivation and enthusiasm on the part of the library administration.

These findings are similar with a study conducted by Kumar and Sanaman (2013) which revealed that library users in National Capital Region (NCR) libraries had received library training on the basics of computer applications, mobility training for the blind/vision impaired, basic training in lip reading and sign language, storage and access of online study materials and access to internet resources and services. A study conducted in South Africa by Seyama, Morris, and Stilwell (2014) on information seeking behavior of students with visual impairments revealed that although library orientation programmes were offered at University of KwaZulu-Natal (UKZN) at the beginning of the year or whenever need arose, the specific needs of the blind and visually impaired students were not catered for in those orientations. Chaputula and Mapulanga (2017) investigated the provision of library services to the people with impairments in Malawi. The study revealed that the majority of respondents (71.4%) were not oriented on how to access the library. Only 21.4% indicated that they were given an integrated orientation but no special one was done for them. The reasons that were given by the students as to why the library orientation was not done include: some library staff did not recognise the need for special

orientation, negligence or lack of interest of the library staff, because the people with impairments did not demand the services, and some students stated that they were not able to go up the stairs where the orientation was taking place.

6.9.2 Information literacy training programs

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that libraries should provide guided tours of the library for both individuals and groups of the people with special needs (see section 2.2.2 of chapter 2 of this thesis). According to Hernon and Calvert (2006, p. xi), academic libraries meet the information needs of the populations they serve as well as developing the information literacy abilities of students to become life-long learners capable of locating, retrieving, evaluating, and applying information as they translate it to knowledge. IL is a critical component of this information age (Bandyopadhyay, 2008) as it plays a vital role in enabling one to actively participate in the information society and it is also part of the basic human right of life-long learning (Rimmerman, 2013). According to Nuut (n.d, p. 2004) the aim of teaching IL is to raise the level of competency for information retrieval, analysis and use. Nuut further argues that IL also includes the knowledge of ICT, systematic retrieval methods, and databases' search technologies.

The findings of this study indicated that the public university libraries offered IL training to the people with visual and physical impairments. The content of the training include how to cite and reference; how to identify relevant literature; how to extract relevant information; how to identify an information need; and how to organise ideas. However, the findings indicate that none of the people with visual impairments received IL training and most of the people with physical impairments did not receive IL training. These findings also seem to suggest that access to information and its use by the people with visual and physical impairments was curtailed by lack of the necessary skills needed for academic survival of any student in an institution of higher learning.

These findings are similar with a study conducted in South Africa by Phukubje and Ngoepe (2017) on the convenience and accessibility of library services to students with disabilities at the University of Limpopo in South Africa which revealed that only 2(38%) of the 92(100%) of the respondents had received user education/IL, while 29(53%) had not received any training. Those that received the training indicated that the training entailed how to search the catalogues and books from the shelves, how to reference, how

to use the photocopying machine, and how to print using the remote printer. Kotso and Mohammed (2011) investigated information resources and services provision to the people with physical impairments in Plateau State Special Educational Institutions in Nigeria. The study revealed that none of the special schools' libraries provided IL training to the people with impairments. A study conducted in Kenya by Kiambati (2015) explored the challenges that students with visual impairments faced in accessing electronic information resources at the Post Modern University Library at Kenyatta University. The study found out that 57% of students with visual impairments had not received user education (IL training), while 43% said they had received such training. Those who did not attend the IL training gave various reasons for not attending the IL training including: they lacked awareness on provision of such training at the library; others said there were no such trainings organised at the section for users with special needs; and that user education was provided using a projector and the students were not able to benefit since they were visually impaired.

6.9.3 Staff with training to provide services to the people with visual and physical impairments

The IFLA Access to Libraries for Persons with Disabilities Checklist suggests that all library staff should be trained and well-informed about various types of impairments and how to handle people with such impairments (Irvall & Nielsen, 2005, p. 11). Brannen, Milewski, and Mack (2017, p. 66) assert that training the library staff working directly with the people with impairments can be an effective way to improve interactions between the people with impairments and the library staff. Training can include sensitivity training to improve interpersonal communication and resource training to boost the confidence of the library staff in knowing what services, equipment and resources are available, how to assist, whom to refer questions, and where additional services can be found. Besides having disability training, it is important for the library staff to know how to use both hardware and software that the people with impairments may require within the library (Charles, 2005, p. 455; Williamson et al., 2001, p. 162).

The findings of this study revealed that majority of the library staff in the libraries in the study had no special needs training (82, 61.65%), while 51(38.35%) had received the training (see results in Table 12). Most of those who had received the training were trained on the use of assistive and adaptive technology, awareness and special training on handling the people with impairments, and training in sign language (see results in Table

13). Having library staff trained in resources available to the people with impairments would help provide better support services and programmes to this category of users (Brannen et al., 2017, p. 66).

These findings are similar with a study conducted in the US by Nelson (1996) which revealed that less than one-third of the 131 libraries studied had a staff member assigned responsibility for providing services to the people with impairments. Only 39% of the libraries indicated that the staff was trained to serve the needs of the people with impairments. Training in the use of special equipment was often provided by someone outside the library. The study conducted by Eskay and Chima (2013) in Nigeria revealed that all the libraries in the study did not have trained library personnel to handle the people with visual impairments. The study carried out in Ethiopia by Dugasa (2016) also revealed that the students with impairments had challenges accessing information services due to lack of trained staff to provide services to them.

6.9.4 Information sources

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that all library materials be accessible for all customers and one way to ensure this is to acquire talking books, Video/DVD books, Braille books, easy to read books, accessible e-books, and other non-print materials (see section 2.2.1 of chapter 2 of this thesis).

The findings indicated that text books, print journals, institutional repository, Online Public Access Catalog (OPAC), e-databases, internet e-books, e-journals, audio-visual materials, dictionaries, and CD-ROM were important sources of information for the people with visual impairments. However in most of the libraries, these resources could not be accessed by the people with visual impairments due to lack of assistive technology and devices such as scanner, and screen readers among others. Most of the libraries did not have audio-visual materials, braille books, large print books and CD-ROMs. This forced the people with impairments to rely on their friends to read for them the printed books but most of the times the friends were busy and not available. A study carried out in Nigeria by Babalola and Haliso (2011) investigated the role of academic libraries in providing services to the people with visual impairments. The study found that all the 14 university libraries studied did not have braille books, talking books, talking newspapers, and assistive technologies. Seyama (2009) and Seyama, Morris, and Stilwell (2014) studies revealed that the University of Kwa-Zulu Natal Pietermaritzburg Library did not

provide assistive technology and devices such as Zoom Text Facilities and Job Access with Speech (JAWs) software to enable the students to access and use information in the library.

6.9.5 Assistive hardware and software facilities for the people with physical impairments

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that computers for public use should be accessible. Moreover, to make the computers accessible, the libraries should ensure that: there are designated computer workstations adapted for patrons in wheelchairs, and adaptive keyboards or keyboard overlays for users with motor impairments (see section 2.2.3 of chapter 2 of this thesis). Similarly, the Social Model of disability requires universal access to libraries to be attained by the provision of information in alternative formats such as braille as well as large print materials. Moreover assistive technologies such as Closed Circuit Television (CCTV), Braille embossers, screen magnification and JAWS among others should be provided (Rayini, 2014, p. 5).

The findings revealed that adaptive furniture, walkers and walking frames, manual wheelchairs, adaptive keyboard, electric/ motorised wheelchairs, automatic door openers as well as prosthetic and orthotic devices were not provided by the library for use by the people with disabilities. However, in some universities, the Disability Mainstreaming department provided some assistive hardware facilities such as special chairs, wheelchairs, white cane, crutches, bathing chairs, bathing stools, and commodes on a lending basis until the people with visual and physical impairments obtained their own. Findings further revealed that assistive software including Voice Recognition Software, word prediction-completion, Onscreen Keyboards, Dragon Naturally, and DAISY Reader were not provided to the people with disability in the six university libraries (see results in Table 18).

However, most of the respondents rated assistive technology and devices as very important (66, 72.53%), 20(21.98%) rated assistive technology and devices as important and 5(5.49%) moderately important for them to access information services. Assistive Technology devices play a major role in equalising opportunities for the people with impairments as the technology enables them to overcome various limitations and obstacles they face in different environments (Koulikourdi, 2008a, p. 387). Sanaman and Kumar (2015) add that assistive technology plays an important role in the lives of the people with

impairments as it facilitates information access and allows the people with impairments to accomplish their task in a more refined independent manner. A study conducted in Zimbabwe by Rugara, Ndinde, and Kadodo (2016) revealed that three of the four academic libraries in Masvingo that were studied did not have speech to text and /or text to speech computer software, speech synthesisers, and magnification facilities. The study conducted by Kotso and Mohammed (2011) also revealed that none of the libraries in the special institutions that were studied provided Assistive Technology such as Scanners, CCTV magnifying aid unit, and Kurzweil.

6.9.6 Special services

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that libraries should provide special services for the people with impairments. These services should include home delivery services for those unable to come to the library, reading services or scanning texts to make them accessible on a computer with screen reader for the people with reading difficulties, and regularly schedule consultations for persons with reading difficulties among others (see section 2.2.1 of chapter 2 in this thesis). Additionally, libraries should consider providing services such as extended loan period, waive late fines, extend reserve periods, book by mail, reference services by fax or email, personal inductions sessions on using the library and assisting students in using the catalog, finding resources, and using equipment in the library and remote electronic access to library resources including OPAC (Association of Specialized and Cooperative library Agencies (ASCLA), 2018, para. 7; Gibson, 2006, p. 63). Barker (2011) adds that the staff may offer assistance through retrieving information from the shelves, information searches and photocopying.

The findings in this study indicated that remote electronic access (81, 60.90%) strongly appeared as one of the core services offered by the library to the people with visual and physical impairments followed by volunteer readers (58, 43.61%), book delivery services to the rooms being third (56, 42.11%) with extended loan period (55, 41.35%) cited as the fourth major service provided (see results in Figure 17). In contrast for the people with physical impairments the findings indicated that the core services provided by the libraries were computers (61, 67.03%), staff assistance in retrieval of information from the shelves (56, 61.54%), and library orientation (55, 60.44%) (see results in Table 20). However, the University Librarians confirmed that the libraries did not provide book delivery services to the rooms. These findings would seem to suggest that the libraries did not cater for the

needs of the people with severe physical impairments who were not able to visit the libraries, thus impacting negatively on their academic performance.

A study conducted in South Africa by Phukubje and Ngoepe (2017) that examined the convenience and accessibility of library services to students with impairments at the University of Limpopo in South Africa revealed that the library did not provide book delivery service to students who had multiple impairments and those with mobility impairments who were not able to visit the library. Akolade, Tella, Akanbi-Ademolake, and Adisa (2015) examined the undergraduates with physical impairments satisfaction with library and information services in Kwara State Higher Education Institutions. The study revealed that the libraries did not provide transcription services, online reference services for users who could not move freely due to mobility issues, inter-library loan services, designated staff for services to the physically challenged, guided tours orientation programmes and special library network with the physically challenged students. The study however revealed that the library provided reference services, abstracting and indexes services, Current Awareness Service, and book reservation services.

Another study conducted in Nigeria by Iroeze, Umunnakwe, and Eze (2017) that examined the library services provided to the people with physical impairments in South-East, Nigeria revealed that one of the two libraries that were studied provided advisory services, reference and instructions on how to use Braille services. The second library provided advisory services, consultancy services, reference, instructions on the use of Braille, use of the library, and information literacy skills. The study conducted by Ayiah (2007) in Ghana revealed that the university library at the University of Ghana had no reader employed to provide reading services to the people with visual impairments. However provision of reader service was dependent on the resource persons and volunteer readers. The study also revealed that the library staff provided literature search service by retrieving documents and related materials requested by the people with impairments. Reference services were provided at the Braille Library at the request of the people with visual impairments. A study by Njoroge (2013) investigated the status of library access for individuals with impairments in academic libraries in Kenya and found that most university libraries in Kenya did not provide special services to the people with impairments. The study revealed that 60% of the libraries did not provide inter-library-loan service, 70% of the libraries did not provide readers and research assistants, 70% of

the libraries did not have staff trained to serve the people with impairments, and selective dissemination of information among others.

The current study found that 38 (41%), of the people with physical impairments used the library often, a good number (24, 26.37%), used the library always, while 21(23.08%) used the library sometimes. However, 3(3.30%) used the library rarely and 5(5.49%) never used the library; citing mobility problems (see results in Table 11). As for the people with visual impairments, majority said they used the library regularly, while others used the library services occasionally. These findings suggest that most of the people with visual and physical impairments used the library as much as possible, while others rarely or never used the library. This can be attributed to lack of wheelchairs, lack of lifts or ramps in the library, severe mobility impairments, and the distance from the hostels to the library, non-availability of special services such as readers, assistive technology and devices among others. These findings bear some similarity with the study conducted in Nigeria by Akolade et al. (2015) that revealed that majority of the respondents, 17(36.1%) of 47(100%) visited the library two to three times a week, 10(21.3%) visited the library daily, 1(2.1%) visited the library once a week, 3(6.4%) visited the library often, while 6(12.8%) rarely visited the library and, 7(14.9%) never visited the library. The underutilisation of the library services was attributed to the frustrations that the people with physical impairments encountered due to the un-availability of information sources in the library.

6.9.7 Alternative formats of information

The IFLA Access to Libraries for Persons with Disabilities Checklist provides that all library materials should be accessible for all customers. To achieve this, the libraries should acquire special media formats for the people with impairments including talking books, talking newspapers as well as talking periodicals. Moreover, large print books, easy to read books, braille books, videos/DVD books with subtitles and /or sign language, e-books and tactile picture books should be provided (see section 2.2.1 of section 2 of this thesis). The Social Model of disability also advocates for the removal of barriers of access to information services by the people with impairments by providing variety of formats such as Braille, large texts, electronic, among others (see section 2.3 of section 2 of this thesis).

The findings indicated that the major alternative format of information provided by the libraries include braille books (87, 65.41%), and large print materials (59, 44.36%) (see results in figure 18). With regard to the level of use of the alternative formats of information, the library staff rated the level use of large print materials, talking books, braille books and DAISY as very low (see results in Table 21). The findings from the FGDs however indicate that majority of the six public university libraries did not provide information in alternative formats. A study by Bick (2015) in Scotland revealed that marketing and promotion of services in Scottish public libraries was inadequate and this rendered some services not being widely utilised. The other explanation for low level of use was attributed to inadequacy of the alternative formats in quantity and variety. A study in South Africa by Fakoya-Michael and Fakoya (2015) revealed that students in University of Limpopo Turfloop Campus were faced with problems related to inadequacy of information resources, lack of information in alternative formats such as braille among others.

In the context of Ghana, a study by Ayiah (2007) revealed that the library in the University of Ghana, Legon had challenges related to lack of information in alternative formats, inadequate and outdated braille books, lack of readers and trained reference personnel to offer services to the people with visual impairments. Adetoro (2011) in his study in selected libraries in Nigeria revealed that Braille materials and talking books/audio recordings were either not readily available or not available in the libraries while materials in large print were not available at all. The study also revealed that braille books were the most utilised. In addition, the study revealed that availability of information materials in the libraries had a positive relationship with their utilisation. In the Kenyan context, the studies by Anambo (2007) and Njoroge (2013) revealed that most university libraries in Kenya did not have materials in special formats such as talking books, larger print books, Braille books, Video/DVD books with subtitles and or sign language for use by the people with impairments.

6.9.8 Challenges encountered in provision of services

The findings indicate that provision of services was hampered by inadequate equipment; inadequate information materials; inadequate trained staff; communication barrier as well as inadequacy of facilities and equipment for the people with visual impairments (see results in Table 22). Others include absence of special budget to cater for the needs of the people with impairments, lack of Braille books and inaccessibility of some floors due to

lack of lifts or ramps in the library. The respondents suggested ways of solving these challenges including training of staff to help address the communication barrier; provision of more funding for purchasing more equipment, and equipping library with the modern facilities among others. Other solutions that were suggested include provision of information resources for the people with visual and physical impairments, and extending the reading space for the people with visual and physical impairments (more details in Table 23). An analysis of literature on strategies for meeting information needs of people with dyslexia in public libraries in Nigeria by Abdulrahman (2015) revealed that libraries faced challenges of inadequate funding, lack of awareness of available technology, lack of skilled personnel to handle the people with dyslexia, inadequate library services, and inadequacy of the appropriate reading materials.

6.10 Library staff attitude

The Social Model of disability insists on removal of attitudinal barriers such as prejudice and stereotyping, and inflexible organisational practices that exclude the people with impairments from participating in the society (Public and Commercial Services Union, 2006, para. 6). To achieve this, the American Library Association (ALA) (2001) requires that libraries provide training opportunities for its staff and volunteers in order to make them aware of matters affecting the people with impairments and to equip them with effective skills for providing services to the people with impairments. Deines-Jones, (1999) cited in Carter (2004) classified staff training into attitudinal training intended to improve awareness of and sensitivity to disability related issues; facility training intended to train staff to design accessible programs and services for all people; and legal training that is concerned with the requirements of the law.

Moreover, majority of the respondents strongly agreed that library staff were polite and communicated clearly to the people with physical impairments (as reflected in Table 27) and that they were aware of the needs of the people with visual and physical impairments (as reflected in Table 28). Bodaghi and Zainab (2012, p. 243) posit that lack of librarians awareness of the needs of the people with impairments and lack of training on how to handle them has a negative effect on the library staff attitude.

In contrast, a study conducted in UK by McCaskill and Goulding (2001) which, examined public library compliance with the Disability Discrimination Act (1995), found that there was considerable attitudinal discrimination towards the people with impairments by

library staff who were impatient, discourteous and patronising. Bodaghi, Cheong, Zainab, and Riahikia (2016) examined the librarians' support provided to the people with visual impairments in Malaysian libraries. The study revealed that negative attitudes of librarians towards individuals with impairments, their lack of disability awareness or disability training, and communication skills prevented them from providing a welcoming atmosphere. Bodaghi, Zainab, and Noorhidawati (2014) in another study also carried out in Malaysia found that university libraries experienced difficulties in providing inclusive environment due to lack of awareness on the accurate statistics of students with impairments. Studies conducted by Anambo (2007) and Kariba (2009) found that the library staff at Jomo Kenyatta Memorial Library at the University of Nairobi and Kenyatta University had a negative attitude towards the people with impairments. The variation in the study results with the literature can be attributed to the fact that the issue of disability mainstreaming in public universities in Kenya has been made a performance contracting endeavour within the universities. The government introduced disability mainstreaming in all public offices as part of performance contracting in all public offices including universities. The public offices are required to mainstream disability and send the implementation reports to the National Council for Persons with Disabilities on a quarterly basis (Kenya News Agency, 2016, para. 1).

6.11 Application of ICT in facilitating access to information

The IFLA Access to Libraries for Persons with Disabilities Checklist states that computers, catalogs, websites, and e-books should be accessible for individuals with impairments. In this regard, enlargement software and screen readers should be provided. In addition, fast and reliable technical support should be provided for both computers and adaptive equipment used by the people with visual impairments and with other impairments (Irvall & Nielsen, 2005). The Social Model of disability acknowledges that ICTs have the potential to be liberating and can help remove obstacles faced by the people with impairments (Varney, 2013:20).

The findings revealed that majority of the people with physical impairments (73, 80.22%) were of the view that Information Communication Technologies (ICT) was important in facilitating access to information by the people with physical impairments as compared to 15(16.48%) that indicated that ICT is moderately important. However, a minority (3, 3.30%) were of the opinion that ICT is not important in facilitating access to information

(see results in Figure 19). The findings from the FGDs confirms that ICT is very important in facilitating access to information.

Moreover, the people with visual and physical impairments used ICT to access internet, website, OPAC, e-books, e-journals, emailing, social media; institutional repository, e-databases and word processing (see results in Table 26 and Table 27). In terms of their usage, the use of emails, institutional repository, e-journal and internet was rated moderately high, while the use of e-books, OPAC, website, word processing and video conferencing was rated low (see results in Table 29). However, accessibility and use of ICT based resources by the people with visual impairments in majority of libraries was poor due to lack of the necessary assistive technology and devices.

With regard to the library websites, the IFLA Access to Libraries for Persons with Disabilities Checklist provides that the library should provide information about access, services, materials and programs in alternative formats so that people who may not be able to read this information in print can access it in the alternative formats such as large print, audio tape, CD/DVD, or DAISY, Braille or on the library's accessible website (see section 2.2.3 of chapter 2 of this thesis).

The current study found that the library website had neither the disability services page nor any specific information targeting the people with visual impairments such as online instructions for assistive technology, list of specialised library materials, and links to external resources among others (see results in Table 31); however, the websites contained information such as e-resources, Institutional Repository, mission and objectives of the library, rules and regulations, and OPAC among other services. Green and Blair (2011, p. 137) argue that the library disability services link or web page should include information on facilities such as campus accessibility maps, facilities accommodation (restrooms, drinking fountains, parking, elevator locations and carrels with wheelchair access), conference and meeting room access, emergency exits and emergency plans for the people with impairment. In addition, the website should include information on accessing library materials such as photocopying and microfilm services, book finding and retrieval services, interlibrary loan service and home delivery service. Moreover, websites present one of the most effective tools of marketing library services to the people with impairments (Adegoke, 2015, p. 4; Gibson, 2006). Regarding the extent of use, the websites were heavily used in half of the libraries, while in the other half, they were moderately used. The findings also indicate that the people with visual and physical

impairments had challenges accessing the library websites due to power blackout, slow internet connectivity, inadequacy of computers, lack of adapted keyboards, headphones, navigating around many web pages in the library website, and more.

A study conducted in the US by Cassner, Maxey-Harris, and Anaya (2011) reviewed academic library websites for the people with impairments. The study revealed that 87(88%) of the libraries had web pages for the people with impairments. Majority of the home pages were easy to access, while others were not. Majority of the libraries with home pages provided information on assistive technology and mission statement specific to the people with visual impairments on their public website. The core services listed on the websites included: information retrieval, photocopying circulation services research, interlibrary loan services, and proxy services among others. Regarding the facilities, majority of the websites listed communication about equipment and service options for example assistive hardware, software, peripherals and TTD/TTY phones among others. The websites also contained information on parking for the people with impairments, information on structural modifications, toilets, elevators, and a few mentioned what to do in emergency situations.

A study conducted in US by Power and LeBeau (2009) revealed that only 5 out of 33 libraries cited database availability in their websites but the information that was provided was inadequate such that it could not be helpful to the people with impairments. The study also revealed that only seventeen libraries had good disability home page services by virtue of their accessibility and the importance of information that they provided, but majority of them were rated as poor because they were either difficult to locate or they availed very little or no information at all. Majority of libraries provided general contact details for the library instead of providing contact details for the individuals who would have been of more help to the library users. Services such as photocopying, information retrieval, research and consultations among others were mentioned in the library home pages. The libraries also provided information regarding parking and entrance to the buildings such as elevators, but rarely provided information about toilets, drinking fountains, the book stacks, and reading areas among others. Assistive technologies were mentioned in majority of the library home page but very minimal information regarding the hardware and the software in use was provided, something that did not go well with the people with visual impairments. Some library home pages just mentioned the hardware and the software programs, while very few provided an overview on both. The sharp

contrast of the US studies with the current one could be attributed to the fact that the libraries in the US are well versed with technology.

The use of ICT calls for the use of Assistive Technology and Devices to enable the people with visual and physical impairments to access information. The IFLA Access to Libraries for Persons with Disabilities Checklist states that computers, catalogs, websites, and e-books should be accessible for individuals with impairments. In this regard, libraries should provide designated computers equipped with screen reading programs, enlargement software, synthetic speech, spelling software, and other instructional software suitable for the people with dyslexia as well as adaptive keyboards or keyboard overlays for the people with motor impairments. In addition, technical support (on-site, if possible) should be provided (Irvall & Nielsen, 2005).

The findings revealed that scanners (75, 56.39%), screen magnifiers (74, 55.64%) and screen readers (57, 42.86%), Braille embossers and Braille writing equipment at a frequency of (51, 38.35%) each, and Braille translation software (44, 33.08%) were the major assistive technology and devices provided by the libraries. Walkers, motorised wheelchairs, manual wheelchairs, voice recognition software as well as CCTV were least provided by the libraries (see results in Table 35). However, majority of the libraries provided JAWS screen reading software, NVDA and Braille machine only. Minority (two) libraries provided most of assistive technology and devices such as NVDA, JAWS, CCTVs, Braille machines, braille embossers, headphones, reading stand, Scanner, slate and stylus for those who do not know how to use braille machines and computers, Mercury Dolphin Pen, Thunder, Adapted rulers, telescopes, magnification lenses, radio for recording, microphones and cameras.

Moreover, the findings indicate that the OPACs provided by majority of libraries were not equipped with text enlargement and voice recognition software (97, 72.93%). Only 36(27.07%) of the library staff said their libraries OPACs were equipped with text enlargement and voice recognition software (see results in Figure 20). In addition, majority, of the respondents said there were special computers installed with screen readers dedicated to the people with visual and physical impairments as alternative to OPAC.

Haynes and Linden (2012), and Steel, Layton, Foster, and Bennett (2014) posit that Assistive Technology (AT) can improve the quality of life and increase participation for

the people with impairments by enabling them to complete daily personal tasks and subsequently helping increase their overall participation in the society.

A study conducted in the US by Burke (2009) revealed that the libraries had made good progress in improving physical access but less progress in purchasing adaptive devices to help serve the people with impairments. Similarly, a study conducted in India by Sanaman and Kumar (2014) revealed that there was lack of Assistive Technology facilities in the National Capital Region Libraries and this made it very difficult for the people with impairments to access information. A study conducted in Nigeria by Ekwelem (2013) revealed that the libraries lacked assistive technology and devices such as large screen video with tele-text and sub-title facility, screen enlargement software, speech synthesiser with speech output, and text enlargement software to enable especially the people with visual impairments to access electronic information resources. Similarly, the study by Iroeze, Umunnakwe, & Eze (2017) revealed that libraries that were studied provided thermophone machines, braille writing machines, braille slates cassette recorder and radio. However, the libraries did not provide computers, scanner with CCTV magnification software, Kurzweil reader, and assistive devices for mobility among others. In the context of Kenya, the study conducted by Njoroge (2013) revealed that 70% of the libraries that were surveyed did not have computers equipped with screen reading software, print enlargement technology, and synthetic speech.

Furthermore the findings in the current study revealed that majority of the library staff said that the people with visual and physical impairments had difficulty accessing the library databases (98, 73.68%) as revealed by results in Table 37. This result could be attributed to the library staff's lack of skills to train the people with visual and physical impairments, inadequate or complete lack of IL training, and poor screen design to facilitate easy navigation of the many web pages. These findings are similar with a study conducted in Canada by Dermody and Majekodunmi (2012) that revealed that respondents had difficulties searching the databases using screen readers. Students rated their experience of searching with screen readers as either difficult or somewhat challenging and their comments showed a high level of frustration due to inaccessible Portable Document Formats (PDFs), unreadable links, and too many links.

6.11.1 ICT challenges

The findings indicated that the challenges that faced the libraries include inadequate staff, lack of training in ICT, outdated software, and lack of skills in the use of assistive technology, internet failure, low internet bandwidth, power failure, and inadequate ICT facilities (see results in Table 35). The respondents suggested the following interventions: investing in facilities as well as modern technology, proper training for library staff, increasing the internet bandwidth, acquisition of compatible software, and installation of power backup (see results in Table 34). Other challenges include lack of awareness about whether the information needed existed in the website, and some people with visual impairments had difficulties navigating around many pages in the library website. A study conducted in South Africa by Phukubje and Ngoepe (2017) revealed that students with impairments in the University of Limpopo faced challenges in accessing information due to lack of alternative formats, poor internet bandwidth, and inadequate training in how to use the library. Similarly, a study conducted in Nigeria by Ezeani, Ukwoma, Gani, Igwe, and Agunwamba (2017) revealed that academic libraries faced challenges including inadequate power supply and internet bandwidth, which hindered access to information by the people with impairments; the respondents suggested that librarians needed to work towards ensuring steady power supply and internet services.

6.12 Library building design and layout

The IFLA Access to Libraries for Persons with Disabilities Checklist suggests that libraries should ensure accessible parking close to the library building, clear paths of travel to and throughout the facilities, entrances with adequate, clear openings or automatic doors, handrails, ramps instead of steps, and elevators, accessible tables, clear signage, accessible toilets, and accessible shelves for individuals with impairments. The space in the library should be logically arranged with clear signs and a floor plan posted close to the entrance. The service desks should be located near the entrance and the paths in the library should allow wheelchairs to move around inside the library. In addition, the shelves should be reachable from a wheelchair, reading and computer tables should be of varying heights throughout the library, aisles between bookcases should be unobstructed, and the fire alarm should be visible and audible (Irvall & Nielsen, 2005).

The Social Model of disability similarly provides for removal of barriers that prevent the people with impairments from accessing the buildings, for example, if a wheelchair user

cannot climb the stairs, reasonable adjustments can be made such as installing a ramp or a lift (Carson, 2009, p. 17).

The findings indicated that the libraries had sufficient parking spaces for the people with visual and physical impairments close to the library building (5, 83.30%) and the parking spaces were marked with the international symbol of access/disabled. The findings also indicated that majority of the libraries had well lit and unobstructed access paths to the library entrance. In addition, all the libraries had ramps at the entrance of the building (6, 100%). However, in some libraries ramps did not have hand rails, while others had hand rails.

Half of the libraries had working lifts/elevators (3, 60%). However, only one library out of the three had pictograms signs leading to the elevators. Moreover, most of the libraries did not have well lit lift/elevator buttons and signs in braille and synthetic speech and only one library had well lit elevator buttons and signs in braille and synthetic speech.

The findings also indicated that most of the libraries had wide doors that allowed accessibility by people using wheelchairs (5, 83.30%), while 1(16.70%) had a narrow door. The findings also indicated that in most of the libraries, there were no clear and easy to read signs with pictograms. This would seem to suggest that lack of proper signage hindered access to services by the people with visual and physical impairments.

Additionally, the findings indicated that most of the libraries had obstructed aisles between book cases/shelves which seemed to suggest that people using the white cane, crutches and wheelchairs had difficulties maneuvering through the shelves. Furthermore, the shelves were not wheelchair accessible because they were tall and books were arranged upto the top most shelves. The Commission for University Education directs libraries to ensure that aisles between fixed ranges of book stack to be 42 inch (107cm) to accommodate wheelchairs and allow them to turn (Commission for University Education, 2014, para. 109).

Most of the libraries had visible and audible fire alarms within the library. However, in all the six university libraries the safety alarms were not within the reach of the wheelchair users. The findings also indicated that 4(66.67%) of libraries did not have special reading rooms designated for the people with impairments. These findings seem to suggest that lack of special rooms designated for the people with visual and physical impairments left

this group of library users competing for facilities with the people without impairments, something that made them feel discriminated and isolated by the libraries.

Most of libraries had reading and computer tables designed for the people with physical impairments. Moreover, (4, 66.70%), of the libraries had special toilets designated for the people with visual and physical impairments while 2(33.30%) did not have special toilets. This could be attributed to the fact that majority of the library buildings were old and small, having been constructed without considering the needs of the people with impairments.

The findings also indicate that most of the libraries had a staff trained to assist the people with visual and physical impairments in case of emergency. However most of the libraries (5, 83.30%) had no emergency exit plans for the people with impairments. The commission for University Education insists that libraries should provide visible fire and other emergency evacuation exits with unobstructed access (Commission for University Education, 2014, para. 109).

Most of the libraries did not have marked glass doors to warn the people with visual impairments. Moreover, most of the libraries did not have wheelchair accessible service desks and only one university library had such service desks.

Most of the university library buildings had floors with non-slip surface, while one library had a floor that was slippery. However, during the observation, the researcher found out that some libraries need to refurbish their floors as the floor tiles were peeling, which posed a challenge to the people using wheelchairs, canes and crutches.

Barker (2011, p. 13) highlights design considerations for people using wheelchairs; among them is that libraries should avoid surface finishes which hamper wheelchair mobility for example gravel, grass or deep pile carpet, and surfaces that do not provide sufficient traction, for example, polished surfaces. In contrast, during the observation the researcher found that one of the libraries had pieces of heavy floor mats placed at the entry and exit points of the library but the mats were not fastened on the floor posing a risk of tripping and falling by people using the white cane and crutches; this could also interfere with the forward traction of the wheel chair.

These findings are similar with a study conducted by Heaven (2004) in five libraries in UK. The study revealed that library signage was inadequate as no libraries used braille, tactile information or universally accepted pictograms. The shelf labelling was criticised

by students as being too high and illegible especially to those with visual impairments or dyslexia. Signs and navigational signage were inappropriate. In addition, safety signage was at a disabling height for those with visual impairments or using wheelchair. Floor maps were too small and difficult to read because of the colour of the background or the text, or inappropriate use of typefaces such as italics.

The study by Rugara, Ndinge, and Kadodo (2016), revealed that two out of the four libraries had constructed ramps as an after-thought. In one library, both entry and exit points were fitted with full height turnstile which did not accommodate people using wheelchairs and also posed access problems to those using crutches. No other entry point existed in that library and the people with impairments relied on their friends to borrow library materials. At another library, the people with impairments were confined to the ground floor due to lack of an elevator. The only means of access to the first floor was a flight of stairs. The study also found that three out of the four libraries had not made provision of toilets for the people with impairments. In addition, there were no height-adjustable tables for use by the people with physical impairments. Moreover, access to some work stations and service desks was not guaranteed for some people with impairments due to the infrastructural design.

A study conducted in Nigeria by Lawal-Solarin, (2012b) revealed that majority of the libraries that had more than one floor did not have lifts. Furthermore, majority of the libraries were not spacious to accommodate students using wheelchairs, and majority had narrow doorways and high shelves that were not wheel chair accessible for people using wheelchairs. The study conducted by Eskay and Chima (2013) revealed that most of the libraries that were studied had steps instead of ramps, high book shelves, narrow doorways and they did not have lifts/elevators. A study conducted in Tanzania by Kabuta (2014) revealed that library buildings did not have lifts to access the upper floors which were only accessible by stairs. The shelves were not accessible to people using wheelchairs as the books were arranged in the upper shelves. In addition, the libraries lacked staff to support the people with physical impairments. Similarly, the study by Majinge (2014) in Tanzania, revealed that the libraries had no working lifts and ramps, and there were no toilets designated for the people with visual impairments and in wheelchairs. In addition, shelves were not reachable by people using wheelchairs because they were very high and the spacing between them was not adequate to allow wheelchair access.

The study by Njoroge (2013) revealed that university libraries in Kenya were partially accessible to users with impairments and did not meet majority of IFLA Access to Libraries for Persons with Disabilities Checklist. The study found that 67% of the libraries did not have wheelchair accessible washrooms in or near the library; 80% of the libraries did not have a centrally located department with resources designated for use by the people with impairments; 80% of the libraries did not have study rooms or carrels available for the people with impairments who needed to bring their personal equipment or who needed the assistance of a reader. In addition, 70% of the libraries did not have designated computer workstations adapted for people using wheelchairs.

The findings in the current study indicated that the libraries partially complied with the IFLA Access to Libraries for Persons with Disabilities checklist and the Social Model of disability. This can be attributed to the fact that majority of the libraries were old and constructed before the Persons with Disability Act was passed as a law in the year 2009 in Kenya. These findings are consistent with Alemna (1995) and Mba (1992) cited in Echezona, Osadebe, and Asogwa (2011, p. 16) who note that most of the older libraries especially in universities in Nigeria were built before the era of inclusive education posing such barriers as steps, high book shelves, narrow doorways, and lack of elevators which can be very frustrating to the people with impairments. The American Disability Act (1990) highlights examples of reasonable modifications such as accessible parking, clear path of travel to and throughout the building, entrances with adequate, clear openings or automatic doors, handrails, ramps, and elevators, accessible tables and public services desks, and accessible restrooms, drinking fountains among others (Association of Specialized and Cooperative library Agencies (ASCLA), 2018, para. 10).

6.12.1 Physical barriers hindering access to library and information services

The challenges cited by the people with physical impairments include the long distance from the hostels to the library, inadequate library space, mobility difficulty arising from lack of ramps and lifts among others, lack of wheelchairs as well as lack of special facilities. To address the physical barriers, the people with physical impairments suggested the following: construction of ramps, counselling and therapy so that they can be able to cope with the new environment and challenges, repair of elevators, construction of modern libraries for libraries that were outdated, provision of wheelchairs to the people with physical impairments installation of special doors, constructing of special pathways and improving the lighting within the libraries.

6.13 Accessibility of information services

Access to information has become very critical in the current information age. Those who lack essential information are excluded from participating in social, political, and economic activities (Babalola & Yacob, 2011, p. 146). The findings showed that majority of the people with physical impairments and the library staff said the information services were accessible at 85(93.41%) and 100(75.19%) respectively as shown in Figure 28. Moreover, findings indicated that information services in most of university libraries were accessible, while in some they were not. These findings bear similarity with the study conducted in Nigeria by Akolade, Tella, Akanbi-Ademolake, and Adisa (2015) which revealed that the information services provided to students with physical impairments in Kwara State Higher Institutional libraries was unsatisfactory. The available information materials were inadequate, the library environment was unaccommodating, the furniture in the libraries was not comfortable, the architectural design was not suitable, the space in the library was limiting, and there was inadequate staff to provide services to the people with impairments and more.

6.14 Summary

This chapter discussed and interpreted the results of the study presented in chapter five. The discussion and interpretation of the findings was guided by the research questions, related studies and theories that underpinned the study including the IFLA Access to Libraries for Persons with Disabilities Checklist (Irvall & Nielsen, 2005) and the Social Model of disabilities (Oliver, 1990).

The findings revealed that the staff who provided services to the people with visual and physical impairments in public university libraries, were professionals, most with bachelors and master's degrees. However, the findings revealed that very few of these professionals had disability/ special needs training. Most of them had been sensitised on disability matters as disability mainstreaming had become part of performance contracting in the universities. The findings revealed that the libraries did not have written policies to provide guidelines on provision of services to the people with visual and physical impairments and this had an implication on the budgeting, staffing, marketing and promotion of services for the people with visual and physical impairments, facilities, equipment, planning of services, evaluation of services, user needs assessment, and information services. The findings revealed that none of the libraries had a special budget

for providing services to the people with visual and physical impairments and budgeting was done as needs arose. Most of the libraries did not directly involve the people with visual and physical impairments in planning for their services. Also, majority of libraries relied on library orientation as a marketing tool for the services to the people with visual and physical impairments. However some libraries did not provide specialised orientation and relied on the integrated library orientation that was not very effective.

The findings also revealed that libraries provided IL training. However, Most of the people with visual and physical impairment (54, 59.34%) did not receive the training while 37(40.66%) had received the training. The study also revealed that all the libraries did not have a structured means of assessing the needs of the people with visual and physical impairments and they relied on suggestion boxes, customer feedback registers, online self help desk, and general users' surveys. Only one university used face to face discussions with the people with impairments to understand their needs and concerns. The study revealed that all libraries had tried to make their building accessible by installing ramps, and making sure access paths to the library were clear and unobstructed. Moreover, most had designated parking for the people with impairments marked with the international symbol of access. However, most of libraries did not have most of the facilities and equipment required by the people with impairments. Most of the libraries provided special services to the people with visual and physical impairments but some did not. The study revealed that most of the libraries had embraced ICT to facilitate information access by the people with visual and physical impairments, but some lacked assistive technology and devices needed by the people with visual physical impairments. Overall, the information services in most of the universities were partially accessible and unsatisfactory to the people with visual and physical impairments.

The next chapter presents the summary of the results, conclusions, recommendations and suggestion for further research.

CHAPTER SEVEN

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

7.1 Introduction

This chapter presents the summary, conclusions and recommendations. This chapter summarises and describes the conclusions, the implications of study, and suggestions for future research. The purpose of this study was to examine information service provision to the people with visual and physical impairments in public university libraries in Kenya. The study sought to address the following research questions:

- 1) How does the availability or lack of policies affect provision of information services for the people with visual and physical impairments in public university libraries?
- 2) What information services are available for the people with visual and physical impairments?
- 3) How is ICT applied to facilitate access and use of information by the people with visual and physical impairments?
- 4) How does the attitude of librarians impact on the provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 5) How does the library building design affect provision of information services for the people with visual and physical impairments in public university libraries in Kenya?
- 6) What measures do the public university libraries in Kenya need to take to ensure inclusive information services for people with visual and physical impairments?

The study was underpinned by the IFLA Access to Libraries for Persons with Disabilities Checklist, and the Social Model of disability. The study was based on the pragmatic paradigm and mixed methods approach. The study adopted survey research design. The quantitative data was gathered using survey questionnaires (Appendix 5 and 6), while the qualitative data was gathered using interviews (Appendix 1, 2, and 3); Focus Group Discussion (Appendix 4), and observation (Appendix 7).

The study was conducted in six public university libraries namely Egerton University, University of Nairobi, Kenyatta University, Moi University, Jomo Kenyatta University of

Agriculture and Technology, and Maseno University. The population of the study consisted of the people with visual impairments, the people with physical impairments, the University Librarians, the Systems Librarians, the Library staff who provided services to the people with visual and physical impairments and staff of the Disability Mainstreaming departments in the respective universities. Survey questionnaires were used to collect data from the people with physical impairments and the library staff who provided services to the people with impairments. The interview schedule was used to collect data from the University Librarians, the Systems Librarians and the staff of the Disability Mainstreaming department. The Focus Group Discussion schedule was used to collect data from the people with visual impairments, while the observation schedule was used to collect data about the library building design and layout. Quantitative data was analysed using IBM SPSS version 21.0 while qualitative data was analysed thematically.

7.2 Summary of results

This section presents a summary of the findings of the study based on the following main themes: library policies, information services, application of ICT in facilitating access to information, library staff attitude, and library building design and layout.

7.2.1 Profile of the respondents

Data on university of affiliation, gender, age, and academic program was obtained from the people with physical impairments while data on university of affiliation, gender, age, level of education, and work experience was collected from the library staff, the University Librarian, the Systems Librarian and the staff from Disability Mainstreaming departments. This data was meant to help the researcher to understand the current status and the context within which the respondents could be examined and also to help describe the respondents (Cohen & Posner, 1995, p. 94).

Majority of the people with visual and physical impairments in universities in the study were males, indicating a great gender disparity in terms of enrolment of the people with visual and physical impairments in the universities surveyed. This result could be linked to the common fact that women and girls are faced with more socio-cultural and economic challenges than their male counterparts. The findings revealed gender parity among the library staff that provided services to the people with visual and physical impairments.

The findings indicated that majority of the people with visual and physical impairments were aged between 18 and 26 years. This result reflects the fact that majority of the

respondents were undergraduates, whose age bracket was expected to be between 18 years and 26 years. The findings indicated that more than half of the library staff were between 20 and 40 years while a sizeable number of the staff were approaching retirement age of 60. This means that the library staff were young and consequently any training aimed at promoting information services of the people with visual and physical impairments should be geared towards improving the capacity of this group of staff.

Majority of the people with visual and physical impairments were pursuing Bachelor's Degrees courses, while majority of library staff who provided services to the people with visual and physical impairments were professionals with Bachelor's and Master's degree qualifications.

7.2.2 Library policies

All the libraries did not have standalone policy regarding information service provision for the people with impairments instead, majority of the libraries provided services as envisaged by Disability Mainstreaming Policy in their respective universities. In addition, a few libraries had a clause within the circulation policy that made provision for services to the people with visual and physical impairments that include braille, computer, and space.

7.2.3 Budgeting

The study revealed that there were no specific budgets dedicated to provision of information services to the people with visual and physical impairments in all libraries surveyed. The respondents stated that budgeting for the people with impairments was done on an ad hoc basis.

7.2.4 Assessment of user needs

The findings revealed that the libraries had no structured means of assessing the needs of the people with visual and physical impairments. Most of the libraries used customer feedback registers where library users could register their concerns, or through general library surveys, suggestion boxes and online self help desk. These findings suggest that most of public university libraries were providing services to the people with impairments without fully understanding their information needs.

7.2.5 Marketing of services

The study found that the libraries marketed their services to the people with visual and physical impairments through the library orientation when they joined the university. The findings indicated that overreliance of library on orientation method as a marketing tool was not effective because some students observed they did not receive library orientation. Lack of awareness about the library services available to them could be the reason why some people with visual and physical impairments rarely or never visited the libraries.

7.2.6 Planning of services

The findings indicated that most of the libraries did not involve the people with visual and physical impairments in planning for their services. This could be attributed to lack of policy guidelines.

7.2.7 Cooperation/ collaboration with other units in the university

The findings indicated that most of the libraries collaborated with other units within the university. Only one of the universities collaborated with external bodies such as the National Council for Persons with Disabilities and the Kenya Institute of Special Education. These findings suggests that most of the university libraries had made progress in ensuring that provision of information services to the people with impairments was supported by other departments within the university and externally.

7.2.8 Information services

This section sought to examine the information services that were provided to the people with visual and physical impairments in public university libraries.

7.2.8.1 Library orientation

The findings revealed that the libraries provided library orientation, and majority of the people with visual and physical impairments had received the orientation. However, majority of the libraries did not provide specialised orientation tailored to the needs of the people with impairments. The findings revealed that the content of the library orientation, include: assigning of reading aids (human readers) to the people with visual impairments, training on sign language, braille, training on how to access information, training on mobility within the library, training on access to internet resources and services, training on how to use internet and web resources, training on the use of the Online Public Access Catalog (OPAC), tour of the library building, as well as orientation on the basics of

computer applications, the use of Assistive technology and devices, storage and access of online study materials, and use of the search engines.

7.2.8.2 Information literacy training

The findings indicated that the libraries provided IL training to the people with visual and physical impairments. The content of the training included: how to cite and reference, how to identify relevant literature, how to extract relevant information, how to identify an information need, how to organise ideas, and how to write term papers. However none of the people with visual impairments received the IL training, while majority of the people with physical impairments did not receive the IL training. These results suggest that access to information and its use by the people with visual and physical impairments was curtailed. IL promotes students' autonomy and enables the people with impairments to be more independent (Lehmkuhl, 2015).

Schiff (2009, p. 67) argues that IL training can equip students with critical thinking skills and enable them to be life-long learners capable of seeking, finding and evaluating information. Moreover, IL training helps the people with impairments to become independent seekers and evaluators of information (Lindsay & Baron, 2012, p. 153).

7.2.8.3 Staff with training to provide services

The findings indicated that most of the library staff in public university libraries that were surveyed had no special needs training (82, 61.65%) while only 51 (38.35%) had received awareness /or special needs training which they perceived as relevant. In addition, those who received the training said the content entailed how to use assistive and adaptive technology, awareness and special training on handling the people with impairments, and training in sign language. However, it emerged from the University Librarians that the trained staff were very few and there was need to train more.

7.2.8.4 Information sources

The findings revealed that text books, print journals, institutional repository, Online Public Access Catalog (OPAC), e-databases, internet e-books, e-journals, audio-visual materials, dictionaries, and CD-ROM were important sources of information for the people with physical and visual impairments. Furthermore, in most of the libraries, audio-visual material, large print books and CD-ROMs were not available. This forced the people with impairments to rely on their friends to read the print books.

7.2.8.5 Assistive hardware and software facilities

The findings indicated that the libraries did not provide walkers and walking frames, manual wheelchairs, adaptive keyboard, electric/ motorised wheelchairs, automatic door openers as well as prosthetic and orthotic devices. In some universities, the Disability Mainstreaming department provided some assistive hardware facilities on a lending basis until the people with visual and physical impairments obtained their own. Such assistive hardware facilities included: special chairs, wheelchairs, white cane, crutches, bathing chairs, bathing stools, and commodes. Regarding the Assistive software facilities, voice recognition software, Word-prediction-completion, onscreen Keyboards, Dragon Naturally, and DAISY reader seemed to be unavailable.

Furthermore, for the people with physical impairments the findings revealed that Assistive technology and devices were important in enabling them to access information services in the libraries. However, these assistive technology and devices seemed not readily available.

7.2.8.6 Special services

The findings indicated that some libraries provided some special services to the people with visual and physical impairments and others did not. Some of the core services that were provided included: remote electronic access, volunteer readers, extended loan period, library orientation, staff assistance in retrieval of information from shelves, computers installed with screen reader, remote access to OPAC, designated staff for services to the people with impairments, Information Literacy training, and photocopying services. Other services that were least mentioned included: waived fines, extended reserve period, Selective Dissemination of Information, Inter library Loan Service, flexible loan period, online reference services, and telephone requests. Incidentally, book delivery service was mentioned as one of the core services provided but the interviews with the University Librarians revealed that this kind of service was not available in all the libraries. In one of the six universities, the University Librarian reiterated that the library did not provide any special services to the people with visual and physical impairments.

7.2.8.7 Alternative formats of information

The findings revealed that the major alternative format of information provided by some libraries was braille books followed by large print materials. However, most of libraries did not provide information in alternative formats. Only one library provided Braille

books, audio books, soft copy notes, YouTube materials, large print and sign language tactile. However, the braille books were said to be inadequate in quantity and variety.

7.2.8.8 Challenges encountered in provision of services

The findings revealed that provision of services was hampered by inadequacy of equipment, inadequacy of information materials, inadequacy of trained staff, and communication barriers. The other challenges included absence of special budget to cater for the needs of the people with disability. In some libraries the upper floors were not accessible due to lack of lifts or ramps inside the library. In addition, lack of Braille books was a major shortcoming. The respondents recommended the need for a special budget to cater for the needs of the people with impairments, training of staff, and purchase of more equipment, provision of information resources including braille books, employment of more trained staff, and extending the reading space for the people with visual and physical impairments.

7.2.9 Library staff attitude

The findings indicated that majority of the library staff in all the universities had positive attitude towards the people with visual and physical impairments and that they were aware of the needs of the people with visual and physical impairments. This result may be attributed to the fact that disability mainstreaming has been introduced in public universities in Kenya by government. Universities have therefore been compelled to mainstream disability in performance and are expected to send the implementation reports to the National Council for Persons with Disabilities on a quarterly basis (Kenya News Agency, 2016, para. 1).

7.2.10 Application of ICT in facilitating access to information

The findings indicated that ICT was important in facilitating access to information by the people with visual and physical impairments, as it made their work easier and also enabled them to work independently in accessing any kind of information. In terms of application of ICT, the people with visual and physical impairments in majority of the libraries used ICT in accessing the following: internet, websites, OPAC, e-books, emails, e-databases, entertainment, Institutional repository, Social media and word processing. For those who utilised ICT in accessing information, the findings indicated that emails, e-journals, internet and the Institutional Repository were moderately used, while use of websites and video conferencing, word processing, OPAC and e-books was low. In terms of

accessibility, internet was the most accessible, followed by OPAC, Websites, e-databases, e-journals and e-books.

With regard to the library website, the findings indicated that the libraries had websites but the websites did not have any information targeting the people with the people with visual and physical impairments. Such information would include: disability services page, online instructions for assistive technology, list of specialised library materials, and links to external resources. The websites contained general information including e-resources, institutional Repository, mission, and objectives of the library, rules and regulations, and OPAC among other services. Regarding the extent of use, the websites were heavily used in half of the libraries, while in the other half, they were moderately used. In terms of challenges in accessing the library websites, the people with visual and physical impairments experienced: power blackout in the library, slow internet connectivity, inadequacy of computers, lack of adapted keyboards and headphones. Some people with visual impairments had difficulties navigating around many pages in the library website and lack of awareness about whether the information needed was in the website.

As for the Assistive Technology and devices, the findings revealed that majority of libraries provided JAWS screen reading software and NVDA and Braille machine only. University C and University E provided most of the assistive technology and devices such as NVDA, JAWS, CCTVs, Braille machines, braille embossers, headphones, reading stand, Scanner, slate and stylus for those who do not know how to use braille machines and computers, Mercury Dolphin Pen, Thunder, Adapted rulers, telescopes, magnification lenses, radio for recording, microphones and cameras. The University Librarians cited financial limitations as the major challenge in provision of assistive technology and devices.

Moreover, the findings indicated that OPACs provided by most of the libraries were not equipped with text enlargement and voice recognition software. The alternatives that were provided include computers installed with screen readers dedicated to the people with visual impairments which they could use to access the OPAC and assistance from the library staff in using the OPAC.

7.2.10.1 ICT challenges

The ICT challenges that were encountered by the library staff included: inadequate staff training, outdated software, lack of skills in the use of assistive technology, internet

failure, low internet bandwidth, power failure, inadequate facilities, and lack of specialised computers, inadequate computers installed with screen reading software, some screen readers not being able to read some web pages and some PDFs, difficulties navigating many pages in the websites lack headphones, adaptive keyboard, lack of ICT policy, log-in problems especially when off campus, and configuration problems especially when the people with visual and physical impairments were using their phones and laptops and inadequate funding. To address these challenges the following was suggested: investing on facilities as well as modern technology, acquiring the necessary equipment such as additional computers, braille machines, braille embossers, and adapted keyboard and headphones.

7.2.11 Library building and layout

The findings indicated that the libraries had ramps at the entrance of the library buildings but the ramps in half of the libraries did not have hand rails. Moreover, most of the libraries had the following: parking space designated for the people with impairments; building access paths/pathways that were wide and flat to accommodate a person with wheelchair or other persons with different kind of physical impairments; wide doors to allow wheelchairs accessibility; visible and audible fire alarms within the library; reading and computer tables designed for the people with physical impairments; and floors with non-slip surface. However, in a number of libraries, the floor tiles were peeling posing a risk to people using white cane, crutches and wheelchairs. The findings further indicated that half of the libraries had working lifts and in one of the libraries, the lifts had braille buttons and synthetic speech. However, none of these libraries apart from the latter had pictogram signs leading to the lifts. The findings also revealed that majority of the libraries did not have clear and easy to read signs with pictograms throughout the library, meaning lack of proper signage hindered access to services by the people with visual and physical impairments.

In most of libraries, the spacing between the shelves was too narrow to allow free movement by people using wheelchairs, and crutches. The findings also indicated that in all the libraries the shelves were partially accessible by people using wheelchairs as books were shelved even in the upper shelves. Most of the libraries did not have special rooms designated for the people with visual and physical impairments. Only two libraries had special rooms but were not spacious enough to accommodate many people and extra computers, given the fact that they were shared by people with different types of

impairments. The findings also indicated that majority of the libraries did not have special washroom / restrooms. Moreover, most of the universities did not have staff trained to assist the people with visual and physical impairments in case of emergency. Besides, only one library had an emergency exit with instruction for the people with visual and physical impairments on emergency strategies.

7.2.11.1 Physical barriers hindering access to library and information services

The physical barriers that hindered access to library and information services by the people with visual and physical impairments include: distance from the hostels; inadequate library space; mobility difficulty arising from lack of ramps and lifts; lack of wheelchairs; lack of special facilities; lack of emergency exits; and poor facilities. The solutions that were suggested to address these barriers included: construction of ramps; counselling therapy to help the people with visual and physical impairments to cope with the campus life; repair of elevators that were not working; construction of modern libraries, and provision of wheelchairs; installation of lifts, constructing of special pathways; installation of special doors; installation of ramps; and improving the lighting in the libraries.

7.3 Conclusion

The conclusion presented in this section is informed by the findings of the study and interpretation thereof discussed above.

7.3.1 Library policies

Findings indicate that the libraries in this study provided information services without a written policy spelling guidelines on how those services should be provided. This study safely infers from the findings that lack of written policy relating to provision of information services to the people with impairments impacted on the overall provision of information services for the people with visual and physical impairments. The findings revealed a blatant exclusion of the people with visual and physical impairments in the policies which impacted negatively on other aspects of information services such as budgeting, assessment of users' needs, planning of user' services, marketing of services, provision of information and ICT services, and design and layout of the library building

7.3.2 Budgeting

All the university libraries did not have a budget dedicated to provision of information services for the people with impairments, and budgeting was provided on ad hoc basis. This could be attributed to lack of relevant policies. These findings suggest that the ad hoc provision of budget resulted in delays in procuring the necessary facilities and resources for the people with visual and physical impairments.

7.3.3 Planning of library services

Findings revealed that libraries did not involve the people with visual and physical impairments in planning for their services perhaps due to lack of policy. The study inferred that failure of libraries to involve the people with visual and physical impairments in planning for their services resulted in compromised service provision. Moreover, the people with impairments are one of the best resources for providing information on how to create an accessible environment (Bick, 2015; Chittenden & Dermody, 2010).

7.3.4 Assessment of user needs

The findings revealed that the libraries had no structured means of assessing the needs of the people with visual and physical impairments. Most of the libraries used the customer feedback registers and suggestion box to gather library users' concerns. Only one library held meetings with the people with impairments to discuss their services and listen to their concerns. The study inferred that even though user needs assessment is core to providing effective services to the people with visual and physical impairments in libraries, failure to assess the needs of the people with impairments by the libraries resulted in compromised information services provision, as libraries did not fully understand the needs of the people with impairments.

7.3.5 Marketing

Most of the libraries relied on library orientation as a marketing tool for creating awareness on the availability of services for the people with impairments in their first year of joining the university. Lack of other marketing strategies could be explained as limited budgetary allocation since the libraries did not have special budget to cater for the needs of the people with visual and physical impairments. The study concluded that overreliance on library orientation solely as the marketing strategy for services to the people with impairments was not fully effective and other strategies needed to be considered. In addition, lack of proper marketing of services resulted in some people with impairments

avoiding the library believing that the library had nothing to offer.

7.3.6 Cooperation/ collaboration with other units in the university

The findings indicated that majority of the libraries collaborated with other units within the university. Only one of the universities collaborated with external bodies such as the National Council for Persons with Disabilities and the Kenya Institute of Special Education. These findings seem to suggest that majority of the university libraries had made progress in ensuring that provision of information services to the people with impairments was supported by other departments within the university and externally.

7.3.7 Information services

The findings indicated that libraries provided library orientation to the people with visual and physical impairments. However, in majority of the libraries, the orientation was not tailored to the needs of the people with visual and physical impairments. Only a few libraries provide specialised library orientation. This study concluded that majority of the people with visual and physical impairments in the libraries faced difficulties in accessing and using information resources due to lack of specialised library orientation. The finding also suggested that the library administration in majority of the universities lacked motivation and enthusiasm in organising for specialised library orientation in their respective libraries.

The findings indicated that libraries provided IL training. However, majority of the people with physical impairments had not received IL training and none of the people with visual impairments had received IL training. These findings inferred that majority of the people with visual and physical impairments lacked critical skills in using information in which impacted negatively on their information search and use.

The study found that majority of the library staff who provided services to the people with impairments did not have awareness and / special needs training, thus they had no skills and knowledge to effectively provide services to this category of people. A few library staff who had the training perceived it as relevant. This study concluded that majority of the library staff did not have skills to handle the people with visual and physical impairments.

The findings indicated that text books, print journals, institutional repository, Online Public Access Catalog (OPAC), e-databases, internet e-books, e-journals, audio-visual materials, dictionaries, and CD-ROM provided by the libraries were important sources of

information to the people with visual and physical impairments. However, most of these resources were not accessible to the people with visual impairments in majority of the libraries due to lack of assistive technology and devices. The study concluded that although libraries provide e-resources for their patrons, failure to provide the necessary assistive technology and devices greatly hindered the people with visual impairments from accessing the e-resources yet, academically they were expected to perform just like their counterparts without impairments.

With regard to the provision of assistive hardware and software facilities for the people with physical impairments, none of the libraries provided assistive hardware and software facilities. Only two libraries provided adapted tables and wheelchair accessible service desk.

Concerning the special services provided for the people with visual and physical impairments, majority of the university libraries inadequately provided special services to the people with visual and physical impairments while one library did not provide such services leaving the people with visual and physical impairments feeling excluded and isolated.

With regard to alternative format of information, the study found out that as much as the people with visual and physical impairment call for provision of information in alternative formats, their provision by some libraries was very poor and their level of use was very low, while majority of libraries did not provide alternative formats of information. These findings would seem to suggest that although the libraries provide printed information, failure to provide the same information in alternative format hindered the people with visual and physical impairments from accessing this information.

The findings revealed that the libraries faced challenges of inadequacy of equipment, information materials, trained staff, communication barrier; lack of lifts or ramp that rendered some floor inaccessible in some libraries, lack of braille books, non-mainstreaming of the people with impairments by the university administration, and financial limitations. Several suggestions were made to address the challenges including having a special budget to cater for the needs of the people with impairments, training of staff, recruitment of more trained staff, extending the reading space for the people with visual and physical impairments, provision of information resources including braille books, and purchase of more equipment needed for the people with visual and physical

impairments.

7.3.8 Library staff attitude

The library staff attitude towards the people with visual and physical impairments was positive in all the university libraries. In addition, library staff were aware of the needs of the people with impairments, a part from a few library staff who were said to be rude. This study concluded that staff attitude had greatly improved due to the fact that disability mainstreaming in public institutions had become a performance contracting matter. However, the study recommended that libraries intensify the awareness and special needs training for all their staff so that they are well-informed about the various types of impairments and how to provide services to the people with visual and physical impairments.

7.3.9 Application of ICT in facilitating access to information

The findings indicated that ICT was important to the people with visual and physical impairments because it made their work easier and it enabled them access any type of information independently. They used ICT to access e-resources video conferencing, word processing, and social media. The level of accessibility of ICT based resources was good. However, the major hindrance for the people with visual impairments in some universities was lack of most of the necessary assistive technology and devices in majority of the libraries. The study concluded that, the absence of the necessary assistive technology and devices hindered the people with visual and physical impairments from accessing the e-resources and other resources that required technology to access them.

The findings indicated that all the libraries had websites that did not contain any information specific to the people with impairments. The websites contained general information including e-resources, institutional Repository, mission, and objectives of the library, rules and regulations, and OPAC among other services. This study concluded that even though the libraries had a library website, the libraries did not fully utilise the website to promote information services to the people with visual and physical impairments, since the website did not contain information specific to the needs of the people with visual and physical impairments. The study recommends the libraries develop a disability services page providing information pertinent to the people with impairments.

In all the libraries the OPACs were not fitted with text enlargement and voice recognition software. The alternative that was provided in some libraries was a computer installed

with screen reader dedicated to the people with visual impairments and assistance from the library staff to access the OPAC.

The ICT challenges that were encountered by the library staff in providing information services include: inadequate staff training, outdated software, lack of skills in the use of assistive technology, low internet bandwidth leading to internet failure, power failure, inadequacy of facilities, inadequacy of computers installed with screen reading software, inadequacy funding, lack of ICT policy, log-in problems when off-campus, and internet configuration on laptops and phones. The study inferred that limited library budget and lack of special budget to cater for the needs of the people with visual and physical impairments greatly made it difficult to procure the necessary ICT facilities and resources to promote effective ICT services provision to the people with visual and physical impairments. Similarly, lack of ICT policy on provision of ICT policy impacted negatively on ICT services provision to this category of library users.

7.3.10 Library building and layout

This study found that the libraries were accessible but most of the libraries had partially met the requirements of IFLA Access to Libraries for Persons with Disabilities Checklist and the Social Model of disability in terms of the design of the library and layout in terms of provision of special reading, toilets, library signage, and lifts among others. This study concludes that failure of the library to provide such facilities greatly hindered access and use of the libraries and information services, hence many the people with visual and physical impairments avoided the library believing that the library had nothing to offer.

7.4 Recommendations

The recommendations presented in this section are based on the results of the study, theories and the literature reviewed.

7.4.1 Recommendation 1: Library policies

The university libraries need to formulate a written policy on provision of information services to the people with impairments. The policy should address the paucity of facilities, equipment, evaluation of information needs, marketing of services, special services, information resources, budgeting, planning of services, information sharing and user education among others. Policies serve as commitment on the part of libraries in making programmes, services and resources accessible to the people with impairments (Burgstahler, 2012, p. 4).

7.4.2 Recommendation 2: Budgeting

The libraries should formulate a budget specifically to cater for the needs of the people with impairments in the university. Burgstahler (2012) argues that libraries should commit to procuring, developing and using accessible products and providing accommodations whenever products are inaccessible to the people with impairments. Consequently, libraries should be adequately funded to provide better facilities and services for the people with impairments (Igwebuike & Agbo, 2015, p. 1). In this regard, librarians should proactively budget for the needs of the people with impairments (Gibson, 2006, p. 64). Anatola (2007, p. 97) adds that University Librarians should ensure proper funding of the required physical alterations in buildings, procurement of special equipment, and staff training is available.

7.4.3 Recommendation 3: Marketing of services

The study findings indicated that majority of libraries relied on library orientation as a marketing tool for services for the people with impairments. This study recommends that the libraries explore other strategies for marketing services for the people with impairments besides the library orientation which was provided in their first year of admission in the university. One of the most effective tools of marketing library services to the people with impairments is the use of interactive websites (Adegoke, 2015, p. 4; Gibson, 2006) among others.

7.4.4 Recommendation 4: Evaluation of services

The libraries should ensure that information services provided for the people with impairments are evaluated so that the libraries can know how best they are satisfying the needs of the people with impairments and where they need to improve. Gibson (2006, p. 64) and Australian Library and Information Association (ALIA) (1998) argue that services to all students need to be regularly reviewed to ensure that they meet current and emerging requirements of students with different types of impairments.

7.4.5 Recommendation 5: Assessment of users' needs

The libraries should constantly assess the needs of the people with impairments so that they can be able to understand what their needs are and how to best meet them. Anatola (2007, p. 97) argues that it is of paramount importance for then to assess the needs of the people with impairments so that their requirements are known and appropriately met.

7.4.6 Recommendation 6: Planning of information services

The libraries should involve the people with impairments in planning for their information services and in formulating policies relating to service provision for the people with impairments. McCaskill and Goulding (2001, p. 204) argue that a common way of discriminating the people with impairments is making assumptions about what their information needs are without consulting them. Consequently, libraries should always make concerted effort to involve the people with impairments in all conversations about policies and procedures for accessibility to services and facilities (Gibson, 2006, p. 62; Wentz, Jaeger, & Bertot, 2015). This is because persons with impairments are themselves one of the best resources for providing information on how to create an accessible environment (Chittenden & Dermody, 2010).

7.4.7 Recommendation 7: The library website

The libraries should ensure that they include a disability services page in their websites where information specific to the people with impairments can be posted relating to policy, services, facilities, training in use of assistive technologies and devices, staff providing services to the people with impairments among other information. Green and Blair (2011, p. 137) argue that library disability services link or web page should include information on facilities such as campus accessibility maps, facilities accommodation (restrooms, drinking fountains, parking, elevator locations and carrels, with wheelchair access), conference and meeting room access, emergency exits and emergency plans for people with impairment. In addition, the website should include information on accessing library materials such as photocopying and microfilm services, book finding and retrieval services, interlibrary loan service and home delivery services.

7.4.8 Recommendation 8: Staff training

The libraries should ensure that all the library staff providing services to the people with visual and physical impairments, have awareness and /or special needs training so that they are better equipped to provide effective information services to the people with visual and physical impairments. Brannen, Milewski, and Mack (2017, p. 66) and Australian Library and Information Association (1998) opine that training the library staff, working directly with the people with impairments can be an effective way to improve communication, communication techniques, attitudes, barriers both physical and attitudinal, relevant government legislation and adaptive technology. Deines-Jones (1999)

cited in Carter (2004), classified staff training into attitudinal training, facility training, and legal training. Besides these trainings, it is prerequisite for the library staff to know how to use both hardware and software that the people with impairments may require within the library (Charles, 2005, p. 455; Williamson et al., 2001, p. 162).

7.4.9 Recommendation 9: Information resource sharing

The libraries should try as much as possible to provide alternative sources of information. However, it is acknowledged that most libraries may not be in a position to provide all the alternative sources of information due to financial limitations. Therefore, this study recommends that libraries initiate information resource sharing with other universities and possibly with other organisations that provide services to the people with impairments. The Australian Library and Information Association (ALIA) (1998) and Gibson (2006, p. 63) directs that where libraries are unable to provide some of the required alternative formats of information, they can obtain them through resource sharing with other libraries. In a similar vein, Solanki and Mandaliya (2016) opine that libraries should facilitate information exchange and resource sharing so that they can improve provision of services to the people with impairments.

7.4.10 Recommendation 10: Special rooms for the people with impairments

Majority of the libraries did not have reading rooms designated for the people with visual and physical impairments. Special rooms should be made available with necessary equipment for this category of library users.

7.4.11 Recommendation 11: Information literacy training

The study findings indicate that majority of the people with physical impairments did not receive IL training. This study therefore recommends that the libraries intensify the provision of IL training to the people with impairments. According Herson and Calvert (2006, p. xi), academic libraries are service organisations that must develop the information literacy abilities of students to become life-long learners capable of locating, retrieving, evaluating, and applying information as they translate it to knowledge. Applin, (1999) cited in Carter (2004, p. 14), adds that for the library to improve the quality of services for patrons with impairments, efforts should be made to provide IL training.

7.5 Contribution and originality of the study

This study investigated the provision of information services to the people with visual and physical impairments in public university libraries in Kenya with a special focus on policies, information services, information communication technology (ICT), attitude of the library staff, and the design and layout of the library building.

The study has made contribution to the body of knowledge in that it has addressed the gaps that other studies in Kenya have not addressed and proffered measures that need to be taken by the public university libraries to ensure inclusive information services to the people with visual and physical impairments.

The extant literature in Kenya on provision of information services for the people with visual and physical impairments have tended to concentrate on library policies, library buildings and information resources with very little attention if any to the application of ICT in library to facilitate access to information by the people with impairments. To address this gap, this study explored how ICT was applied in the libraries to facilitate access to information by the people with visual and physical impairments. The study revealed that ICT plays a fundamental role in facilitating access to and use of information by the people with visual and physical impairments. The people with visual and physical impairment utilised ICT in accessing and sharing information. However, all the libraries did not have ICT policy with regard to provision of ICT services to the people with visual and physical impairments. In addition, the study found that library websites can play a critical role in promoting information service to the people with impairments. However, the library website in all the libraries contained neither the disability services page nor any information targeting the people with visual and physical impairments. The study recommended that the libraries develop ICT policy to provide guidelines on provision of ICT services to the people with impairments and in addition, develop disability services page to provide information relevant to the needs of the people with visual and physical impairments.

Moreover studies conducted in Kenya did not show how library policies impacted on provision of service to the people with impairments. This study revealed that lack of policies relating to provision of information service impacted negatively on the overall provision of information service in terms of budgeting, assessment of users' needs,

planning of users' services, marketing of services, provision of information services, ICT services, and design and layout of the library building.

This study also makes contribution to policy and practice in that the study has the potential to influence the university libraries to develop policies that will provide guidelines on provision of services to the people with impairments and help the libraries to employ best practices in providing services to the people with impairments. The recommendations advanced in this study can be used to improve services in institutions that provide services to the people with visual and physical impairments, especially universities.

The originality in this study lies in its application of theoretical triangulation to investigate the information service provision for the people with visual and physical impairments. The study used IFLA Access to Libraries for Persons with Disabilities Checklist and the Social Model of disability in order to assess the extent of exclusion of this category of people with regard to information services provision. The study revealed a blatant exclusion of the people with visual and physical impairments in library policies, budgeting, assessment of users' needs, planning of user' services, marketing of services, provision of information services, ICT services, and design and layout of the library building.

The study also employed methodological triangulation where data was collected through different techniques including survey questionnaire, structured interviews, focus groups and unobtrusive observation. Triangulation of the data from these methods allowed for validation of the results. In addition, the study delved into unique and fundamental aspects of information services such as users' needs assessment, planning of services, marketing of services, and information literacy that would be core in ensuring inclusive services for people with visual and physical impairments. These areas have not been covered by the studies conducted in Kenya. Moreover, the participants of the study were drawn from the users of information services (the people with visual and physical impairments) the providers of information services (the University Librarians, the Systems Librarians and the Library Staff), and the facilitators of disability services in the universities (the staff of Disability Mainstreaming departments) so that the study could get a clear picture of the state of information service provision in the universities that were studied. In a nutshell, the focus of this study was wide in terms of the number of universities that were studied as well as the coverage of the aspects of information service provision.

7.6 Suggestion for further research

This study in part examined the accessibility of databases and the websites by the people with visual impairments; due to time limitation, the study did not delve into the practical aspect of searching and retrieval of information materials online. Future studies could be conducted in a practical class-like environment to examine the experience of the people with visual impairments in navigating the databases using the screen reading software.

The study revealed that all those with visual impairments and majority of the people with physical impairments did not receive information literacy training (IL). Future studies could be conducted to investigate the factors that lead to non- provision of IL to the people with visual and physical impairments.

Similarly, the study revealed that majority of the libraries did not provide special library orientation to the people with visual and physical impairments the library orientation provided on an integrated basis. Moreover, the findings indicated that the libraries did not involve the people with visual impairments in user education and therefore future studies could be conducted to assess the perceptions of the people with visual impairments about the library orientation.

REFERENCES

- Abdulrahman, A. B. (2015). Strategies for meeting information needs of people with learning disabilities (Dyslexia) by public libraries in Nigeria. *Journal of Library and Information Sciences*, 3(2), 107–113. <https://doi.org/10.15640/jlis.v3n2a6>
- Adegoke, K. A. (2015). Intellectual properties rights : open access marketing of library and information services in university Libraries : a case study of Usmanu Danfodiyo University library , Sokoto-Nigeria, 3(2). <https://doi.org/10.4172/2375-4516.1000143>
- Adetoro, N. (2011). Availability and use of information materials by persons with visual impairment in Nigeria. *Information, Society and Justice*, 4(2), 5–18.
- Adetoro, N. (2014). Information provision to the visually impaired in alternative formats in Nigeria: are public libraries up to the task. *Journal of Information Science Theory and Practice*, 2(2), 48–58. Retrieved from http://www.kpubs.org/article/articleMain.kpubs?articleANo=E1JSCH_2014_v2n2_48
- Adhiambo, M. (2015, September 26). Less than 30 deaf people have ‘seen’ a Kenyan university. *Standard Digital News*. Retrieved from <http://www.sde.co.ke/thenairobi/article/2000177681/less-than-30-deaf-people-have-seen-a-kenyan-university?pageNo=1>
- Africa Studies Center Leiden. (2016). Disability in Africa. Retrieved from <http://www.ascleiden.nl/content/webdossiers/disability-africa>
- Agyemang, C. D., & Delle, E. (2013). Demographic factors and attitudes toward disabled. *Research on Humanities and Social Sciences*, 19(53–59). Retrieved from <http://iiste.org/Journals/index.php/RHSS/article/viewFile/8856/9048>
- Aiden, H., & McCarthy, A. (2014). *Current attitudes towards disabled people*. Retrieved from [http://www.scope.org.uk/Scope/media/Images/Publication Directory/Current-attitudes-towards-disabled-people.pdf](http://www.scope.org.uk/Scope/media/Images/Publication%20Directory/Current-attitudes-towards-disabled-people.pdf)
- Akhidenor, C. D. (2007). *Nigerians’ attitude toward people with disabilities*. (Doctorate Dissertation, Capella University, Minneapolis, Minnesota). Retrieved from <https://www.google.com/search?q=Capella+University&ie=utf-8&oe=utf-8&client=firefox-b>
- Akolade, Y. L., Tella, A., Akanbi-Ademolake, H. B., & Adisa, M. Y. (2015). Physically

challenged undergraduates' satisfaction with library and information services in Kwara State higher institutions. *Journal of Balkan Libraries Union*, 3(1), 1–14.
<https://doi.org/10.16918/bluj.89103>

Albert, B. (2004). *Breifing note: the Social Model of disability, human rights and development*. Retrieved from
https://pdfs.semanticscholar.org/3ada/f481faab930f323658fd447e9a0ef71d0b68.pdf?_ga=2.38602595.1344989670.1509607699-1784421517.1509607699

Albrecht, G. L. (Ed.). (2006). *Encyclopedia of disability: a history in primary source documents*. Thousand Oaks, CA: Sage Publications.

Allison, D. (2002). *Approaching english language research*. Singapore: Singapore University Press.

American Library Association (ALA). (2001). Library services for people with disabilities policy. Retrieved from <http://www.ala.org/ascla/asclaissues/libraryservices>

Amonette, W. E., English, K. L., & Kraemer, W. J. (2016). *Evidence-based practice in exercise science: the six-step approach*. Champaign, IL: Human Kinetics.

Amponsah-Bediako, K. (2013). Relevance of disability models from the perspective of a developing country: an analysis. *Developing Country Studies*, 3(11). Retrieved from www.iiste.org

Anambo, E. E. (2007). *Library Services provision to students with impairments: a case study of Jomo Kenyatta Memorial Library*. (Masters's thesis). Kenyatta University, Nairobi.

Anatola, A. (2007). Reaching people with disabilities in developing countries through academic libraries. In C. Deines-Jones (Ed.), *Improving library services to people with disabilities* (pp. 87–104). Oxford: Chandos Publishing.

Anderson, G., & Arsenault, N. (1998). *Fundamentals of educational research* (2nd ed.). London: RoutledgeFalmer.

Arnott, G. (2011). *The disability support worker*. French Forest, NSW: Pearson.

Association of Specialized and Cooperative library Agencies (ASCLA). (2018). Library services for people with disabilities policy. Retrieved January 5, 2018, from <http://www.ala.org/ascla/resources/libraryservices>

Australian Library and Information Association. (1998). Guidelines on library standards

for people with disabilities. Retrieved October 15, 2017, from <https://www.alia.org.au/about-alia/policies-and-guidelines/alia-policies/guidelines-library-standards-people-disabilities>

- Ayiah, E. M. (2007). Provision of library and information services so the visually challenged students in University of Ghana, Legon. *Library Philosophy and Practice (e-Journal)*, (1369), 1–20. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1369/>
- Babalola, Y. T., & Yacob, H. (2011). Library and information services to the visually impaired - the role of academic libraries. *Canadian Social Science*, 7(1), 140–147. <https://doi.org/http://dx.doi.org/10.3968/j.css.1923669720110701.015>
- Babbie, E. (1992). *The practice of social research* (6th ed.). Belmont, CA: Wadsworth Publishing.
- Bailey, J. (2008). First steps in qualitative data analysis: transcribing. *Family Practice*, 25(2), 127–131.
- Bailey, L., & Hall, A. (1989). *Visual impairment: an overview*. New York: American Foundation for the Blind.
- Bandyopadhyay, R. (2008). Information Literacy and public library services in West Bengal, India. In A. Abdulla et al (Ed.), *ICOLIS* (pp. 129–136). Kuala Lumpur: FCSIT.
- Bano, H., Shah, R. S., & Masud, A. (2013). Evaluation of provision and support for disabled students in libraries of special education professional Degree Awarding Institutions (DAIs) and Rehabilitation Centers (RCs). *Library Philosophy and Practice (e-Journal)*, (1013), 1–18. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1013/>
- Baran, M. L., & Jones, J. E. (2016). *Mixed methods research for improved scientific study*. Hershey, PA: IGI Global.
- Barker, D. (2011). On the outside looking in: public libraries serving young people with disabilities. *Australasian Public Libraries and Information Services*, 24(1), 9–16. Retrieved from <http://search.proquest.com/docview/857924161?accountid=11921>
- Barnes, C. (1991). A brief history of discrimination and disabled people. In *Disabled people in Britain and discrimination: a case for anti-discrimination legislation*.

Retrieved from <http://disability-studies.leeds.ac.uk/files/library/Barnes-disabled-people-and-discrim-ch2.pdf>

- Bentley, M. E., Boot, M. T., Gittelsohn, J., & Stallings, R. Y. (1994). *The use of structured observations in the study of health behaviour*. The Hague: IRC International Water and Sanitation Centre. Retrieved from [http://ec.europa.eu/echo/files/evaluation/watsan2005/annex_files/IRCNL/IRCNL.3.TheUseofStructuredObservations\[1\].pdf](http://ec.europa.eu/echo/files/evaluation/watsan2005/annex_files/IRCNL/IRCNL.3.TheUseofStructuredObservations[1].pdf)
- Bhattacharya, D. K. (2006). *Research methodology*. New Delhi: Excel Books.
- Bhattacharjee, A. (2012). *Social science research: principles, methods, and practices* (2nd ed.). Global Text Project. Retrieved from http://scholarcommons.usf.edu/oa_textbooks/3
- Bick, L. (2015). *Accessibility of Scottish public libraries: an analysis*. (Masters Thesis, University of Strathclyde,. Retrieved from http://www.cis.strath.ac.uk/cis/research/publications/papers/strath_cis_publication_2688.pdf
- Bjarnason, D. S. (2004). *New voices from Iceland: disability and young*. Champaign, I: Human Kinetics.
- Blankenship, D. C. (2010). *Applied research and evaluation methods in recreation*. Champaign, IL: Human Kinetics.
- Bodaghi, N. B. (2013). My carrel, my second home: inclusion and the sense of belonging among visually impaired students in an academic library. *Malaysian Journal of Library & Information Science*, 18(1), 39–54.
- Bodaghi, N. B., Cheong, L. S., Zainab, A. N., & Riahikia, M. (2016). Friendly librarians: the culture of caring and inclusion experiences of visually impaired students in an academic library. *Information Development*, 1–14. <https://doi.org/10.1177/0266666916641178>
- Bodaghi, N. B., & Zainab, A. N. (2012). Accessibility and facilities for the disabled in public and university library buildings in Iran. *Information Development*, 29(3), 241–250. <https://doi.org/10.1177/0266666912461265>
- Bodaghi, N. B., Zainab, A. N., & Noorhidawati, A. (2014). Student volunteers as academic savivours and social connectors among the visually impaired in an

- academic library. *Libri*, 64(1), 40–48.
- Bonnici, L. J., Maatta, S. L., Brodsky, J., & Steele, J. E. (2015). Second national accessibility survey: librarians, patrons, and disabilities. *New Library World*, 116(9/10), 503–516. <https://doi.org/10.1108/NLW-03-2015-0021>
- Booth, C. (2012). Why accessibility. In C. Booth (Ed.), *Making libraries accessible: adaptive design and assistive technology* (Vol. 48, pp. 5–6). Chicago, IL: American Library Association.
- Brace, I. (2008). *Questionnaire design: how to plan, structure and write survey material for effective market research* (2nd ed.). London: Kogan Page.
- Brannen, M. H., Milewski, S., & Mack, T. (2017). Providing staff training and programming to support people with disabilities: an academic library case study. *Public Services Quarterly*, 13, 61–77. <https://doi.org/10.1080/15228959.2017.1298491>
- Brewer, J. D., & Hunter, A. (1989). *Multidimensional research: a synthesis of styles*. Newbury Park, CA: Sage.
- Bricki, N., & Green, J. (2007). *A guide to using qualitative research methodology*. Retrieved from <http://fieldresearch.msf.org/msf/handle/10144/84230>
- Brodsky, J. (2011). Attitudes towards library patrons with physical challenges: a survey of members of the public library division of the Alabama Library Association. *Southeastern Librarian*, 59(1), 9–19.
- Broom, A., & Willis, E. (2007). *Competing paradigms and health research*. Retrieved from https://www.corwin.com/sites/default/files/upm-binaries/13614_02_Saks_ch02.pdf
- Brown, J. D. (2002). The Cronbach alpha reliability estimate. *JALT Testing & Evaluation SIG Newsletter*, 6(February), 17–18.
- Brown, R. (2010). *Prejudice: its social psychology* (2nd ed.). Oxford: John Willey & Sons.
- Bryman, A. & Buchanan, D. A. (Ed.). (2009). *The Sage handbook of organizational research methods*. Los Angeles: Sage Publications.
- Bryman, A. (2003). *Quantity and quality in social research*. London: Routledge.

- Bryman, A. (2004). *Introduction to qualitative research*. Oxford: Oxford University Press.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford: Oxford University Press.
- Burgstahler, S. (2012). Making electronic resources accessible in libraries: ensuring equal access to all patrons. Retrieved from <https://www.washington.edu/doit/sites/default/files/atoms/files/Making-Electronic-Resources-Accessible-Libraries.pdf>
- Burke, S. K. (2009). Perceptions of public library accessibility for people with disabilities. *The Reference Librarian*, 50(1), 43–54. <https://doi.org/10.1080/02763870802546381>
- Burton, D., & Bartlett, S. (2009). *Key issues for education researchers*. London: Sage Publications.
- Cameron, R. (2011). Mixed methods research: the five Ps framework. *The Electronic Journal of Business Research Methods*, 9(2), 96–105.
- Canadian Library Association (CLA). (2016). Guidelines on library and information services for people with disabilities. Retrieved October 14, 2017, from <http://cfla-fcab.ca/en/programs/guidelines-and-position-papers/guidelines-on-library-and-information-services-for-people-with-disabilities/>
- Canterbury Christ Church University. (2014). An introduction to ethics issues and principles in research involving human and animal participants. Retrieved from <https://www.canterbury.ac.uk/research-and-consultancy/documents/introduction-to-ethics.pdf>
- Cargan, L. (2007). *Doing social research*. Lanham: Rowman & Littlefield Publishers.
- Carson, G. (2009). *The social model of disability*. Scotland: Scottish Accessible Information Forum. Retrieved from <http://www.scope.org.uk/about-us/our-brand/social-model-of-disability>
- Carter, C. J. (2004). Providing services for students with disabilities in an academic library. *Education Libraries*, 27(2), 13–18. Retrieved from <http://search.ebscohost.com.proxy2.library.illinois.edu/login.aspx?direct=true&db=lls&AN=502940087&site=ehost-live>
- Casey, D., & Murphy, K. (2009). Issues in using methodological triangulation in research. *Nurse Researcher*, 16(4), 40–55.
- Casey, M. A., & Krueger, R. (2000). *Focus groups: practical guide for applied research*

(5th ed.). New Delhi: Sage Publications.

- Cassner, M., Maxey-Harris, C., & Anaya, T. (2011). Differently able: a review of academic library websites for people with disabilities. *Behavioral & Social Sciences Librarian*, 30(1), 33–51. <https://doi.org/10.1080/01639269.2011.548722>
- Centers for Disease Control and Prevention. (2016). Common barriers to participation experienced by people with disabilities. Retrieved from <http://www.cdc.gov/ncbddd/disabilityandhealth/disability-barriers.html>
- Chaputula, A. H., & Mapulanga, P. (2017). Provision of library services to people with disabilities in Malawi. *South African Journal of Library and Information Science*, 82(2), 1–10. <https://doi.org/10.7553/82-2-1619>
- Charles, S. (2005). Person first, disability second: disability awareness training in libraries. *Library Review*, 54(8), 453–458. <https://doi.org/10.1108/00242530510619147>
- Chittenden, M., & Dermody, K. (2010). Removing barriers to access: libraries and the accessibility for Ontarians with Disabilities Act. *Feliciter*, 56(3), 94–96. Retrieved from <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=1&sid=86c3bbe4-1813-43bc-ad27-e716d20d6604%40sessionmgr2>
- Clare, B., & Stuart, M. (Eds.). (2018). *The Cambridge companion to literature and disability*. New York, NY: Cambridge University Press.
- Cohen, A., & Posner, J. (Eds.). (1995). *A guide to clinical drug research*. London: Springer Science +Business Media Dordrecht.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Routledge.
- Commission for University Education. (2014). *University standards and guidelines, 2014*. Retrieved from http://www.kisiiuniversity.ac.ke/sites/default/files/UNIVERSITIES_STANDARDS_AND_GUIDELINES_June_2014.pdf
- Commission for University Education. (2015). *Accredited universities in Kenya*. Retrieved from http://www.cue.or.ke/images/phocadownload/UNIVERSITIES_STANDARDS_AND_GUIDELINES_June_2014.pdf
- Commission for University Education (CUEA). (2018). *Accredited Universities -*

- November 2017. Retrieved from
http://www.cue.or.ke/images/docs/Accredited_Universities_in_Kenya_November_2017.pdf
- Connelly, L. M. (2008). Pilot studies. *Medsurg Nursing*, 17(6), 411–412.
- Corbetta, P. (2003). *Social research: theory, methods and techniques*. London: Sage Publications.
- Cotter, A. M. (2007). *The ability: an international analysis of disability discrimination*. Hampshire: Ashgate Publishing.
- Crabtree, D. (2013). *Models of disability*. Retrieved from
http://englishagenda.britishcouncil.org/sites/default/files/attachments/models_of_disability.pdf
- Creswell, J. W. & Clark, V. L. P. (2007). *Designing and conducting mixed methods research*. Thousand Oaks: Sage Publications.
- Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles: Sage Publications.
- Creswell, J. W. (2012). *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). Boston, MA: Pearson.
- Creswell, J. W. (2014). *Research design* (4th ed.). Los Angeles: Sage Publications.
- Curtis, W., Murphy, M., & Shields, S. (2014). *Research in education*. New York, NY: Routledge.
- Das, S., & Das, A. (2010). *Differential childhood*. New Delhi: Concept Publishing.
- Dawson, C. (2002). *Practical research methods: a user-friendly guide to mastering research techniques and projects*. Oxford: How to Books.
- De Vaus, D. (2002). *Surveys in social research* (5th ed.). Abingdon, Oxon: Routledge.
- Degu, G., & Yozgaw, T. (2006). Research methodology. Retrieved from
https://www.cartercenter.org/resources/pdfs/health/ephti/library/lecture_notes/health_science_students/ln_research_method_final.pdf
- Denscombe, M. (2008). Communities of practice: a research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2(3), 270–283.
- Department for International Development (DFID). (2007). One world a million stories.

- Developments*, (38), 1–40. Retrieved from www.developments.org.uk
- Dermody, K., & Majekodunmi, N. (2011). Online databases and the research experience for university students with print disabilities. *Library Hi Tech*, 29(1), 149–160. <https://doi.org/10.1108/07378831111116976>
- Disabled Living Foundation. (2017). Key facts. Retrieved from <http://www.dlf.org.uk/content/key-facts>
- Disabled World. (2015). Physical & mobility impairments: information and news.
- Disabled World. (2017). Disability news: Africa. Retrieved November 16, 2017, from <https://www.disabled-world.com/news/africa/>
- Driscoll, D. L. (2011). Introduction to primary research: observations, surveys, and interviews. In C. Lowel. & P. Zemliansky (Ed.), *Writing spaces: reading on writing* (vol. 2, pp. 153–174). Anderson, South Carolina: Parlor Press LLC.
- Drost, E. A. (2011). Validity and reliability in social science research. *Educational Research and Perspectives*, 381(1), 105–123.
- Dugasa, T. F. (2016). *Assessment of library information services for students with disabilities in Haramaya University*. (Master's thesis, Haramaya University, Haramaya, Ethiopia). Retrieved from http://213.55.85.90/bitstream/handle/123456789/3053/TESFAYE_FUFA_DUGASA.pdf?sequence=1&isAllowed=y
- East African Community. (2012). *EAC policy on persons with disabilities*. Retrieved from <http://meac.go.ke/index.php/downloads1/finish/4-policy-documents/6579-adopted-eac-disability-policy-march-2012/0>
- Echezona, R. I., Osadebe, N., & Asogwa, B. E. (2011). Library services to the physically challenged: nature, challenges and strategies. *Journal of Applied Information Science and Technology*, 5(1), 14–18.
- Egerton University. (2015). Our profile. Retrieved November 15, 2017, from <http://www.egerton.ac.ke/index.php/Chancellor/our-profile.html>
- Ekwelem, V. O. (2013). Library services to disabled students in the digital era: challenges for outcome assessment. *Library Philosophy & Practice*, 1–28. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=lih&AN=97849586&site=ehost-live>

- Eleweke, C. J., & Ebenso, J. (2016). Barriers to accessing services by people with disabilities in Nigeria: insights from a qualitative study. *Journal of Educational and Social Research*, 6(2), 113–124. <https://doi.org/10.5901/jesr.2016.v6n2p113>
- Equal Employment Opportunity Commission (EEOC). (n.d.). Americans with disabilities act (1990). Retrieved March 23, 2017, from <https://www.eeoc.gov/eeoc/history/35th/thelaw/ada.html>
- Equal Rights Trust. (2008). *Non-discrimination and equality standards compendium*. Retrieved from <http://www.equalrightstrust.org/ertdocumentbank/Microsoft Word - Compendium draft for Conference 22 07 08.pdf>
- Ernst, A. (2003). *Comparison of qualitative and quantitative research*. Munich: GRIN Verlag.
- Eskay, M., & Chima, J. N. (2013). Library and information service delivery for the blind and physically challenged in University of Nigeria Nsukka library. *European Academic Research*, 1(5), 625–635. Retrieved from <http://euacademic.org/UploadArticle/43.pdf>
- Eyler, J. R. (2010). Breaking boundaries, building bridges. In J. R. Eyler (Ed.), *Disability in the middle ages: reconsiderations and reverberations* (pp. 1–8). Surrey: Ashgate Publishing.
- Ezeani, C. N., Ukwoma, S. C., Gani, E., Igwe, P. J., & Agunwamba, C. G. (2017). Towards sustainable development goals: what role for academic libraries in Nigeria in assuring inclusive access to information for learners with special needs? Retrieved from <http://library.ifla.org/1679/1/220-ezeani.en.pdf>
- Fakoya-Michael, S. A., & Fakoya, M. B. (2015). Visually impaired university students quest for information and the challenges faced in a rural university context. *Journal of Social Science*, 42(3), 223–228. Retrieved from [http://www.krepublishers.com/02-Journals/JSS/JSS-42-0-000-15-Web/JSS-42-3-15-Abst-PDF/JSS-42-3-223-15-1775-Fakoya-M-B/JSS-42-3-223-15-1775-Fakoya-M-B-Tx\[3\].pdf](http://www.krepublishers.com/02-Journals/JSS/JSS-42-0-000-15-Web/JSS-42-3-15-Abst-PDF/JSS-42-3-223-15-1775-Fakoya-M-B/JSS-42-3-223-15-1775-Fakoya-M-B-Tx[3].pdf)
- Feeley, N., & Cossette, S. (2016). Pilot studies for randomized clinical trials. In S. J. Henly (Ed.), *The Routledge international handbook of advanced methods in nursing research* (pp. 199–212). London: Routledge.
- Feilding, N., & Fielding, J. (1986). *Linking data*. London: Sage Publications.

- Feilzer, M. Y. (2010). Doing mixed methods research pragmatically: implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research, 4*, 6–16.
- Forrest, M. E. S. (2006). Towards an accessible academic library: using the IFLA checklist. *IFLA Journal, 32*(1), 13–18. <https://doi.org/10.1177/0340035206063881>
- Forrest, M. E. S. (2007). Disability awareness training for library staff: evaluating an online module. *Library Review, 56*(8), 707–715. <https://doi.org/10.1108/00242530710818036>
- Freitas, H., Oliveira, M., Jenkins, M., & Popjoy, O. (1998). The focus group, a qualitative research method. *ISRC, (010298)*, 1–22. <https://doi.org/10.1016/j.watres.2013.02.032>
- French, S., & Swain, J. (2011). *Working with disabled people in policy and practice: a social model*. New York, NY: Palgrave Macmillan.
- French, S., & Swain, J. (2013). Changing relationships for promoting health. In S. B. Porter (Ed.), *Tidy's physiotherapy* (15th ed., pp. 183–206).
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: an introduction* (8th ed.). Upper Saddle River, NJ: Pearson.
- Gibbs, A. (1997). Focus groups. *Social Research Update, (19)*, 1–5. Retrieved from <http://sru.soc.surrey.ac.uk/SRU19.html>
- Gibson, A. (2006). Disability support services, Victoria University of Wellington. In P. Herson & P. Calvert (Eds.), *Improving the quality of library services for students with disabilities* (pp. 57–65). Westport, CT: Libraries Unlimited.
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal, 204*(6), 291–295. <https://doi.org/10.1038/bdj.2008.192>
- Githinji, J. W. (2013). *Access to university education for persons with disabilities*. (Master's thesis, University of Nairobi, Nairobi, Kenya). Retrieved from [http://erepository.uonbi.ac.ke/bitstream/handle/11295/62965/Githinji_Access to university education for persons with disabilities.pdf?sequence=3](http://erepository.uonbi.ac.ke/bitstream/handle/11295/62965/Githinji_Access%20to%20university%20education%20for%20persons%20with%20disabilities.pdf?sequence=3)
- Given, M. L. (2008). *Sage encyclopedia of qualitative research methods*. Los Angeles: Sage Publications.
- Glenn, J. C. (2010). *Handbooks of research methods*. Jaipur, IN: Oxford Books.

- Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*, (1992), 82–88.
<https://doi.org/10.1109/PROC.1975.9792>
- Global Campaign for Education (GCE). (n.d.). *Inclusive education for children with disabilities*. Retrieved from www.g3ict.org/download/p/fileId_1002/productId_313
- Grant, C., & Osanloo, A. (2014). Understanding, selecting, and integrating a theoretical framework in dissertation research: creating the blueprint for your house. *Administrative Issues Journal: Connection Education, Practice and Research*, 4(2), 12–26. Retrieved from http://jolle.coe.uga.edu/wp-content/uploads/2015/02/89596_manuscript-file_249104.pdf
- Gratton, C., & Jones, I. (2010). *Research methods for sports studies* (2nd ed.). London: Routledge.
- Gravetter, F. J., & Forzano, L. B. (2012). *Research methods for the behavioral sciences*. Belmont, Ca: Cengage Learning. Retrieved from http://www.cengagebrain.com/content/gravetter42253_1111342253_01.01_toc.pdf
- Green, R. A., & Blair, V. (2011). *Keep it simple: a guide to assistive technologies*. Santa Barbara, California: Libraries Unlimited.
- Grewal, I., Mcmanus, S., Arthur, S., & Reith, L. (2004). *Making the transition: addressing barriers in services for disabled people*. London: Corporate Document Service.
 Retrieved from www.dwp.gov.uk/asd/
- Griffo, G. (2014). Models of disability, ideas of justice, and the challenge of full participation. *Modern Italy*, 19(2), 147–159.
<https://doi.org/10.1080/13532944.2014.910502>
- Habib, M. M., Pathik, B. B., & Maryam, H. (2014). *Research methodology. contemporary practices: guidelines for academic researchers*. Newcastle-upon-Tyne: Cambridge Scholars Publishing.
- Haihambo, C., & Lightfoot, E. (2010). Cultural beliefs regarding people with disabilities in Namibia: implications for the inclusion of people with disabilities. *International Journal of Special Education*, 25(3), 76–87. Retrieved from <http://files.eric.ed.gov/fulltext/EJ909038.pdf>

- Hannon, F. (2007). *Literature review on attitudes towards disability (9)*. *Disability Research Series*. Dublin. Retrieved from <http://www.ucd.ie/issda/static/documentation/nda/nda-literature-review.pdf>
- Harrell, M. C., & Bradley, M. A. (2009). *Data collection methods: semi-structured interviews and focus groups*. Santa Monica, CA: RAND Corporation. <https://doi.org/978-0-8330-4889-9>
- Harris, A., & Enfield, S. (2003). *Disability, equality, and human rights: a training manual for development and humanitarian organizations*. Oxford: Oxfam GB.
- Hatch, J. A. (2002). *Doing qualitative research in education settings*. Albany: SUNNY Press.
- Haynes, S., & Linden, M. (2012). Workplace accommodations and unmet needs specific to individuals who are deaf or hard of hearing. *Disability and Rehabilitation: Assistive Technology*, 7(5), 408–415.
- Hazzi, O., & Maldaon, I. (2015). A pilot study: vital methodological issues. *Business Theory & Practice*, 16(1), 53–62. <https://doi.org/10.3846/btp.2015.437>
- Heaven, S. (2004). The provision made by higher education library services for people with disabilities. *Library & Information Research (LIR)*, 28(90), 24–30. Retrieved from www.lirjournal.org.uk/lir/ojs/index.php/lir/article/download/.../216
- Heery, M. (1996). Academic library students. *Library Management*, 17(5), 3–13. <https://doi.org/http://dx.doi.org/10.1108/01435129610119584>
- Hennink, M., Hutter, I., & Bailey, A. (2011). *Qualitative research methods*. London: Sage Publications.
- Henry, G. T. (2009). Practical sampling. In L. Bickman & D. J. Rog (Eds.), *The Sage handbook of applied social research methods* (2nd ed., pp. 77–105). Thousand Oaks, CA: Sage Publications.
- Heron, P., & Calvert, P. (Eds.). (2006). *Improving the quality of library services for students with disabilities*. Westport, CT: Greenwood Publishing.
- Hill, H. (2013). Disability and accessibility in the library and information science literature: a content analysis. *Library & Information Science Research*, 35, 137–142.
- Hopkins, J. (2004). *Assistive technology (AT) to support students with special needs*. Retrieved from <http://csc.immix.ca/files/108/1278482872AssistiveTechnology.pdf>

- Howe, A. (2011). Best practice in disability provision in higher education libraries in England specializing in art, media, and design. *New Review of Academic Librarianship*, 17, 155–184. <https://doi.org/10.1080/13614533.2011.610213>
- Hussain, T. P. (2011). *Research methods in physical education*. New Delhi: Sports Publication.
- Igwebuike, E. U., & Agbo, A. D. (2015). Creating a friendly environment for easy access and use of library for the disabled: role of information professionals. *Journal of Emerging Trends in Computing and Information Sciences*, 6(1), 1–6. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.679.4023&rep=rep1&type=pdf>
- Imenda, S. (2014). Is there a conceptual difference between theoretical and conceptual frameworks? *Journal of Social Sciences*, 38(2), 185–195. <https://doi.org/10.1111/j.1471-0528.2006.00853.x>
- Inclusion London. (2016). The social model of disability. Retrieved from <https://www.inclusionlondon.org.uk/disability-in-london/social-model/the-social-model-of-disability-and-the-cultural-model-of-deafness/>
- Interactive Accessibility. (2015). Accessibility statistics. Retrieved November 16, 2017, from <http://www.interactiveaccessibility.com/accessibility-statistics>
- International Federation of Library Associations and Institutions (IFLA). (2003). *Information for all: the key role of libraries in the information society*. Retrieved from https://www.unige.ch/biblio/ses/IFLA/rol_lib_030526.pdf
- International Federation of Library Associations and Institutions (IFLA). (2016). IFLA and the information society: libraries, WSIS and the internet. Retrieved from <http://www.ifla.org/information-society>
- International Federations of Library Associations and Institutions (IFLA). (2007). *Libraries and intellectual freedom*. Retrieved from <http://www.ifla.org/files/assets/faife/presen.pdf>
- International Telecommunications Union. (2013). *The ICT opportunity for a disability-inclusive development framework*. Retrieved from [https://www.itu.int/en/action/accessibility/Documents/The ICT Opportunity for a Disability_Inclusive Development Framework.pdf](https://www.itu.int/en/action/accessibility/Documents/The%20ICT%20Opportunity%20for%20a%20Disability_Inclusive%20Development%20Framework.pdf)

- Iroeze, P. C., Umunnakwe, G. C., & Eze, J. U. (2017). Library services for the physically challenged in South-East, Nigeria: origin and challenges. *International Journal of Advanced Library and Information Science*, 5(1), 393–405.
- Irvall, B., & Nielsen, G. S. (2005). *Access to libraries for persons with disabilities - checklist* (IFLA Professional Reports No. 89). *IFLA Professional Reports*. Oxford: Oxfam GB. Retrieved from <http://www.ifla.org/publications/ifla-professional-reports-89>
- Islam, S., & Islam, N. (2006). Information communication technology (ICT) in libraries: a new dimension in librarianship. *Asian Journal of Information Technology*, 5(8), 809–817. Retrieved from <http://docsdrive.com/pdfs/medwelljournals/ajit/2006/809-817.pdf>
- Israel, G. D. (2009). *Determining sample size 1* (No. PEOD-6). Retrieved from <http://edis.ifas.ufl.edu/pd006>
- Jaeger, P. T., & Bowman, C. A. (2005). *Understanding disability: inclusion, access, diversity, and civil rights*. Westport, CT: Praeger Publishers.
- Jaffe, D. L. (2018). Physical and mobility impairment factsheet. Retrieved May 20, 2018, from <https://web.stanford.edu/class/engr110/factsheet.html>
- Jha, N. K. (2008). *Research methodology* (1st ed.). Chandigarh, IN: Abhishek Publications.
- Johnson, R. B., & Christensen, L. B. (2013). *Educational research: quantitative, qualitative, and mixed approaches*. Thousand Oaks, CA: Sage Publications.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112–133. <https://doi.org/10.1177/1558689806298224>
- Joint, N. (2005). Disability issues and libraries: a Scottish perspective. *Library Review*, 54(8), 449–452. <https://doi.org/10.1108/00242530510619138>
- Jomo Kenyatta University of Agriculture and Technology (JKUAT). (2017). History - Jomo Kenyatta University of Agriculture and Technology. Retrieved November 13, 2017, from <http://www.jkuat.ac.ke/history/>
- Jonker, J., & Pennink, B. (2010). *The essence of research methodology: a concise guide for master and PhD students in management science*. Heidelberg: Springer.

- Kabuta, L. G. (2014). *Problems facing students with physical disabilities in higher learning institutions in Tanzania*. (Master's Thesis, The Open University of Tanzania, Dar-el-salaam, Tanzania). Retrieved from [http://repository.out.ac.tz/808/1/LYDIA_KABUTA_REPORT_2..docx_FOR_BINDI_NG_\(Repaired\).docx_joy.pdf](http://repository.out.ac.tz/808/1/LYDIA_KABUTA_REPORT_2..docx_FOR_BINDI_NG_(Repaired).docx_joy.pdf)
- Kariba, P. K. (2009). *An examination of library services for students with visual impairments at Kenyatta University*. (Master's thesis, Kenyatta University, Nairobi, Kenya). Retrieved from <http://ir-library.ku.ac.ke/handle/123456789/1227>
- Kauda, J. (2012). *Research methodology: a project guide for university students*. Frederiksberg, DK: Samfundslitteratur Press.
- Kavanagh, R., & Skold, B. C. (Eds.). (2005). *Libraries for the blind in the information age: guidelines for development*. The Hague: International Federation of Library Associations and Institutions. <https://doi.org/9077897011>
- Kavulya, J. M. (2004). *University libraries in Kenya: a study of their practices and performance*. (Doctoral dissertation, Humboldt-Universität zu Berlin). Retrieved from <http://edoc.hu-berlin.de/dissertationen/kavulya-joseph-%5Cnmuema-2004-02-19/HTML%5Cn>
- Kenya National Bureau of Statistics (KNBS). (2018). Number of persons with disability. Retrieved May 22, 2018, from <https://www.knbs.or.ke/number-of-persons-with-disability/>
- Kenya National Commission on Human Rights. (2014). *From norm to practice: a status report on implementation of the rights of persons with disabilities in Kenya*. Nairobi: KNCHR. Retrieved from <http://www.knchr.org/Portals/0/Reports/Disability Report.pdf>
- Kenya News Agency. (2016). Government introduces disability mainstreaming in public institutions. Retrieved October 19, 2017, from <http://kenyanewsagency.go.ke/en/government-introduces-disability-mainstreaming-in-public-institutions/>
- Kenyatta University. (2013). A short history of Kenyatta University. Retrieved from <http://www.ku.ac.ke/index.php/contacts/87-about-ku/177-about-ku>
- Kerscher, G. (2006). The essential role of libraries serving persons who are blind and print

disabled in the information age. In K. Miesenberger, J. Klaus, W. L. Zagler, & A. I. Karshmer (Eds.), *Computers helping people with special needs* (pp. 100–105). Berlin, Heidelberg: Springer. https://doi.org/10.1007/11788713_16

- Khachatryan, A. (2014). *Digital services to patrons with disabilities offered at the National Library of Armenia: challenges and measures taken*. (Master's thesis, Swedish School of Library and Information Science, University of Borås, Sweden). Retrieved from http://bada.hb.se/bitstream/2320/14736/1/mas14_12.pdf
- Kiambati, F. G. (2015). *Challenges in accessing electronic information resources by students with visual impairments in Kenyatta University Post Modern Library*. (Masters thesis, Kenyatta University, Nairobi, Kenya). Retrieved from [http://ir-library.ku.ac.ke/bitstream/handle/123456789/14562/Challenges in accessing electronic information resources by students with visual impairments in Kenyatta University Post Modern Library.pdf?sequence=1&isAllowed=y](http://ir-library.ku.ac.ke/bitstream/handle/123456789/14562/Challenges%20in%20accessing%20electronic%20information%20resources%20by%20students%20with%20visual%20impairments%20in%20Kenyatta%20University%20Post%20Modern%20Library.pdf?sequence=1&isAllowed=y)
- Kinnell, M., Yu, L., & Creaser, C. (2000). *Public library services for visually impaired people* (Occasional Paper No. 26). Loughborough: Library & Information Statistics Unit (LISU) Loughborough University. Retrieved from <http://www.lboro.ac.uk/microsites/infosci/lisu/downloads/op26.pdf>
- Kitchin, R. (1998). Out of place, knowing one's place: space, power and the exclusion of disabled people. *Disability & Society*, 13(3), 343–356. <https://doi.org/10.1080/09687599826678>
- Klenk, K. (2008). *Qualitative research in the study of leadership*. Bingley: Emerald Group Publishing.
- Klenke, K., Martin, S., & Wallace, J. R. (2015). *Qualitative research in the study of leadership*. Bingley, UK: Emerald Group Publishing.
- Kochung, E. J. (2011). Role of higher education in promoting inclusive education : Kenyan perspective. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 2(3), 144–149.
- Kothari, C. R. (2004). *Research methods: methods and techniques* (2nd ed.). New Delhi: New Age International Publishers.
- Kotso, J. A., & Mohammed, Z. (2011). Users satisfaction with library and information services in Plateau State Special Education Institution. *The Information Manager*,

- 11(1 & 2), 36–44. Retrieved from
<https://www.ajol.info/index.php/tim/article/view/83638/73666>
- Koulikourdi, A. (2008a). Assistive technologies in Greek libraries. *Library Hi Tech*, 26(3), 387–397. <https://doi.org/10.1108/07378830810903319>
- Koulikourdi, A. (2008b). Library education and disability issues. *Education for Information*, 26, 203–212. Retrieved from
<http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=207f673c-2118-4fbe-aabe-4c95723718f6%40sessionmgr4008>
- Koulikourdi, A. (2008c). Library services for people with disabilities in Greece. *Library Review*, 57(2), 138–148. <https://doi.org/10.1108/00242530810854017>
- Krauss, S. E. (2005). The qualitative report research paradigms and meaning making: a primer. *The Qualitative Report*, 10(4), 758–770. Retrieved from
<http://nsuworks.nova.edu/tqr>
- Krueger, R. A., & Casey, M. A. (2015). *Focus groups: a practical guide for applied research* (5th ed.). New Delhi: Sage Publications.
- Kumar, R. (2014). *Research methodology: a step-by-step guide for beginners*. Los Angeles: Sage Publications.
- Kumar, S., & Sanaman, G. (2013a). Orientation/training programmes in NCR libraries for people with disabilities: study of user' s perspective. *Library Philosophy and Practice*, (927), 1–15. Retrieved from <http://digitalcommons.unl.edu/libphilprac>
- Kumar, S., & Sanaman, G. (2013b). Preference and use of electronic information and resources by blind/visually impaired in NCR libraries in India. *Journal of Information Science Theory and Practice*, 1(2), 69–83.
- Lawal-Solarin, E. O. (2012a). A survey of library and information services to physically-challenged students in academic libraries in Ogun State , Nigeria. *Library Philosophy and Practice*, 1–172. Retrieved from
<https://www.webpages.uidaho.edu/~mbolin/lawal-solarin.pdf>
- Lawal-Solarin, E. O. (2012b). The role of academic libraries in providing information and services to wheelchair users in Nigeria. *Journal of Library, Educational Media and Information Studies*, 4, 128–135. Retrieved from
<http://eprints.covenantuniversity.edu.ng/8682/#.Wc3Rx9hJzDc>

- Leedy, P. D., & Ormrod, J. E. (2001). *Practical research: planning and design* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: planning and design* (8th ed.). New York, NY: Routledge.
- Lehmkuhl, K. M. (2015). Increasing students' ability to discover and access to academic information: information literacy for blind and visually impaired students at Federal University of Santa Catarina Library. *Proceedings of the IATUL Conferences. Paper 5*. Retrieved from <http://docs.lib.purdue.edu/iatul/2015/lil/5>
- Leong, I. C. B., & Higgins, S. E. (2010). Public library services for wheelchair-bound young people in Singapore. *Public Library Quarterly*, 29(3), 210–229. <https://doi.org/10.1080/01616846.2010.502033>
- Lindsay, E. B., & Baron, S. (2012). Leading information literacy programs: an immersion beyond. In P. Dursin (Ed.), *Information Literacy programs: successes and challenges* (pp. 143–166). New York, NY: Routledge.
- Litosseliti, L. (2003). *Using focus group in research*. London: Continuum Books.
- Majinge, R. M. (2014). *Library services provision for people with visual impairments and in wheelchairs in academic libraries in Tanzania*. (Doctoral dissertation, University of KwaZulu-Natal, Pietermaritzburg, SA). Retrieved from http://researchspace.ukzn.ac.za/bitstream/handle/10413/10709/Majinge_Rebecca_Mgunda_2014.pdf?sequence=3&isAllowed=y
- Majinge, R. M., & Stilwell, C. (2014). Library services provision for people with visual impairments and in wheelchairs in academic libraries in Tanzania. *South African Journal of Libraries and Information Science*, 79(2), 39–50. <https://doi.org/http://dx.doi.org/10.7553/79-2-147>
- Mallet, R., & Runswick-Cole, K. (2014). *Approaching disability: critical issues and perspectives*. London: Routledge.
- Marks, D. (1999). *Disability: controversial debates and psychological perspectives*. London: Routledge.
- Marshall, C. (2006). *Data collection methods*. Retrieved from http://www.sagepub.com/sites/default/files/upm-binaries/10985_Chapter_4.pdf
- Maseno University. (2017). Maseno University in brief. Retrieved November 15, 2017,

from

http://maseno.ac.ke/index/index.php?option=com_content&view=article&id=147&Itemid=174

- Massachusetts Department of Elementary and Secondary Education. (2006). *Special education: impairment*.
- Mates, B. T. (2012). Information power to all patrons. In C. Booth (Ed.), *Making libraries accessible: adaptive design and assistive technology* (pp. 7–13). Chicago, IL: American Library Association.
- Matonya, M. (2016). *Accessibility and participation in Tanzanian higher education from the perspectives of women with disabilities*. (Doctoral dissertation, University of Jyväskylä, Jyväskylä, Finland). Retrieved from https://jyx.jyu.fi/dspace/bitstream/handle/123456789/51931/978-951-39-6844-1_vaitos03122016.pdf?sequence=2
- Maxfield, M. G., & Babbie, E. R. (2015). *Research methods for criminal justice and criminology* (8th ed.). Stamford, CT: Cengage Learning.
- McCaskill, K., & Goulding, A. (2001). English public library services and the Disability Discrimination Act. *New Library World*, 102(6), 192–206. Retrieved from <http://dx.doi.org/10.1108/03074800110394578>
- McGurk, H. (n.d.). Disability in Kenya: a case study and country report. Retrieved from https://www.academia.edu/6721172/Disability_and_International_Policy_A_Case_Study_of_Kenya
- Mertens, D. M. (2005). *Research methods in education and psychology: integrated diversity with quantitative and qualitative approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Michener, H. A., DeLamater, J. D., & Myers, D. J. (2004). *Social psychology* (5th ed.). Belmont, CA: Wadsworth Publishing.
- Mirkin, B. (2011). *Core concepts in data analysis: summarization, correlation and visualization*. London: Springer-Verlag.
- Mitra, S. (2006). The capability approach and disability. *Journal of Disability Policy Studies*, 16(4), 236–247. <https://doi.org/10.1177/10442073060160040501>
- Moi University. (2012). *Moi University students guide book* (6th ed.). Retrieved from

- <http://docplayer.net/5362085-Moi-university-students-guide-book-6-th-edition.html>
- Moi University. (2017). The history of Moi University. Retrieved November 13, 2017, from <https://www.mu.ac.ke/index.php/about-mu/the-beginnings-of-moi-university>
- Monette, D. R., Sullivan, T. J., & DeJong, C. R. (2011). *Applied social research: a tool for the human services* (8th ed.). Belmont, CA: Brooks/Cole.
- Mooney, G. (2016). *Students with invisible disabilities: unique challenges for academic librarians in Ireland*. (Master's thesis, Dublin Business School, Ireland). Retrieved from http://esource.dbs.ie/bitstream/handle/10788/3055/msc_mooney_g_2016.pdf?sequence=1
- Moore, C., Carter, R. E., & Nietward, P. W. (2011). Recommendations for planning pilot studies in clinical and translational research. *Clinical and Translational Science*, 4(5), 332–337. <https://doi.org/10.1111/j.1752-8062.2011.00347.x>. Recommendations
- Moore, S. (2002). *Social welfare alive!* (3rd ed.). Cheltenham: Nelson Thornes.
- Moriarty, J. (n.d.). *Qualitative methods: overview*. London: School for Social Care Research. Retrieved from https://kclpure.kcl.ac.uk/portal/files/13444568/SSCR_Qualitative_Methods.pdf
- Mouton, J., & Marais, H. C. (1996). *Basic concepts in methodology of the social sciences*. Pretoria: Human Science Research Council. <https://doi.org/10.1093/acprof>
- Muddiman, D., Durrani, S., Dutch, M., Linely, R., Pateman, J., & Vincent, J. (2000). Open to all? The public library and social exclusion volume one: overview and conclusions. Retrieved from <http://eprints.rclis.org/6283/1/lic084.pdf>
- Muijs, D. (2004). *Doing quantitative research in education with SPSS*. Los Angeles: Sage Publications.
- Mukhwana, E., Oure, S., Kiptoo, S., Kande, A., Njue, R., Too, J., & Some, D. K. (2016). *State of university education in Kenya*. Nairobi: Commission for University Education.
- Munemo, E., & Tom, T. (2013). Access and support of assistive technology for people with visual impairments in Open and Distance Learning institutions (O.D.L) in Zimbabwe. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 4(3), 553–559. Retrieved from

http://reference.sabinet.co.za/webx/access/electronic_journals/sl_jeteraps/sl_jeteraps_v4_n3_a21.pdf

- Munyi, C. W. (2012). Past and present perceptions towards disability: a historical perspective. *Disability Quarterly*, 32(2). Retrieved from <http://dsq-sds.org/article/view/3197/3068>
- Mvumbi, F. N., & Ngumbi, E. K. (2015). *Companion to research methodology: focus on humanities, education and social sciences*. Nairobi: CUEA Press.
- Myhill, C. E. (2002). ICT for access to information services for disabled people: an overview of projects and services at Gateshead Libraries Service. *Program*, 36(3), 176–181. <https://doi.org/10.1108/00330330210440467>
- Nabende, J. S. (n.d.). Strategies to achieve quality education for students with visual disabilities in Kenya: a case study of Kenyatta University. Retrieved from http://icevi.org/publications/icevi_wc2006/08_equality_of_access_to_education/Posters/afr_062_julius_nabende.pdf
- Nattiq Technnologies. (2013). Dolphin pen. Retrieved May 17, 2018, from <http://www.nattiq.com/en/Lunar>
- Ndurumo, M. M., van Zanten, M., & Meereboer, K. (n.d.). *Effects of a deaf role models documentary film on attitude of parents towards educational opportunities of their children: a case of Kenya*. Retrieved from http://www.deaf.elemedu.upatras.gr/images/Proceedings/EFFECTS_OF_A_DEAF_ROLE_MODELS_DOCUMENTARY_FILM_ON_ATTITUDES.pdf
- Nelson, P. P. (1996). Library services for people with disabilities: results of a survey. *Bulletin of the Medical Library Association*, 84(3), 397–401. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC226160/pdf/mlab00100-0119.pdf>
- Neuman, L. (2007). *Basics of social research: qualitative and quantitative approaches*. Boston, MA: Pearson Education.
- Njoroge, J. (2013). *Library access for persons with disabilities in Kenyan academic libraries*. (Master's thesis, Southern Connecticut State University, New Haven, Connecticut). Retrieved from http://njorogecapstoneportfolio.weebly.com/uploads/1/8/4/5/18450047/njoroge_special_project_report_for_website.docx.

- Noh, Y., Ahn, I., & Park, M. (2011). Study on librarian service providers' awareness and perceptions of library services for the disabled. *International Journal of Knowledge Content Development & Technology*, 1(2), 29–42.
<https://doi.org/10.5865/IJKCT.2011.1.2.029>
- Nuut, A. (2004). The role of libraries in a knowledge-based society: Estonian and European Experiences. In *Diversity in unity: Baltic Libraries in the European Union: proceedings of the 7th Congress of Baltic Librarians, September 30 - October 2, 2004, Jumurda, Madona region, Latvia (x-x)*. Riga: National Library of Latvia. (pp. 40–47). <https://doi.org/10.1227/01.NEU.0000027734.84725.0E>
- Nyagundi, P. A. (2012). Overview of the current policies, legislation and programmes for persons with disabilities in Kenya. Retrieved from
<http://www.kenyadisability.or.ke/images/stories/presentations/overview-of-the-current-policies-legislation-and-programmes-for-pwds.ppt>
- Nyaigetti-Chacha, C. (2004). Reforming higher education in Kenya: challenges, lessons and opportunities. In *State University of New York Workshop with the Paliamentary Committee of Education, Science and Technology*. Retrieved from
<https://pdfs.semanticscholar.org/fc9a/632255e461300b9aea588050e32ca4cdd8e5.pdf>
- O'Brien, B. (2005). *Bodies in revolt: gender disability and a workplace ethic of care*. New York, NY: Cambridge University Press.
- O'Leary, Z. (2003). *The essential guide to doing research*. London: Sage Publications.
- Ochoggia, R. E. (2003). Persons with Disabilities Bill 2002: implications concerning visual disabilities for academic library and information services in Kenya. *New Library World*, 104(7/8), 307–312. <https://doi.org/10.1108/03074800310488086>
- Ochoggia, R. E. (2004). *Provision of Library and information services to the visually handicapped students in Kenyatta University*. (Master's thesis, Kenyatta University, Nairobi, Kenya) (Unpublished).
- Odoyo, P. O. (2007). Educating deaf children in an inclusive setting in Kenya: challenges and considerations. *Electronic Journal of Inclusive Education*, 2(2), 1–13. Retrieved from
<http://corescholar.libraries.wright.edu/cgi/viewcontent.cgi?article=1087&context=eji>
 e

- Oduor, A. (2018). Government to cut fees for middle-level colleges. *Standard Digital News*. Retrieved from <https://www.standardmedia.co.ke/article/2001281533/government-to-cut-fees-for-middle-level-colleges>
- Ogechi, N. O., & Ruto, S. J. (2002). Portrayal of disability through names and proverbs in Kenya: evidence from Egkegusii and Nandi. *Stichproben. Wiener Zeitschrift Fur Kritische Afrikastudien*, 3(2). Retrieved from https://stichproben.univie.ac.at/fileadmin/user_upload/p_stichproben/Artikel/Nummer03/Nr3_Ogechi_Ruto.pdf
- Ojiambo, J. B., & Kasalu, J. S. (2015). Development of libraries in Kenya and their role in economic development. Retrieved from <http://library.ifla.org/id/eprint/1220>
- Olaopa, O. S. (2017). Information literacy skills, alternative format availability and information sources utilization by visually impaired secondary school students in South-West, Nigeria. *Library and Philosophy (e-Journal)*, (1550), 1–17. Retrieved from <http://digitalcommons.unl.edu/libphilprac>
- Oliver, M. (1990). *The politics of disablement: a sociological approach*. New York, NY: St Martin's Press.
- Oliver, M. (1996). *Understanding disability: from theory to practice*. Basingstoke: Macmillan.
- Oliver, M. (2004). The social model in action: if I had a hammer. In C. Barnes & G. Mercer (Eds.), *Implementing the social model of disability: theory and research* (pp. 18–31). Leeds: The Disability Press. Retrieved from <https://pdfs.semanticscholar.org/ca9c/2fcc6093c5234cff3d94d617205f684d18b5.pdf>
- Oliver, M. (2013). The social model of disability: thirty years on. *Disability & Society*, 28(7), 1024–1026. <https://doi.org/10.1080/09687599.2013.818773>
- Oliver, M., & Barnes, C. (2010). Disability studies, disabled people and the struggle for inclusion. *British Journal of Sociology of Education*, 31(5), 547–560. <https://doi.org/10.1080/01425692.2010.500088>
- Ongori, H., & Mburu, P. T. (2010). Usage of information communication technologies (ICTs) in information seeking amongst university students in Botswana. *E3 Journal of Business Management and Economics*, 1(1), 18–25.

- Onwuegbuzie, A. J., Bustamante, R. M., & Nelson, J. A. (2010). Mixed research as a tool for developing quantitative instruments. *Journal of Mixed Methods Research, 4*(1), 56–78. <https://doi.org/10.1177/1558689809355805>
- Opini, B. (2011). Barriers to participation of women students with disabilities in university participation in Kenya. *Journal of Postsecondary Education and Disability, 25*(1), 65–79.
- Oso, W. Y., & Onen, D. (2009). *A general guide to writing research proposal and report*. Nairobi: The Jomo Kenyatta Foundation.
- Phukubje, J., & Ngoepe, M. (2017). Convenience and accessibility of library services to students with disabilities at the University of Limpopo in South Africa. *Journal of Librarianship and Information Science, 49*(2), 180–190. <https://doi.org/10.1177/0961000616654959>
- Pierson, J., & Thomas, M. (2010). *The dictionary of social work: the definitive A to Z of social work and social care*. Berkshire, England: Open University Press.
- Polit, D. F., & Beck, C. T. (2003). *Nursing research: principles and methods* (7th ed.). Philadelphia: Lippincott Williams & Wilkins.
- Polit, D. F., & Beck, C. T. (2008). *Nursing research: generating and assessing evidence for nursing practice* (8th ed.). Philadelphia: Wolters Kluwer Health.
- Powell, R. A., & Single, M. (1996). Focus groups. *International Journal for Quality in Health Care, 8*(5), 499–504.
- Power, R., & LeBeau, C. (2009). How well do academic library websites address the needs of database users with visual disabilities? *The Reference Librarian, 50*(1), 55–72. <https://doi.org/10.1080/02763870802546399>
- Price, G., & Richardson, L. (2014). Access to information – inclusive or exclusive? *Forced Migration Review, (38)*, 14–15. Retrieved from <http://www.fmreview.org/sites/fmr/files/FMRdownloads/en/technology.pdf>
- Pride, W. M., Ferrell, O. C., Lukas, B. A., Niininen, O., & Schembri, S. (2015). *Marketing principles*. South Melbourne: Cengage Learning.
- Public and Commercial Services Union. (2006). Social and medical disability models. Retrieved from http://www.pcs.org.uk/en/equality/guidance-and-resources/disability_equality_toolkit/disability-models-and-attitudes.cfm

- Queiroz, J., & Merrell, F. (2006). Semiosis and pragmatism: toward a dynamic concept of meaning. *Sign Systems Studies*, 34(1), 37–65.
<https://doi.org/10.1017/S0959774300001190>
- Quinn, G. (2004). Definition of disability. Retrieved from www.pedz.uni-mannheim.de/%3Edisabdef.pdf
- Qutab, S., Bhatti, R., & Ullah, F. S. (2014). Adoption of ICTs for library operations and services: a comparison of public and private universities of Pakistan. *Library Philosophy and Practices (e-Journal)*, (1106), 1–9. Retrieved from <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2863&context=libphilprac>
- Rahman, A., Uddin, H., & Akhter, R. (2004). Information and communication technologies, libraries and the role of library professionals in the 21st Century: with special reference to Bangladesh. *ICADL LNCS*, (3334), 608–617. Retrieved from http://link.springer.com/chapter/10.1007%2F978-3-540-30544-6_69#page-1%5C
- Rajasekar, S., Philominathan, P., & Chinnathambi, V. (2002). Research methodology. Retrieved from <https://arxiv.org/pdf/physics/0601009.pdf>
- Rayini, J. (2014). Library and information services to the visually impaired persons. *Library Philosophy and Practice (e-Journal)*, (1510), 1–13. Retrieved from <https://www.capetown.gov.za/en/Library/Pages/About-Us.aspx>
- Republic of Kenya. (1985). *Laws of Kenya: the Moi University Act chapter 210A*. *Laws of Kenya*. Nairobi: Kenya Law Organization. Retrieved from <http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/MoiUniversityAct.pdf>
- Republic of Kenya. (1986). *Laws of Kenya: University of Nairobi Act chapter 210*. Nairobi: National Council for Law Reporting. Retrieved from http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/UniversityofNairobiAct_Cap210.pdf
- Republic of Kenya. (1987). *Laws of Kenya: Kenyatta University Act chapter 210C*. *Laws of Kenya*. Nairobi, Nairobi: National Council for Law Reporting. Retrieved from http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/KenyattaUniversityAct_Cap210C.pdf
- Republic of Kenya. (1988). *Laws of Kenya: Egerton University Act 2*. Nairobi: National Council for Law Reporting. Retrieved from [248](http://ir-</p>
</div>
<div data-bbox=)

library.egerton.ac.ke/jspui/bitstream/123456789/557/1/EgertonUniversityAct_Cap214_.pdf

Republic of Kenya. (1994). *Laws of Kenya: Jomo Kenyatta University of Agriculture and Technology Act No. 8. Laws of Kenya*. Nairobi: National Council for Law Reporting. Retrieved from http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/JomoKenyattaUniversityofAgricultureandTechnologyAct__No8of1994.pdf

Republic of Kenya. (2000). *Laws of Kenya: Maseno University Act No. 7. Laws of Kenya*. Nairobi: National Council for Law Reporting. Retrieved from http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/MasenoUniversityAct_No7of2000.pdf

Republic of Kenya. (2003). *Laws of Kenya: persons with disabilities act*. Retrieved from <http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/69444/115499/F923058154/KEN694442012.pdf>

Republic of Kenya. (2010). *Laws of Kenya: the constitution of Kenya*. Kenya: National Council for Law Reporting. Retrieved from http://www.icla.up.ac.za/images/constitutions/kenya_constitution.pdf

Republic of Kenya. (2013a). *Laws of Kenya: Universities Act No. 42*. Retrieved from <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/98808/117653/F-1722141243/KEN98808.pdf>

Republic of Kenya. *Technical and vocational education and training Act, Laws of Kenya § (2013)*. Retrieved from <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/98807/117649/F1763223240/KEN98807.pdf>

Rimmerman, A. (2013). *Social inclusion of people with disabilities: national and international perspectives*. Cambridge: Cambridge University Press.

Roberts, A., & Smith, R. J. (2010). *Crash course in library services to people with disabilities*. Santa Barbara, California: Libraries Unlimited.

Roberts, B. L. (2013). *A lifeline of disability accommodation planning: how models of disability and human rights principles inform accommodation*. Queen's University. Retrieved from

https://qspace.library.queensu.ca/bitstream/1974/7806/3/Roberts_Barbara_L_201301_PHD.pdf

Roberts, P., Priest, H., & Traynor, M. (2006). Reliability and validity in research. *Nursing Standard*, 20(44), 41–45.

Robertson, L. (n.d.). *Access for library users with disabilities*. Retrieved from https://www.sconul.ac.uk/sites/default/files/documents/access_disabilities_0.pdf

Roy, P. C., & Bandyopadhyay, R. (2009). Designing barrier free services for visually challenged persons in the academic libraries in India. *ICAL 2009- Library Services*, 626–629. Retrieved from http://crl.du.ac.in/ical09/papers/index_files/ical-105_241_602_1_RV.pdf

Rubbin, A., & Babbie, E. R. (2011). *Research methods for social work* (7th ed.). Belmont, Ca: Brooks/Cole.

Rubin, R. B., Rubin, A. M., & Haridakis, P. (2010). *Communication research* (7th ed.). Boston, MA: Wadsworth Publishing.

Rugara, T., Ndinde, S., & Kadodo, W. (2016). The right to information: library services and disability at tertiary and university libraries in Masvingo Urban in Zimbabwe, *I5(3)*, 191–203.

Sagoe, D. (2012). Precincts and prospects in the use of focus groups in social and behavioral science research. *The Qualitative Report*, 17(29), 1–16. Retrieved from <http://www.nova.edu/ssss/QR/QR17/sagoe.pdf>

Samek, T. (2007). *Librarianship and human rights: a twenty first century guide*. Oxford: Chados Publishing.

Sanaman, G., & Kumar, S. (2014). Assistive technologies for people with disabilities in National Capital Region Libraries of India. *Library Philosophy and Practice (e-Journal)*, (1200), 1–14. Retrieved from <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=3127&context=libphilprac>

Sanaman, G., & Kumar, S. (2015). User's perspective towards assistive technologies available in NCR libraries in India. *DESIDOC Journal of Library & Information Technology*, 35(2), 90–99.

Sani, I. L. (2013). Data collection techniques a guide for researchers in humanities and education. *International Research Journal of Computer Science and Information*

- Systems (IRJCSIS)*, 2(3), 40–44. Retrieved from <http://www.interestjournals.org/IRJCSIS>
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Harlow, England: Prentice Hall.
- Schiff, R. A. (2009). Information literacy and blind and visually impaired students. *Urban Library Journal*, 15(2). Retrieved from <http://ojs.gc.cuny.edu/index.php/urbanlibrary/article/view/1260/1336>
- Scotland, J. (2012). Exploring the philosophical underpinnings of research: relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*, 5(9), 9–16. <https://doi.org/10.5539/elt.v5n9p9>
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: a skill-building approach*. Chichester, West Sussex: John Wiley & Sons.
- Seyama, L. G. (2009). *Information seeking behaviour of students with visual impairments: a case study of the University of KwaZulu Natal, Pietermaritzburg Campus*. University of KwaZulu Natal, Pietermaritzburg Campus, South Africa. Retrieved from http://researchspace.ukzn.ac.za/bitstream/handle/10413/563/Seyamal_Lungile_Goodness_2009.pdf?sequence=4&isAllowed=y
- Seyama, L. G., Morris, C. D., & Stilwell, C. (2014). Information seeking behaviour of blind and visually impaired students: a case study of the University of KwaZulu-Natal, Pietermaritzburg Campus. *Unisa Press*, 32(1), 1–22. Retrieved from http://reference.sabinet.co.za/webx/access/electronic_journals/mousaion/mousaion_v32_n1_a1.pdf
- Shakespeare, T. (2004). Social models of disability and other life strategies. *Scandinavian Journal of Disability Research*, 6(1), 8–21. <https://doi.org/10.1080/15017410409512636>
- Shakespeare, T. (2014). *Disability rights and wrongs revisited* (2nd ed.). New York, NY: Routledge.
- Sharp, J. L., Mobley, C., Hammond, C., Stringfield, S., & Stipanovic, N. (2012). Mixed methods sampling methodology for a multisite case study. *Journal of Mixed Methods*

- Research*, 6(1), 34–54. Retrieved from
<http://mmr.sagepub.com/content/6/1/34.full.pdf+html>
- Singh, D. K., & Nazim, M. (2008). Impact of information technology and role of libraries in the age of information and knowledge societies. *Caliber*, (4), 28–34.
- Slikker, J. (2009). Attitudes towards persons with disability in Ghana. Retrieved from
<https://www.medbox.org/attitudes-towards-persons-with-disability-in-ghana/download.pdf>
- Small, R. V., Myhill, W. N., & Herring-Harrington, L. (2015). Developing accessible libraries and inclusive librarians in the 21st century: examples from practice. In B. Wentz, P. T. Jaeger, & J. C. Bertot (Eds.), *Accessibility for Persons with Disabilities and the Inclusive Future of Libraries* (pp. 73–88). Bingley, UK: Emerald Group Publishing.
- Solanki, S. B., & Mandaliya, S. (2016). Enhancing library resources access for different abled person through ICT. *International Journal of Information Science and Techniques (IJIST)*, 6(1/2), 257–267. Retrieved from
<http://aircconline.com/ijist/V6N2/6216ijist28.pdf>
- Solarsh, G., & Hofman, K. J. (2006). Developmental disabilities. In D. T. Jameson, R. G. Feachem, E. R. B. Makgoba, F. K. Bangana, K. J. Hotman, & K. O. Rogo (Eds.), *Disease mortality in Sub-Saharan Africa* (2nd ed., pp. 145–148). Washington, DC: The World Bank.
- Southwell, K. L., & Slater, J. (2014). An evaluation of finding aid accessibility for screen readers. *Information Technology and Libraries*, (September), 34–36. Retrieved from
<http://ezproxy.cuea.edu:2084/ehost/pdfviewer/pdfviewer?sid=ee0f986f-5014-41b1-8aad-02ac24cfee1%40sessionmgr4007&vid=1&hid=4209>
- Steel, E. J., Layton, N. A., Foster, M. M., & Bennett, S. (2014). Challenges of user-centred assistive technology provision in Australia: shopping without a prescription. *Disability and Rehabilitation. Assistive Technology*, 1–6.
<https://doi.org/10.3109/17483107.2014.941953>
- Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2009). Practical sampling. In L. Bickman & D. V. Rog (Eds.), *The Sage handbook of applied social research methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.

- Stone-MacDonald, A., & Butera, G. (n.d.). Cultural beliefs and attitudes about disability in East Africa. Retrieved from <http://www.rds.hawaii.edu/ojs/index.php/journal/article/viewFile/110/367>
- Sullivan, K. (2011). The prevalence of the medical model of disability in society. *AHS Capstone Projects. Paper 13*, (13), 1–17. Retrieved from http://digitalcommons.olin.edu/ahs_capstone_2011/13%5Cn
- Sullivan, M. (1991). From personal tragedy to social oppression: the medical model and social theories of disability. *New Zealand Journal of Industrial Relations*, 16(Dec 91), 255–272.
- Sulphrey, M. M. (2014). *Behavioural finance*. New Delhi: PHI Learning.
- Tashakkori, A., & Teddlie, C. (2009). Integrating qualitative and quantitative approaches to research. In L. Bickman & D. J. Rog (Eds.), *The Sage handbook of applied social research methods* (pp. 283–317). Thousand Oaks, CA: Sage Publications.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's Alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: integrating quantitative and qualitative approaches in the social and behavioral sciences*. London: Sage Publications.
- Terzi, L. (2004). The social model of disability: a philosophical critique. *Journal of Applied Philosophy*, 21(2), 141–157. <https://doi.org/10.1111/j.0264-3758.2004.00269.x>
- Thomas, C., Lewis, C., & Lewis, A. (2010). *Planning for inclusive access in Wales: good practice guidance toolkit*. Retrieved from <http://www.disabilitywales.org/toolkit/wp-content/uploads/sites/3/Good-Practice-Guidance-Toolkit-E.pdf>
- Thomas, P., Gladwel, L., & Markham, N. (1997). Defining impairment within the Social Model of disability. Retrieved from <http://disability-studies.leeds.ac.uk/files/library/thomas-pam-Defining-Impairment-within-the-Social-Model-of-Disability.pdf>
- Thomas, R. (2003). *Blending qualitative & quantitative research methods in theses and dissertations*. Thousand Oaks, CA: Corwin Press.
- Thompson, D., Fisher, K. R., Purcal, C., Deeming, C., & Sawrikar, P. (2011). *Community*

- attitudes to people with disability: scoping project*. Sydney, NSW: Commonwealth of Australia. Retrieved from <http://creativecommons.org/licenses/by/3.0/au/legalcode>
- Tilley, C. M., Bruce, C. S., & Hallam, G. (2007). Adaptive technology for people with physical disabilities using information and communications technology (ICT). In C. Deines-Jones (Ed.), *Improving library services to people with disabilities* (pp. 65–86). Oxford: Chandos Publishing.
- Todaro, A. J. (2005). Library services for people with disabilities in Argentina. *Library Review*, *106*(5/6), 253–268. <https://doi.org/10.1108/00242530810854017>
- Trahan, A., & Stewart, D. M. (2013). Toward a pragmatic framework for mixed-methods research in criminal justice and criminology. *Applied Psychology in Criminal Justice*, *9*(1), 59–108.
- Trochim, W. M., Donnelly, J. P., & Arora, K. (2016). *Research methods: the essential knowledge base*. New Delhi: Cengage Learning.
- United Nations. (2007). *From exclusion to equity: realizing the rights of persons with disabilities*. Geneva: United Nations. Retrieved from <http://www.un.org/disabilities/documents/toolaction/ipuhb.pdf>
- United Nations. (2008a). *Convention on the rights of persons with disabilities: advocacy toolkit* (Professional Training Series No. 15). Geneva. Retrieved from http://www.ohchr.org/Documents/Publications/AdvocacyTool_en.pdf
- United Nations. (2008b). *Convention on the rights of persons with disabilities and optional protocol*. Retrieved from <http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>
- United Nations. (2015). *Global status report on disability and development prototype 2015*. Retrieved from <http://www.un.org/esa/socdev/documents/disability/2016/GlobalStatusReportonDisabilityandDevelopment.pdf>
- United Nations Educational Scientific and Cultural Organization. (2013). *Opening new avenues for empowerment: ICTs to access information and knowledge for persons with disabilities*. Paris: United Nations Educational, Scientific and Cultural Organization.
- United Nations Educational Scientific and Cultural Organization. (2015). ICT and

- disabilities in Rwanda. Retrieved from <http://www.unesco.org/fileadmin/MULTIMEDIA/FIELD/Nairobi/policybriefrwanda.pdf>
- University of Nairobi. (2015). Historical background of the academic division. Retrieved November 13, 2017, from <http://academics.uonbi.ac.ke/node/767>
- van Teijlingen, E., & Hundley, V. (2001). The importance of pilot studies. *Social Research Update*, (35). <https://doi.org/10.7748/ns2002.06.16.40.33.c3214>
- Varney, E. (2013). *Disability and information technology: a comparative study in media and regulation*. Cambridge: Cambridge University Press.
- Vijayakumar, A., & Vijayan, S. S. (2011). Application of information communication technology in libraries: an overview. *International Journal of Digital Library Services*, 1(2), 144–152.
- Vijayakumar, J. K., & Vijayakumar, M. (2000). Information freedom in a democratic Society and the role of librarians in cyber era. Retrieved from http://eprints.rclis.org/7192/1/vijayakumarjk_02.pdf
- Wa Teresia, N. (2011). *Research methodology: a detailed approach*. Saarbrücken: VDM Verlag Dr. Muller.
- Wade, G. L. (2003). Serving the visually impaired user. *Libraries and the Academy*, 3(2), 307–313.
- Walliman, N. (2016). *Social research methods*. Thousand Oaks, CA: Sage Publications.
- Waterman, I., & Bell, J. A. (2011). *Disabled access to facilities: a practical and comprehensive guide to a service provider's duties under Part III (2004) of the Disability Discrimination Act 1995*. New York, NY: Routledge.
- Wentz, B., Jaeger, P. T., & Bertot, C. J. (2015). Accessibility, inclusion, and the roles of libraries. *Accessibility for Persons with Disabilities and the Inclusive Future of Libraries*, 40, 1–8.
- Wiazowski, J. (2009). Assistive technology for students who are blind or have low vision. Retrieved from <http://www.wati.org/wp-content/uploads/2017/10/Ch12-Vision.pdf>
- Williamson, K., Schauder, D., Stockfield, L., Wright, S., & Bow, A. (2001). The role of internet for people with disabilities: issues of access and equity for public libraries. *The Australian Library Journal*, 50(2), 157–174.

<https://doi.org/10.1080/00049670.2001.10755951>

Willis, G. B. (2005). *Cognitive interviewing: a tool for improving questionnaire design*. Thousand Oaks, CA: Sage Publications.

World Health Organization. (2011). *World report on disability*. Geneva, Switzerland: World Health Organization.

World Health Organization (WHO). (1980). *International classification of impairments, disabilities, and handicaps: a manual of classification relating to the consequences of disease*. Geneva, Switzerland: World Health Organization. Retrieved from http://apps.who.int/iris/bitstream/10665/41003/1/9241541261_eng.pdf

Yavuz, A. (2012). Competing paradigm: the dilemmas of an ELT teacher educator. *International Educational Studies*, 5(1), 57–66. Retrieved from <http://files.eric.ed.gov/fulltext/EJ1066745.pdf>

Yeasmin, S., & Rahman, K. F. (2012). 'Triangulation' research method as the tool of social science". *BUP Journal*, 1(1), 154–162. Retrieved from <http://www.bup.edu.bd/journal/154-163.pdf>

Yoon, H.-Y., & Kim, S.-Y. (2011). Development strategy of the alternative format materials for disabled people in Korea. *Aslib Proceedings*, 63(4), 380–398. <https://doi.org/10.1108/00012531111148976>

Zajadacz, A. (2015). Evolution of models of disability as a basis for further policy changes in accessible tourism. *Journal of Tourism Futures*, 1(3), 189–202. <https://doi.org/10.1108/JTF-04-2015-0015>

Zohrabi, M. (2013). Mixed method research: instruments, validity, reliability and reporting findings. *Theory and Practice in Language Studies*, 3(2), 254–262. <https://doi.org/10.4304/tpls.3.2.254-262>

APPENDICES

Appendix 1: Interview schedule for the University Librarians

Biographical Data

1. Name of the university _____
2. Gender _____
3. What is your highest academic qualification? _____
4. What is your age category? _____
5. How many years have you worked in the current position? _____

Section 1: Policy environment

1. Does the library have a policy on provision of information services for the people with visual and physical impairments?

2. If the policy exists, what does it entail with regard to providing information services to the people with visual and physical impairments?

3. What budget is provided for extending information services to the people with visual and physical impairments?

4. Is the budget allocated for information resources meant for the people with visual and physical impairments adequate?

Section 2: Information Services provision for the people with visual and physical impairments

1. What services does the library provide to the people with visual and physical impairments? _____

2. What training is provided for library staff to enable them effectively provided information services to the people with visual and physical impairments? _____

3. What measures does the library have in place for assessing the information needs of persons with impairments? _____

4. What facilities including space are designated in the library for the people with physical and visual impairments?

5. What other units in the university collaborate with the library in providing specialized services to the people with visual and physical impairments?

6. In what ways do you involve the people with visual and physical impairments in planning for their information services?

7. How does the library create awareness of the available information services for the people with visual and physical impairments?

8. What challenges do you face in providing library and information services to the people with visual and physical impairments and how can these challenges be addressed?

Section 3: library building and layout

1. How is the library building designed to cater for the needs of the people with visual and physical impairments?

2. Does the library layout allow access to information and facilities by the people with visual and physical impairments?

3. If not, what have you done to ensure that the people with visual and physical impairments are able to access information and facilities?

Section 4: Use of ICT in facilitating use of information by the people with visual and physical impairments

1. In what ways is ICT used to facilitate access to information by the people with visual and physical impairments?

2 What Assistive Technology and devices are provided by the library to enable the people with visual and physical impairments to access information?

3 What challenges does the library face in providing assistive technology and devices for the people with visual and physical impairments?

4 What measures are you taking to ensure access to assistive technology and devices by the people with visual and physical impairments?

Appendix 2: Interview schedule for the staff of the Disability Mainstreaming department

1. Name of the Institution _____
2. Gender _____
3. What is the highest qualification?

4. What is our job designation?

5. What is your age category?

6. When was the Disability Mainstreaming department established in the university?

7. How long have you been working with the department?

8. What role does the department play in the university?

9. What resources including budget is available to ensure the Disability Mainstreaming department meets its mandate?

10. How is Disability Mainstreaming department supported by the university in terms policy, and budget?

11. To what extent are the people with visual and physical impairments aware of the role of the Disability Mainstreaming department?

12. How many the people with visual and physical impairments students are registered with the Disability Mainstreaming department?

13. What is the gender distribution of the people with visual and physical impairments in the University?

14. In what ways does Disability Mainstreaming department coordinate with the university library regarding information services provision to students with visual and physical impairments?

15. What services do you provide to the people with visual and physical impairments in the university?

16. How do you create awareness of your services to the people with visual and physical impairments students in the university?

17. What challenges does the department encounter in providing services to the people with visual and physical impairments and how can such challenges be addressed?

18. What initiatives are available to promote information services for the people with visual and physical impairments?

19. Please provide any other information that you may wish

Appendix 3: Interview schedule for the Systems Librarians

1. Name of the university_____
2. Gender_____
3. What is your highest academic qualification? _____
4. What is your age category? _____
5. How many years have you worked in the position of systems librarian in this university? _____
6. In what ways is your library applying ICT to facilitate access to information by the people with visual and physical impairments?

7. What assistive technologies are available to the people with visual and physical impairments to assist them access information in the library?

8. Please explain if there are any policies that are available to facilitate access to technology by the people with visual and physical impairments in this university?

9. What in your opinion are ICT related challenges the people with visual and physical impairments encounter while accessing information?

10. Does your library have a website and if yes to what extent is it accessible and useable by the people with visual and physical impairments?

11. If the library has a website what services are available that are used by the people with visual and physical impairments?

12. Does the website include disability page if so what information is included on the disability page?

13. How do you describe the extent of use of the websites by the people with visual and physical impairments?

14. What in your opinion are the problems faced by the people with visual and physical impairments while accessing the websites?

15. Does your library subscribe to e-resources? _____
16. If yes, how are the people with visual and physical impairments enabled to use such E-resources?

17. What problems do the people with visual impairments experience when accessing the e-resources?

18. What do you suggest must be done to alleviate the problems faced by the people with visual and physical impairment to use ICT to access information resources in the library?

19. What other observations would you wish to make? _____

Appendix 4: Focus group schedule for with the people with visual impairments

Name of the university: _____

Date /time of focus group meeting: _____

Venue of the focus group meeting: _____

1. In your opinion, what qualifies a library to be an inclusive library?

2. What information services does the library provide to the people with visual impairments?

3. How often do you use these services?

4. What assistive technologies and devices does the library provide to enable you to access information?

5. What alternative formats of information are provided by the library for the people with visual impairments?

6. Do you use the library website?

7. If yes, how accessible and useful is the library website to the people with visual impairments?

8. What kind of information for the people with visual impairments is provided on the library website?

9. What e-resources does the library provide for the people with visual impairments to assist them in their assignments?

10. What is your view about the role of ICT in facilitating access to information to the people with visual impairments?

11. How does the design of the library facilitate or hinder access to information services by the people with visual impairments?

12. To what extent are the library staff helpful in assisting you to access the information services in the library?

13. How would you describe the attitude of library staff towards the people with visual impairments?

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

15. In your opinion how can the challenges be addressed?

16. To what extent are you aware of disability unit if it exists in the university?

17. To what extent is the disability unit useful to you if it exists?

18. Please provide any other observation you wish to make

Not at all []

7. Does the library provide Information literacy training to the people with visual and physical impairments? Yes [] No []

8. If your answer to question 7 is yes, please indicate with a tick (✓) all that apply for the content of the training

How to identify an information need []

How to identify relevant literature []

How to extract relevant information from the literature []

How to organize ideas []

How to write term papers []

How to cite and reference []

9. Please indicate with a tick (✓) all the services provided to the people with visual and physical impairments by your library

Extended loan period []

Waived late fines []

Extended reserve periods []

Reference services by email []

Remote access to OPAC []

Remote electronic access []

Volunteer readers []

Selective dissemination of information []

Retrieval of materials from the stacks []

Photocopying assistance []

Book delivery service to the rooms []

Telephone requests []

Reformatting to another media []

Other(s) specify_____

10. Please indicate with a tick (✓) the alternative formats of information materials provided for the people with visual impairments.

Large print materials []

Talking newspapers []

Talking books []

Braille books []

Digital Accessible Information System (DAISY) []

Other(s) specify_____

11. On a five- point scale, (1 = very low, 2 = low, 3 = moderately high, 4 = high and 5 = very high), indicate the level of use of the alternative format.

Alternative Format	Very low	Low	Moderately low	High	Very high
Large print materials					
Talking newspapers					
Talking books/ DAISY (Digital Accessible Information System)					
Braille books					
Others					

12. What challenges do you encounter in providing services to the people with visual and physical impairments?

13. In your opinion, what can be done to alleviate the challenges indicated in question 12 above?

Section 3: Application of ICT to promote access to information by the people with visual and physical impairments

1. Please indicate with a tick (✓) the use of ICT in the library to promote access to information by the people with impairments (tick all that apply)

- Websites
- Emailing
- Word processing
- OPAC
- E-books
- E-journals
- E-databases
- Institutional repository
- Internet
- Video conferencing
- Others specify _____

2. On a five- point scale (1 = very low, 2 = low, 3 = moderately high, 4 = high, and 5 = very high), indicate the level of use of services in question 1 above by the people with visual impairments

ICT	Level of utilization by the people with visual and physical impairments				
	Very low	low	Moderately high	High	Very high
website					
email					
Word processing					
OPAC					
E-books					
E-journals					
E-databases					
Institutional repository					
internet					
Video conferencing					

3. What assistive technology and devices are provided in your library for the people with visual and physical impairments? Please indicate with a tick (√) all that apply

- Screen reader
- Screen Magnifier
- Braille translation software
- Braille writing equipment
- Closed-circuit television (CCTV)
- Braille embosser
- Voice recognition software
- Scanners
- Walkers for physically impaired
- Manual Wheelchairs
- Motorized Wheelchairs
- Automatic Door openers
- Other(s) specify _____

4. Is the library's online public access catalog (OPAC) equipped with text enlargement software and voice recognition software Yes [] No []

5. If no to question 4 above, what other alternatives are available for the people with visual impairments?

6. Please indicate with a tick (✓) the availability of the following information on the library website

Information	Available	Not Available	I do not know
Disability services page			
Online instructions for assistive technology software			
List of specialized library materials for the people with impairments			
Links to outside resources			
Bibliographies of library materials of interest to the people with visual impairments			
Service instructions for employees			
Policy relating to service provision for the people with impairments			

7. Do the people with visual impairments access the library databases [Yes] No [].
8. If yes to question 7 above, how do you describe the accessibility of the database
- Easily accessible []
- Not easy to access []

Section 4: Awareness of library staff about the information needs of the people with visual and physical impairments

1. On a five- point scale, (1= strongly disagree, 2= disagree, 3= somehow agree, 4= agree, 5= strongly agree) please indicate level of your agreement to the following

	Strongly disagree	Disagree	Somehow agree	Agree	Strongly agree
Library staff require special needs training in order to serve the people with visual and physical impairments					
The people with visual and physical impairments require extended loan period					
The people with visual and physical impairments require waived fines					
The people with visual and physical impairments require selective dissemination of information					
The people with visual and physical impairments require books delivery service to their residence					
The people with physical impairments require specialized tables					
The people with visual impairments require books in special formats					
The people with visual and physical impairments require assistive technology to facilitate access to information					
Websites are vital tools in access to information by the people with visual and physical impairments					
There is need to conduct user needs assessment to identify the needs of individuals with visual and impairments					
It is important to assess the information services provided to the people with visual and physical impairments					
The people with visual and physical impairments require a special room or space within the library to access information					
The library should have special rest rooms					

2. In your opinion, what other inclusive information services are needed for the people with visual and physical impairments?

3. What ICT challenges have you encountered when providing services to the people with visual and physical impairments?

4. In your opinion, how can these challenges be addressed?

Section 5: Library building design and layout and access to services by the people with visual impairments.

1. Please indicate with a tick (✓) all that applies with regard to physical access and facilities

	Yes	No	Not sure
Parking is close to the library building			
There is sufficient spaces marked with international symbol for disabled			
There are well lighted and unobstructed access paths to the entrance			
There are ramps with railings next to the stairs			
The glass doors are marked to warn visually impaired individuals			
Stairs and steps are marked with contrasting colour			
There are pictograms signs leading to the elevators			
There are well lighted elevator buttons and signs in Braille and synthetic speech			
There are clear and easy to read signs with pictograms throughout the library			
There are visible and audible fire alarms within the library			
There are staff trained to assist the people with visual impairments in case of emergency			
There are special toilets designated for the people with visual impairments			
There is a special well lighted reading room designated for the people with visual impairments			

2. What physical barriers hinder access to the building and facilities by the people with visual and physical impairments?

3. Please suggest ways in which such barriers can be eliminated

4. In the overall, do you think information services to the people with visual and physical impairments are accessible in your library?

Yes [] No []

5. If yes in question 4 above, how would you rate the level of accessibility of such services in your library?

Very satisfactory []

Satisfactory []

Moderate []

Unsatisfactory []

Very unsatisfactory []

End

Thank you for the time and response to the questionnaire

Appendix 6: Questionnaire for the people with physical impairments

Section 1: Biographical information

Please indicate the name of your university _____

Degree programme: PhD [] Masters [] Bachelor []

Gender: Male [] Female []

Age profile: 15-17yrs [] 18-20yrs [] 21-23yrs [] 24-26yrs [] 27-39yrs [] 31yrs and above []

Section 2: Provision of Information Services to physically impaired

1. Have you ever received library orientation?

Yes [] No []

2. If yes to question 1 above, Please indicate with a tick (✓) the kind of training offered

Training on access of internet resources and services []

Training on the effective use of Assistive technology and devices []

How to use search engines []

How to use internet and web resources []

Using the Online Public Access Catalog (APAC) []

Tour of the library building []

Basics of computers applications []

Storage and access of online study materials []

Effective use of assistive technology and devices []

Other(s)

Specify _____

3. How often do you visit the library?

Always []

Often []

Sometimes []

Rarely []

Never []

4. If your answer to question 3 above is never, please give reasons why you do not visit the library

5. On a 3-point scale (1 = not important, 2 = moderately important, 3 = important, please indicate the importance of the following information sources

	Not important	Moderately important	Important
Text books			
Print journals			
Institutional repository			
Online Public Access Catalog (OPAC)			
e-databases			
Internet			
E-books			
e-journals			
CD-Roms			
Audio-visual materials			
Dictionaries			

6. Have you ever received Information literacy training? Yes [] No []
7. If yes to question 7 above, please indicate by ticking all that apply for the content of the training
- How to identify an information need []
- How to locate literature []
- Evaluating and identifying relevant literature []
- How to extract relevant information from the literature []
- How to organize ideas []
- How to write term papers []
- How to cite []
- How to reference []
- Other(s) specify _____
8. Please indicate with a (√) all the assistive hardware facilities/devices that are provided by the library for individuals with physical impairments
- Walkers []
- Walking frames []
- Manual Wheelchairs []

- Electric/Motorized Wheelchairs
- Automatic Door openers
- Adaptive furniture
- Adaptive keyboards
- Prosthetic and orthotic devices
- Scooters
- Other(s) specify_____

9. Please indicate with a tick (✓) all the assistive software facilities provided by the library for the people with physical impairments

- Dragon Naturally Speaking
- Voice recognition software
- On-screen Keyboard
- Word prediction-completion
- DAISY (Digital Accessible Information System) reader
- Other(s), specify_____

10. Please indicate with a tick (✓) the level of importance of the assistive technology and devices in enabling you access information in the library

- Very important
- Important
- Moderately important
- Of little importance
- Unimportant

11. Please indicate with a (✓) information services provided for the people with physical impairments. Tick all that are applicable.

- Current Awareness Service
- Selective Dissemination of Information
- Inter Library Loan Service
- Flexible Loan period
- Waived fines
- Photocopying services
- Book delivery services to the rooms
- Staff assistance in retrieval of information from shelves
- Computers
- Remote access to OPAC
- Designated staff for services to the people with physical impairments
- Library orientation
- Information Literacy training
- Special library networks with the physically challenged students
- Online reference services for those with severe mobility problems
- Telephone requests
- Other(s) specify_____

Section 3: Staff attitude towards the people with visual and physical impairments

1. On a five- point scale, (1 = strongly disagree, 2 = disagree, 3 = somehow agree, 4 = agree, 5 = strongly agree) please indicate level of your agreement to the following regarding library staff attitude.

	Strongly disagree	Disagree	Somehow agree	Agree	Strongly agree
Library staff are polite and communicate clearly to me					
Staff lack adequate knowledge of the needs of the people with physical impairments					
Library staff are rude at me					
Library staff look at me directly when we are communicating					
Library staff always greet me when I approach them					
Library staff smile at me when I approach them for service					
Library staff do not respond to my greetings					
Library staff have intimidating tone of voice					
Librarian staff are too busy to help me					
Library staff are unfriendly					
Library staff are unapproachable					

Section 4: Application of ICT to facilitate access to information by the physically impaired

1. How would you rate the importance of Information Communication Technologies (ICT) in enabling access to information by the people with physical impairments?

- Important
- Moderately important
- Not important

2. Please indicate with (√) if you use the following resources.

Information resources	Yes	No	Reason for non-use
E-books			
e-mail			
E-journals			
Facebook			
Internet resources			
Institutional repository			
Online Public Access Catalog (OPAC)			
E-databases			
Library websites			

3. In a five-point scale, (1 = poor, 2 = fairly good, 3 = neutral, 4 = good 5= very good) please indicate the level of accessibility to the following resources

	Poor	Fairly good	Neutral	Good	Very good
Web sites					
E-journals					
E-books					
Online Public Access Catalog (OPAC)					
Internet					
e-databases					

4. indicate with a tick (√) the availability of the following information on the library website

Information	Available	Not Available	Not sure
Disability services page			
Online instructions for assistive technology software			
List of specialized library materials for the people with impairments			
Links to outside resources			
List of library staff serving the people with impairments			

Section 3: University library building design and access to services by the people with physical impairments.

1. Please indicate with a (√) all that applies with regard to physical access and facilities

Facilities	Yes	No	Not sure
Parking is close to the library building			
There is sufficient spaces marked with international symbol for disabled			
There are well lighted and unobstructed access paths to the entrance			
There are ramps with railings next to the stairs			
The doors are wide enough to allow accessibility to the people with wheelchairs			
There are pictograms signs leading to the elevators			
There are well lighted elevator buttons and signs in Braille and synthetic speech			
There are clear and easy to read signs with pictograms throughout the library			
There are unobstructed aisles between bookcases			
There are visible and audible fire alarms within the library			
There are staff trained to assist individuals with physical impairments in case of emergency			
There are special toilets designated for individuals with physical impairments			
There is a special well lighted reading room designated for the people with physical impairments			
Shelves are reachable to people in wheelchairs			
There are reading and computer tables designed for the people with physical impairments			

2. What physical barriers prevent you from accessing the library and information services?

3. Please suggest ways in which such barriers can be eliminated

4. In the overall, do you think information services to the people with visual and physical impairments are accessible in your institution?

Yes [] No []

5. If yes in question 4 above, how would you rate the level of accessibility of such services in your library?

Very satisfactory []

Satisfactory []

Moderate []
Unsatisfactory []
Very unsatisfactory []

End

Thank you for the time and response to the questionnaire

Appendix 7: Observation checklist**Name of the University Library being observed:**
_____**Name of the Observer:**
_____**Date of Observation:**

Aspect to be observed	Yes	No	Remarks
Are Parking spaces available close to the library?			
Are parking spaces clearly marked with the appropriate symbol of access?			
Is there clear signage leading to the library?			
Are ramps installed at entrances with stairways			
Do ramps have hand rails on both sides of the ramps?			
Do doors of the entryways provide clear opening and can they be opened easily?			
For multi-storey buildings, are there working elevators or lifts?			
Do all stairways have handrails?			
Do floors have non-slip surface?			
Are the building pathways wide and flat to accommodate a person with wheelchair or other the people with different kind of physical impairments?			
Is there any emergency exit plan that caters for the needs of the people with impairments?			
Are there warning signals that are clear to the people with impairments?			
Are there rest rooms available for the people with impairments?			
Are there tables high enough so students who use wheelchairs can fit under them?			
Are safety alarms within reach for a person in wheelchair?			
Is there a special room / space designated for the people with visual and physical impairments?			
Are there designated computer workstations adapted for individuals in wheelchairs?			
Are service desks and facilities such as book returns wheelchair accessible?			
Is the library well lighted?			

Appendix 8: Ethical clearance from UKZN



9 March 2017

Ms Beatrice W Kiruki 216056694
School of Social Sciences
Pietermaritzburg Campus

Dear Ms Kiruki

Protocol reference number: **HSS/2094/016D**
Project title: **Information services provision for people living with visual and physical impairments in public university libraries in Kenya**

Full Approval – Full Committee Reviewed Protocol

In response to your application received 2 December 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

cc Supervisor: Prof S Mutula
cc Academic Leader Research: Prof M Naidu
cc School Administrator: Ms L Shulika & Ms N Mudau

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snvmanm@ukzn.ac.za / mohunp@ukzn.ac.za

Website: www.ukzn.ac.za



100 YEARS OF ACADEMIC EXCELLENCE

Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

Appendix 9: Informed consent for interviews



School of Social Sciences
Private Bag X01 Scottsville, 3209
Pietermaritzburg Campus
SOUTH AFRICA

Dear Respondent,
Informed Consent Document

My name is Beatrice Wamaitha Kiruki. I am a PhD (Information Studies) candidate studying at the University of KwaZulu-Natal, Pietermaritzburg Campus. The title of the research is: *Information service provision for people living with visual and physical impairments in public university libraries in Kenya*. The aim of the study is to examine provision of services to library users living with visual and physical impairments in public university libraries with a particular focus on issues of accessibility to the library building, services, policies, attitude of staff, and how ICT is applied in facilitating access to information services. I am interested in interviewing you so as to share your experiences and observations on the subject matter.

Please note that:

- The information that you provide will be used for scholarly research only.
- Your participation is entirely voluntary. You have a choice to participate, not to participate or stop participating in the research. You will not be penalized for taking such an action.
- Your views in this interview will be presented anonymously. Neither your name nor identity will be disclosed in any form in the study.
- The interview will take about one hour.
- The record as well as other items associated with the interview will be held in a password-protected file accessible only to myself and my supervisors. After a period of 5 years, in line with the rules of the university, it will be disposed by shredding and burning.
- If you are willing to be interviewed by using audio equipment, please indicate (by ticking as applicable)

	Willing	Not willing
Audio equipment		

- If you agree to participate in the interview please sign the declaration attached to this

statement (a separate sheet will be provided for signatures)

I can be contacted at: School of Social Sciences, University of KwaZulu-Natal, Pietermaritzburg Campus, Scottsville, and Pietermaritzburg. Email: beatrice.kiruki@gmail.com

Cell: +254 723 097 050

My supervisor is Prof. Stephen Mutula who is located at the School of Social Sciences, Pietermaritzburg Campus of the University of KwaZulu-Natal. Contact details: email mutulas@ukzn.ac.za Phone number: +27 712 750 109

My co-supervisor isNA..... who is located at the School of Social Sciences, Howard College Campus of the University of KwaZulu-Natal. Contact details: emailNA..... Phone number:NA.....

College of Humanities Research Ethics Officer is Phumelele Ximba who is located at Humanities Research Ethics Office, University of KwaZulu-Natal. Contact details: email: ximbap@ukzn.ac.za Phone number +27312603587.

Thank you for your contribution to this research.

DECLARATION

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire. I understand the intention of the research. I hereby agree to participate.

SIGNATURE OF PARTICIPANT

DATE

.....

Appendix 10: Informed consent for questionnaires



School of Social Sciences
Private Bag X01 Scottsville, 3209
Pietermaritzburg Campus
SOUTH AFRICA

8th June, 2016

Dear Respondent

Informed Consent Letter

Researcher: Beatrice W. Kiruki
Institution: University of KwaZulu-Natal
Telephone number: +254 723097050; +27 762192867
Email address: 216056694@ukzn.ac.za

Supervisor: Prof. Stephen M. Mutula
Institution: University of KwaZulu-Natal
Telephone number: 033-260 5093
Email address: Mutulas@ukzn.ac.za

I, Beatrice W. Kiruki, of The University of KwaZulu-Natal, kindly invite you to participate in the research project entitled **Information services provision for the visually and physically impaired in Public University Libraries in Kenya**.

This research project is undertaken as part of the requirements of the PhD, which is undertaken through the University of KwaZulu-Natal, Information Studies Department.

The aim of this study is to investigate provision of information services to individuals with visual and physical impairments in public university libraries in Kenya.

Participation in this research project is voluntary. You may refuse to participate or withdraw from the research project at any stage and for any reason without any form of disadvantage. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Department of Information Studies, at the University of KwaZulu-Natal.

If you have any questions or concerns about participating in this study, please feel free to contact myself or my supervisor at the numbers indicated above.

It should take you about 15 minutes to complete the questionnaire.

Thank you for participating in this research project.



12 June 2016

Signature

Date

I hereby consent to participate in the above study.

Name: Date: Signature:

Appendix 11: Request to NACOSTI to undertake research



Information Studies
School of Social Sciences
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209, South Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za

8th June, 2016

National Commission for Science, Technology and
Innovation
Utalii House, 8th and 9th Floor
P.O Box 30623 00100
Nairobi
Kenya

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study targets six public university libraries in Kenya namely: Kenyatta University, Moi University, Jomo Kenyatta University of Agriculture and Technology, Maseno University, University of Nairobi and Egerton University.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data at the said universities. Possible dates for data collection are flexible within November, 2016 to May 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Stephen Mutula", is written over a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 12: Authority from NACOSTI to undertake research



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

NACOSTI/P/16/45773/13269

24th August, 2016

Beatrice Wamaitha Kiruki
University of Kwa-Zulu Natal
SOUTH AFRICA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Information service provision to people living with visual and physical impairments in public university libraries in Kenya*," I am pleased to inform you that you have been authorized to undertake research in **selected Counties** for the period ending **24th August, 2017**.

You are advised to report to the **Vice Chancellors of selected Universities, the County Commissioners and the County Directors of Education of the selected Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

**BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The Vice Chancellors
Selected Universities.

The County Commissioners
Selected Counties.

The County Directors of Education
Selected Counties.

National Commission for Science, Technology and Innovation (NACOSTI) ISO 9001:2008 Certified

Appendix 13: Request to undertake research at Kenyatta University



**Information Studies
School of Social Sciences
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209, South Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za**

8th June, 2016

The DVC Research, Innovation and Outreach
Kenyatta University
P.O Box 43844 00100
Nairobi,
Kenya
Email: dvc-rio@ku.ac.ke

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study covers six public university libraries in Kenya.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data from your University. Possible dates for data collection are flexible within November, 2016 to May, 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Stephen Mutula", is written over a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 14: Authority from Kenyatta University to undertake research



KENYATTA UNIVERSITY

**OFFICE OF DEPUTY VICE-CHANCELLOR, RESEARCH,
INNOVATION AND OUTREACH**

Ref: KU/DVCR/RCR/VOL.3/7

Beatrice Kiruki,
Catholic University of Eastern Africa
P.O. Box 62157 - 00200
Nairobi

P. O. Box 43844 - 00100
Nairobi, Kenya
Tel. 254-20-810901 Ext. 026
E-mail: dvc-rio@ku.ac.ke

6th October, 2016

Dear Ms. Kiruki,

RE: REQUEST TO COLLECT RESEARCH DATA AT KENYATTA UNIVERSITY

This is in reference to your letter dated 31st August, 2016 requesting for authorization to collect research data at Kenyatta University on the topic: *Adoption Information Service Provision for People Living with Visual and Physical Impairments in Public University Libraries in Kenya* towards a PhD degree of the University of Kwa Zulu- Natal, South Africa.

I am happy to inform you that the Vice-Chancellor has approved your request to collect data. It has been noted that your data collection will be undertaken from the University Library and the Directorate of Disability Services.

The University requires that, upon completion of your thesis/project, you submit a bound hard copy to the Deputy Vice-Chancellor, Research who shall forward it to the University Library. Kindly therefore complete Form RIO3 and return it to my office prior to the collection of data.

Yours Sincerely,

A handwritten signature in black ink, appearing to be 'F. Q. Gravenir', written over a horizontal line.

Prof. F. Q. Gravenir
Deputy Vice-Chancellor
Research, Innovation & Outreach
cc. Vice-Chancellor
Chief University Librarian
Director, Directorate of Disability Services

Appendix 15: Request to undertake research at JKUAT



Information Studies
School of Social Sciences
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209, South Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za

8th June, 2016

The DVC Research, Production & Extension,
Jomo Kenyatta University of Agriculture and Technology
P.O Box 6200 -00200
Nairobi

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study covers six public university libraries in Kenya.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data from your University. Possible dates for data collection are flexible within November, 2016 to May, 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Stephen Mutula", is written over a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 16: Authority from JKUAT to undertake research



**JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY**

P.O. Box 62000-00200, City Square, Nairobi, Tel: +254-67-5870001-4, Email: dvc@rpe.jkuat.ac.ke

OFFICE OF THE DEPUTY VICE CHANCELLOR
(Research, Production and Extension)

23rd September 2016

Ref: JKU/RPE/33C

Professor Stephen Mutula
Dean and Head: School of Social Sciences
University of KwaZulu-Natal
South Africa

Dear Sir,

RE: PERMISSION TO CONDUCT RESEARCH – MS. BEATRICE KIRUKI

Reference is made to your letter dated 8th June, 2016 on the above subject matter.

This is to inform you that permission will be granted to Ms. Beatrice Kiruki to conduct her research in the Jomo Kenyatta University of Agriculture and Technology (JKUAT) Library as long as the student obtains all other necessary approvals and also shares the results of her research with the University Library.


PROF. ESTHER KAHANGI, PhD, EBS
DEPUTY VICE CHANCELLOR (RPE)

Copy to: Vice chancellor (JKUAT)
University Librarian (JKUAT)
Director, Research (JKUAT)
Ms. Beatrice Kiruki (University of KwaZulu-Natal, SA)

Appendix 17: Request to undertake research at University of Nairobi



**Information Studies
School of Social Sciences
University of KwaZulu-
Natal Private Bag X01
Scottsville 3209, South
Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za**

8th June, 2016

The DVC Research, Production and Extension
University of Nairobi
P.O Box 30197 00100
Nairobi, Kenya
Email: lirungu@uonbi.ac.ke

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study covers six public university libraries in Kenya.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data from your University. Possible dates for data collection are flexible within November, 2016 to May, 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to be "Stephen Mutula", written over a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 18: Authority from University of Nairobi to conduct research



UNIVERSITY OF NAIROBI
OFFICE OF THE DEPUTY VICE - CHANCELLOR
(Research, Production & Extension)

P.O. Box 30197-GPO.
00100, Nairobi-Kenya
Telephone: +254-20-2315416 (DI), 318262

Prof. Lucy W. Irungu B.Sc., M.Sc., Ph.D.

Fax: 0202317251
Email: dvrpe@uonbi.ac.ke

UON/RPE/3/5/XVII/69


September 8, 2016

Ms. Beatrice Kiruki
PhD Candidate
Information Studies
School of Social Sciences
University of KwaZulu – Natal

AUTHORITY TO CONDUCT RESEARCH IN THE UNIVERSITY OF NAIROBI

Approval is hereby granted for you to collect data from the University of Nairobi for your research project entitled, "*Information services provision for the visually and physically impaired in public university libraries in Kenya*", in partial fulfillment of the degree of Doctor of Philosophy studies at the University of KwaZulu-Natal, South Africa.

Upon completion of your study, you are expected to share the findings of your study with the University of Nairobi by depositing a copy of your research findings/report with the Director, Library & Information Services.


LUCY W. IRUNGU
DEPUTY VICE-CHANCELLOR
(RESEARCH, PRODUCTION AND EXTENSION)
&
PROFESSOR OF ENTOMOLOGY

Copy to: Vice-Chancellor
Deputy Vice-Chancellor (AA)
Deputy Vice-Chancellor (A&F)
Deputy Vice-Chancellor (SA)
Director, Library and Information Services
Registrar Administration

Appendix 19: Request to undertake at Maseno University



Information Studies
School of Social Sciences
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209, South Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za

29th April, 2016

The DVC Partnership, Research and Innovations
Maseno University
Private Bag
Maseno,
Kenya
Email: dvc_pri@maseno.ac.ke

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study covers six public university libraries in Kenya.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data from your University. Possible dates for data collection are flexible within November, 2016 to May, 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Stephen Mutula", written over a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 20: Authority from Maseno University to conduct research



**MASENO UNIVERSITY
OFFICE OF THE DEPUTY VICE-CHANCELLOR
PARTNERSHIPS, RESEARCH & INNOVATIONS
(PRI)**

Tel: 254-057-351622, 351620, 351008, 3511011
Fax: 254-057-351221, 351153
Direct Line: 254-057-351464
E-mail: dvcpri@maseno.ac.ke

Private Bag
MASENO
Kenya

Our Ref: MSU/DVCPRES/RPC/R3 Vol. 2

Date: 19th October, 2016

Ms. Beatrice Wamaitha Kiruki
University of KwaZulu-Natal
School of Social Sciences
Department of Information Studies
Private Bag X01
Scottsville 3209, South Africa
E-mail: Beatrice.kiruki@gmail.com

Dear Madam,

RE: AUTHORITY TO CARRY OUT RESEARCH

Reference is made to your letter dated 20th September, 2016 on the above subject matter.

I am pleased to inform you that your request to carry out research on "*Information Service Provision to People Living with Visual and Physical Impairments in Public University Libraries in Kenya*"

For further arrangements, please get in touch with the undersigned. Please note that upon completion of your research, you are expected to submit a copy of your research report to my office.

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'Joseph S. Chacha'.

Prof. Joseph S. Chacha

DEPUTY VICE-CHANCELLOR, (PRI)

Copy to: Vice-Chancellor
University Security Officer

Appendix 21: Request to conduct research at Egerton University



**UNIVERSITY OF
KWAZULU-NATAL**

**Information Studies
School of Social Sciences
University of KwaZulu-Natal
Private Bag X01
Scottsville 3209, South Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za**

8th June, 2016

The DVC Division of Research and Extension
Egerton University
P.O Box 536-20115
Egerton-Njoro
Kenya
Email: dvcre@egerton.ac.ke

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study covers six public university libraries in Kenya.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data from your University. Possible dates for data collection are flexible within November, 2016 to May, 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Stephen Mutula', followed by a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 22: Authority from Egerton University to conduct research

EGERTON

P. O. BOX 536-20115
EGERTON, KENYA



UNIVERSITY

Tel: (051) 2217987, 2217781, 2217827
Fax: (051) 2217805, 2217827
Email: radmin@egerton.ac.ke

**OFFICE OF THE REGISTRAR
(ADMINISTRATION)**

EU/AF/CR/2N

15/9/2016

Beatrice Wamaitha Kiruki
The Catholic University of Eastern Africa
P.O. Box 62157 – 00200
NAIROBI

Dear Ms. Kiruki,

**RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT EGERTON
UNIVERSITY LIBRARY**

Reference is made to your letter dated 7th September, 2016 on the above subject.

Authority is hereby granted for you to collect data from our University Library for your Ph.D. study on “Information service provision to people living with visual and physical impairments in Public University Libraries in Kenya”.

It is noted that this research is purely for academic purposes and will not be used otherwise.

Yours sincerely,



EGERTON UNIVERSITY
REGISTRAR (ADMINISTRATION)
P. O. Box 536 - 20115
EGERTON

**Dr. T.K. Serrem
REGISTRAR (HUMAN CAPITAL & ADMINISTRATION)**

c.c. University Librarian

TKS/cko

Appendix 23: Request to conduct research at Moi University



**UNIVERSITY OF
KWAZULU-NATAL**
Information Studies
School of Social Sciences
University of KwaZulu-
Natal Private Bag X01
Scottsville 3209, South
Africa
Tel: +27 (0) 33 2605571
Fax: +27 (0) 33 2605092
mutulas@ukzn.ac.za

8th June, 2016

The DVC Academic Research and Extension
Moi University
P.O Box 3900 30100
Eldoret,
Kenya

Dear Sir/Madam,

RE: APPLICATION FOR RESEARCH DATA COLLECTION

Reference is made to the above subject.

Ms. Beatrice Kiruki is a duly registered PhD student in the Information Studies Programme at the University of KwaZulu-Natal, in South Africa. As part of the requirement for the award of the doctoral degree, she is undertaking a study on *Information services provision for the visually and physically impaired in Public University Libraries in Kenya*. The study covers six public university libraries in Kenya.

The purpose of this letter is to kindly request a written permission from your office to enable her collect data from your University. Possible dates for data collection are flexible within November, 2016 to May, 2017. The data will be collected through survey questionnaire, interviews, focus groups and observation. Your authorization to this request will be highly appreciated.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Stephen Mutula', followed by a horizontal line.

Professor Stephen Mutula
Dean & Head: School of Social Sciences

Appendix 24: Authority from Moi University to conduct research



MOI UNIVERSITY

OFFICE OF THE DEPUTY VICE CHANCELLOR
ACADEMICS, RESEARCH AND EXTENSION

Tel: (053) 43355
(053) 43620
Fax: (053) 43412
Email: dvc_are@mu.ac.ke or dvcresearchmu@gmail.com

P.O. Box 3900
Eldoret - 30100
Kenya

REF: MU/DVC/REP/27B

Date: 7th October, 2016

TO WHOM IT MAY CONCERN

RE: PERMISSION TO CARRY OUT RESEARCH – BEATRICE WAMAITHA KIRUKI

The above subject matter refers.

Ms. Beatrice Kiruki, who is a PhD student in the school of Social Sciences at University of KwaZulu-Natal, has applied for authority to conduct research within Moi University Margaret Thatcher Library. We would be grateful if she is permitted to conduct her research on *“Information Service Provision to people living with visual and physical impairments in public University libraries in Kenya.”*

By a copy of this letter authority is hereby granted to her to conduct the research.

After the completion of the research, a complete report both on hard and soft copy will be handed over to the office of Deputy Vice-Chancellor, Academics, Research & Extension.

Any assistance accorded to her will be highly appreciated.

Thank you.

Yours faithfully,

PROF. I. N. KIMENGI, PhD
DEPUTY VICE-CHANCELLOR
(ACADEMICS, RESEARCH & EXTENSION)

SKM/sm



(ISO 9001: 2008 Certified Institution)

Appendix 25: Authority from County Commissioner Nairobi to conduct research



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No.

Date:

NACOSTI/P/16/45773/13269

24th August, 2016

Beatrice Wamaitha Kiruki
University of Kwa-Zulu Natal
SOUTH AFRICA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Information service provision to people living with visual and physical impairments in public university libraries in Kenya,”* I am pleased to inform you that you have been authorized to undertake research in selected Counties for the period ending 24th August, 2017.

You are advised to report to the Vice Chancellors of selected Universities, the County Commissioners and the County Directors of Education of the selected Counties before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Vice Chancellors
Selected Universities.

The County Commissioners
Selected Counties.

The County Directors of Education

COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341666


2016/17
COUNTY COMMISSIONER
UASIN GISHU COUNTY

Appendix 26: Authority from County Director of Education Nairobi to conduct research

STATE DEPARTMENT OF BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone: Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdenairobi@gmail.com

REGIONAL COORDINATOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

When replying please quote

Ref: RCE/NRB/GEN/VOL.1

DATE: 26th June, 2017

Beatrice Wamaitha Kiruki
University of Kwa-Zulu Natal
SOUTH AFRICA

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on "**Information service provision to people living with visual and physical impairments in public university libraries in Kenya,**"

This office has no objection and authority is hereby granted for a period ending 24th August, 2017 as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.


MAINA NGURU
FOR: REGIONAL COORDINATOR OF EDUCATION
NAIROBI

c.c.

Director General/CEO
Nation Commission for Science, Technology and Innovation
NAIROBI

Appendix 27: Authority from County Commissioner Kiambu to conduct research

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT
COUNTY COMMISSIONER, KIAMBU

Telephone: 066-2022709
Fax: 066-2022644
E-mail: countycommkiambu@yahoo.com
When replying please quote



County Commissioner
Kiambu County
P.O. Box 32-00900
KIAMBU

Ref.No: **ED.12/1/VOL.V/111**

29th June, 2017


Beatrice Wamaita Kiruki
University of Kwa-Zulu Natal
SOUTH AFRICA

RE: RESEARCH AUTHORIZATION

Reference is made to National Commission for Science, Technology and Innovation letter Ref No. **NACOSTI/P/16/45773/13269** dated **24th August, 2016**.

You have been authorized to conduct research on "***Information service provision to people living with visual and physical impairments in public university libraries in Kiambu County, Kenya***". The data collection will be carried out in ***Kiambu County*** for a period ending ***24th August, 2017***.

You are requested to share your findings with the County Education Office upon completion of your research.


J. A. RATEMO
FOR: COUNTY COMMISSIONER
KIAMBU COUNTY

Cc County Director of Education
KIAMBU COUNTY

National Commission for Science, Technology and Innovation
P.O. Box 30623-00100
NAIROBI

The Vice Chancellors
SELECTED UNIVERSITIES

All Deputy County Commissioners (*For information and record purposes*)
KIAMBU COUNTY

"Our Youth our Future. Join us for a Drug and Substance free County".

Appendix 28: Authority from County Director of Education Kiambu to conduct research



**MINISTRY OF EDUCATION
State Department of Education**

Telephone: Kiambu (office) 020-2044686
FAX NO. 020-2090948
Email: directoreducationkiambu@yahoo.com

COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY
P. O. Box 2300
KIAMBU

When replying please quote

REF: KBU/CDE/HR/4/VOL.III/ 1(10)

27TH JUNE, 2017

**BEATRICE WAMAITHA KIRUKI
UNIVERSITY OF KWA-ZULU NATAL
SOUTH AFRICA**

RE: RESEARCH AUTHORIZATION

Reference is made to the National Commission for Science Technology and Innovation letter Ref. No NACOSTI/P/16/45773/13269 and dated 24th August, 2016.

The above named has been authorized to carry out research on "*Information service provision to people living with visual and physical impairments in public university libraries, Kiambu County, Kenya*" for a period ending 24th August, 2017.

Please accord her the necessary assistance.

COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY
P. O. Box 2300-00900
KIAMBU

A handwritten signature in blue ink, appearing to read 'LEAH ROIKO'.

**LEAH ROIKO
FOR: COUNTY DIRECTOR OF EDUCATION
KIAMBU**

Appendix 29: Authority from County Commissioner Nakuru to conduct research



THE PRESIDENCY
MINISTRY OF INTERIOR AND
CO-ORDINATION OF NATIONAL GOVERNMENT

Telegrams: "DISTRICTER", Nakuru
Telephone: Nakuru 051-2212515
When replying please quote

COUNTY COMMISSIONER
NAKURU COUNTY
P.O. BOX 81
NAKURU

Ref. No. **CC.SR.EDU 12/1/2 VOL.II/204**

28th June, 2017

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – BEATRICE WAMAITHA KIRUKI

The above named student has been given permission to carryout research on ***"Information service provision to people living with visual and physical impairments in public university libraries in Kenya"*** in Nakuru County for the period ending **24th August, 2017.**

Please accord her all the necessary support to facilitate the success of her research.

EDITH KOECH
FOR: COUNTY COMMISSIONER
NAKURU COUNTY

Appendix 30: Authority from County Director of Education Nakuru to conduct research

MINISTRY OF EDUCATION
State Department of Basic Education

Telegrams: "EDUCATION",
Telephone: 051-2216917
Fax: 051-2217308
Email: cdenakurucounty@yahoo.com
When replying please quote
Ref. NO.
CDE/NKU/GEN/4/1/21 VOL.V/90



COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

28th JUNE, 2017

TO WHOM IT MAY CONCERN

**RE: RESEARCH AUTHORIZATION:
BEATRICE WAMAITHA KIRUKI
NACOSTI PERMIT NO/P/16/45773/13269**

Reference is made to letter ref. NACOSTI permit No.P/16/45773/13269 dated 24th August, 2016.

Authority is hereby given to the above named to carry out research on "**Information service provision to people living with visual and physical impairments in public university libraries in Kenya in Nakuru County,**" for a period ending 24th August, 2017.

Kindly accord her the necessary assistance.

A handwritten signature in black ink, appearing to read 'J. Maki'.

**JOSEPH MAKI
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY**

Copy to:

University of Kwa-Zulu Natal
SOUTH AFRICA

Appendix 31: Authority from County Commissioner Kisumu to conduct research



THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: Kisumu 2022219/Fax: 2022219
Email: ckisumucounty@gmail.com

COUNTY COMMISSIONER
KISUMU COUNTY
P.O. BOX 1912-40100
KISUMU.

Ref: CC/KC/ EDU/ VOL.III/101

Date: 3rd July 2017

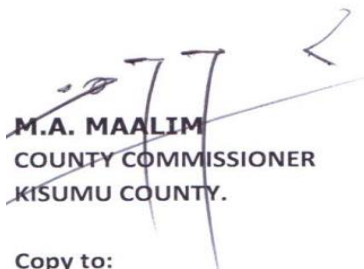
All Deputy County Commissioners
KISUMU COUNTY

RESEARCH AUTHORIZATION: BEATRICE WAMAITHA KIRUKI

Reference is made to a letter from the National Commission for Science, Technology and Innovation no. NACOSTI/P/16/45773/13269 of 24th August 2017 on the above underlined subject matter.

The above named is a student of University of Kwa-Zulu Natal. she has been authorized to carry out a research on "***Information service provision to people living with visual and physical impairments in Public university Libraries in Kenya***". The research period ends on 24th August 2018.

Kindly accord her any assistance that she may need.


M.A. MAALIM
COUNTY COMMISSIONER
KISUMU COUNTY.

Copy to:

Beatrice Wamaitha Kiruki
University of Kwa-Zulu Natal
SOUTH AFRICA.

Appendix 32: Authority from County Director of Education Kisumu to conduct research

**MINISTRY OF EDUCATION
State Department of Basic Education**

Telegrams: "schooling", Kisumu
Telephone: Kisumu 057 - 2024599
Email:
countyeducation.kisumu@gmail.com



COUNTY DIRECTOR OF EDUCATION
KISUMU COUNTY
PROVINCIAL HEADQUARTERS NYANZA
3RD FLOOR
P.O. BOX 575 - 40100
KISUMU

When replying please quote

CDE/KSM/GA/19/3A/V.II/63

3rd July, 2017

TO WHOM IT MAY CONCERN

**RE: RESEARCH AUTHORIZATION
BEATRICE WAMAITHA KIRUKI
PERMIT NO. NACOSTI/P/16/45773/13269**

The above named is a student at University of Kwa-Zulu Natal.

This is to certify that she has been granted authority to carry out research on "*Information service provision to people living with visual and physical impairments in public university libraries in Kenya*" in Kisumu County for the period ending **24th August, 2017**.

Any assistance accorded to her to accomplish the assignment will be highly appreciated.

A handwritten signature in black ink, appearing to read 'Eunice A. Ouko'.

EUNICE A. OUKO
For: COUNTY DIRECTOR OF EDUCATION
KISUMU COUNTY

Appendix 33: Authority from County Commissioner Uasin Gishu to conduct research



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No.

Date:

NACOSTI/P/16/45773/13269

24th August, 2016

Beatrice Wamaitha Kiruki
University of Kwa-Zulu Natal
SOUTH AFRICA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Information service provision to people living with visual and physical impairments in public university libraries in Kenya,”* I am pleased to inform you that you have been authorized to undertake research in selected Counties for the period ending 24th August, 2017.

You are advised to report to the Vice Chancellors of selected Universities, the County Commissioners and the County Directors of Education of the selected Counties before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Vice Chancellors
Selected Universities.

The County Commissioners
Selected Counties.

The County Directors of Education

COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341666


2016/17
COUNTY COMMISSIONER
UASIN GISHU COUNTY

Appendix 34: Authority from County Director of Education Uasin Gishu to conduct research

MINISTRY OF EDUCATION
State Department of Basic Education

Telegrams: "EDUCATION",
Telephone: 051-2216917
Fax: 051-2217308
Email: cdenakurucounty@yahoo.com
When replying please quote
Ref. NO.
CDE/NKU/GEN/4/1/21 VOL.V/90



COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

28th JUNE, 2017

TO WHOM IT MAY CONCERN

**RE: RESEARCH AUTHORIZATION:
BEATRICE WAMAITHA KIRUKI
NACOSTI PERMIT NO/P/16/45773/13269**

Reference is made to letter ref. NACOSTI permit No.P/16/45773/13269 dated 24th August, 2016.

Authority is hereby given to the above named to carry out research on ***"Information service provision to people living with visual and physical impairments in public university libraries in Kenya in Nakuru County,"*** for a period ending 24th August, 2017.

Kindly accord her the necessary assistance.

A handwritten signature in black ink, appearing to read 'Joseph Maki'.

**JOSEPH MAKI
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY**

Copy to:

✓ University of Kwa-Zulu Natal
SOUTH AFRICA

Appendix 35: List of accredited universities

**COMMISSION FOR UNIVERSITY EDUCATION
ACCREDITED UNIVERSITIES - NOVEMBER 2017**

	UNIVERSITY	YEAR OF ESTABLISHMENT	YEAR AWARDED CHARTER
	PUBLIC CHARTERED UNIVERSITIES		
1.	University of Nairobi	1970	2013
2.	Moi University	1984	2013
3.	Kenyatta University	1985	2013
4.	Egerton University	1987	2013
5.	Jomo Kenyatta University of Agriculture and Technology	1994	2013
6.	Maseno University	2001	2013
7.	Chuka University	2007	2013
8.	Dedan Kimathi University of Technology	2007	2012
9.	Kisii University	2007	2013
10.	Masinde Muliro University of Science and Technology	2007	2013
11.	Pwani University	2007	2013
12.	Technical University of Kenya	2007	2013
13.	Technical University of Mombasa	2007	2013
14.	Maasai Mara University	2008	2013
15.	Meru University of Science and Technology	2008	2013
16.	Multimedia University of Kenya	2008	2013
17.	South Eastern Kenya University	2008	2013
18.	Jaramogi Oginga Odinga University of Science and Technology	2009	2013
19.	Laikipia University	2009	2013
20.	University of Kabianga	2009	2013
21.	Karatina University	2010	2013
22.	University of Eldoret	2010	2013
23.	Kibabii University	2011	2015
24.	Kirinyaga University	2011	2016
25.	Machakos University	2011	2016
26.	Murang'a University of Technology	2011	2016
27.	Rongo University	2011	2016
28.	Taita Taveta University	2011	2016
29.	The Co-operative University of Kenya	2011	2016
30.	University of Embu	2011	2016
31.	Garissa University	2011	2017
	TOTAL 31		

	PUBLIC CONSTITUENT COLLEGES		
32.	Alupe University College	2015	
33.	Kaimosi Friends University College	2015	
34.	Tom Mboya University College	2016	
35.	Turkana University College	2017	
36.	Bomet University College	2017	
37.	Tharaka University College	2017	
	TOTAL 6		
	PRIVATE CHARTERED UNIVERSITIES		
38.	University of Eastern Africa, Baraton	1989	1991
39.	Catholic University of Eastern Africa	1989	1992
40.	Daystar University	1989	1994
41.	Scott Christian University	1989	1997
42.	United States International University	1989	1999
43.	Africa Nazarene University	1993	2002
44.	Kenya Methodist University	1997	2006
45.	St. Paul's University	1989	2007
46.	Pan Africa Christian University	1989	2008
47.	Kabarak University	2002	2008
48.	Strathmore University	2002	2008
49.	International Leadership University	1989	2011
50.	Kenya Highlands Evangelical	1989	2011
51.	Mount Kenya University	2008	2011
52.	Great Lakes University of Kisumu	2005	2013
53.	Adventist University	2007	2013
54.	KCA University	2007	2013
55.	KAG –East University	1989	2016
	TOTAL 18		
	PRIVATE CONSTITUENT COLLEGES		
56.	Tangaza University College	1997	
57.	Marist International University College	2002	
58.	Regina Pacis University College	2010	
59.	Uzima University college	2012	
60.	Hekima University College	1993	
	TOTALS 5		
	INSTITUTIONS WITH LETTERS OF INTERIM AUTHORITY		
61.	Aga Khan University	2002	
62.	Kiriri Women's University of Science	2002	

	and Technology		
63	GRETSA University	2006	
64	Presbyterian University of East Africa	2007	
65	The East African University	2010	
66	Management University of Africa	2011	
67	Pioneer International University	2012	
68	Riara University	2012	
69	UMMA University	2013	
70	International Leadership University	2014	
71	Zetech University	2014	
72	Lukenya University	2015	
73	RAF International University	2016	
74	AMREF International University	2017	
	TOTAL 14		

Public Chartered Universities	31
Public Constituent Colleges	6
Private Chartered Universities	18
Private Constituent Colleges	5
Institutions with Letters of Interim Authority	14
Total	74

Source: Commission for University Education, 2018