

**INSTITUTIONAL READINESS FOR ACCESS TO HIGHER EDUCATION
BY STUDENTS WITH DISABILITIES IN PUBLIC UNIVERSITIES IN
KENYA**

**BY
KHAKALI REBECCA BUTALANYI**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF DEGREE OF DOCTOR OF
PHILOSOPHY IN EDUCATIONAL ADMINISTRATION AND
MANAGEMENT IN THE SCHOOL OF EDUCATION, UNIVERSITY OF
ELDORET, KENYA**

MARCH 2021

DECLARATION

DECLARATION BY THE CANDIDATE

This thesis is my original work and has not been submitted for any academic award in any institution; and shall not be reproduced in part, full or in any format without prior written permission from the author and/or University of Eldoret.

Butalanyi Khakali Rebecca

SEDU/EMP/P/003/17

Date

DECLARATION BY THE SUPERVISORS

This Thesis has been submitted with our approval as appointed University supervisors.

PATRICK ALCAEUS KAFU
PROFESSOR OF EDUCATION,
DEPARTMENT OF CURRICULUM AND
INSTRUCTION, UNIVERSITY OF ELDORET,
KENYA

Date

DR. ALICE LIMO,
LECTURER, DEPARTMENT OF
EDUCATIONAL MANAGEMENT,
UNIVERSITY OF ELDORET, KENYA

Date

DEDICATION

This work is dedicated to the Almighty God, the United Nations Convention on the Rights of Persons with Disabilities, the Social model of Disability pioneers and to all persons living with disabilities.

ABSTRACT

Access to education by students with disabilities (SWD) should be a critical component of the legal provision in any country in the world (UN CRPWD, 2006). The Kenyan government promotes access to education for all, but less than 1% of the enrolment in H.E comprises SWD. This research sought to establish institutional readiness for access to H.E by SWD in public universities in Kenya. The main objective investigated readiness and access, while specific objectives examined infrastructure, lecturers' competencies, curriculum inclusiveness and determined institutional challenges. The systems theory, the social model of disability and the social constructivism paradigm were logical pillars upon which this research was grounded. They interpret a university as a social system with a socially constructed environment with a role to transform and impact positively on access to higher education by SWD. The study adopted a basic qualitative research methodology because disability is about experiences of persons with disabilities in relation to the physical and social environments they constantly interact with and the meaning they ascribe to the same. It is deemed appropriate for this study because disability affects a small percentage of the population of university students. The use of purposive sampling method was based on the characteristics of the target population. The target population was made up of SWD at various levels of their study, university administrators responsible for academic affairs and student welfare (Academic registrars and deans of students) and lecturers who taught students with disabilities at the time the study was conducted. The registrars of academics, deans of students and lecturers were strategic respondents because they are main custodians of students' data and have direct access to the same. Participants were 5 registrars of academic, 6 deans of students, 46 lecturers and 202 SWD from 6 public universities. Research instruments included questionnaire for each of the target groups, focus group discussion interview (FGD) for SWD and an observation checklist. The reliability of the questionnaire was tested by use of the split half reliability test. Each questionnaire items were split into two halves and each half administered to the two groups of respondents. After scoring the questionnaire items from the two groups, IBM SPSS23 computer package was used to calculate Spearman-Brown's coefficient of correlation. The instruments showed a coefficient of correlation of 0.8, 0.86 and 0.89 for the student's, dean's and registrar's questionnaire. Since the values were closer to 1 they were reliable. Internal and external validity was determined through scrutiny of the instruments by fellow students and my supervisors as well as piloting on the same. Data analysis (nominal and ordinal) was done by use of descriptive statistics with the help of IBM SPSS 23 computer package. Data is presented using tables, pie charts and graphs. It was established that most of the infrastructure in public universities was not accessible; it needed a lot of modification to be accessible to SWD. Most lecturers had no special education background so their competencies about assistive devices for SWD were limited. Their pedagogical approaches lacked inclusivity. Curriculum inclusiveness was wanting in terms of flexibility of timetable arrangements, examinations and the teaching and learning materials that could be accessed by SWD. It is recommended that universities should adopt Universal Design model in their infrastructure, curriculum and learning to ensure readiness for access to HE by SWD. The researcher finally suggests areas that need further research.

TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ABSTRACT.....	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES	x
ABBREVIATIONS, ACRONYMS AND SYMBOLS	xiii
ACKNOWLEDGEMENT	xv
CHAPTER ONE	1
1.1 Introduction to the study	1
1.2 Background to the Study	1
1.3 Statement of the problem	7
1.4 Purpose of the study	8
1.5 Main objective.....	8
1.6 Specific objectives.....	9
1.7. Main Research question	9
1.8 Specific Research questions	9
1.9 Rationale of the Study	10
1.10 Justification	10
1.11 Limitation of the study	11
1.12 Delimitation of the study.....	11
1.13 Significance of the Study	12
1.14 Assumptions of the study	12
1.15 Theoretical framework	12
1.16 A system and systems approach theory.....	13
1.17 The social model of disability	17
1.18 Conceptual framework	19
1.19 Definition of operational terms	21
1.20 Summary	22

CHAPTER TWO	23
LITERATURE REVIEW	23
2.1. Introduction	23
2.2 Definition of disability	23
2.2.1 The medical model of disability	23
2.2.2 The functional limitations model	24
2.2.3 The minority group model.....	26
2.2.4 The social model of disability	27
2.2.5 The social justice model.....	27
2.2.6 Universal design model.....	28
2.3 Institutional readiness.....	31
2.4 Infrastructure readiness and access to higher education by SWD	32
2.4.1. Infrastructure and access to higher education by SWD in Kenya.....	36
2.5 Lecturer’s competencies and access to higher education by SWD.....	39
2.6. Curriculum inclusiveness and access to higher education by SWD	43
2.7. Challenges hindering universities from readiness for access to education by SWD.....	46
2.8. Related research on access to higher education by SWD outside and in Kenya	46
2.9 Access to Higher Education by Students with disabilities in Kenya.	49
2.10. Summary of literature review.....	51
CHAPTER THREE	55
RESEARCH DESIGN AND METHODOLOGY	55
3.1 Introduction	55
3.2 Research methodology	55
3.3 The Social constructivist paradigm	56
3.4 Research design.....	58
3.5 Research techniques	60
3.6 Purposive sampling	61
3.7 Study Population and sample size.....	62
3.8 Study variables	63
3.9 Research Instruments	63
3.9.1 Questionnaire	64

3.9.2 Lecturer’s Questionnaire	64
3.9.3 Student’s Questionnaire	65
3.9.4 The observation Checklist	65
3.9.5 Focus Group Discussion	66
3.10 Study Pilot	67
3.11 Validity	67
3.12 Reliability	68
3.13 Ethical Considerations.....	69
3.14 Data analysis and presentation	70
3.15 Transcription of data from the FGD.....	70
3.16 Summary	72
CHAPTER FOUR.....	73
DATA PRESENTATION, ANALYSIS AND INTERPRETATION	73
4.1 Introduction	73
4.2 Research Objectives	74
4.2.1 Main objective.....	74
4.2.2 Specific objectives.....	74
4.3 Research Questions	74
4.3.1 Main Research question	75
4.3.2 Specific Research questions	75
4.4 Data analysis, presentation and interpretation.....	75
4.4.2 Response rate of administrators on percentage enrolment of SWD....	80
4.4.3 Response rate of administrators extended induction.....	82
4.4.5 Administrator’s response on availing specialists at admission.	85
4.4.6 Response rate for lecturers	86
4.5 Biographical data of the respondents	91
4.5.1 Biographical data of Lecturers	91
4.5.2 Academic qualification of the lecturers	91
4.5.3 Lecturer’s area of specialization	92
4.5.4: Biographical data of students with disabilities.....	94
4.5.5: Types of disabilities as reported by SWD.....	95
4.5.6 Distribution of SWD according to their year of study	96
4.5.7 Biographical data of students as per their degree course	97

4.5.8 Response of students to opt for the same course.....	98
4.6. The influence of infrastructure on access to higher education by SWD.....	100
4.6.1 Need for minor modifications on the infrastructure.....	103
4.6.2 Need for major modifications on the infrastructure.....	103
4.6.4 State of infrastructure in terms of compliance with universal design	105
4.6.5 State of compliance with ISO 21542:2011 for buildings and infrastructure	105
4.6.6 The Status of disability friendly infrastructure in Public Universities	110
4.6.7 Disability toilets	112
4.6.8 Access to Libraries by SWD	113
4.6.9 Access to Lecture rooms by SWD	116
4.6.10 Hostels and access by SWD.....	117
4.6.11. Access to Recreational infrastructure by SWD.....	118
4.6.12 Transport and access to education by SWD.....	120
4.7. Lecturers’ competencies as a determinant of access to higher Education for SWD.....	125
4.7.2 Pedagogical Competence	129
4.7.3 Technological competence.....	132
4.7.4 Communication Competence	135
4.8 Curriculum inclusiveness and access to education	137
4.9. Assistive technology that is available for SWD.....	141
4.10. Institutional challenges and access to HE by SWD	146
4.11. Summary	147
CHAPTER FIVE	151
SUMMARY, CONCLUSION AND RECOMMENDATIONS	151
5.1 Introduction	151
5.2. Summary of the findings	151
5.2.1 Existing infrastructure in public universities in Kenya and its influence on access to education by SWD	152
5.2.2. Lecturers’ competencies in public universities and access to higher education by SWD	155

5.2.3. Curriculum inclusiveness in public universities and access to education by disabled	157
5.2.4. Challenges universities face in the process of meeting access needs of disabled students in Kenya	158
5.3 Conclusion.....	160
5.4 Recommendations	161
5.4.1 Proposed Universal Design Model (UD) of institutional readiness for access to higher education for SWD	162
5.4.2 Universal Design Governance, Monitoring and evaluation Committee (UDGM&E)	166
5.4.3 Universal Design Capacity Building and Technical Assistance Section (UDCB&TA).....	166
5.4.4 Universal design -Design and Quality Assurance Section (UDDQA)	167
5.4.5 Universal Design Research and Knowledge Management section (UDR&KM)	167
5.5 Suggestion for Further Research	169
REFERENCES	170
APPENDICES	186
Appendix I.....	186
Questionnaire for disabled students	186
Appendix II: Questionnaire for the Registrar Academic / Dean of Students.....	192
Appendix III: Questionnaire for Lecturers of disabled students	195
Appendix IV: Observation Checklists	199
Appendix V: The Focus Group Discussion (FGD) questions.....	203
Appendix VI: Determining Sample Size from a Given Population	204
Appendix VII: Enrolment of SWD in Public Universities in Kenya	205
Appendix: VIII: Letter from the HOD Education University of Education to	206
NACOSTI.....	206
Appendix IX: Research Authorization letter from NACOSTI.....	207
Appendix X: Research Permit from NACOSTI.....	208
Appendix XI: Authority to do Research in Kenyatta University	209
Appendix XII: Letter of Authority to do Research in Kenyatta University	210

Appendix XIII: Letter of Authority from County Commissioner Kiambu County	212
Appendix XIV: Letter of Authority from the CDE Kiambu County	213
Appendix XV: Request for Authority to do Research in the Technical.....	214
Appendix XVI: Letter of Authority to do Research in Mombasa County	215
Appendix XVII: Letter of Authority to conduct Research in the Technical University of Mombasa.....	216
Appendix XVIII: Letter of Authority to do research in Tharaka Nithi County	217
Appendix XIX: Letter of Authority from the CDE Tharaka Nithi	218
Appendix XX: Stamp of Authority from County Commissioner Nairobi.....	219
Appendix XXI: Letter of authority from the Regional Coordinator of Education Nairobi.....	220
Appendix XXII: Letter of Authority to conduct Research in the University of Nairobi.....	221
Appendix XXIII: Letter of Authority from the County Commissioner Kisumu ...	222
Appendix XXIV: Letter of Authority to Conduct Research from Maseno..... University	223
Appendix XXV: Stamp of Authority from the County Commissioner Uasin	224
Gishu	224
Appendix XXVI: Letter of Authority from the CDE Uasin Gishu	225

LIST OF TABLES

TABLE: 3.1 SWD WHO PARTICIPATED IN THE FGD.....	67
TABLE 3.2: UNORDERED META-MATRIX ON WHAT SWD THOUGHT ABOUT INDEPENDENT VARIABLES IN FGD	71
TABLE: 4.1 RESPONSE RATES OF ALL PARTICIPANTS	76
TABLE: 4.2 REGISTRARS AND DEANS OF STUDENTS' RESPONSES	78
TABLE: 4. 3 RESPONSE FOR EACH CATEGORY OF THE ADMINISTRATORS	79
TABLE: 4.4 ADMINISTRATOR'S RESPONSE ON PERCENTAGE OF ENROLMENT OF SWD ..	80
TABLE: 4. 5 ADMINISTRATOR'S RESPONSE PROVISION OF EXTENDED INDUCTION	82
TABLE: 4. 6 ADMINISTRATOR'S RESPONSE ON PROVISION OF SPECIALISTS FOR SWD...	85
TABLE: 4. 8: PERCENTAGE OF LECTURERS WHO TAUGHT SWD	88
TABLE: 4. 9 RESPONSE OF SWD PER INSTITUTION	88
TABLE: 4.10 RESPONSE RATE OF SWD ON INDIVIDUALIZED SPECIALISTS SUPPORT	90
TABLE: 4.11 ACADEMIC QUALIFICATIONS OF THE LECTURERS.....	91
TABLE: 4.12 SHOWS THE AREA OF SPECIALIZATION OF LECTURES.....	92
TABLE: 4. 13 TYPES OF DISABILITIES REPORTED BY SWD	95
TABLE: 4.14 DISTRIBUTION OF SWD ACCORDING TO THEIR YEAR OF STUDY	96
TABLE: 4. 15 THE DISTRIBUTION OF STUDENTS AS PER THEIR DEGREE COURSE.....	97
TABLE: 4.16 RESPONSE OF STUDENTS TO OPT/NOT FOR THE SAME COURSE.....	98
TABLE: 4.17 REASONS WHY SWD WOULD OR WOULD NOT OPT FOR THE SAME COURSE	99
TABLE: 4.18 RESPONSE OF ADMINISTRATORS ON ACCESSIBILITY OF INFRASTRUCTURE	101
TABLE 4.19 ADMINISTRATORS, SWD AND LECTURERS' REPORT ON DISABILITY FRIENDLY INFRASTRUCTURE IN PUBLIC UNIVERSITIES	114
TABLE: 4.20 THE RESPONSE OF ADMINISTRATORS, SWD AND LECTURERS ON THE AVAILABILITY OF RECREATIONAL INFRASTRUCTURE.....	121
TABLE: 4. 21 RESPONSE ON EXISTING TRANSPORT AND OTHER TRANSPORT FACILITIES	124
TABLE: 4.22 LISTS COMPONENTS OF THE PROFESSIONAL COMPETENCE	127
TABLE: 4. 23 STUDENT RESPONSES TO THE PEDAGOGICAL COMPETENCE.....	129

TABLE 4.24 SHOWS THE RESPONSE OF LECTURERS ON THE TECHNOLOGICAL COMPETENCE.....	132
TABLE: 4. 25 STUDENTS' RESPONSE AS PERTAINS TO THE LECTURERS' COMMUNICATION COMPETENCE.....	135
TABLE: 4. 26 SWD AND LECTURERS' RESPONSE ON CURRICULUM INCLUSIVENESS	138
TABLE: 4. 27 SWD AND LECTURERS' RESPONSE ON THE EXISTING ASSISTIVE TECHNOLOGY (AT) IN PUBLIC UNIVERSITIES	144
TABLE:4. 28 ADMINISTRATORS', LECTURERS' AND STUDENTS' RESPONSE ON THE CHALLENGES OF UNIVERSITIES TOWARDS ACCESS FOR SW	145

LIST OF FIGURES

FIGURE 1: INTERACTION AMONG THE OPEN SYSTEMS, SOCIAL MODEL OF DISABILITY, SOCIAL JUSTICE MODEL AND THE SOCIAL CONSTRUCTIVISM PARADIGM	17
FIGURE 2: CONCEPTUAL FRAMEWORK OF THE STUDY	20
FIGURE 3: RESEARCH DESIGN INTER-CONNECTIVITY	59
FIGURE 4: INTER-CONNECTIVITY OF THE BASIC QUALITATIVE RESEARCH DESIGN SECTIONS	60
FIGURE 5: BAR GRAPH REPRESENTATION OF THE RESPONSE RATE FOR ALL RESPONDENTS	77
FIGURE 6: RESPONSE OF ADMINISTRATORS ON PERCENTAGE OF ENROLMENT SWD	82
FIGURE 7: ADMINISTRATOR’S RESPONSE ON THE PROVISION OF EXTENDED INDUCTION..	83
FIGURE 8: THE RESPONSE OF ADMINISTRATORS ON THE SPECIALLY DESIGNED INDUCTION FOR SWD	84
FIGURE 9: PIE CHART ILLUSTRATION OF THE RESPONSE RATE OF SWD	89
FIGURE 10: LECTURER’S AREA OF SPECIALIZATION	94
FIGURE 11: STANDARD WHEELCHAIR MANEUVERING SPACE NEEDED FOR DOORWAYS: COURTESY ISO 21542: 2010 DOCUMENT PG 20	107
FIGURE 12: RECOMMENDED HEIGHT AND PLACEMENT OF SIGNAGE: COURTESY ISO21542:2011 PG. 40	108
FIGURE 13: UNIVERSAL DESIGN SIGNAGE: COURTESY OF CEUD HTTP://UNIVERSALDESIGN.IE	108
FIGURE 14: UNIVERSAL DESIGN SIGNAGE: COURTESY OF CEUD HTTP://UNIVERSALDESIGN.IE	109
FIGURE 15: RESPONSE OF ADMINISTRATORS, SWD AND LECTURERS ON DISABILITY FRIENDLY INFRASTRUCTURE.....	117
FIGURE 18: THE PROPOSED UD MODEL BUTALANYI, UD MODEL (2020).....	165
FIGURE 19: PROPOSED UD DEPARTMENTAL MANAGEMENT STRUCTURE REBECCA.K. BUTALANYI (2020)	168

ABBREVIATIONS, ACRONYMS AND SYMBOLS

AT:	Alternative Technology
CAST:	Center for Applied Special Technology
CESCR:	UN Committee on Economic and Social Cultural Rights
CUE:	Commission for University Education
CRPD:	Convention on the Right of People with Disabilities
DVC:	Deputy Vice Chancellor
GDP:	Gross Domestic Product
H.E;	Higher Education
KNBS:	Kenya National Bureau of Statistics
KNSPD:	Kenya National Survey for Persons with Disability
K.U:	Kenyatta University
KUCCPS:	Kenya Universities and Colleges Central Placement Services
MOE:	Ministry of Education
NACOSTI:	National Council for Research Technology and Innovation
NCPWD:	National Council for Persons with Disability
PU1:	Public University 1
PU2:	Public University 2
PU3:	Public University 3
PU4:	Public University 4
PU5:	Public University 5
PU6:	Public University 6
PWD:	Persons with Disability
SWD:	Students with Disability
T.U.M:	Technical University of Mombasa
U.D:	Universal Design
U. N:	United Nations
UNGA:	United Nations General Assembly
U.O.N:	University of Nairobi
UNCRPW:	United Nations Convention on the Rights of Persons with Disabilities

UNESCO: United Nations Educational, Scientific and Cultural Organization
UPIAS: Union of the Physically Impaired Against Segregation
WHO: World Health Organization
WB: World Bank

ACKNOWLEDGEMENT

My greatest acknowledgement is to the Almighty God for His grace and favor. I wholeheartedly extend my appreciation to the government of Kenya through the Ministry of Education for funding this study; it is the support without which a study like this would not have been possible. I do underscore the University of Eldoret for giving me an opportunity to enroll and study for a PhD degree. I was humbled to have been under the guidance of my supervisors Prof. Patrick Acleus Kafu and Dr. Alice Limo; no words can express their tireless commitment to this achievement. My special acknowledgement goes to my lecturers Dr. Lydia Kipkoech, Dr. Charles Nyabero, and Dr. Esther Nyabuto for sharpening my research skills to meet the demands of a project of this calibre. My sincere appreciation goes to Dr. David Waswa for his incredible support. With a lot of humility, I am indebted to the Dean School of Education Prof. Kitainge Kisilu for fast tracking this study. He has indeed delivered what he promised in his welcome speech to my cohort where he said that he has no room to accommodate students for more years than the academic calendar prescribes. This indeed catapulted my determination to work hard. Most profoundly my recognition is to my daughter Cynthia Wandira, who gave me practical, moral, emotional and psychological support during the entire period of my studies. She is indeed a great gift from God in my life. My immeasurable gratitude is to my late parents Fred B. Wefira and Susan Naliaka for creating an unquenchable thirst for education within me. I promised to make you proud. I know you are smiling from heaven because you loved education. Special admission goes to my colleagues Dr. Hannah Muchiri and Dr. Silvia Vundi for their support.

CHAPTER ONE

1.1 Introduction to the study

In this section a solid base that shows the necessity to investigate the readiness of public universities for access to higher education by students with disabilities in Kenya is laid. The need for this study has clearly been expressed in the background to the study and in the statement of the problem. The rationale, purpose, justification and the significance of the study leads readers into more insights on why this study is crucial. The objectives and the research questions underscore the hunch and provide the shape and trajectory of the study. The pillar is expressed in the theoretical framework, while the definition of operational terms sums up the contents of the chapter.

1.2 Background to the Study

Access to education is an individual's presence, participation, acceptance and achievement in a learning institution (Paseka, 2017). Access to higher education is critical for persons with disabilities because it facilitates access to meaningful skills, knowledge and attitudes; personal growth and improvement necessary for career advancement; gainful employment and thus opens opportunities for participation in national development (OECD, 2018). Expanded opportunities to higher education for persons with disabilities considerably add to their quality of life and that of their significant others (Wayne, 2004). Higher Education also has an impact on PWD in terms of other aspects of empowerment. Clearly Higher Education is the ultimate level of an individual's academic achievement. This is the level that is essential for meeting the manpower requirements of the highest caliber which is necessary for

national development (OECD, 2019). It is also an important contributory factor for ensuring social justice through providing vertical mobility to deprived sections of society: especially PWD (Carey et al 2018). Making higher education accessible to PWD is likely to improve their quality of life and of the nation (Azad, 2008). In Israel, a public committee examined the implementation of the Equal Rights for Persons with Disabilities Act (2005). The findings were that higher education still does not meet the requirements on inclusion of persons with disabilities into the community. Although the fact that the higher the level of education of persons with disabilities, the better the chances for them to integrate into society was acknowledged. It was also observed that education enabled persons with disability to sustain themselves financially with dignity (Laron, 2005, Admon, 2007). Among its recommendations, the committee called for action to expand accessibility to institutions of higher education at policy level and to support programs for students with disabilities (Laron, 2005, Admon, 2007). A study that was done in South Africa(Matshedisho (2007)), established that SWD are likely to drop out of school early, their completion rate is low, they face many barriers in their quest to access higher education and worse still they do not achieve the level of results as their peers who have no known disabilities. This study did not explain why SWD achieved less than their counterparts with no disabilities. Perhaps institutional readiness, which is the focus of the current study, could be a contributing factor to this situation. It is therefore imperative that universities should establish readiness mechanisms to counter this scenario.

According to the national disability survey in Kenya, Republic of Kenya(2007) 67% of the PWD attained a Primary school level of education, 19% attained secondary

school educational level, only 2% reached university level of education. These figures suggest that the higher the level of education, the lower the number of PWD. There is need for an explanation of this scenario hence the importance of this study. The UN Convention on the Right of People with Disabilities section (v) recognizes the importance of accessibility to the physical, social, economic and cultural environment, to health and education and to information and communication, in enabling them to fully enjoy all human rights and fundamental freedoms, (UN CRPWD, 2006). Article 9(1) of the Convention further states that persons with disabilities should be enabled to live independently and participate fully in all aspects of life. States Parties should take appropriate measures to ensure that persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia: (a) Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces; (b) Information, communications and other services, including electronic services and emergency services. This applies to public universities because they have a responsibility to provide higher education to all and they must put in place accessible social and physical environments for disabled students. Article 24(1) of the UN CRPWD (2006) gives an outline of the rights of PWD to education and what the countries of the world were required to do as pertains to implementation of the contents of the convention. Consequently, most countries including Kenya ratified it through various, legislation on the same as had been agreed. Kenya was able to

legislate on the Disability Act (2003). Article 18(1), (2), (3) and articles 19 have given provisions for access to education for persons with disability. The same has been enshrined in the constitution of Kenya 2010 article 54(1) (b) which states that the PWD must be able to access educational institutions and facilities for persons with disabilities that are integrated into society to the extent compatible with the interests of the person. The University Act 2012 section 29 (i) states that a University, in performing its functions shall have regard to the promotion and preservation of equality of opportunity and access. The disability Act 2003 gives a very general explanation of the discriminatory practices that are not allowed and calls for establishment of special schools and institutions for people with disabilities. Although these provisions are important, they can be improved further by identifying some key aspects that educational institutions, especially universities, ought to address to improve access to higher education for people with disabilities. Further the Act takes a charity and functional rather than a rights approach for access to education. It also lacks a compelling and implementation framework for the universities to be accountable. This leaves a loose end and gives universities a leeway to discriminate against PWD.

In this background it has been demonstrated that there have been many international and local efforts to put in place legislation that address access to education for persons with disabilities. Nevertheless, data on enrolment of SWD in higher education in Kenya shows that very few are enrolled (Mukhwana et al 2016). Disability is a critical issue that needs to be directly addressed if socioeconomic development is to be realized given that an estimated 1 billion (15%) of people worldwide have disabilities and about 80% of them live in the developing countries, (WHO& WB

2011). According to the 2019 census Kenya as a developing country has a reasonable percentage of her population between 2.2% (0.9) to 4% (1.3) millions people living with disabilities (Republic of Kenya, 2007; Republic of Kenya, 2009; Republic of Kenya, 2019) and 65% of them regard the environment as a major problem in their daily lives (Republic of Kenya, 2007).

Despite the concern and legislation, persons with disability continue to be left out in accessing education in general and higher education in particular. They also face many barriers in their quest to access higher education ((Matshedisho, 2007; Kiarie, 2014; Githinji, 2016, Mukhwana et al 2016,). The University Act 2012 section 29 (i) states that a University, in performing its functions shall have regard to the promotion and preservation of equality of opportunity and access. Of the total government budget in Kenya, 16.4% is spent on education to bring about social and economic equilibrium (Kenya National Bureau of Statistics, 2015). The sustainable development goal on education states that no part of the population is to be left out in accessing education by the year 2030 (United Nations General Assembly, 2015). Kenya's economic and social strategic plan through its social pillar envisions a state where there will be a just and cohesive society with social equity living in a clean and secure environment with an average GDP growth rate of 10% per annum beginning from the year 2012 (Republic of Kenya , 2008). This strategy makes special provisions for Kenyans with various disabilities that are estimated to between 2.2% to 4% (900,000 to 1,330, 0312) of Kenya's population (Republic of Kenya, 2009; Republic of Kenya, 2019)). This means that education is recognized by the nation to be a vehicle for equity and socioeconomic development. Logically then for this to yield more economic returns, no section of the population should be marginalized

(UNGA, 2015). A survey on disability, Bathseba (2010), found that most PWD are unlikely to have active or viable socio-economic engagements to earn a living. Consequently, they require some assistance in the form of social security grants for the destitute, disability grants or other forms of financial support. Therefore, the critical question is this; are persons with disabilities fully included in socio-economic development? This situation can only be fully addressed if PWD must fully access education to the highest level. This can only be achieved through making universities ready for access by SWD.

Policies within educational institutions need to be formulated to ensure - or at least strive to ensure - that students have equal and equitable opportunities to take full advantage of their education (UNESCO, 1998). Do education policy makers consider this during policy formulation and inevitably implementation for PWD in Kenya? Institutional strategies should be designed with consideration of removing impediments, or barriers to education access and success for disabled students, whether intentional or unintentional, or to provide the resources, social services, and academic support that SWD may need in order to succeed. If access is denied or left un-addressed by an education system, including higher education, students with disabilities may struggle academically or even drop out. Access gaps may widen over time and more critically SWD's transition through their education ladder may be hampered. If education is a vehicle towards achieving socioeconomic equity and equality, PWD must fully access it and more so, higher education. Despite the provisions of the legislation on disability such as the Disability Act, 2003, the university Act 2012 and the Basic Education Act 2013 students with disabilities seem

to be the least at reaching educational parity at all levels of schooling in Kenya as it has been demonstrated earlier.

The extent to which these laws adequately address access to higher education needs to be established. Wayne (2004) observed that the Canadian and American laws have not adequately covered various disabilities, and this tends to discriminate against students with certain disabilities who wish to pursue higher education. In Kenya, the constitution provides for free and compulsory education for every child (Constitution 2010; 53, Republic of Kenya, 2010). The disability Act 2003 states that all barriers affecting PWD in educational institutions must be removed. Consequently, it establishes the National Council for Persons with Disability to ensure that the rights of PWD are well addressed including access to education (Republic of Kenya, 2005). The council has a responsibility of registering and maintaining a data base of persons with disabilities among other roles. Despite the international/ local goodwill and efforts to legislate such laws and provisions, there is still limited access to higher education for PWD in Kenya. A combination of factors seems to affect access to higher education for PWD. The purpose of this research is to establish why PWD seem not to access higher education adequately, existing readiness within universities, challenges if any and to make recommendations for action.

1.3 Statement of the problem

There have been definite efforts to put in place legislation that address the readiness of institutions for access to education by SWD(Disability Act 2003,COK 2010); yet data from education institutions show that 224000 (2%) pupils with disability out of a total of 10 million are in primary school while 11219(0.4%) SWD out of a total

enrolment of 4.3 million students are in secondary school (Republic of Kenya, 2015). The enrollment in the university is about 461820; and out of this only 440 (0.11691%) are students with disability (Mukhwana et al, 2016). This points to the fact that the higher the level of education, the lower the number of SWD. Evidently then, students with disabilities are more likely to drop out of the system of education early as compared to those without disabilities. Perhaps it is a factor that contributes to their paltry representation at the university level. The question that needs to be answered is why? How ready are universities for access to education by SWD? Could lack of readiness for learners with disabilities by public universities be the cause of this low enrolment? To what extent could Curriculum inclusiveness and existing infrastructure as well as lecturer's competencies be affecting SWD access to higher education in public universities in Kenya? This study attempted to establish, examine and determine institutional readiness for access to higher education by SWD in public universities in Kenya and made recommendations for action by universities and relevant actors.

1.4 Purpose of the study

The purpose of this research was to establish why PWD seem not to access higher education adequately, existing readiness within universities, challenges if any and to make recommendations to universities and relevant actors for action

1.5 Main objective

The main objective was to establish institutional readiness for access to higher education by SWD in public universities in Kenya.

1.6 Specific objectives

- a) To examine how existing infrastructure in public universities influences access to higher education by students with disabilities in Kenya.
- b) To examine how lecturers' competencies, determine access to higher education by students with disabilities in public universities in Kenya.
- c) To examine whether curriculum inclusiveness determines access to higher education by students with disabilities in public universities in Kenya
- d) To determine challenges faced by public universities in the process of getting ready for access by students with disabilities.

1.7. Main Research question

How do the infrastructure, lecturer's competencies, curriculum inclusiveness and institutional challenges influence access to higher education by students with disabilities?

1.8 Specific Research questions

1. How does the state of existing infrastructure in public universities influence access to higher education by a student with disability in Kenya?
2. How do competencies of lecturers determine access to higher education by SWD in public universities in Kenya?
3. How does curriculum inclusiveness determine access to higher education by students with disabilities in Kenya?
4. What are the challenges that universities face in the process of getting ready for access to higher education by SWD in Kenya?

1.9 Rationale of the Study

Education is a universal human right therefore Persons with Disabilities have a right to access it. It is the basis for economic and social development that must include everyone if these must be realized. Persons with disabilities deserve to be given equal opportunities like everyone else in society. They form about 1 billion (15%) of the world population, which is about 650 billion, and about 4% of Kenya's population therefore leaving them out is detrimental for the country's progress. Higher education increases chances of an individual's employability and career path therefore it is important for PWD to have access to it. The Sustainable Development Goal on Education states that nobody should be left behind in development. Kenya is a signatory to international laws and conventions of disability inclusion. The social pillar of Vision 2030 hopes to ensure that every citizen will be living in a safe, secure and clean environment with dignity. Very limited studies in Education have addressed access to higher education for PWD therefore this study will be filling this gap.

1.10 Justification

Globally about a billion (15%) of people live with disabilities. Approximately 150 million of them are the youth and children (WHO, 2011). The Sustainable Development Goal (UNDP, 2019) on Education projects that by the year 2030 every individual in the world should have accessed education and no one should be left behind. Kenya's vision 2030 states that by 2030, every Kenyan should be living a high-quality life in a safe and clean environment while economic growth should be at 10% GDP (Republic of Kenya, 2008). It is imperative that achievement of this ambitious plan must involve everybody devoid of excluding the disabled. Between

900,000 (2.2%) to 1,330, 0312 (3.5%) of Kenya's total population comprises of PWD, males were 647689(3.4%) and females were 682,623(3.5%) (Republic of Kenya, 2015); however these statistics could be on the lower side because most families from different cultural background in Kenya do not disclose their family members with disabilities as this is considered a taboo. This group of the population seems to be marginalized in terms of accessing education, this is because most institutions seem not to have any clear data on PWD. Disability affects individuals in varying degrees, even if one individual has the same disability as the other, and this affects the way they cope with the environment (Bathseba, 2010).

1.11 Limitation of the study

The researcher had no control over the university's almanac, yet this was likely to affect the work plan of the study. The researcher also depended on the goodwill of the institutions for the opportunity to carry out the study. It depended on the institutions to allow or decline to give authority. There was no control on the natural concurrences as well.

1.12 Delimitation of the study

The research concentrated on public universities in Kenya. Private universities were not included in this study because; education in public universities is comparatively cheaper therefore they are likely to be preferred for placement of SWD than the former. It should be appreciated that maintaining a SWD is expensive therefore they are likely to opt for public universities. Purposive sampling method was used, and this means that the study is limited in terms of generalization, nevertheless it would

provide an evidence-based foundation for decision making by university administrators and other decision-making bodies in education.

1.13 Significance of the Study

This research is significant because it can be applied during policy formulation and planning to benefit students with disabilities who wish to pursue higher education. The findings of the research would also inform disability policy formulation for higher education in the Ministry of Education. The research would help other institutions to make disability inclusive decisions. The study will also help to add more knowledge on disability issues in higher education. It will also help the university administrators to correctly address the needs of SWD.

1.14 Assumptions of the study

This study has the following assumptions: Firstly, there is adequate legislation on disability in Kenya. Secondly universities are willing to implement and mainstream existing laws on disability. Thirdly, there is awareness and good will to address disability issues among the university staff. Fourthly universities that are sampled have enrolled students with disabilities and that they would be willing to participate in the research.

1.15 Theoretical framework

Theoretical frameworks are derived from our disciplinary orientations, which in turn inform what we are studying and how we are studying it (Gay et al 2012). This research is anchored on the systems theory (Bertalanffy, 1968), the social model of disability (Oliver, 1990), the social justice model (Barnes 1998) and the social

constructivism paradigm ((Luckmann, 1967). These theories and the paradigm form the backbone and pillar of the research. The systems theory conceptualizes universities as social systems with interconnected parts that are in constant interaction and in the process leading to social transformation. It is however a general theory that does not specifically address the issue of disability hence the need to complement it with the social model of disability, the social justice model and the social constructivist paradigm. The systems theory however brings on board the concept of social interconnection where interaction happens to bring about transformation on disability issues. The social constructivism paradigm the, social justice model and the social model of disability interact to view disability as a socially constructed illusion that creates barriers to the affected individuals to alienate them from social and economic participation. To surmount these barriers, the solution is to change the social system in order to create a more inclusive and just society. According to this model disability is socially constructed and it is different from impairment which is a medical condition affecting a person with disability.

1.16 A system and systems approach theory

An in-depth study of the systems theory can be summarized from different scholars in the following discussion: Bertalanffy (1968) looks at a system as a set of elements standing in interrelations. He further elaborates that a system is a whole that can be divided into independent parts. According to Immegart & Pilecki, (1973) a system is an entity composed of several parts, the relationships of these parts and the attributes of both the parts and their relationships. Ackoff (1999) defines a system as a set of two or more related and interdependent elements. These definitions show a general agreement on some of the features considered to be those of a system namely, that it

is made of interrelated components, there are boundaries defined from the surrounding environment which determine the identity of the systems, individual components in a system make up the whole. According to Beerel (2009) a system comprises of regularly interacting and interdependent parts, items or people that form a unified whole with the purpose of achieving a goal. She argues that a system is a whole or an entity, the whole has parts, components within it, that these smaller parts/components in the whole are interrelated, that these parts have qualities which allow them to function as parts of a whole and that, these relationships themselves also have qualities.

The general agreement amongst these writers is that a system is an assembly of components connected in an organized manner. The components get affected by virtue of being in the system. The behavior of the system is impressed upon if those of the components change. The key point is that the character and properties of any system come from the myriad of interrelationships between and amongst the elements (Morgan, 2005). The understanding of what constitutes the whole system cannot be inferred from studying the workings of individual elements. The approach is on focusing on the behavior of the inseparable whole, with its constituent parts. Banathy (1968) identifies a system through the revelation of its specific purpose, as the purpose determines the process that in turn determines the components.

A university qualifies to be called a system as it fits in the definition and description of systems given above. First, it is an entity that is man-made and that is established to solve problems and meet specific needs of society. It has parts or components. For instance, there is the curriculum and technology component, infrastructural component, the lecturers and students' component and these components are

interrelated as each affects the others. For example, the competencies of lecturers affect the intensity of teaching/learning of students as well as their achievement within the system. It also determines the type of material and equipment needed and this influences other components. The lecturers and students have certain characteristics and qualities that they bring into the system that in turn interact with it.

From what they can give back after their interaction with the university; society sends feedback to the university by giving more raw materials or outright evaluation for maintenance of the system. The university ensures, through review of the courses offered; to be relevant to current needs (entropy) and hence maintaining a steady balance with the environment (homeostasis). Differentiation and elaboration involving coordinated specialization resulting from special functions and interaction among components; the system is seen in the way schools and faculties work.

There is the component of integration and coordination through shared values, purposes, priority setting and sequencing which allows for different means towards achieving the goal (Equifinality). Students with disabilities are raw materials from the environment who get to the university with needs, expectations and aspirations ready for transformation. Universities on the other hand must interact with students through meeting their needs (processing). They must have the relevant infrastructure, courses/curriculum, competent lecturers in order to carry out the processing function that precedes the releasing to the environment of the graduates (final products). Feedback from the environment will enable the university to put in place structures and systems both physical and social, in order to continue meeting the needs of the SWD. The systems theory therefore is very relevant as a pillar to be applied to this research following the foregoing discussion. However the systems

theory cannot stand alone as far as this study is concerned because it is a general theory that does not specifically address the issue of disability therefore it needs to be complemented by the social and social justice models of disability (Oliver and Barnes 1998). These two are combined because the social model of disability concentrates on changing the society and the environment to include disability issues while the social justice model brings on board the issues of justice even as the environment is transformed to include disability issues. The social constructivism paradigm brings on board issues of social constructivism in terms of knowledge, truth and values.

According to the constructivism paradigm, knowledge, truths and values about disability are socially constructed and therefore they are bound to change from one social setting to the next ((Berger& Luckmann). The systems theory conceptualizes universities as social systems for social transformation. The constructivism paradigm the social model of disability and the social justice model interact to view disability as a socially constructed illusion that creates barriers to disenfranchise PWD from social and economic participation. The social model of disability, the social justice model and the constructivism paradigm cannot interact outside of a social system. These four theories are therefore not mutually exclusive as pillars of this research. Fig 1 illustrates this connection.

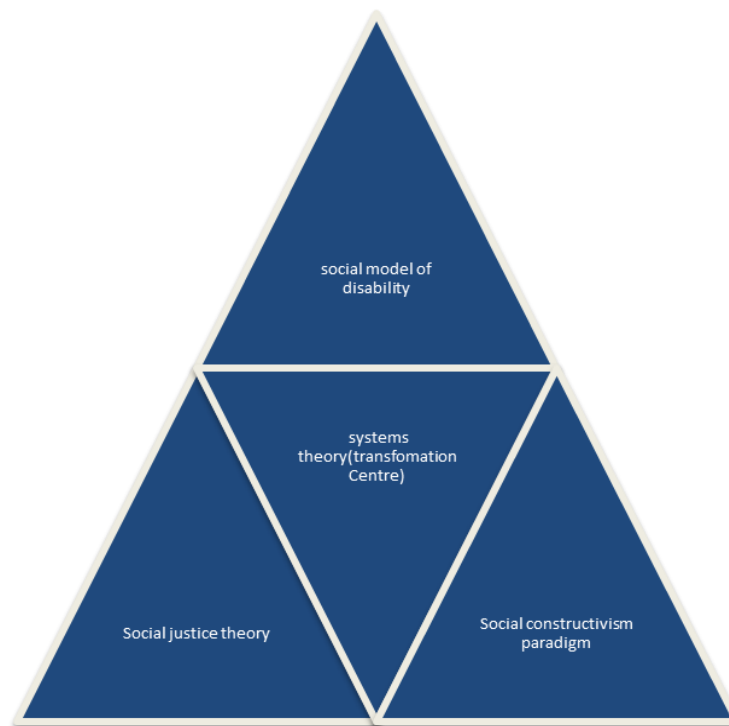


Figure 1: Interaction among the open systems, social model of disability, social justice model and the social constructivism paradigm

1.17 The social model of disability

The pioneer of this model is Mike Oliver (1990). He views disability as a socially constructed phenomenon. The Social Model locates disability in the society not in the individual. Instead, it identifies social prejudices inaccessible environments, discriminatory work arrangements and segregated education as disabling societal elements ((Oliver, 1990). Elsewhere the assertion is that disability is a social organization (Barns; 1991, Oliver; 1996). By breaking the causal link between impairment and disability, the UPIAS (1976) and Oliver and Barnes (1998) offer disabled people an effective bargaining tool that facilitates the identification of environmental, attitudinal, institutional and economic barriers that affects their daily

lives. The university may promote these barriers by failing to provide accessible infrastructure with ramps, walkways, lifts and tactile surfaces. Discriminatory societal practices become the focus for change and a platform to push for equality rather than medical interventions, welfare solutions and charitable acts. The model provides an empowering proactive approach against disabling aspects of society (Oliver, 1990).

Disability is therefore not a product of bodily pathology, but of specific social and economic structures. These structures are responsible for the exclusion of PWD from their full participation in mainstream social activities (Oliver, 1990, 1992, 1996). It is not individual limitations, of whatever kind, which are the cause of the problem but society's failure to provide appropriate services and adequately ensure [that] the needs of PWD are fully taken into account in its social organization (Oliver; 1996,). Persons with disability are an oppressed social group (Oliver, 1983; Oliver, 1992; Oliver, 1996).

The oppression is attributed to the capitalist mode of production or the structures of industrial capitalism and the demands for increased productivity, whereby impaired people are marginalized (Oliver, 1983). Once social barriers towards integration of people with physical impairments are removed, the disability itself is eliminated. The proposition is that there needs to be changes to society, material changes to the environment, changes in environmental control systems, changes in social roles, and changes in attitudes by people in the community Finkelstein (1980).

From this understanding a university has a role to remove all socially constructed barriers that hinder access to higher education for students with disabilities.

University administrators need to understand that handicaps affecting students become disabilities during their interaction with discriminating and marginalizing socially constructed environment become disabilities.

1.18 Conceptual framework

The Researcher's conceptual framework has looked at independent variable as comprising of institutional infrastructure, lecturers with the right competencies to meet the learning needs of SWD and a curriculum that is disability inclusive. The dependent variable comprises of the indicators of access as presence, participation, acceptance and achievement quantified through transition/survival rates, academic achievement/grades, admission ratios and course options. In between there are intervening variables such as institutional challenges, students' economic status, nature of disability and ethos that are likely to manipulate the independent variable. Figure 2 illustrates the conceptual framework.

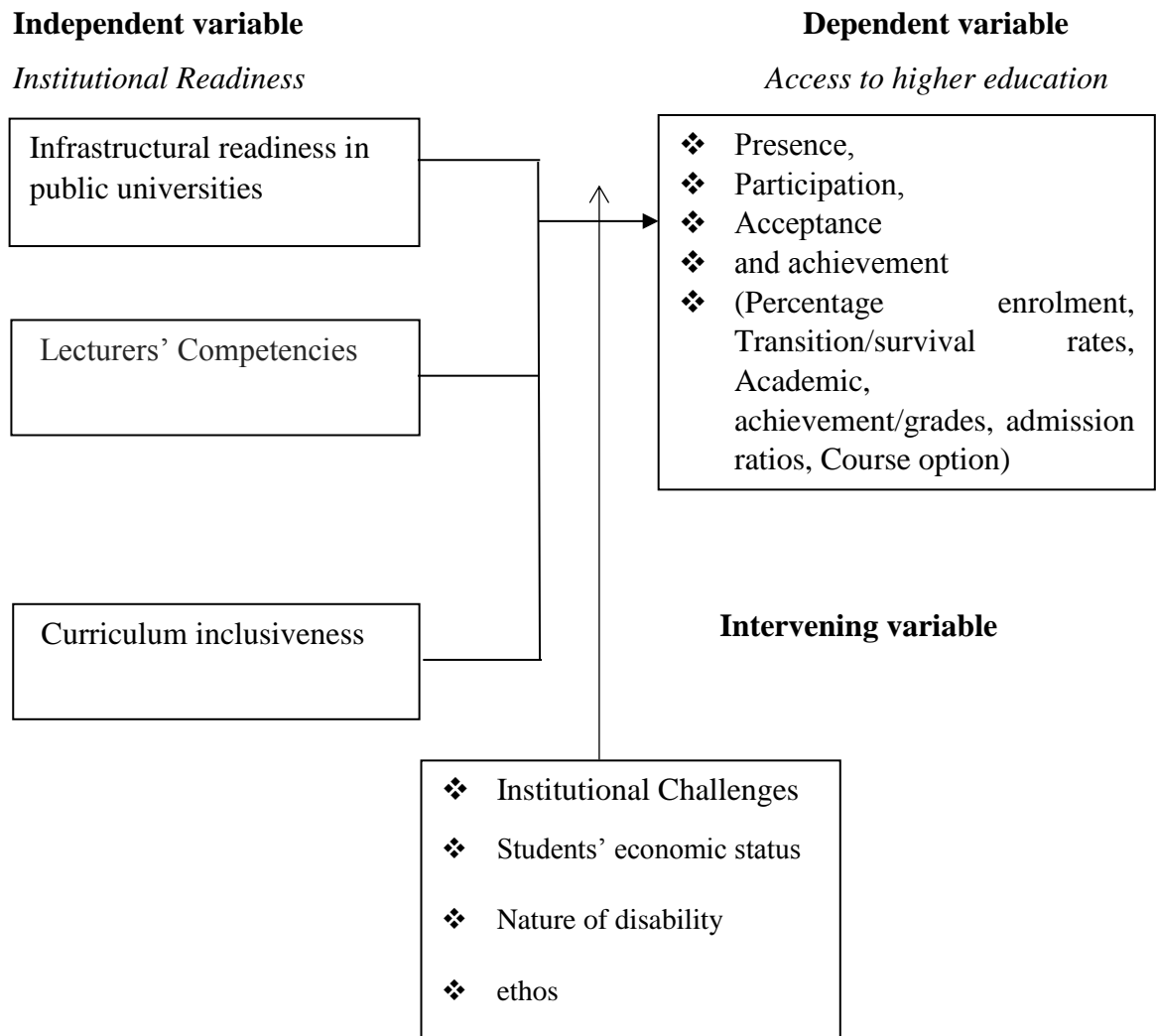


Figure 2: Conceptual framework of the study

1.19 Definition of operational terms

Access: Opportunity to learn (presence, participation, acceptance and achievement) without physical or social barriers

Access to higher education: Opportunity to learn (presence, participation, acceptance and Achievement) in the university devoid of the effect of physical or social barriers

Curriculum: deliberately designed course content, design and structure for university students

Disabled: A person whom the social or environment barrier has limited their full participation in social and economic activities as a result of their bodily impairment

Disability: an imposed social or environmental barrier that limits individuals from full Participation in social and economic activities as a result of their bodily impairments.

Disability friendly infrastructure: That which is constructed to be accessed independently by PWD

Disability inclusive curriculum: One which the design is flexible enough to include the special needs of students with disability

Education: A deliberately designed programme to provide academic and social experiences to SWD in the university which has a lifelong impact to them

Environment: A social or physical phenomenon that may enable or hinder accessibility

Facilities: any tangibles or intangibles that remove barriers to access to higher education

Higher Education: University level of education

Lecturer competencies: demonstrable abilities required for effective application of

Knowledge, skills and attitudes to meet the needs of a SWD

Institutional readiness: The institution's disability inclusiveness in all her academic and non-academic programmes as well as the physical and architectural environment

Institutional policies: A University's position on disability issues

Students' economic status: Financial status of a student with disability

Nature of disability: The type of impairment and how it affects the life of the affected individual

Lecturer's experience: The systematic professional growth and exposure of a lecturer in the career

Ethos: The social characteristics of a university environment

1.20 Summary

The foregoing section has described the background to the research, stated the problem, and tried to justify why the research is significant. The purpose of the study has been stated and objectives as well as research questions. The systems theory, the social model of disability and the constructivism paradigm have been discussed in detail as pillars of the research. Definition of terms has also been given and finally the conceptual framework. In the next section the researcher reviews related literature to the research.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This section consists of a review of literature along the objectives of the study as outlined in chapter one. Its purpose was to establish the status of readiness of universities in terms of infrastructure, lecturers' competencies curriculum inclusiveness as well as challenges that universities experience in order to identify the existing gaps in the available research so far.

2.2 Definition of disability

Disability definition is as complex as the phenomenon itself. In this section a discussion of some models of disability is presented in order to explain the meaning of disability in the context of this study. Only the models that are relevant to the study have been discussed. Each model presents disability from a unique perspective and each has an important contribution in the formation of the foundation of this study. There is the medical model, the functional limitations model, the minority group model, the social justice models the universal model and the social mode of disability.

2.2.1 The medical model of disability

This model considers disabilities as medical conditions to' be treated and people with disabilities as invalids (Hughes, 2002). Disability is seen as a medical problem that resides in the individual. That disability is a defect in or failure of a bodily system and as such it is inherently abnormal and pathological(Olkin ,1999) .The use of terms like 'invalid', 'cripple', 'spastic', 'handicapped' and 'retarded' are all derived from the

medical model because PWDs deviate from what is normal (Creamer 2009). The focus is on what the person cannot do and individuals with disabilities are expected to accept and adjust to their conditions (Michalko, 2002). The medical model tends to regard the person with disability as the one who needs to change or be fixed, not the conditions that might be contributing to the person's disability (Kasser & Lytle, 2005). Apparently, individuals with disabilities are viewed as sick, therefore participation in activities considered as normal medically, such as attending school, are supposed to be inappropriate or impossible (Parsons, 1951). According to this view, disability is an illness which is treated by means of medical interventions, such as medication, surgery or any other means of correction and rehabilitation to address symptoms and problems associated with it. Subsequently it is doctors and other medical professionals who determine how individuals with disability should live their lives, rather than themselves (Friedson, 1965). Accordingly learning institutions that adopt this model emphasize provision of individualized accommodations by seeking prior information about how a student's disability affects their daily care as well as their learning just like the hospital would about terminal patients. Most Kenyan learning institutions ascribe to this model. Some studies have also proposed this model (Wanja, 2016). This model fails to differentiate between disability and illness. It lumps all of them together.

2.2.2 The functional limitations model

Society has predetermined standards of performing daily activities and these are termed as normal. A deviation from these standards is viewed as abnormal. Disability, however, often prevents activities from being carried out in a normative manner. For instance, if one cannot walk, entering buildings with steps complicates and

accentuates their condition. Proponents of the functional limitations model assume that it is up to the individual to adapt to the situation created by his or her disability (Michalko, 2002). Like the medical model, the functional limitations approach views disability as a matter the individual must circumvent and overcome (Jones, 1996). Since disability is located within the individual, persons with disabilities must find ways to adjust to the environment (Michalko). This is accomplished through rehabilitation and adaptation. Persons with disabilities are subject to extensive evaluation and assessment to determine the full extent of their inabilities. Attempts are then made to find ways to accommodate the individual in the mainstream situation. The National Council of Persons with Disabilities promotes this practice as a prerequisite before students with disability can enjoy collateral benefits associated with disability. This perspective provides a logical framework within which service providers in higher education base the identification of accommodations that will enable students with disabilities to attend college and complete classes successfully. However these accommodations create inequalities because individuals with disabilities get separated from their peers during these “special” arrangements where they must take tests in different locations from their classmates eat their meals in separate places or use a special entrance to a building that accommodates their disabilities. Furthermore, those providing accommodations get socialized that they are doing student with disabilities a favor. They subsequently may convey pity, condescension, or contempt for being asked to provide these services. Public universities in Kenya seem to subscribe to this model as well (Wanja, 2016)

2.2.3 The minority group model

With the growth of the disability rights movement in the 1970s, a new perspective of disability developed that focused on the experiences of people with disabilities as members of an oppressed group (Michalko, 2002). Like the experiences of less dominant ethnic, racial, and sexual identity groups, people with disabilities were sharing commonalities based on the discrimination and alienation they dealt with in mainstream society (Jones, 1996). Taking ownership of their lives, people with disabilities rejected society's view of disability as an impediment and took on a disability identity that was political in nature (Michalko, 2002). Some proponents of this model have suggested that the unique shared experience of people with disabilities creates a distinct disability culture; at the least they share an understanding of life as a person with a disability that creates a bond. Although this model does empower individuals with disabilities, disability is still assumed to be an individual trait and individuals with disabilities assume the role of victims of oppression (Jones, 1996). In the college setting, adherents to the minority group model strive to create a group consciousness among students with disabilities, providing vehicles for students to come together to advocate for their rights. Increased visibility and awareness of the issues and injustices faced by students with disabilities would be a goal of service providers using this perspective. Although admirable goals, the onus for change is still left to individual students and the institution is not held responsible for seeing that all students are treated as equally worthy of an inclusive education.

2.2.4 The social model of disability

Unlike the minority group model, the social model focuses on the source of the stigmatization and oppression experienced by individuals with disabilities, finding it in the norms of society that privilege certain ways of being over others (Guy Et al 2004). In effect, society “creates” disability by considering some forms of being and doing as normal and correct and others as dysfunctional and not normal. In this model, the source of the “problem” of disability is a biased and excluding environment rather than an impaired individual (Guy Et al 2004). It is the environment that needs to be changed rather than the individual (Fine & Asch, 2000). Proponents of this model work to ensure that environments are barrier-free and welcoming to all people. This perspective has led to the development of Universal Design (UD) principles, both in architecture and instruction.

2.2.5 The social justice model

The Social Justice Model combines elements of the Minority group Model and the Social Model of Disability. It puts the individual and the environment into consideration. This model emphasizes the role played by privilege and oppression in determining the experiences of individuals with disabilities. Social justice theorists stress that individuals without disabilities in society have traditionally possessed the privilege and power to determine how individuals with disabilities—the oppressed group— are viewed and treated. A major goal for social justice advocates is the elimination of inequality between the able bodied and the disabled, the discrimination and exclusion of persons with disabilities along individual, institutional, and societal levels (Rauscher & McClintock, 1997). Like the social constructionists, social justice

theorists argue that what causes persons to be disabled are the imposed social, economic, and environmental barriers rather than their physical, psychological, or developmental conditions or impairments (Griffin, Peters, & Smith, 2007). The social justice model's goal is to achieve a reinterpretation of normality so that physical, mental, and sensory differences are no longer viewed as abnormal (Griffin et al. 2007). The social justice perspective also considers the interaction of impairment with other social identities, such as gender, sexual orientation, or ethnicity, as well as the environmental contexts in which individuals find themselves and the specific nature of their impairments; in this way, individuals are viewed as multidimensional and unique (Castaneda & Peters, 2000; Griffin et al. 2007). Because Universal Designs focuses on changing the environment rather than requiring the individual to adjust to it, social justice advocates view this intervention positively. In addition, the principles of UD are based on respect for the human dignity and self-authorship of all students, as stressed in this model (Griffin et al.).

2.2.6 Universal design model

Universal Design (UD) began as an architectural concept, a proactive response to legislative mandates as well as societal and economic changes that called for providing access for people with disabilities (Burstable 2007). It is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, regardless of their age, size or disability. This includes public places in the built environment such as buildings, streets or spaces that the public have access to; products and services provided in those places; and systems that are available including information and communications technology (ICT). It applies seven principles namely: Equitable use, flexibility, simple and intuitive,

perceptible information, tolerance for error, low physical effort, size and space for approach and use. This model accommodates everyone irrespective of disability and minimizes the feeling of different among persons with disability.

The Americans with Disabilities Act (ADA) of 1990, defines disability as a physical or mental impairment that substantially limits one's ability for one or more of life's major activities. This definition locates disability within the individual. It views disability from the medical model's perspective. It implies that disability is an issue that belongs to the affected individual. This definition does not look at the interaction of the physical and social environment with the individual's impairment and the resulting effects. The United Kingdom Disability discrimination ACT 1995 defines disability as a physical or mental impairment which has a substantial and long-term adverse effect on an individual's ability to carry out normal day-to-day activities. This definition still links disability to an individual but seems to incline towards the functional model of disability. These definitions are inclined towards the medical and functional models of disability which looks at disability as a problem inherent within the individual and which must be corrected through rehabilitation or providing for special accommodations.

The social model on the other hand, views disability as a socially created problem and not at all an attribute of the individual. The genesis of this view is the definition of disability first advanced in 1976 by the UK's Union of the Physically Impaired against Segregation (UPIAS) which defined it as the disadvantage of restriction of activity caused by a contemporary social organization which takes no or little account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities (UPIAS, 1976). Disability is a condition caused

by an accident, trauma, genetics or disease that may limit a person's mobility, hearing, vision, speech or mental function" (Reynolds et al 2014). Disability exists as it is situated in the larger context, while impairment is a biological condition (Braddock and Parish 2001). Handicap is a physical and attitudinal constraint that is imposed by the environment upon a person regardless of whether the person has a disability. For example, some people with disabilities use wheelchairs. Stairs, narrow doorways and curbs are handicaps imposed upon people with disabilities who use wheel chairs (Reynolds et al 2014). Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others(UNCRPD, 2006).

The Disability Act 2003 of Kenya defines disability as a physical, sensory, mental or other impairment including any visual, hearing, learning, or physical incapability, which impacts adversely on social, economic or environmental participation (Republic of Kenya, 2005). This definition suggests that disability is not entirely an attribute of an individual, but rather a complex social and environmental construct largely imposed by societal attitudes and the obstacles in the human-made environment. This definition inclines towards the social model of disability. This research will define disability from the perspective of the social justice model of disability as well as from the social model of disability as the imposed social, economic, and environmental barriers rather than the physical, psychological, or developmental conditions or impairments. It will also incorporate the universal design model because the imposed barriers limit individuals from full participation in social and economic activities. This definition upholds the dignity and respect for PWD.

They have equal rights to access essential commodities including education. This stand guides the researcher into examining infrastructure, lecturer's competencies and curriculum inclusiveness as determinants of access to higher education by students with disabilities from the point of view of the mentioned models of disability.

2.3 Institutional readiness

The researcher has come across very limited literature that has attempted to define institutional readiness within the scope and meaning in this research. Olusegun and Ojo (2014) define it as preparedness of an organization to respond to changes and adapt to new ways of doing things. However in the context of this study institutional readiness means the way a university has prepared herself in anticipation of meeting the needs of students with disabilities in terms of accessible buildings, the physical environment (pavements, walkways, fields and any other physical facilities.), curriculum /teaching / learning materials and the competencies of lecturers who teach these students irrespective of whether the university has enrolled students with disabilities or not. Institutional readiness deviates from the concept of providing individualized accommodations because the later focuses on the individual and how the disability affects them, and this accentuates the feelings of different by PWD among those without disabilities. Individualized accommodations make special arrangements for SWD from time to time depending on the information that a student discloses. These kinds of arrangements are bound to be sporadic and unpredictable sometimes. Institutional readiness focuses on the institution and how it should prepare itself to meet the needs of individuals with disabilities. The goal of institutional readiness is to create an environment that does not limit the activities of PWD in any way.

2.4 Infrastructure readiness and access to higher education by SWD

Accessible infrastructure is a critical factor in the life of a person with disability. Infrastructure services have a central role as an enabler or barrier in the daily activities of a PWD. The fundamental goal of all infrastructure development should focus on accessibility of environments, opportunities, and equal participation in all spheres of life. Infrastructure in the university should allow for presence, participation, acceptance and achievement for students with disabilities. A comprehensive description of how institutions of learning must transform to facilitate access is described by various tools (CRPD, 2006, ISO: 21542, UN, 2003). The Convention on the Rights of Persons with Disability in article 9, gives enough details on accommodations that need to be made to equalize opportunities for social inclusion of persons with disabilities. The CRPD has now given more weight and direction to various policies and different regulations that were promulgated within the past decades in countries around the world on the need to make the built environment able to cater for the disabled. Physical access is considered as one of the major obstacles for access by disabled students. UN (2003) has given a universal design standard for infrastructure that is accessible to PWD. It gives specifications and standards for infrastructure that is usable for all including PWD. Such architectural design considerations include specifications for ramps, elevators, lifts, stairs, ,entrances, vestibules doors, corridors, rest rooms, railings and handrails. In looking at readiness to access, this study will focus on existing infrastructure in the universities and how it affects access to education. Imurana, and Arko (2017) in their study of four public universities in Ghana observed that mega structures are built in public tertiary institutions without due consideration to physical access of students with disabilities.

Consequently, having access to these mega infrastructural facilities (i.e., lecture halls, libraries, laboratories, transport and other essential facilities) by students with disabilities remain a daily nightmare. They assert that the high rising infrastructure on campuses affect students with disability in several ways: first, they are unable to cope with the demands of tertiary education owing to the inability to reach some facilities on time to do assigned project works or weekly assignments such as libraries, computers (this is a major challenge to blind students) and lecture halls. Second, the daily hassle students with disabilities always go through descending from one lecture theatre and commuting to another is a bane to effective academic work. Their research of four universities in Ghana led them to conclude that many of the lecture halls, halls of residence, amphitheatres and library facilities and even taxi cabs on campus, are not user friendly to students with disabilities. Weston (2017) carried out a study of a survey design to showcase burdens faced by the physically-disabled University of Texas Austin campus community, assess public perceptions of UT's accessibility and safety, and ultimately start a conversation that will lead to more thoughtful campus planning and improved safety for all. The findings were that campus infrastructure was not accessible and safe to the physically disabled community.

Although this study had a different objective it has a convergent point with the current study because it was concerned with accessibility of the buildup infrastructure and its impact on the physically disabled members of the university community. The divergent point is that the study was not looking at accessibility and its impact on access to education for SWD. Borland and James (1999) in their case study of a UK university concluded that physical access issues for students with a range of disabilities are extremely complex. Physical access is to do with the ability to move

easily without restrictions either vertically or horizontally and around a facility or feature inside or outside the premises. Physical access is a much-discussed subject among disability professionals. Various studies on accessibility provision emphasized the helplessness of the disabled in an inaccessible built environment and recommended ways to make the environment disabled friendly (Carr, Francis, Rixlin, & Stone, 1992). The disability right movement around the world promoted the idea that disabled people should have equal accessibility right to every public facility through architectural modification. Accessibility to the built environment is one of the significant barriers to the full participation of PWD in the society (Clarke et al., 2011). For these students, decreasing barriers automatically increases their level of well-being. Wasim (2018) observes that students with disabilities in India continue to encounter physical barriers to educational services, such as a lack of ramps and/or elevators in multi-level buildings, heavy doors, inaccessible washrooms, and/or inaccessible transportation to and from institutions. He concludes that disability unfriendly infrastructure poses challenges to SWD in the university setting.

Nel et al (2015) carried out a study in one university in South Africa. This was a qualitative investigation into the challenges experienced by Students with Physical Disabilities (SWPDs) at the University of Limpopo using a Thematic Content in their Analysis. They discovered that physical environment of universities impacts on the experiences of students with physical disabilities. In their study, they concluded that disabled students faced difficulties with access to buildings because of the stony floor (cobble stones), lack of lifts in some buildings, no cover between lecture halls, which means that disabled students are unable to walk to lectures on crutches holding an umbrella thus, they either get wet (and possibly sick) or do not go to lectures when it

is raining. There is no access for students in wheelchairs to some lecture halls on campus. Disabled students often become fatigued trying to find their way around campus, particularly if they are using crutches as they expend more energy than able-bodied students. This can lead to lack of concentration in the class. Physical barriers are significant challenges at the university as experienced by the participants relating to their ability to get to lectures or social gatherings. The study concluded that the poor infrastructure at the university poses many challenges and barriers to students with physical disabilities; it prevents them from being able to move freely, which at times, makes them to stay in their rooms thus increasing their isolation. This study was only looking at the challenges of physically disabled students.

Morina & Morgado (2018) in their study on architectural barriers and infrastructures as identified by university students with disabilities in one University in Spain using a biographical narrative methodology found out that the university centers they studied still required a certain degree of adaptation and readjustments to make them fully accessible for and usable by all students, specifically common spaces at universities must be accessible, with signage, ramps, wide and toilet doors, anti-slip strips and adapted lifts. Furthermore, classrooms must be designed without steps, and should have spaces reserved in the front rows for students with disabilities, with adequate audibility and visibility where there are new technological facilities. They concluded that the obstacles that university students face are in their surroundings. In other words, they are structural barriers rather than personal or individual barriers, as recognized by the social disability model and logically they affect access to education by disabled students. This study differs with the current one in terms of scope and methodology. They collected data from students with disability from only one

university. This study has a wider scope and participation where administrators and lecturers are also informants.

Morley and Croft (2011) in a study entitled 'Widening Participation in Higher Education in Ghana and Tanzania: developing an Equity Scorecard' (WPHEGT), funded by the Economic and Social Research Council and the Department for International Development, was a mixed-methods study of two public and two private universities. The study concluded that the built environment was designed solely for non-disabled people. This created the obvious access barriers and impeded independence, as disabled students had to rely on peer support. There was total lack of attention to universal design. There were some clearly stated connections between the built environment and barriers to learning. The library, science laboratories and many classrooms were only accessible by stairs: Problems with the built environment and normative assumptions about physical mobility involved residential as well as teaching accommodation.

Majinge (2014) investigated access to the information resources available and the layout of library buildings in five universities in Tanzania for people with visual impairments and in wheelchairs. The findings revealed that academic libraries in Tanzania provide services to people with visual impairments and in wheelchairs which are not inclusive or universal. This study however only looked at the library infrastructure.

2.4.1. Infrastructure and access to higher education by SWD in Kenya

Article 54 (b) and(c) of the constitution of Kenya and the Persons with Disabilities (Amendment) Act 2019 (g) provide for the right of PWD to access educational and

public infrastructure without discrimination. Consequently, the National Council for Persons with Disability (NCPWD) has prescribed International Standards- Universal Design Model ISO: 21542(2011) for building, construction, accessibility and usability of the built environment to give specifications of infrastructure that is disability friendly. All public buildings including those in universities are supposed to subscribe to these standards. There is however a dearth of research and literature on how Kenyan public universities have designed their infrastructure to meet the needs of SWD.

Mwirigi (2017) in a study on factors affecting access to buildings by Physically disabled persons in Meru town in Kenya concluded that the regulations on the provision of modifications to suit disability on public buildings has not been enforced. His target population comprised of 100 disabled persons registered with the Association of the Physically Disabled of Kenya (APDK), ten (10) County planning officers and eighteen (18) consultants using a descriptive survey methodology. He specifically found out that there was no provision of ramps for wheelchairs on the buildings. His study was confined to the physically disabled people and their access to public infrastructure within Meru town. This study differs with it because it looks at access to infrastructure within public universities using a basic qualitative research methodology. His study used Post-Structural Resistance Disability theory as the pillars of the research while the current study uses the systems approach and the Social Model of disability as its theoretical framework. Furthermore, his study was done in Meru town while this study will be done in Kenyan public universities and focuses on infrastructural readiness for access to higher education. His study was based on the physically disabled only and it did not have the variable of higher

education, which is a major diversion from the current study. Nevertheless, it provides a basis for application to a university setting, given that it was a study on public infrastructure. It is therefore important due to its similarity to this study.

In their descriptive survey analyzed through both quantitative and qualitative methods on a sample of 13 secondary schools' principals and 140 teachers, Gathumbi et al (2015) found out that physical infrastructure and instructional resources were unsuitable to support learners with special needs. There was generally lack of preparedness for learners with special needs in those selected schools. This study differs with the current one in terms of methodology and the target population. The study also left out students' views in terms of preparedness, gaps which this study intends to fill. University infrastructure in Kenya posed challenges to female SWD. Halls of residence were completely inaccessible and had no accessible washrooms. The same applied to the library, administrative buildings, and lecture halls noted Opini (2009).

Kithuka (2018) carried out a study about factors that influence PWD readiness to participate in development. She concluded that infrastructure was one of the major factors. Her study focused on the readiness of PWD to participate in development while this study looks at the readiness of institutions of higher learning to meet the needs of SWD. Her study compares with this study because both studies look at how infrastructure affects the activities of PWD. The study however differs with this one because it focused on the individual and it used a descriptive survey research design.

Maingi-Lore (2016) wanted to find out factors influencing the academic performance of students with special needs in middle level colleges. One of the factors was how

physical facilities influence the academic performance of Special Needs students in middle level colleges. She concluded that adapted classrooms influenced the academic performance of SWD. Her study however was about academic performance while this study looked at access.

2. 5 Lecturer's competencies and access to higher education by SWD

A competence is combination of observable and measurable knowledge, skills, abilities and personal attributes that contribute to enhanced employee performance. Competencies are required for effective performance of a task. To be competent is to have the ability to apply knowledge, skills and attitudes to a situation in a more professional manner. Lecturers are not only supposed to earn an advanced degree in the specific discipline, but also, they must possess strong abilities, values, attitudes and motives to be able to deliver effectively. Thus, with competencies, lecturers are more likely to produce successful graduates. Available research has discovered that competences of lecturers in the university are exceptionally important, because faculty members are the foundation of new knowledge creation as well as novel values which are of great benefit to a university as well as to students (Blaskova, Blasko & Kucharpikova, 2014). There are a variety of researches pertinent to lecturers' competencies. However, the researcher has not come across any that links them to access to higher education by students with disabilities.

McNicholl et al (2019) carried out a study on the impact of assistive technology use for students with disabilities in higher education. They used qualitative, quantitative and mixed methods as their research methodology. Using PRISMA guidelines five databases were searched, namely: PsycINFO, PubMed, CINAHL, ERIC and Web of

Science (Social Sciences Citation Index; SSCI). They concluded that assistive technology users and AT officers must be aware of certain factors, such as inadequate AT training. However, they did not look at as part of technological competence among university lecturers that is crucial for access to education by SWD. A gap which is of curiosity to this the researcher.

Ng Chaw Gee (2018) in a study that investigated the impact of lecturers' competencies on students' satisfaction at one of the private tertiary institution in Malaysia concluded that lecturer competencies affected student's performance. A quantitative research method was used to collect data from 327 students. Data collected from the different academic programmes were analyzed by using Pearson Correlation Analysis and Multiple Regression Analysis. The study identified ten lecturers' competencies that were tested with the students' satisfaction. The results revealed that there is a positive correlation between these two variables. Lecturer's competencies influence student's performance. This study differs from the current one because it was a correlation study that measured competencies in relation to student satisfaction. It also differs in terms of categorization of competences. The current study has identified twenty-six (26) competences and collapsed them into four types namely: Professional, pedagogical, technological and communication competences. Also, it seeks to find out if competencies of lecturers affect access to higher education by disabled students.

Holand and Horby (1992) carried out a research on the perception of teachers and experienced special needs educators on 46 competencies. This study undertook to investigate classroom teachers' priorities regarding INSET in SEN by comparing their ratings of the competencies required for teaching children with SEN with those of

experienced special educators. In this way it was intended to determine whether both groups would have similar or differing views of INSET needs for SEN and to establish a set of agreed competencies for such training. The forty-six competencies were rated, on a scale from one to five by thirty senior education professionals, including educational psychologists, advisers, head teachers at special schools, and heads of learning support services. Competencies with higher ratings were considered to have higher priorities for INSET. The questionnaire from the study conducted by Hornby et al. was used. The subjects were asked to rate the forty-six competencies for teaching children with SEN on a scale from one to five, where one was 'not important' and five 'very important'. The questionnaires were posted, with a covering letter and stamped addressed envelope, to the school addresses of the teachers. Thirty out of forty-seven questionnaires were returned. There was a high degree of agreement between the overall ratings of the forty-six competencies by classroom teachers and senior professionals in the field of special education. Therefore, it was concluded that the forty-six competencies were important for effectively teaching children with SEN. This research is important to this study because it provides a basic agreement that indeed teacher competences are crucial in access to education for students with special needs not only at elementary school level but by extension university level.

Towanda (2019) used an interpretive qualitative research methodology to find out the teaching competencies special educational needs teachers in Midlands's educational province of Zimbabwe perceive as key for inclusive education. Samples of 24 public primary schools were purposively selected from urban, semi-urban, and rural settings. A total of 24 primary school teachers (18 males, 6 females), three teachers per grade from Early Childhood Development class to Grade 7 were interviewed. The teachers

taught children with the following disabilities: seizures, attention deficit hyperactivity disorder, learning disabilities, visual impairment, physical disabilities, hearing impairment, and emotional/behavioral disabilities. The researchers assessed the competencies of screening and assessment, differentiation of instruction, classroom and behavior management, and collaboration. They concluded that there was need for the government to mandate pre-service and in-service training of teachers on these competencies. Although this research was done at primary level, its findings are important because it raises some questions about competencies at university level. Students with disabilities at university level have diversified learning needs. It is imperative that lecturers must possess the highlighted needs within this research. A glaring gap in this research is the absence of the competency of integration of various technologies in teaching and learning. The current study seeks to look at more competencies for the lecture's and how they influence access to education by SWD in the university.

Gathumbi et al (2015) carried out a survey study on teacher competency in special needs education in 13 secondary schools in Kenya. The sample included 140 teachers who responded to 12 statements that intended to measure their competencies. They concluded that there is need to develop knowledge base on inclusive education, to meet learning needs of individual students with special needs. Teachers needed to undergo periodic refresher courses to develop their competencies to effectively handle these learners. This study however was carried out in secondary schools hence the need for the current study which will be done at higher education level. The study did not validate the response of teachers with that of disabled students. This study will fill this gap.

Kigen (2017) examined competencies of 624 primary school teachers who oversee implementing the curriculum for special needs education in Kenya. The findings indicated a higher proportion of teachers unable to deliver services to Special Needs learners since they are trained but not competent. He concluded that this could be the reason why many children with disabilities remained out of school or were excluded from the learning process within schools. This study however examined competencies among primary school teachers. The current study seeks to study competencies of university lecturers and how they affect access to higher education by disabled students.

2.6. Curriculum inclusiveness and access to higher education by SWD

Gebrehiwot, (2015) defines curriculum as: the plans made for guiding learning in the schools, usually represented in retrievable documents of several levels of generality, and the actualization of those plans in the classroom, as experienced by the learners and recorded by an observer; those experiences take place in a learning environment that also influences what is learned. Glatthorn (2000) identified seven types of curricula as follows: Recommended curriculum- (proposed by scholars and professional organizations); written curriculum (appears in school, district, and division or country documents); taught curriculum ;(what teachers implement or deliver in the classrooms and schools); supported curriculum(resources like textbooks, audio/visual materials which support and help in the implementation of the curriculum) ; assessed curriculum (that which is tested and evaluated) ; learned curriculum(what the students actually learn and what is measured) and the hidden curriculum(the unintended curriculum).

Curriculum therefore must allow for accessibility and participation by every student. Scholars have identified two models of curriculum inclusiveness as the Accommodation Model (AM) and Universal Design for Learning (UDLM), (Potzo and Chipika, 2019; Gebrehiwot, 2015). A UDLM which is a replica of Architectural Universal Design Model (AUDM) is applied to meet the needs of all learners in curriculum development. Its aim is to promote inclusivity of the curriculum by increasing participation and progress for all learners irrespective of their differences and is a relatively new concept (Gebrehiwot, 2015). Based on the work of Chickering and Gamson (1987), there are steps in this concept which can be unpacked as follows: creating welcoming classrooms; determining the essential components of a course; communicating clear expectations; providing constructive feedback; exploring the use of natural supports for learning, including technology, to enhance opportunities for all learners; designing teaching methods that consider diverse learning styles, abilities, ways of knowing, and previous experience and background knowledge; creating multiple ways for students to demonstrate their knowledge; and promoting interaction among and between faculty and students (Center for Universal Design, 1997; Fox, Hatfield, & Collins, 2003) in Jean Hagbee & Goff,(2008). This concept resonates well with what institutions need to consider in their readiness for access by students with disability. It is crucial for institutions to adopt a curriculum that is accessible by all irrespective of disability in readiness for SWD.

Makanya (2015) suggests the following strategies for enhancing access and participation of SWD in the regular curriculum: curriculum adaptation; differentiated instruction; learner-centered classrooms; continued educator development; collaboration with other professionals; learner peer support; collaboration with

parents and teacher support. According to Gebrehiwot (2015) accommodations required by SVI to fully participate in the teaching and learning process can be categorized into eight as follows: Flexible teaching; appropriate sitting arrangements; adaptations to institutional policies and procedures; access in all areas of the curriculum through specialist aids and assistive technologies; access to alternative or augmented forms of communication; provision of tactile or kinesthetic materials time allowances; and alternative assessments. His categorization is an inclination towards the accommodation model. The accommodation model just like the medical model locates disability within the individual not the environment. This research looks at disability from the point of view of the environment and its effect on the abilities of persons with disability.

Paseka & Phasha (2017), examined students' with disabilities access to curricula at a higher education institution in Lesotho using three methods: in-depth interviews, focus group discussion and document analysis targeting eleven students with various types of impairments and 15 academic and nonacademic staff members currently working in close proximity with students with disabilities revealed inconsistencies between the institution's non-discrimination admission policy and its practice. They concluded that the needs of SWD are not fully accommodated in the curriculum.

Chioma (2012) looked at the extent and nature of the integration of disability in the curriculum of the Faculty of Humanities, University of Cape Town. The findings of the study revealed that although disability is included in the Faculty of Humanities, it is quite minimal, and staff includes disability in their teaching and research mostly out of personal interest than as part of departmental agenda.

2.7. Challenges hindering universities from readiness for access to education by SWD

Healey et al. (2011) posit that the stereotyping of the abilities of students who have disabilities leads to negative ideas being reinforced and is reflected in a continuing cycle of discrimination. This always seems to be a major challenge hindering university from being prepared for access to education by students with disability. Physically disabled students reported that peer group and lecturer discrimination and stigmatization are significant, and they affect their social integration.

A challenge also arises because access is multifaceted and must include a review of pedagogic practices, assistive provision (technological and personal), student's engagement with their workload (e.g. recording) and evaluation procedures: achieving accreditation levels commensurate with ability (Hanafin et al 2006). This requires a reasonable budget line and financial resources are scarce.

2.8. Related research on access to higher education by SWD outside and in Kenya

Dalia & Naomi (2011) examined 170 students with disabilities and 156 non-disabled students in higher education in Israel. Their study was a comparative one and it looked at the experiences of disabled students in relation to those of none disabled students in terms of academic performance, self-evaluation of personal gains and achievements, participation and experiences throughout their studies. They focused on the respondent's personal and disability characteristics to evaluate their effect on those outcome measures. The research questions compared students with and without disabilities and students with various disabilities among themselves. The findings

revealed that there was no significant difference in the academic achievement and overall student experiences between the two groups. However disabled students spent more time on academics and less on recreational activities and use of computers. Their research differs with the current study in terms of study focus and methodology. The current study looks at institutional readiness for access in terms of infrastructure, lecturer competencies and curriculum inclusiveness using basic research methodology. This study's focus is on the institution's characteristics whereas Naomi & Dalia (2011) focused on the impact of an individual student's characteristics to achievement.

In Thailand, little is known about the interplay between inclusive higher education practices and disabled student. Baular (2012) in his findings drawn from face-to-face interviews with 12 blind students clearly concluded that unfriendly physical environments on campus, lecturers' inaccurate understanding of inclusive education, and inclusive higher education policy inconsistencies limit their active learning opportunities. His research differs with this one by the methodology he adopted and the research sample. He only researched on blind students and made his conclusion from the perspective of the students without seeking the views of staff and parents. His research was on practices in higher education and active learning. This research is looking at how institutional readiness affects access to higher education for disabled students.

Fiona (2015) studied the learning experiences of students with disabilities at the University of Manitoba in Canada. Her study design was interpretative phenomenological analysis (IPA). She specifically examined body-social challenges that disabled students still face in the struggle for inclusive higher education. Her

study centered on the interconnection between disability, the body, identity, learning, and the environment. She concluded that disabled students apart from facing learning and social challenges at the university, due to their limited embodied physiognomy and social capital (Allen, 2004) they also face career development challenges. This research was more concerned with the effect of disability to learning experience and challenges of socialization. The current research differs from this one in terms of purpose, scope and methodology.

Articles 20, 21, 43, 53, 54 and 55 of the Constitution of Kenya state clearly that every person has the right to education. There is even more elaboration that if the State claims that it does not have the resources to implement the right, a court, tribunal, or other authority shall be guided by the principle that it is the responsibility of the State to show that the resources are not available to meet that constitutional right. The State will give priority to factoring in access to vulnerable groups or individuals (women, older members of society, persons with disabilities, children, youth, members of minority or marginalized communities, and members of particular ethnic, religious or cultural communities). Articles 53, 54, 55, 56, 57, and 59 of the Constitution of Kenya 2010 have provisions on children's right to free and compulsory basic education, including quality services, and to access educational institutions and facilities for persons with disabilities that are integrated into society, to the extent compatible with the interests of the person. This includes the use of Sign language, Braille or other appropriate means of communication, and access to materials and devices to overcome constraints arising from the person's disability. There are also provisions on access for the youth to relevant education and training.

As concerns legal provisions for the disabled, there have been many notable developments in the law on the rights of the disabled in Kenya and beyond. The Persons with Disability Act 2013 came into force in June 2004. The Constitution of Kenya 2010, for the first time in Kenyan constitutional history, specifically provided for the rights of the disabled (Constitution of Kenya 2010 ;54, 55, 56). Kenya is a member of the United Nations and has also ratified the United Nations Convention on the Rights of Persons with Disabilities (CRPD) the African Charter on the Rights and Welfare of the Child, the African Charter on Human and Peoples Rights, the Convention on the Rights of the Child(CRC), and the UN Committee on Economic and Social Cultural Rights (CESCR) (Githinji, 2016). These instruments either directly or by implication provide for the right to inclusive education for Persons with Disabilities. The situation on the ground in Universities does not reflect compliance with the provisions contained in the law (Githinji, 2016). Consequently, PWDs still face exclusion in accessing university education. Githinji (2016) looks at access from the legal perspective and the research methodology and conclusions of her research are purely legal. Her perspective is purely a human right one and her target population was the physical disability. The current research looks at access from the perspective of education and what the universities have done to ensure this. The two also differ in scope.

2.9 Access to Higher Education by Students with disabilities in Kenya.

Mugo and Singhal (2010) in their discussion on the transition of students with disabilities to university in Kenya using a case study of one special school concluded that opportunities available to young people with disabilities to access university level of education are highly limited because of the inherent structural discrimination in the

system of education. Their research is however based in a school and their methodology is a case study which is quite different from the current study.

Section 3(1)(k) of the University Act 2012 of Kenya provides for promotion of equalization for persons with disabilities, minorities and other marginalized groups to higher education and section 2(b) provides for enhancement of equity and accessibility of its services. The above information reveals that limited access to higher education for the disabled is a reality and some factors leading to this have been suggested as shown above. However, this research seeks to find out institutional readiness with specific focus on Kenyan public universities. Most studies the researcher has come across on this topic in Kenya have concentrated on access to basic education. Few studies have explored access to higher education and none on institutional readiness in relation to access. The most similar studies to this one is by Githinji (2016) and Wanja (2016). Githinji (2016) looked at access to higher education from the perspective of law while Wanja (2016) looked at policies and accommodations from the perspective of the functional limitations model of disability. She looks at disability as an individual's problem to be fixed by provision of individualized accommodations. She absolves the university from being proactive in the provision of the services to SWD and proposes the same in her model where the student must apply for services in advance before enjoying them. In this study she overlooks the justice aspect towards disability her study.

Githinji (2016) concentrated on physical and visual disabilities. Her study was in four universities in Kenya. Her findings were that the extent of exclusionary measures depended on the university that a disabled person attended. Even in Universities which were found to be very inclusive, exclusionary practices existed alongside the

inclusive practices. There were no disability compliant toilets. Ramps were absent in offices, classrooms libraries and hostels. Pathways had stairs. Desks were not disability compliant. Pathways were bumpy and had stairs. There were restrictions on the choice of subjects. There was lack of exam arrangements for the disabled persons. Students also had to incur extra financial costs due to these barriers (such as replacing wheelchairs). Other barriers included lack of disability awareness of the whole University community, lack of a complaints and enforcement mechanisms, lack of financial commitment to support the disabled initiatives, lack of transport and lack of representation of SWD in student organizations and university management. Her research was based on the accommodation model which is ad hoc and lacks consistency. She concluded, from the legal point of view that there was a gap between disability law and practice.

2.10. Summary of literature review

The foregoing reviewed literature has shown that indeed infrastructure, competences of lecturers, curriculum inclusiveness and institutional challenges are crucial variables for access to higher education by students with disabilities. Various studies on the state of infrastructure have emphasized the helplessness of persons with disabilities in an inaccessible built environment (Carr, Francis, Rixlin, & Stone, 1992; Borland & James 1999; Arko 2017; Weston, 2017). Research findings have shown that inaccessible infrastructure limits activities of persons with disabilities (Clarke et al., 2011; Wasim, 2018) and adversely affects their independence (Morley & Croft 2011; Nel et al 2015; Mwirigi 2017; Morina & Morgado, 2018). These studies have not however highlighted the need for readiness of this infrastructure as a major variable that influences access to education by SWD. Likewise researchers have shown that

competences of lecturers are of exceptional importance for the creation and application of new knowledge, skills and values (Blaskova & Kucharpikova, 2014;) which greatly impacts on the student's learning achievement (Holand & Horby, 1992; Ng Chiaw Gee ,2018; Tawanda ,2019;).The(competence) ability to apply knowledge, skills and attitudes to a learning situation for a learner with disability in a meaningful and professional manner by lecturers cannot be underestimated (Holand & Horby, 1992; Gathumbi et al, 2015). This is because SWD have special learning needs that require specific competences (Kigen, 2017). However the variable of readiness of competences as an enabler of access to higher education has not been addressed by any of the studies this researcher has come across .In the same vein curriculum should be inclusive and must allow for accessibility and participation by every student.(;Potzo & Chipika; Chickering & Gamson 1987; Hagbee & Goff,2008; Gebrehiwot, 2015; Makanya ,2015). Higher education must provide a curriculum that is accessible to students with disabilities (Chioma, 2012; Paseka & Phasha, 2017 ;). Universities face challenges of stereotyping SWD among some staff members and students(Healey et al. (2011).Negative attitudes toward disability and the provision of accommodations can be summarized as an attitudinal challenge(Michalko, 2002).This leads to failure to disclose disabilities by students(Madriaga, 2002), a factor which affects the database for SWD (Githnji, 2016; Wanja, 2015). That means that universities find it a challenge to plan for SWD's needs. Disabilities are experienced differently even if they were in the same category, there is therefore the challenge of provision of individualized environments of access (Thomas & O'Hanlon. 2004). Some researchers have cited lack of faculty knowledge and awareness of the issues that face these students (Sniatecki, J; Perry, H; & Snell, (2015).Lecturer's

competencies in disability issues is also a challenge in HE institutions (Ng Chiaw Gee, 2018).

None of the literature reviewed has evaluated institutional readiness in terms of infrastructure, lecturers' competences, curriculum inclusiveness and challenges institutions experience in their attempt to provide for access to higher education by SWD. The importance of these variables in terms of access to higher education for SWD is underscored. Gaps have also been identified in terms of methodological approaches and the sampling methods and the samples of the reviewed studies. Some studies have taken phenomenological approaches while others have used grounded theory approach or even surveys (Majinge, 2016, Matshedisho. 2012, Wanja, 2016, Githinji, 2016, Paseka, 2017) and these have further provided areas of diversion with the current study.

A discussion of other related literature has shown that access to higher education by students with disabilities in Kenya is wanting and very limited research in this area is available (Wanja, 2015, Githinji 2016). Literature from India, Thailand, Netherlands, Canada, South Africa and Kenya has shown that disabled persons have challenges of access to higher education and only a small percentage manage to access (Mugo & Singhal, 2010; Dalia & Naomi, 2011; Baular, 2012; Fiona, 2015;). The studies the researcher has come across have not looked at access to higher education from the perspective of institutional readiness. Furthermore, some studies have taken the functional model limitation approach which to a great extent promotes the isolation of disabled students (Wanja, 2015). This research has used the basic qualitative research method with an inclination towards a universal design model in addressing the readiness of universities to meet the needs of students with disabilities in

infrastructure, curriculum and lecturer's competences. The universal design model will presumably address most of the challenges that are highlighted in the reviewed literature (Hanafin et al 2006; Healey et al., 2011) and what the researcher was able to establish through this research.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

In this chapter the research design and methodology as well as procedures of carrying out the research including the population of the study, the sample, sampling methods and research instruments are explained. The research paradigm has also been defined. The chapter has also discussed the validity and reliability of the study as well as ethical considerations. A snapshot of data analysis is given and finally the summary of the chapter.

3.2 Research methodology

Research methodology is a way of systematically solving the research problem (Kothari, 2004). A methodology includes an epistemological foundation and associated rules of evidence for making a claim as well as a set of practices for generating that evidence (Anderson 2012). Reasoning from this premise, this research has applied basic qualitative research to assess institutional readiness for access to higher education by students with disabilities in public universities in Kenya (Gay et al 2012). It is based on the constructivist (interpretive) paradigm (Mertens, 2010). Merriam (2009) describes a basic qualitative research as having been derived philosophically from social constructivism and which has similar characteristics as phenomenology. It is applied by researchers who are interested in: How people interpret their experiences; how they construct their worlds and what meaning they attribute to their experiences. The overall purpose is to understand how people make sense of their lives and their experiences. This method is appropriate for this study

because disability is about experiences of persons with disabilities in relation to the physical and social environments they constantly interact with. The basic qualitative research design is particularly well suited for this study because it seeks to obtain an in-depth understanding of effective educational processes (Merriam 2013). The university in particular provides a critical exposure to a wide range of rigorous educational processes that must be all inclusive. A factor that is important to this study because institutional readiness is an enabler for access to higher education for disabled students. It is a process of preparedness in anticipation for accommodation and ultimately access to education, which is a crucial and basic need for students with disabilities. The basic qualitative research method will be used to uncover strategies, techniques, and practices within universities that impact on the response, performance, well-being and wholesomeness of a student with disability.

The selected research design will attempt to uncover the respondent's experiences and the meaning s/he ascribes to those experiences (e.g., How public universities have addressed disability issues to ensure readiness for access by students with disabilities.) The following characteristics of *Basic qualitative research* aptly apply to this study: The design is generally based on a social constructivism perspective; the research problem becomes research questions; sample sizes can be small (Merriam 2009).

3.3 The Social constructivist paradigm

This study has used the social constructivist paradigm. A *paradigm* is a way of looking at the world. It is composed of certain philosophical assumptions that guide

and direct thinking and action (Mertens, 2010). These assumptions are shaped by epistemology (the nature of knowledge), ontology (the nature of existence), axiology (value consideration) and methodology (how the inquirer should go about finding out knowledge) (Mertens, 2010). In educational research, a paradigm has come to mean a framework that determines the way knowledge is studied and interpreted and the motivation and goal of the research (Mackenzie & Knipe, 2006). A number of writers have summarized this position (Lincoln & Guba 2000, Schwandt 2000, Crotty 1998). Constructivist paradigm considers knowledge as a result of an interactive link between the researcher and participants and that knowledge and reality are socially constructed. This factor was important to this study because the researcher obtained information by interacting with the participants. This paradigm looks at disability as socially imposed phenomena on top of the physical impairments suffered by a PWD. This is because of the way society is organized to exclude their full participation and realization of their potential, (UPIAS, 1975). This argument, though originally inclusive only of persons with physical disabilities, was in later years extended to include all forms of disabilities, both sensory and intellectual, (Barnes, Mercer & Shakespeare, 1999). It is therefore of paramount importance that social perception changes to ensure inclusivity of persons with disability to participate in socio-economic development.

The researcher took a constructivist standpoint because it sees the social world as the construction of individuals. The Kenyan education system has not adequately included students with disabilities in accessing higher because there is inaccessible infrastructure, non-inclusive curriculum and lecturers with special needs competencies are very few. As has already been seen earlier, this study is applied the

Social Model of disability as its 1 pillar. This model does not just address weaknesses in society as far as disability is concerned; it is also a vehicle for the promotion of mainstreaming and empowerment of persons with disabilities in all aspects of society. To validate this standpoint, it is significant to note that the researcher is a person living with disability and has experienced challenges of disabilities in social life, in school, in higher education settings as well as at the work environment. By viewing disability as a product of a dynamic interaction between humans and their surroundings, emphasis is shifted from the individual to the broader society (Oliver, 1990).

3.4 Research design

This is the road map that this researcher followed. This included the methodology (plan of action that linked methods to outcomes); the area where the research was undertaken; methods (techniques and procedures of enquiry); the target population; the sample; sampling techniques, ethical consideration, and the research tools used, validity and reliability of the tools as well as data analysis and presentation procedures.

Figure 3 shows the inter-connectivity of this research design. The components of this research which comprise of the topic, methodology, research paradigm and the location have one common meeting point. The intersection point, which is the research design, is the oil which lubricates all the processes of the components of this research as illustrated in the mentioned figure.

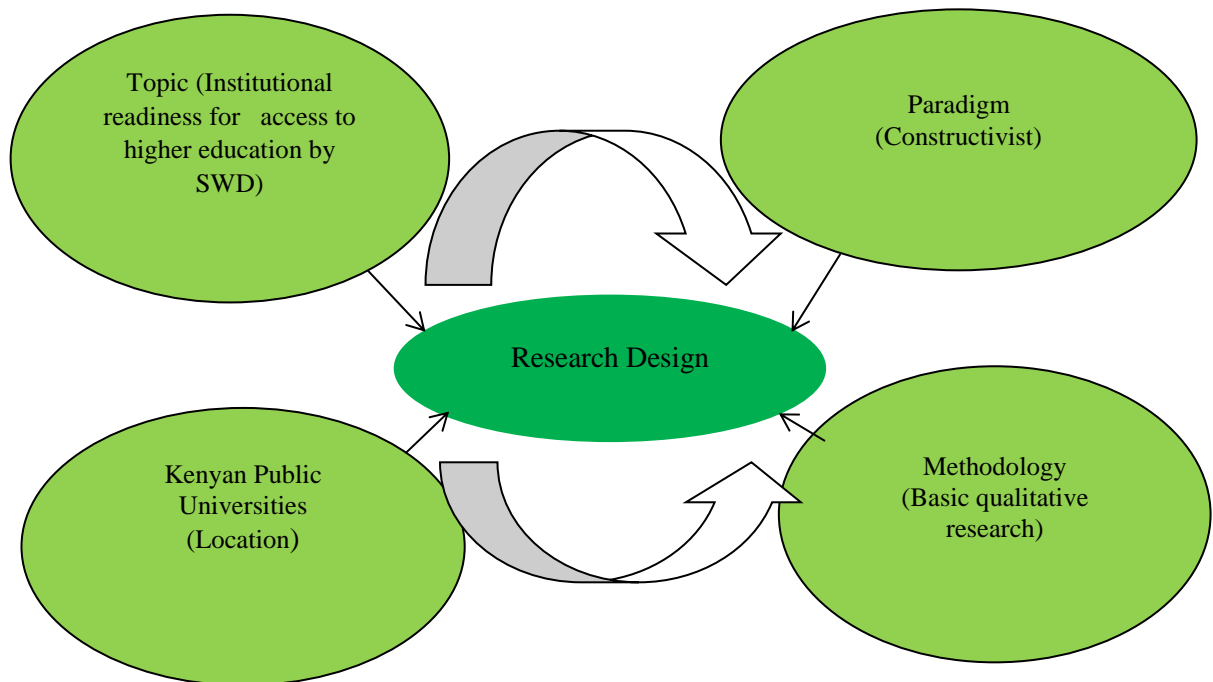


Figure 3: Research Design inter-connectivity

Figure 4 shows the components of the basic research design. The research questions are the connecting point between objectives, conceptual framework, methods of investigation and validity. The research questions are derived from the objectives and they become the pillars of the conceptual framework, methods and validity of the whole research as demonstrated in the mentioned figure.

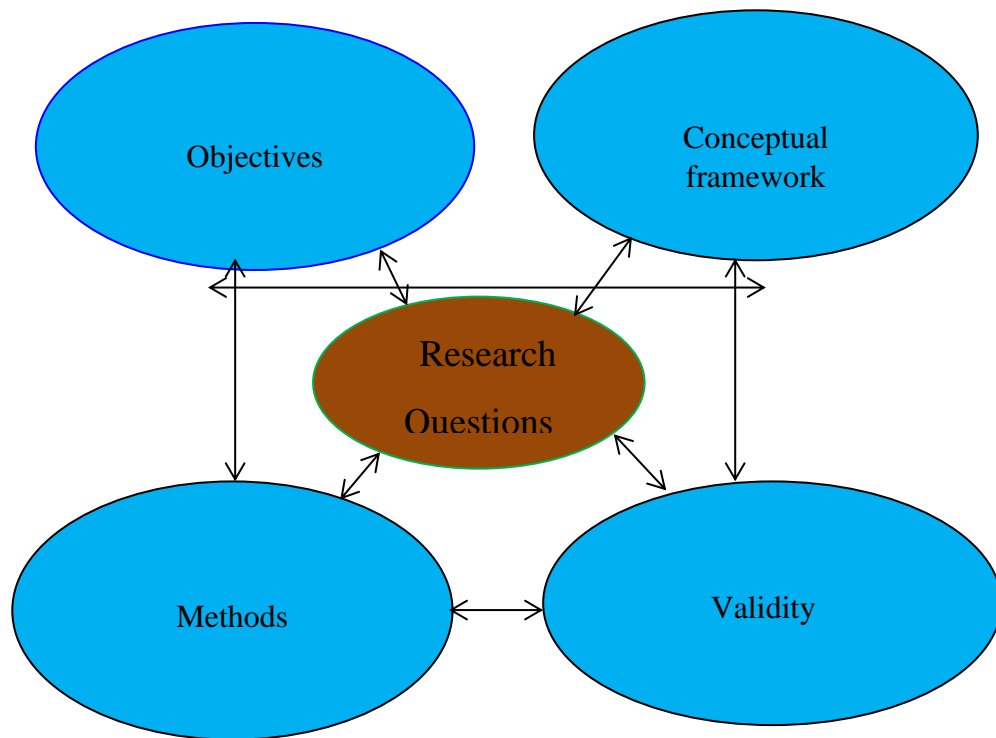


Figure 4: Inter-connectivity of the Basic Qualitative research design sections

3.5 Research techniques

The information power model and purposive sampling technique were used because of the characteristics of the participants (Malterud et al; 2015). Students with disabilities were the target population and like it has been discussed before they only represent a small percentage of the student population hence the appropriateness of this technique. Purposive sampling technique and information power model are widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002; Malterud et al, 2015). Limited resources and sample convenience were also factors which informed the selection of the same. Information power model involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Cresswell & Clark, 2011). In addition to

knowledge and experience, Bernard (2002) and Spradley (1979) note the importance of availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner hence the university setting for this study and the participants thereof. A combination of purposive criterion and critical case sampling were used to select 6 universities that met predetermined criterion (Patton, 2002,) e.g. having a long history of admitting disabled students and representing the six regions of the country. The logic behind the combination of criterion and critical purposive sampling is to enable the researcher to select information- rich cases for the sake of enriching the study. The critical cases were not used to make statistical generalizations, but they helped the researcher to arrive at logical generalizations i.e. if it was happening in the sampled universities, it would likely happen in the rest or rather most universities; or if it doesn't happen in one university, it won't happen in the rest; and if students with disabilities are having certain challenges, then we can be sure that the other groups are having the same challenges (Patton, 2002,)

3.6 Purposive sampling

Purposive or judgment sampling (Kothari, 2004) was used to arrive at the sample. Different types of purposive sampling were applied depending on the purpose they were to serve (Patton 2002). *Maximum variation purposive* type of sampling was used in selecting the participants because the researcher wanted to gain greater insights and to validate the information provided from the perspective of students with disability, their lecturers, deans of students and academic registrars. *Critical case purposive* sampling was used in deciding on the universities to participate because the researcher assumed that the experiences of students with disabilities in relation to access were

likely to be similar in the participating universities ((Patton, 2002). This in a nutshell is what has come to be known as the *Information power model* used in qualitative research method (Malterud et al ;2015).These participants were selected purposively so as to provide the most information, based on elaboration by the researcher, and supported by the paradigm (social constructivist) that was applied (Kvale, 1996; Patton, 2015). *Snowball purposive* sampling was used where participants introduced other willing participants. This happened for the case of students with disabilities and their lecturers. The selected universities were written to a request to allow the researcher to carry out a study in these institutions. The same request was made to the participants once authority was granted. The Registrars academic, Deans of students, lecturers of disabled students and disabled students of the 6 universities participated in the study.

3.7 Study Population and sample size

Area sampling was used to stratify the country into six strata namely: Western Kenya, Rift Valley, Nairobi, Central, Eastern and Coast (Kothari 2004). This was meant to ensure sample representation from each of the stratum. One university was purposively selected from each stratum namely: Maseno University, Moi University, and University of Nairobi, Kenyatta University; Chuka University and Technical University of Mombasa respectively. The selection was based on the *information power model* (Malterud et al, 2015) where universities with a long history of admitting students with disabilities were mainly considered (U.o.N, Kenyatta, Moi and Maseno). These are also public chartered universities where most students, especially those with disabilities, are placed by the Kenya Universities and colleges Central Placement Services (KUCCPS).

The study sample was arrived at by use of information power model (Malterud et al, 2015) and Krejce & Morgan (1970) sample selection table as well as use of snowball sampling (Patton, 2002) because disability affects a small percentage of the population. Out of 440 SWD, 204 were to be sampled while out of 62 administrators 12 were to be sampled (Krejce & Morgan, 1970, Gay 2001, Mukhwana et al, 2016). The lecturers were sampled according to the presumed ratio of lectures to students and they were to be 48 (Mukhwana et al, 2016). Those who participated were 46 and snowball purposive sampling was used. Two hundred and tow (202) SWD undertaking studies at various levels in the sampled six (6) public universities, as well as 6 Registrars and 6 deans of students also participated. Lecturers and students were selected using snowball purposive sampling method (Patton, 2002). Sample sufficiency for lecturers and SWD was also determined by information saturation (Kvale, 1996).

3.8 Study variables

The independent variable was *institutional readiness* (Infrastructure, curriculum inclusiveness, lecturer competencies and institutional challenges) because it was likely to affect the number of disabled students to be enrolled while the dependent variable was *access to higher education* (presence, participation, acceptance and achievement) by disabled students because the researcher was interested in the trends of this particular variable.

3.9 Research Instruments

The research instruments comprised of three questionnaires an observation checklist and a focus group discussion. There was a questionnaire for students with disabilities,

a questionnaire for lecturers, a questionnaire for deans of students and one for the registrar's academic. One observation checklist was used. The FGD was conducted at the end of data collection. The use of the three instruments ensured triangulation that would help to reduce bias. It also enabled the researcher to collect adequate data.

3.9.1 Questionnaire

There was questionnaire and an observation schedule. There were three categories. The *administrator's questionnaire* was one. Registrars academic and deans of students responded to this questionnaire because their offices deal with students' issues except that one deals with academic while the other deals with welfare ones. The questionnaire had 8 questionnaires and 55 items that collected information on the institutional readiness in terms of existing infrastructure, curriculum inclusivity, competencies of lecturers and challenges of provision of a disability friendly environment. Only 3 of the items were open ended. The rest were closed ended. The reliability of this questionnaire was 0.829.

3.9.2 Lecturer's Questionnaire

This questionnaire had 10 questions with seventy (70) items. The questionnaire had a reliability of 0.86. The questions were closed ended with only four items that were open ended. The collected information was on existing infrastructure, curriculum inclusivity, competency of lecturers and institutional challenges as pertains to disability.

3.9.3 Student's Questionnaire

This questionnaire had 11 questions with seventy-nine (79) items. It is an application of the Learning for All Questionnaire -LfAQ (Avramidis & Skidmore 2004) with some modification. There were main & sub-questions. Most questions having closed responses or pre-categorized responses. Each section included at least one open-response question to ease any restrictions that might occur. The questionnaire had a reliability of 0.80. The collected information was on existing infrastructure, curriculum inclusivity, competency of lecturers and institutional challenges as pertains to disability as seen from a SWD perspective.

Questionnaire was administered face to face. This was meant to enrich the provided information because it was possible for the researcher to probe the respondents for additional information. It was also because of the use of snowball purposive sampling method (especially for students and lecturers). This was also done to increase the return rate of the questionnaires. Closed ended items were used to allow the respondents to save on time. The return rate of the questionnaires was as illustrated in the tables and bar graphs below.

3.9.4 The observation Checklist

The checklist was meant for collection of data through observation side by side with the questionnaires. It validated the questionnaires. It was divided into four sections. Section one had four subsections that collected data on the physical environment, the infrastructure, transport and recreational facilities. The checklist also collected information on curriculum inclusiveness, competences of lecturers and challenges

towards institutional readiness. The observation was meant to collect data from a natural setting that is, the lecture rooms, library, playgrounds, student centers, and hostels, halls, parking places and walking paths. Observations helped to see the reality rather than what the participants said was happening. This observation was non-participant oriented. Observation data were coded, transcribed and integrated with that within the questionnaires.

3.9.5 Focus Group Discussion

This was used as a complement to the questionnaire and observation checklist. It only involved SWD. This was because it was possible to raise a group of between 8 to 10 from this sample from each university to participate in the discussion. This was not possible with administrators (registrars and deans of students) because they were just 2 in each university. This method was used to clarify and enrich the questionnaire and the observation checklist. An average of three meetings was held i.e. at the start of the research, midway and at the end. The students were the only ones who took part in the discussion because of their experiences as SWD (Merriam, 2009). The students ranged from 7 to 12 in each group. The researcher facilitated the discussion. A total of 55 SWD participated on voluntary basis. The table below shows the representation in the FGD from each university. The names of the universities have been coded for the purpose of confidentiality.

Table: 3.1 SWD who participated in the FGD

Name of University	SWD who participated in the FGD
PU1	12
PU2	8
PU3	7
PU4	10
PU5	11
PU6	7
Total	55

3.10 Study Pilot

After obtaining a research permit from NACOSTI the researcher carried out a pilot study at Masinde Muliro University of Science and Technology (MMUST) in order to test the validity and reliability of the questionnaires. Six (6) students and 12 staff were given the questionnaire items to respond to. The reliability was then estimated using Spearman-Brown's reliability coefficient. The calculation was done by feeding the scores of each item on the IBM SPSS 23 computer software and calculating the reliability (Zaiontz.2015).

3.11 Validity

Validity or (credibility, trustworthiness, truth, value, applicability) refers to the accuracy or correctness of the results of a study (Lincoln & Guba, 1981).The study measured internal and external validity of the instruments. Internal validity is the extent to which research findings are a true reflection or representation of reality rather than being the effects of extraneous variables. Internal validity was increased

by use of a variety of research instruments namely questionnaire, observation checklist and a focus group discussion. The help of my supervisors and fellow students helped to increase the same. Each item was analyzed to determine whether it would collect the required data. Adjustments were done where it was necessary through re-framing some items or discarding them all together. Further during data collection, the researcher took time to ensure that participants were very clear on what they were responding to by giving them clear instructions. External validity addresses the degree or extent to which such representations or reflections of reality are legitimately applicable across groups. For the purpose of this study external validity was increased in the following manner: The research tools were given to fellow students and staff in the University of Eldoret. A discussion of each item was then done to determine the level of difficulty or ambiguity of each instrument. Then a pilot study was also done at Masinde Muliro University of Science and Technology. Construct validity (characteristics that can't be directly observed) was achieved through the use focus group discussion. The interaction with students helped to make inferences that enhanced validity.

3.12 Reliability

Reliability or (consistency and confirm-ability)) is the degree of consistency (Hammersley, 1992). It is the consistency with which the research instruments will produce the same results if repeated. Split half reliability test was used to estimate the internal consistency of the test items. Six (6) students and twelve (12) staff of Masinde Muliro University of science and Technology were given the questionnaire items to respond to. Each questionnaire was split into two halves and each half administered to half of the respondents (Students, lecturers, and administrative staff in

the offices of the registrar academic and the dean of students). Each half of respondents tackled their question items at the same time. This was meant to establish the extent to which each of the items in each of the questionnaire was similar to one another in content. The Spearman-Brown's correlation coefficient was calculated using IBM SPSS 23 (Zaiontz.2015). The reliability of the student's questionnaire was 0.80 while those of the administrators and lecturers were 0.829 and 0.86 respectively. Kothari (2004), advises that the closer the score is to 1 the more the reliability. The scores therefore show that the instruments were reliable.

3.13 Ethical Considerations

The researcher requested to be issued with a research permit from the National Commission for Science, Technology and Innovation (NACOSTI) through the letter from the Head of Department of Education Management, University of Eldoret (Ref no. UoE/EMP/POG/3. NACOSTI issued the letter of authority to conduct research, Ref No. NACOSTI/P/19/10648/31165 and the research permit Ref No.NACOSTI/P/19/10648/3116. Other letters of administration were also issued by County Commissioners, and County Directors of Education in each of the counties visited as well as Deputy Vice chancellors in charge of research in each of the six universities that were visited accordingly.

The researcher then visited County Commissioners and County Directors of Education in all the counties where the six universities are in order to be granted permission to conduct research in their areas of jurisdiction. Letters of authority were issued accordingly (see appendices). The letters of authority from the administrators and NACOSTI were presented to each of the six universities including a letter from the researcher requesting to do research to each of the six universities. Each of the

universities issued letters of no objection to conduct research after the researcher fulfilled conditions of doing research in each institution as per the research policies of the same. Having been cleared by each university, the researcher embarked on the process of data collection from the target respondents by making a request to them through personal introduction and offering them a request letter to enhance trust. Participants were reminded that participation was purely voluntary. The offices of registrars academic and deans of students provided a convenient point of entry to reach participants because of the nature of their services. Familiarization with the participants was done by interacting with them prior to the real exercise e.g. attending their classes and other social activities like joining them for lunch at their invitation.

3.14 Data analysis and presentation

Data analysis was done by use of IBM SPSS 23 (Statistical Package for Social Science). The data collected was of nominal and ordinal type and therefore descriptive statistics option on the SPSS was selected for data analysis. A platform was created, and all the items of each questionnaire were entered. Tables and graphs were then generated from the SPSS platform. The FGD data was transcribed and integrated with the data from the questionnaires and the observation checklist. The unordered matrix was used to present the transcribed data (Gay et al, 2012)

3.15 Transcription of data from the FGD

The FGD was recorded on the willingness of respondents. The FGD was then transcribed and organized in predetermined themes according to the independent variables. Table. 3.2 shows the unordered meta-matrix that was used (Gay et al 2012).

Table 3.2: Unordered meta-matrix on what SWD thought about independent variables in FGD

SWD	State of Infrastructure	Lecturer Competencies	Curriculum Inclusiveness	Institutional Challenges
SwdPU1		<ul style="list-style-type: none"> ● Surely it was complicated for someone in my situation to go to that store to look for a missing script ● Technological competence concept is right but the understanding that goes along with it is sometimes limited. 		The challenge is that the lecture theaters are not fitted with alternative listening devices (ALD). Currently my ear-mole
SwdPU2	<ul style="list-style-type: none"> ● The building does not have lifts and that is why I ended up taking actuarial science... ● Like when it rains, how can I access the lecture hall? It is either go to class and get wet and then get sick or do not go ● The library has no tactile blocks just before the start of the steps at the entrance. This was quite challenging to me at first 			
SwdPU2(i)			“I just listen and sometimes I record what I can. But recording has its challenges just like you have witnessed. But recording has its challenges just like you have witnessed. Sometimes the battery goes empty in the process	

3.16 Summary

The chapter explicitly presented the research design and the methodology that was used. The study investigated institutional readiness for access to higher education by students with disability using a basic qualitative research methodology (Merriam 2009: 2013). Data collection was done by use of questionnaire, focus group discussion and the observation checklist. The SWD questionnaire was a modification of the Learning for All Questionnaire- LfAQ (Avramidis & Skidmore, 2004). LfAQ is an instrument that aims to open-rationalize a holistic view of learning for all. The paradigm of social constructivism provided a suitable pillar because the researcher collected data from the natural setting of the participants through actual visits and carried out FGD and observation in order to construct reality from the information that was given by the participants. By doing this, the researcher upheld the philosophy that knowledge is socially constructed. Various purposive sampling techniques that were used to select the sample were also discussed and justified. The next chapter looks at data analysis, presentation of findings, interpretation and discussion.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

In this chapter, the data is presented findings analyzed, and discussed. Data is presented in the form of tables and charts and the interpretation is given. Data was collected on infrastructure, lecturer's competencies, curriculum inclusiveness and institutional challenges. Preliminary data was also collected to enhance the interpretations. The type of data was nominal and ordinal as per the categorization of various writers of research (Kothari,2004;Mertens, 2010,Anderson 2012;Gay et al 2012).The researcher first presents the preliminary data from each of the category of respondents. Data is presented using tables and graphs. The findings by the three types of methods (questionnaire, FGD& observation checklist) were integrated to achieve an organized interpretation and discussion. For the purpose of reporting in this study, university names are coded as PU1, PU2, PU3, PU4, PU5 and PU6. PU means Public University and numbers assist in differentiation. The students who participated in the FGD are coded as SwdPU1, SwdPU2, SwdPU3, SwdPU4, SwdPU5, and SwdPU6. SWd stands for student with disability and SwdPU1 (i), SwdPU1 (ii), etc..... are used to differentiate students in a FGD in the same university. Collection of data was based on the listed research objectives and questions. The objectives of the study, research questions are the building blocks of the study. The objectives and the research questions are listed thus:

4.2 Research Objectives

The main objective was broken into four other specific objectives according to the independent variables of: infrastructure, lecturer's competencies, curriculum inclusiveness, and how they affected the dependent variable of access to education by SWD. It is the findings as guided by these objectives and the derived research questions that have comprised the contents of the chapter.

4.2.1 Main objective

The main objective sought to investigate institutional readiness for access to higher education by students with disabilities in public universities in Kenya.

4.2.2 Specific objectives

- a) To examine existing infrastructure in public universities in Kenya and its influence on access to higher education by students with disabilities.
- b) To examine lecturers' competencies in public universities as a determinant of access to higher education by students with disabilities in Kenya.
- c) To examine curriculum inclusiveness in public universities as a determinant of access to education by students with disabilities in Kenya
- d) To determine challenges faced by public universities towards readiness for access by students with disabilities.

4.3 Research Questions

The research questions were based on the objectives and were very instrumental in developing the research instruments for this study, they correspondent to the independent and dependent variables that were being investigated. The main research question was cascaded into specific ones as subsequently shown.

4.3.1 Main Research question

How do infrastructure, lecturer's competencies, curriculum inclusiveness and institutional challenges influence access to higher education by students with disabilities?

4.3.2 Specific Research questions

1. How does the state of existing infrastructure in public universities influence access to higher education by a student with disability in Kenya?
2. How do competencies of lecturers determine access to higher education by SWD in public universities in Kenya?
3. How does curriculum inclusiveness determine access to higher education by students with disabilities in Kenya?
4. higher education by SWD in Kenya What are the challenges that universities face in the process of getting ready for access to

4.4 Data analysis, presentation and interpretation

This section has concentrated on data analysis, presentation and interpretation. Data was collected from SWD, lecturers who taught these students at the time of this research and administrators, specifically deans of students and registrars academics. The analysis was done by SSP 23 statistical package and the presentation is by use of tables and graphs. According to research writers such as Kothari (2004) and Mertens (2010), tables and graphs provide a simple and clear way of presenting data in qualitative research. Table 4.1 shows responses from the three categories of respondents.

Table: 4.1 Response rates of all participants

Category	Expected response	Actual response	%
Registrars academic	6	5	83
Deans of students	6	6	100
Lecturers	48	46	95
SWD	204	202	99

In table 4.1, five (5) out of 6 (83 %) of the registrars academic and 6 out of 6 (100 %) of the deans responded. Lecturers of SWD were 46 out of a sample of 48 (97 %). They were selected by snowball purposive sampling. Students with Disabilities were 202 out of a sample of 204(99%). they were selected by use of a predetermined table for sample selection (Krejce &Morgan, 1970). This is a table that guides researchers to easily select a sample from a population because there is a predetermined list of the population and the corresponding sample to ease the work of researchers. Selection of lecturers was as per the OECD formula of determining the ratio of lecturers to students (OECD, 2019), 440 (total number of students with disabilities) was divided by 9 (prescribed ratio) i.e. 1:9 to arrive at the expected number of lecturers as 48. The Table 1percentages of responses were statistically significant to warrant this report to be written. According to Gay et al (2012) such a sample is considered as statistically significant. The information power model and purposive sampling technique were used because of the characteristics of the participants. Information power model is widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources((Malterud et al).This

appropriately fitted this research because students with disabilities form a small percentage of the students population and they were in a better position to provide information that was needed together with deans of students, registrars as well as lecturers who taught these students hence the adoption of this method.

There was also an experience of limited resources on the part of the researcher.

The bar graph (fig.5) below is an illustration of Table 4.2. This figure attempts to simplify the presentation.

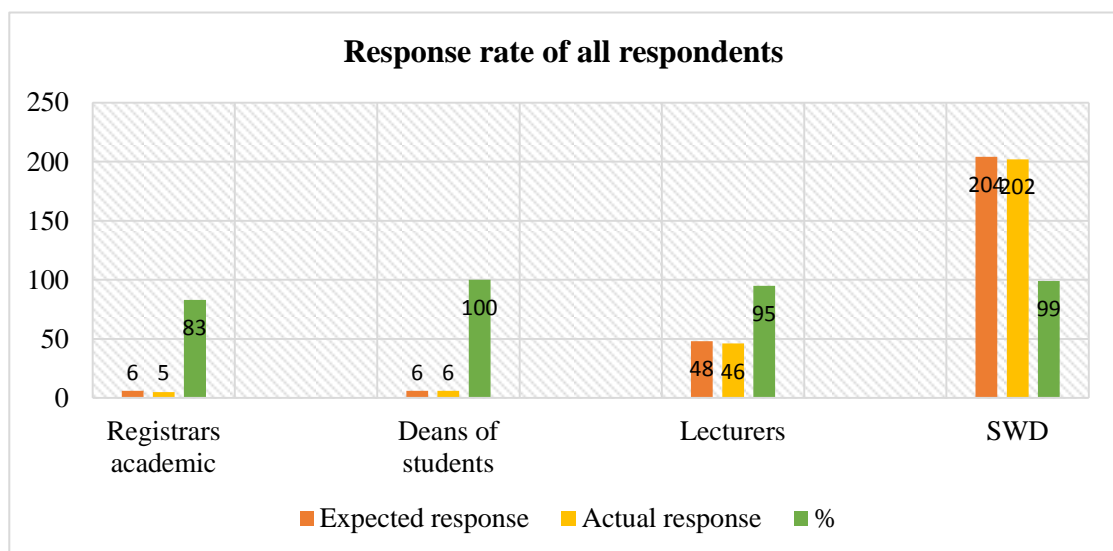


Figure 5: Bar graph representation of the response rate for all respondents

A clearer illustration of the figures in Table 4.2 makes it easy to understand the information at a glance. It was necessary to present the figures graphically because comparison of the responses can be understood at a glance.

4.4.1. Response of the twelve administrators

Table 4.2 shows the response rate of administrators from each of the universities visited. The universities are referred to as PU1, PU2, PU3, PU4, PU5 and PU6. In the table twelve (12) administrators were purposively sampled out of a target population of 60. This is because public universities are 30 (Mukhwana et al, 2016). The presumption was that each university has one registrar academic and one dean of students hence the target population.

Table: 4.2 Registrars and Deans of students' responses

Co	Institution Code	Registrars	Deans of students	Total
PU	1	1	1	2
PU	2	1	1	2
PU	3	1	1	2
PU	4	1	1	2
PU	5	1	1	2
PU	6	0	1	1

According to Gay et al (2012) a reasonable sample should be between 10-40% of the target population. Logically 12 administrators formed 19% of the target population of administrators in public universities. This was within the 10-40% bracket range. All the sampled registrars responded except one and all sampled deans of students responded. This translated into 92% of the sampled responses, it is a reasonable percentage because most researchers require 50% of the responses in a sample for it to be considered as representative, 92% response was therefore representative enough

(Burney & White2010). The reasonable response rate is attributed to the fact that the questionnaire was completed in the presence of the researcher after prior arrangement with the respondents. The six universities made up the sampling frame. There was a registrar and a dean of students in each university. The table shows that all the six (6) deans in the sampled universities responded but five (5) out of six (6) registrars responded. This made the total response rate of administrators to be 11 out of 12 as illustrated in the table thus 92% of the sample.

Table 4.3 illustrates how registrars academic and deans of students responded to their respective questionnaire. It shows how the administrators responded per category.

Table: 4. 3 Response for each category of the administrators

	Frequency	Percentage
Registrars	5	83
Dean of students	6	100
Total	11	92

Only 5 registrars out of 6 responded while 6 out of 6 deans of students responded. The table illustrates that 11 out of 12 (92%) administrators responded. The figures translated into 83% of the registrars expressed as a percentage of the total registrars and 100 % of deans of students expressed as a percentage of total deans.

4. 4.2 Response rate of administrators on percentage enrolment of SWD

In table 4.4 the distribution of the responses of registrars academic and deans of students is presented. According to these, administrators the percentage of enrolled SWD in their respective universities was less than 10%. This information was important to this study because it helped the researcher to understand the status of readiness for SWD by the universities.

Table: 4.4 Administrator’s response on percentage of enrolment of SWD

Enrolment less than 10%	Registrars	Deans	Total	%
Yes	5	6	11	100
No	0	0	0	0

The Administrators were required to respond on the percentage of enrolled SWD because they are custodians of students’ data at the university and data is critical for planning and decision making (Koru ,2018). When asked to give concrete figures of the number of students with disabilities who perceived themselves as disabled, eight 8 (from PU 3, PU1, PU2, and PU4) administrators referred the researcher to the student’s representative, 2 from (PU5) requested time to confirm but they did not provide the information as promised and 1 from (PU6) gave conflicting data from that of the office of the student leaders. None of the administrators in each of the universities that were visited had concrete data on the actual enrolment of SWD. This finding compares with that of the survey on disability where only 2% of PWD in Kenya had higher education (Republic of Kenya, 2007). It also compares with a research by UNESCO (1998) where 35 purposively selected universities in the world showed that students with disabilities represented less than one per cent of the student

body in all except two cases. It is a confirmation that more than a decade ago, a SWD is still failing to adequately access higher education in Kenya. In PU4 the student representative claimed that some students who seem to have a visible disability declined to perceive themselves as persons with disabilities and this made it difficult for them to be included in the database of SWD. This was because of presumed stigmatization and lack of information about disability on the part of the affected students. Madriaga (2007) as cited by Kendall (2016) observed that students do not disclose their disabilities to their tutors because they do not want to be viewed negatively or to be perceived as a problem. Michalko, (2002) has explained this when he says that education institutions prescribe to a Medical Model of Disability, which assumes that individuals with disabilities are sick so they experience difficulties fitting in to a normal society because of their disabilities. Students with disabilities are therefore likely to shy away from declaring their disabilities for purposes of avoiding being labeled as sick people. During the FGD some students expressed that there was not much to gain from registration while others thought that information about registration was not shared effectively. Data collection had therefore relied on snowball purposive sampling and data from student's representatives to reach SWD.

The Challenges of data management for SWD is partly due to failure on the part of SWD to declare their disabilities and partly because of limited sharing of the existence of disability services within some of these institutions. Koru (2018) asserts that accurate information on student enrollments, students' performance or the criterion for student identification is critical in providing services to students with disabilities in an efficient and effective manner.

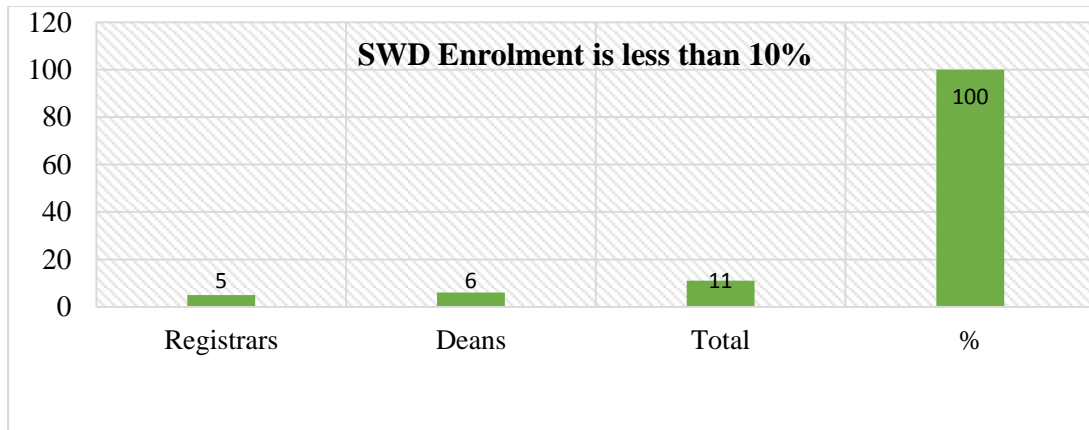


Figure 6: Response of administrators on percentage of enrolment SWD

Her focus is however not on higher education. Through the findings of the current study, it is true that management of SWD data in the universities remains a challenge; and this is likely to affect the way planning and decision-making pertaining to their access needs are made. Therefore, those who wish to access higher education are likely to continue facing access challenges. Figure 6 shows that all the administrators responded that their universities had enrolled less than 10% of SWD.

4.4.3 Response rate of administrators extended induction

Table 4.5 illustrates how administrators responded when they were asked whether there was provision of extended induction to SWD.

Table: 4. 5 Administrator's response provision of extended induction

	No.	%
Yes	6	55
No	5	45
Total	11	100

Six of them (55%) said that it was provided while 5 (45% said it was not provided.

These results show a small percentage range between those who agreed and those who disagreed. This could be interpreted to mean that there is lack of planning for admission of SWD in some universities or such a provision for SWD is not guaranteed. This factor is likely to affect the number of SWD who are likely to choose and enroll in these universities. It is also likely to affect their ability to adjust to the new environment and eventually their survival rates in the university. This factor could possibly impact on access to education. The table illustrates the response of administrators on whether there was extended induction. This information was important to this research because induction of students in higher education introduces them to structured activities and assists them to become comfortable with their new environment, friends, intellectual challenges, expectations and study requirements. Billing (1997) argues that this period differs in length according to the needs of individual students. It is imperative that an organized induction programme is important to a student with disability because disability affects everyone differently hence their individual needs.

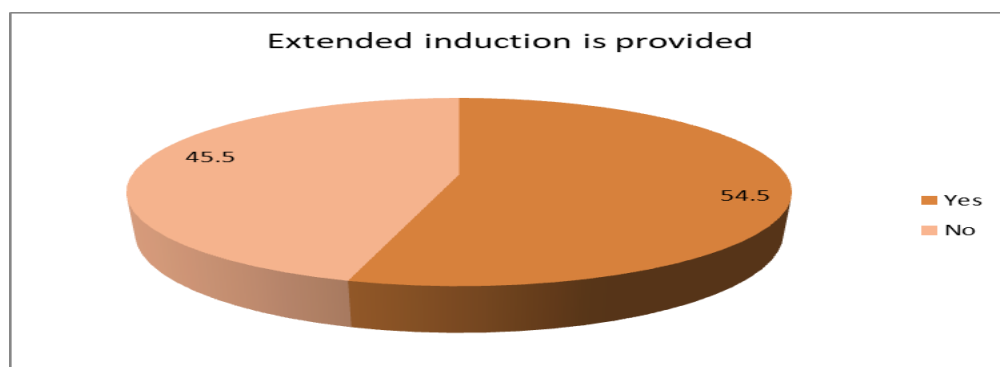


Figure 7: Administrator's response on the provision of extended induction

Figure 7 illustrates the table for the reader to get information on the extended induction at a glance. In this figure the information on the extended induction has been enhanced. Those who agreed that the induction was extended are more than those who said it was not extended.

4.4.4 Administrator's response about a Specially designed induction programme

The responses are illustrated in fig 8 show how administrators responded when they were asked if the induction programmes were specially designed and well managed by an appointed senior employee for smooth induction and adaptation of SWD on campus.

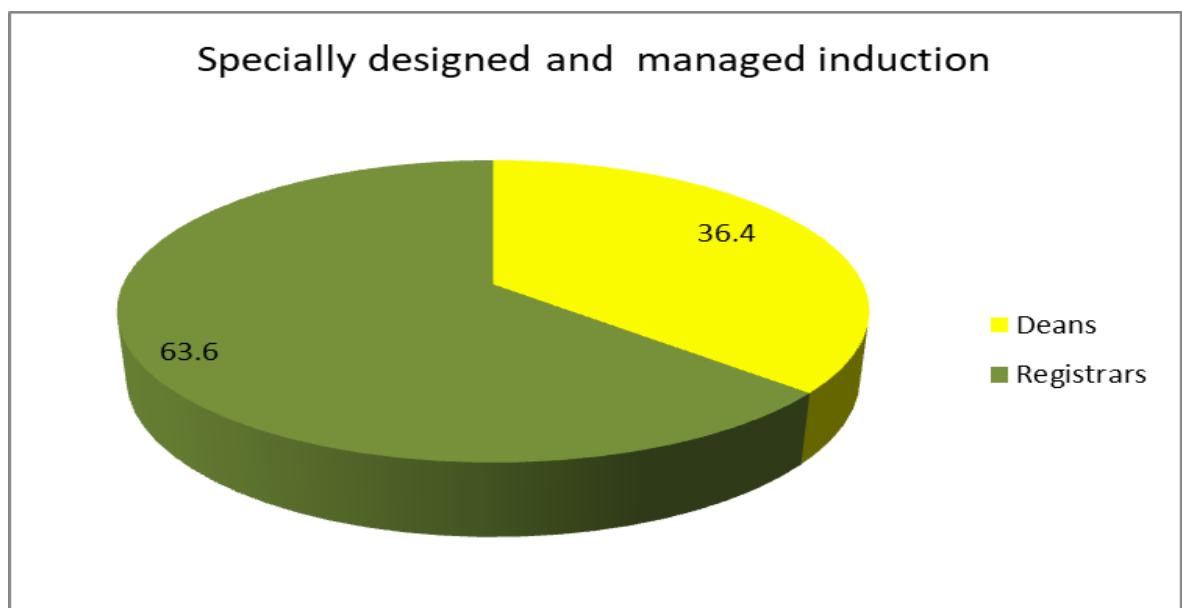


Figure 8: The response of administrators on the specially designed induction for SWD

As clearly illustrated, more administrators said that this service existed. Seven (63.6%) answered that there was while 4(36.4%) answered that there wasn't.. The responses to this question helped the researcher to deduce whether universities

appreciated that SWD needs differed from one individual to another and that provision of an extended induction may help to meet these individual needs. The fact that a reasonable percentage answered that the service did not exist implies that there is failure by some university administrators to anticipate and plan for admission of SWD with consideration of their special needs. This factor is likely to affect the emotional and psychological wellbeing of the affected SWD and eventually impacting on their access to education in these institutions. Lack of a well-designed and managed induction programme is a risk factor if it is not given attention. It is likely to deny enrolment of SWD or lead to attrition of those already enrolled in higher education. The induction needs to be a well-defined, predictable and permanent practice. This observation is confirmed by writers like Billingg (1997) and Goode (2007). Fig. 7 illustrates the response of administrators on this question.

4.4.5 Administrator's response on availing specialists at admission.

Looking at the illustration in table 4.6 one will observe that the response of administrators significantly differed with that of the students. Administrators were asked if there was provision of individualized assistance that involved provision of specialists to handle the needs of SWD during admission.

Table: 4. 6 Administrator's response on provision of specialists for SWD.

Response	Frequency	Percentage
NO	4	36.4
YES	7	63.6
Total	11	100

In the above table, seven administrators 7(64%) answered that the service existed while 4(36%) answered that it did not. However, SWD response on the same differed with the administrator's in that 167(83%) of the SWD answered that the service was not there while only 35 (17%) answered it existed. The difference in the responses could mean that there is limited information on the needs of SWD at the point of admission. It could also mean that the input of SWD on the decisions made during admission of new SWD is also limited therefore those who are thought as specialists may not be meeting the needs of these students adequately. Most administrators (64%) admitted that there was provision of specialists for SWD during admission. Personal assistance can be a very important means of enabling students with disabilities to adjust well to the university life and its social and academic demands.

4.4.6 Response rate for lecturers

Table 4.7 shows a summary of the response rate of lecturers from each of the universities visited. The sample for the lecturers was 48. This was estimated from the student's sample because (OECD, 2019) gives the ratio of students to lecturers as 4:1.

Table: 4. 7: Response rate for lecturers per institution

Name of University	Number of Lecturers	Percentage (%)
PU1	11	91
PU2	5	100
PU3	7	100
PU4	10	100
PU5	7	88
PU6	6	100

PU1 and PU4 universities had higher numbers presumably by virtue of their long history of admission of SWD and the existence of special needs departments that deal specifically with disability issues. Incidentally PU1 University also had the highest enrolment of SWD. Table 4.8 shows the actual number and percentage of lecturers who said they were teaching SWD at the time of data collection. PU1 University had the highest responses while PU2 had the lowest. This could be attributed to the long history that some universities have had with admitting SWD.

The information in this table continues to validate the information in the preceding table. This information table 4.8 was important because it laid a foundation on the discussion of the lecturer's competencies in meeting the needs of SWD.

Table: 4. 8: Percentage of Lecturers who taught SWD

Name of Institution	Actual	Expected
PU1	11	12
PU2	5	5
PU3	7	7
PU4	10	10
PU5	7	8
PU6	6	6
Total	46	48

4.4.7 Response rate of SWD per institution

Table 4.9 shows the distribution of SWD per university. The sampled number of SWD was 204 because the total number of SWD in public universities was 440 students. The sample was arrived at using Krejce & Morgan (1970) *sample selection table*.

Table: 4. 9 Response of SWD per institution

Institution	Expected	Actual	%
PU1	57	57	100
PU2	32	31	91
PU3	30	29	96
PU4	31	31	100
PU5	23	24	95
PU6	31	31	100
Total	204	202	99

A total of 202 students with disabilities responded. The actual response distribution reveals about the status of readiness in the sampled universities. The implication of this skewed distribution is that some universities have better facilities for SWD as compared to others. PU1 had more respondents than the rest of the universities. The actual responses (202) were very close to the expected response which was 204. The sampling design of SWD was to be 34 from each of the sampled university but the real situation was that some universities had enrolled more students than others. Some had fewer students than 34 while others had more than 34. In order to ensure that the expected sample was realized, snowball purposive sampling method was used to reach more students. Therefore, the findings reflected a skewed distribution of SWD across the universities because some universities had enrolled fewer SWD than others

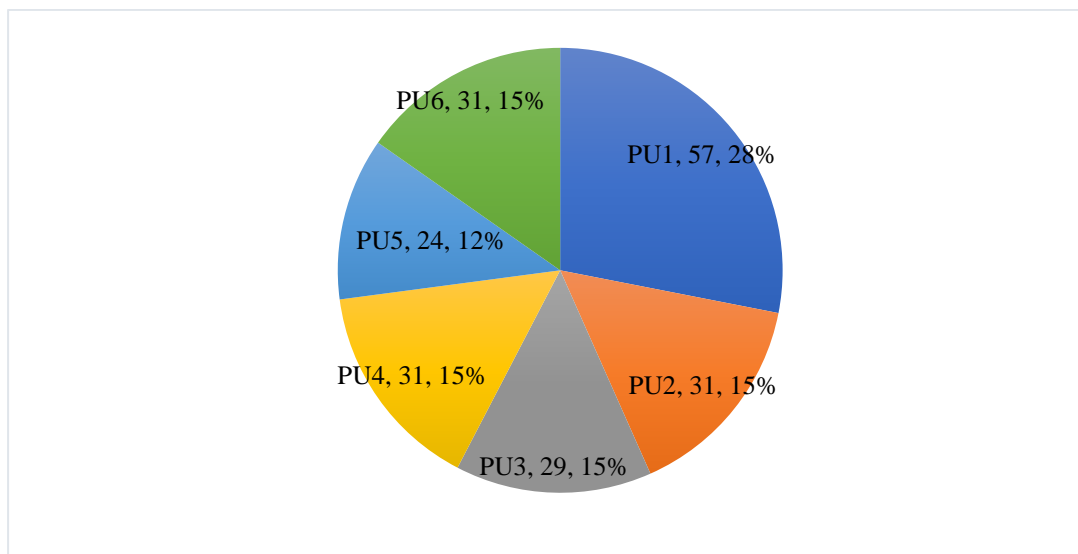


Figure 9: Pie chart illustration of the response rate of SWD

Figure 9 gives a graphical view of the response of students in each university expressed in percentages. The figure shows that PU1 had 28% which was the highest while PU5 had 12% which was the lowest.

4.4.8. Response of SWD on the provision of individualized specialists support

Table 4.10 shows the response of SWD when they were required to give information on whether there was provision of individualized professionals who specialized in attending to the individual needs of these students.

Table: 4.10 Response rate of SWD on individualized specialists support

Type of Specialist	Response of SWD	
	Frequency	%
Physical disability	2	1
Guides for VI	23	11
Sign language	10	5
None	167	83
Total	202	100

The information they gave was meant to validate that of the administrators. One clear observation in Table 4.10 is the differences in response as compared with that of the administrators. Those who responded that they had no specialists during admission and induction were 167(83%) while those who responded that they had this provision were 35(17%). This great difference could be that administrators may not be aware of individual needs of most students with disabilities or they have given false information. The provision of support must be following a certain predetermined framework which has no room for the provision of individualized support. That follows shows the number and percentage of students who responded on whether there was provision of specialists at admission or not.

4.5 Biographical data of the respondents

This section presents biographical data of the respondents. Biographical data was important for this study because background information contributed to the enhancement of data interpretation.

4.5.1 Biographical data of Lecturers

Data that was collected on lecturers was about the university they taught, academic qualification and area of specialization. This information was important in the discussion of their competencies.

4.5.2 Academic qualification of the lecturers

Table 4.11 shows the academic qualifications of the sampled lecturers who taught SWD in the six universities at the time of this research.

Table: 4.11 Academic qualifications of the lecturers

Highest academic level	Frequency	Percentage (%)
Bachelors	1	3
Masters	8	17
PhD	37	80
Total	46	100

The quality of the lecturer and the student support systems are the most influential factors in the provision of quality education (Hill et al 2003). This information was important for this study because the qualification of lecturers is likely to affect their

level of authority in their field of qualification. This in turn could affect their ability to meet the learning needs of SWD.

It is therefore important for lecturers to have sufficient knowledge in their subject fields/expertise (Voss & Gruber; 2006). These observations are in agreement with this study because lecturer's qualification is a prerequisite in the synthesis and transmission of knowledge. The lecturers who responded that they had PhD qualifications were the majority 37(80.4%), followed by those with masters 8 (17.4%). Only one had a bachelor's degree as her highest qualification. This was a good indicator of access to knowledge and contents by SWD (Willcoxson, 1998) hence an enabler of access to education.

4.5.3 Lecturer's area of specialization

Table 4.12 shows the areas of specialization for lecturers who taught SWD at the time the research was undertaken..

Table: 4.12 shows the area of specialization of lectures

Area of specialization	Frequency	Percentage (%)
No specialization	14	30
Hearing impairment	12	26
Visual impairment	8	17
Physical impairment	8	17
Autism	3	7
Multiple impairment	1	3
Total	46	100

This information was important to this study because disability affects everyone differently even if it is the same type of disability. It follows therefore that information about lecturers on this aspect was crucial in making conclusions on whether SWD learning needs were being met or not. Most lecturers responded that they did not have specialization in special needs (30%). Hearing impairment had the highest number of specialists (26%) while autism and multiple impairments were the least i.e. 7% and 3% respectively. According to this information, most lecturers who teach SWD have no qualifications in special education. It is important for lecturers to have special needs skills in various categories of learning needs for them to be able to meet the learning needs of SWD. This is likely to enhance the quality of teaching/learning of these students. This finding of this study agrees with that of Kigen (2017). Although Kigen was concerned with secondary school teachers, his study compares with the findings of this research. Holand & Horby (1992) in their research that involved special needs educators and teachers in primary school agree that indeed training in special needs makes a difference in the ability of teachers to handle learners with special needs. It follows therefore that there is need for lecturers who teach SWD to have knowledge of SNE in order to be able to teach these students effectively. A model by Norwich (1996) as quoted by Thomas & O'Hanlon (2004) has categorized learning needs as those that are common to all, specific to a group and unique to an individual. This relates very well with teaching learners with disabilities.

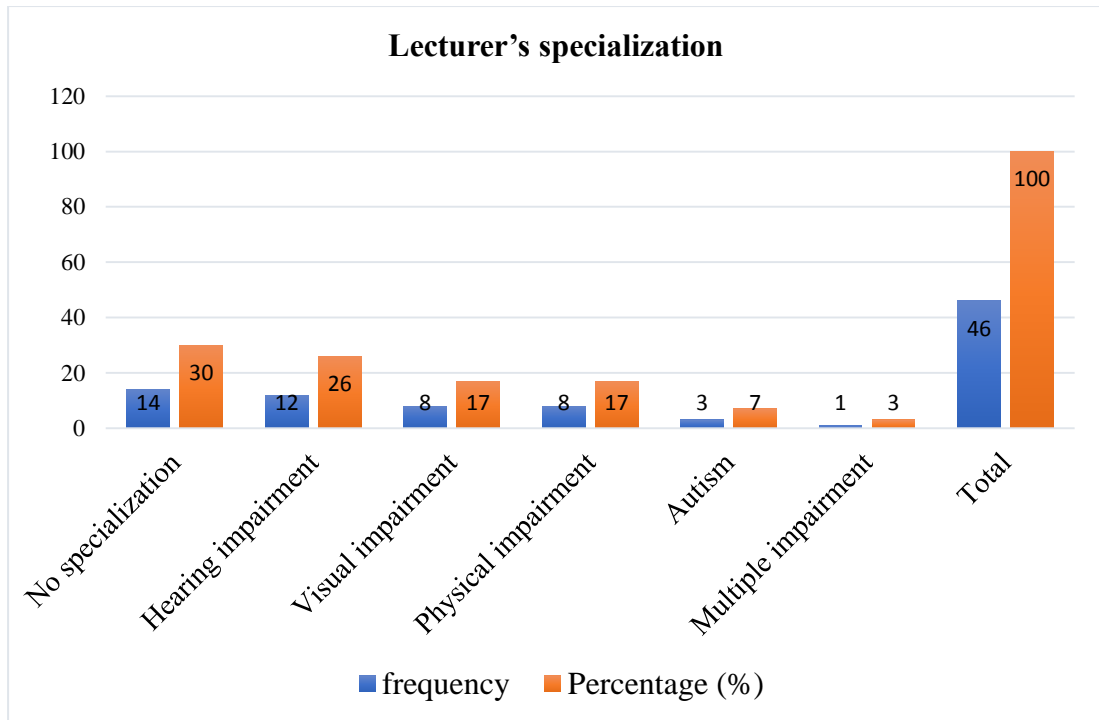


Figure 10: Lecturer's area of specialization

Figure 10 gives a clear illustration of the lecturers' specialization in various areas of disability. Like it has been discussed before those who have no specialization are the majority. The implication is that SWD are taught by lectures who may not adequately meet their learning needs. It is important that lecturers who teach SWD get trained.

4.5.4: Biographical data of students with disabilities

Biographical data of SWD was mainly on the type of disability that affected them, the year of study and what degree course they were pursuing. This background information was important because disabilities affect individuals differently and institutional readiness must consider this factor. It was also important for students themselves to declare that they considered themselves as SWD.

4.5.5: Types of disabilities as reported by SWD

Table 4.13 shows the distributions of students according to their disabilities. Students were asked to declare if they considered themselves as persons with disabilities (PWD)..

Table: 4. 13 Types of disabilities reported by SWD

Type of disability	Frequency	%
Physical	123	61
Visual	50	25
Hearing	20	9
Dyslexia	4	2
Albinism	2	1
Autism	2	1
Epilepsy	1	0.5
Total	202	100

This is because some students prefer not to disclose their disabilities as observed by Madriaga, (2007).He argued that SWD are unwilling to disclose their disability because of fear of discrimination .According to table 4.13, one student disclosed herself to be epileptic and one also disclosed himself as dyslexia and they considered themselves as students with disabilities. The highest numbers of disabilities were reported by SWD who had physical disabilities 123(61%). This could be due to the obvious visibility of this type of disability. They were followed by visual disabilities 50(25%) then hearing disabilities 20(10%). Dyslexia, 4(2%) albinism 2(1%) autism 2(1%) and epileptic 1(0.5%) disabilities made the smallest percentages. This information was important because this research was not inclined towards any specific disability. Education must be accessed by all irrespective of disability (World Conference on Education for All; Jomtien ,1990); World Education Forum; Dakar,

2000). The research therefore targeted all disabilities. The data reveals that even among the students with disabilities, a clear note is that some disabilities are more represented than others (in terms of access to higher education). This implies that readiness for access is still wanting even among certain disabilities. These findings seem to relate with those of lecturer's specialization. Physical disabilities can be handled by lecturers with no specialization hence their high percentage. Visual disabilities are the next highest percentage and so are lectures who said they had specialized to teach students with visual impairment. This implies that lecturer's specialization is an indicator of readiness for access to education by SWD.

4.5.6 Distribution of SWD according to their year of study

Table 4.14 shows the number of SWD according to the year of study. The purpose of collecting this information was to help the researcher to ensure that experiences of SWD across the years were included in the study.

Table: 4.14 Distribution of SWD according to their year of study

Year of study	Frequency	Total
First	33	16.3
Second	50	24.8
Third	79	39.1
Fourth	36	17.8
Fifth	4	2.0
Total	202	100.0

Students across all the years of study were able to participate in the study with the highest percentage in their second and third year of study (23%) and (39%)

respectively. Those in the fifth year were the least (2%). This shows that experiences of students across all the years of study were captured. The experiences helped the researcher to capture as much information as possible about their experience on curriculum inclusiveness and the state of infrastructure they often interact with on a daily basis.

4.5.7 Biographical data of students as per their degree course

The information in table 4.15 shows how students are represented in various courses. The distribution shows that students studying education and arts based subjects make 71% of the total while the remaining 29% are distributed in the other courses like architecture (2%), computing (4%), engineering (5%), environment (5%) and others not listed (0.5%).

Table: 4. 15 The distribution of students as per their degree course

Name of degree course	Frequency	Percentage
Agriculture	13	6
Health and Welfare	4	2
Humanities and Arts	25	12
Journalism and Information	4	2
Law	9	5
Life science and physical science	2	1
Mathematics and Statistics	6	3
Social and Behavioral science	2	1
Forestry and Fisheries	2	1
Veterinary	1	0.5
Architecture	3	1
Business and administration	25	12
Computing	8	4
Education (Arts)	57	28
Education (Science)	22	10
Engineering	9	5
Environment	10	5
Others	1	0.5
Total	202	100

This information was important because it has implication on the lecturer's competencies curriculum inclusiveness and institutional readiness in general. The courses that attracted more students with disability may be those that have provided for SWD needs to some extent. Phillips & Clarke (2010) found that the extent to which SWD had to negotiate access to notes and accessible lecture materials, in most cases determined their course choice. These findings compared with what was observed as pertains to the distribution of students according to the courses in this study. Courses that were less practical such as Humanities and Business Administration seemed to have higher enrollments. Perhaps these courses were prepared with accessibility for SWD consideration than those that attracted fewer students. It is important for universities to ensure that more courses are made accessible to SWD other than only arts-based courses.

4.5.8 Response of students to opt for the same course

In table 4.16 students were required to answer whether given another opportunity to select a course would they still select the same course they were studying or not.

Table: 4.16 Response of students to opt/not for the same course

Option for:	Frequency	Percentage (%)
1. Same course	155	77
2. Another course	47	23
Total	202	100

A total of 155(77%) answered that they would go for the same course and 47(23%) said they would not go for the same course. It is therefore clear that most students said they would opt for the same course they were undertaking. This information was

important because it was used to validate the courses that registered a high percentage of enrolment of SWD.

Table 4.17 resonates with the information in table 4.18 where students were required to say whether they would opt for the same course or they would choose a different course.

Table: 4.17 Reasons why SWD would or would not opt for the same course

Reason for opting/not opting for the same course	Frequency	Percentage (%)
1.Same course: Accessible learning material	98	48.5
1.Different Course: Inaccessible learning materials	27	13.4
2.Same Course: adequate lecturers	25	12.4
2.Different course: inadequate lecturers	12	5.9
1.Same course Lecturers are sensitive to my needs	33	16.3
2. Different course: Lecturers insensitive	7	3.5
Total	202	100

One SwdPu5 (i) who has a physical disability had this to say during the FGD:

“My dream was to do pharmacy, but due to the structural nature of the building where I have Table 4.2 take my lessons it was impossible for me to cope. The building does not have lifts and that is why I ended up taking actuarial science.....which was not fair....It stressed me back then, but now I have accepted it as I didn't have a choice. I think in future, something should be done about this so that those who come after me will not face the same challenge like me.”

Most students reported that they opted for the courses that had accessible learning materials, availability of lecturers and lecturers were sensitive to their special needs.

Others reported that they would take a different course because of inaccessible learning materials; unavailability of lectures and that some lecturers were insensitive to their special needs. On probing them on how they knew about availability of accessible learning materials. One SwdPU1 who was visually challenged said:

“I found myself trying to enquire a lot about courses in this university and other facilities during my selection of courses in high school. I decided on education because I knew some people who had a challenge like mine who were studying in this university and they were taking this course and they said it was accessible.”

4.6. The influence of infrastructure on access to higher education by SWD

Table 4.18 illustrates the summary of the responses. Administrators were asked if the existing infrastructure was accessible to SWD. Their general response was that most of the infrastructure is inaccessible to SWD compliance. Four (4) out of 11(36%) said that disability audit was done on all buildings and certified by a third party e.g. NCPWD periodically while 7 out of 11(66%) said this was not the case.

Table: 4.18 Response of administrators on accessibility of infrastructure

Status of infrastructure	Response		Total	%		Total %
	Yes	No		Yes	No	
Needs Minor modification for access to 3 types of disabilities i.e. physical, visual, hearing	6	5	11	54.5	45.5	100
Needs Major modification to comply with > 50% of ISO 21542:2011 Universal Design	7	4	11	63.6	36.4	100
Compliance with Universal Design 21542:2011 is part of the requirement for new buildings in this university	6	5	11	54.5	45.5	100
More than 80% of the buildings comply with Universal Design ISO 21542:2011	4	7	11	36.4	63.6	100
Disability Audit done on all buildings and certified by a third party e.g. NCPWD periodically	4	7	11	36.4	63.6	100
Internal Disability audit done annually	4	7	11	36.4	63.6	100

Six (6) out of 11 (55%) said that the existing infrastructure needed minor modification to be accessed by students with physical, visual and hearing impairments, while 5 out of 11(45%) said that modification was not needed. Seven(7) out of 11(64%) agreed that the existing infrastructure needed major modifications in order to meet 50% of the requirements of ISO 21542:2011 Universal Design while 4 out of 11(36%) said that no major modification was required. Six (6) out of 11(55%) indicated that

compliance with Universal Design 21542:2011 is part of the requirement for new buildings in their university while 5 out of 11(45%) showed that this was not a requirement. Four (4) out of 11(36%) said that more than 80% of the buildings on their campus complied with Universal Design ISO 21542:2011 while 7 out of 11(66%) said that there was no A number of writers have observed that the source of problems of disabled persons begins with a biased and excluding environment within which they must operate from rather than an individual's disability (Guy et al 2004, Oliver, Oliver.1990; Oliver, 1992; 1996; UPIAS, 1976). This study agrees with this view especially when most administrators reported that a high percentage of buildings in public universities (see table 4.18) do not comply with universal design for buildings and infrastructure. This means that it is the environment that needs to be changed rather than the person with a disability as confirmed by Fine and Asch (2000) as well as Griffin et al, (2007).Morley and Crofty (2011) concluded that the built environment is mainly designed for non-disabled people. It is a view that is shared with the findings of this study. Infrastructure was considered in this study as one of the important variables in the environment that affects access to education by SWD because infrastructure that is not disability friendly is a risk to the user and it impacts negatively on their ability to manage their daily activities. The information that was given by respondents about the status of infrastructure in table 4.18 helped to make inferences on the readiness of infrastructure for access to education for SWD in this study. The data in the table shows that indeed infrastructure in most universities was not accessible to SWD hence the need for minor and major modifications. The information given in table 4.18 is discussed in the subheadings that follow.

4.6.1 Need for minor modifications on the infrastructure

The administrators who reported that some minor modifications were done on the physical facilities and infrastructure in their respective universities to accommodate physical, hearing and visual types of disabilities were slightly higher than those who reported otherwise; 55% and 45% respectively. This helped the researcher to infer that indeed infrastructure in most universities was not accessible to SWD that is why there need for modification to be able to take care of students with physical, visual and hearing disabilities. This finding agreed with Weston (2017) who observed that campus infrastructure was not accessible and safe to the physically disabled community. Weston however only looked at inaccessibility in relation to persons with physical disabilities. He was silent on how infrastructure affected those with other disabilities especially the hearing and visually impaired. His concern was also not on how infrastructure affected SWD access to Education. The response of administrators confirms that the state of infrastructure in the universities is not ready for access by SWD. This has a negative implication on access to education.

4.6.2 Need for major modifications on the infrastructure

Physical access/ accessibility is to do with the ability to move easily without restrictions. A high percentage of the administrators reported that there was need for major modifications to be done on the infrastructure to be at least 50% of the requirement of the Universal Design for buildings (ISO 21542:2011) in order to be accessible to three types of disabilities (physical, visual, hearing impairment) as compared to those who said that there was no need for major modifications on the infrastructure; 7 out of 11 (64%) and 4 out of 11(36%) respectively. There is

likelihood that most of the buildings (At least half) in the public universities are not accessible to SWD. That most buildings have been done without any consideration to disability access and this affects access to a great extent. This alone has ramifications on ease of use by SWD and it could negatively impact on to access to education by SWD. Vertically or horizontally access around a facility or features either inside or outside the premises affects the user physically and mentally (Abu-Bakr et al, 2014). Nel et al (2015) concluded that poor infrastructure at the university was the source of many challenges and barriers to students with physical disabilities; it prevents them from being able to move freely, which at times, leads them to staying in their rooms thus increasing their isolation. Their study used a Thematic Content in their analysis, but their conclusions agree with the current study. However, they only looked at access by physically disabled students in only one university. Morina & Morgado (2018) found out that the university centers they studied still required a certain degree of adaptation and readjustments to make them fully accessible for and usable by all students, specifically common spaces at universities. Their findings compare with this study however their area of interest was not on infrastructure as a variable that influenced access to higher education by SWD. Also, their study used a biographical narrative methodology while this study used a basic qualitative research methodology.

4.6.3 Internal and third party disability audits on the infrastructure

Asked whether access audit is done, more administrators reported that disability audits are not done, 7 out of 11(64%). Fewer administrators 4 out of 11 (36%) reported that the audits are done. Nevertheless, even those who reported that access audits have been done in their universities did not have any evidence of the same. This was validated by use of the observation checklist. This is a discouraging practice

because without disability audits on infrastructure, it is not practical to meet special needs of SWD for infrastructure. This is likely to impact negatively on access to education by these students. Access audits by use of a checklist help to find out how much of the physical facilities can be used independently by PWD (Abu-Bakr et al 2014). The use of the observation checklist during this study helped to achieve this.

4.6.4 State of infrastructure in terms of compliance with universal design

When administrators were asked about compliance with UD of buildings and infrastructure in their respective universities; 7 out of 11 (64%) reported that more than 80% of them did not comply with the requirements of this standard while 4 out of 11 (36%) reported that there was compliance with the same. This means that most buildings and infrastructure were inaccessible for SWD in the sampled institutions. Universal Design (UD) is an architectural concept in which the design and composition of an environment can be accessed, understood and used to the greatest extent possible by all people, regardless of their age, size or disability (Burstahler, 2007).

4.6.5 State of compliance with ISO 21542:2011 for buildings and infrastructure

The administrators who reported that compliance with ISO 21542:2011 was a compulsory requirement by the university were 6 out of 11(55 %) while 5 out of 11(45%) reported that this was not their university's position. The expectation was that a higher percentage of administrators would agree on this condition because 7 out of 11(64 %) reported that 80% of the existing buildings on their campuses did not comply with Universal Design (ISO 21542:2011).This means that this information could only be existing in the university documents or rather the administrators could

have downplayed the truth. The observation checklist revealed that the Universal Design (UD) signage was not appropriately placed on the buildings because recommended standards were not observed. This posed a big problem for the deaf students who mainly rely on visual signs in finding their way, especially the newcomers. The disability toilets in PU2 had circulation spaces of less than 1500mm-2000mm in the inside and doorways of less than 900 mm. In the same university most walkways were uneven and had widths of less than 1800mm. This posed a problem to people with crutches and wheelchair users. This factor complicated the use of these facilities by wheelchair users. It was even more serious when it rained. This is what SwdPU2 who has a physical disability said during FGD:

“They should at all the time consider us and our disabilities and how they can hinder our progress academically. Like when it rains, how can I access the lecture hall? It is either I go to class and get wet and then get sick or do not go or sometimes when I miss class, I can’t get the notes. I think the university should consider those with severe disabilities, particularly those on wheelchairs and crutches. They should give them what they need to work with laptops and provide proper facilities.”

Still in university PU2, there was only one lift that ended on floor 2 at the administration block. The library’s periodical area in this university could not be accessed by crutch and wheelchair users because it was located on 2nd floor and there was no lift. However, there was a desk manned by one library staff to assist those who could not reach the periodical area. Though this could reduce the challenge, it curtails the individual student’s freedom of variety of readers. The entrance to this library has many steps but no tactile warnings were seen at the beginning and end of the steps. The same applied to the approach to the staircases, and the landings alternatively. This is a challenge to the visually impaired. However the ramp was standard one but some old furniture had been placed at the end of the ramp, this made it difficult for the

wheelchair users because they had to maneuver around the furniture before accessing the entrance to the library. This ramp was also not slippery resistant for those who use crutches and other walking aids. In university PU6, administrators' offices were either on 1st, 2nd or third floors. Only the engineering block was accessible to wheelchair and crutch users but there were no warning blocks at 300mm near the entrance and no tactile surfaces. Universal accessibility symbols were missing, and the disability toilet was inaccessible to wheelchair users. The lift was only one and it was faulty, though still it does not meet the universal design standards. In the same university the newly constructed reception is inaccessible to wheelchair and crutch users. There are no warning blocks towards the facade of the building and there are no tactile surfaces. This has caused a challenge to those with visual impairments. Figures 11, 12, 13, 14 are an illustration of some of the recommendations of a Universal Design.

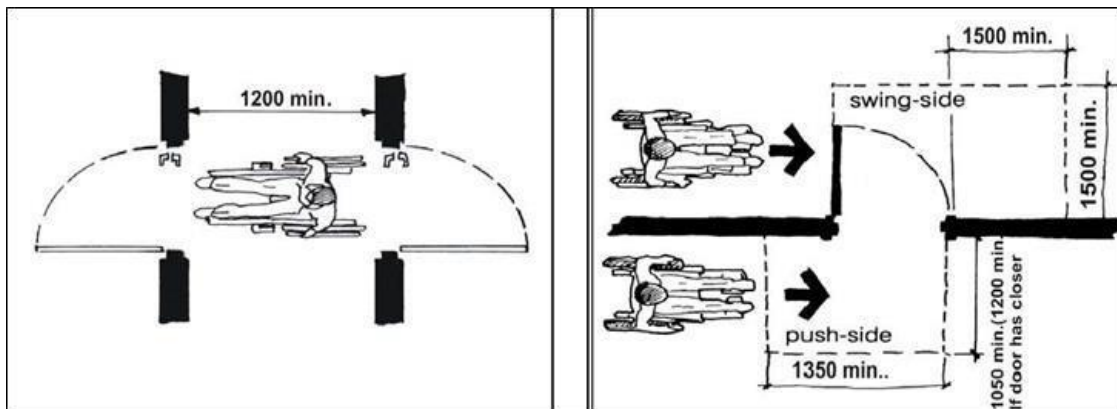


Figure 11: Standard wheelchair maneuvering space needed for doorways:
courtesy ISO 21542: 2010 document pg 20

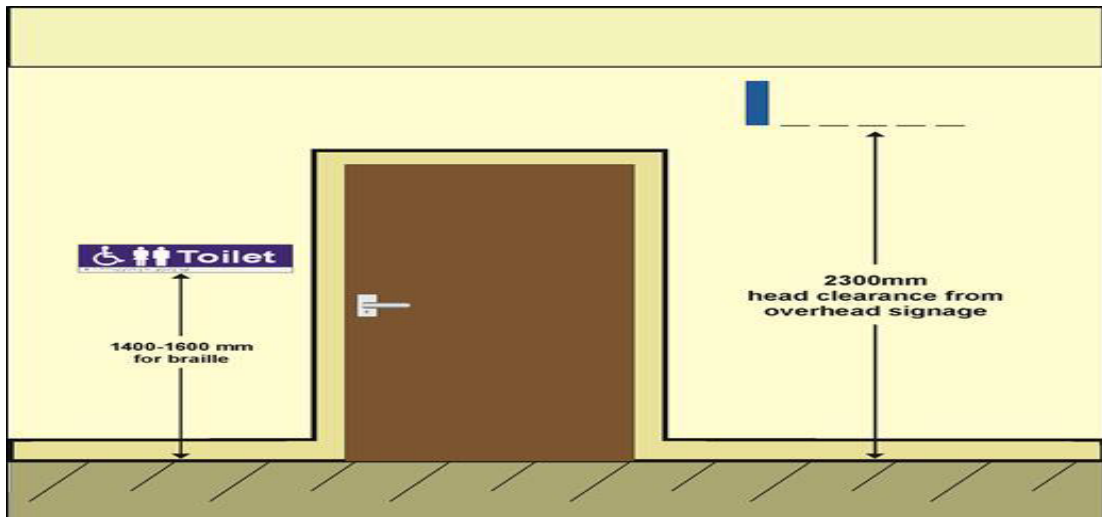


Figure 12: Recommended Height and placement of signage: courtesy ISO21542:2011 pg. 40



	Accessible toilets	<input checked="" type="checkbox"/>
	Parking	<input checked="" type="checkbox"/>
Use symbols in place of text where the symbol is universally recognised.		



Figure 13: Universal design signage: Courtesy of CEUD <http://universaldesign.ie>

Recommended letter heights in signage viewing distances	
Viewing distance (mm)	Recommended letter height (mm)
000	200
4600	150
2500	100
2300	75
1500	50
750	25

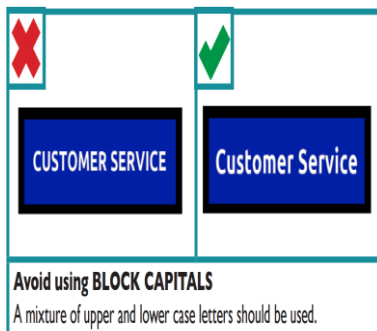


Figure 14: Universal design signage: Courtesy of CEUD <http://universaldesign.ie>

In University PU4 disability toilets were in strategic places with clear signage but only one met the recommended standards. The door leading to the administrators' offices had an accessible ramp, but it was permanently closed. Students who needed to use it had to wait for a long time for the security officer to open the door or be carried over the staircase. The researcher witnessed one student who uses a wheelchair being lifted over the staircase by fellow students. This researcher thought that this factor limited the student's freedom of access to the building and its facilities. In university PU1 and PU5 the hostels did not have accessible laundry areas for students with visual and physical disabilities. However, the entrances were accessible. The following is an account of a SwdPU5 during the FGD who is visually impaired and studying law:

“First of all, I am blind therefore I will be lying to tell you that I am familiar with the entire physical infrastructure in this campus. However, this is what I can tell you about my experience of the buildings that I must visit because of no choice. The library has no tactile blocks just before the start of the steps at the entrance. This was quite challenging to me at first. But I have since practiced counting steps to avoid unnecessary falling. The same applies to the approach to the staircase and on the landings of the staircase inside the library. The path towards the hostel is not straight and similarly it has no tactile or warning signs at the bends. I had to do some practice before mastering the route, but for a newcomer in my situation rest assured it is challenging. The administration will do well to do something to make our movement from place to place as independent as possible because it really affects our studies.”

4.6.6 The Status of disability friendly infrastructure in Public Universities

The study used the universal design standards for ISO 21542:2011 which is recommended for use in the built-up areas by National Council for Persons with Disability (NCPWD) (Disability Act 2003) as a base for standard infrastructure. The findings of this study on the Status of disability friendly infrastructure in Public Universities based on the information that was given by the respondents who comprised of administrators, SWD and lecturers is presented in table 4.19. The response from administrators as pertains to the available and accessible infrastructure greatly differed with that of students and lecturers in most cases. While most administrators said that the available infrastructure was accessible a higher percentage of SWD and lecturers reported that most infrastructures was not accessible to SWD. Much of the infrastructure that was seen in the universities was below the recommended ISO 21542:2011 standards for infrastructure. Space allowance for wheelchair users were mainly below the recommended standard length of 1000 - 1200 mm and the width of 650 - 720 mm. Most passage spaces in lecture rooms and doorways had circulation dimensions less than 1500mm-2000mm. This made wheelchair users unable to rotate with ease. Many buildings that were observed by use

of the observation checklist did not provide tactile warning blocks at 300mm just before the start and end of staircases, steps, ramps or changes in direction to warn visually impaired persons. There were no tactile surfaces either. This factor limited the affected student's independence because they had to rely on fellow students to guide them around. It also exposed them to accidents. The status of disability friendly infrastructure was that most of it was below the recommended universal standard (ISO 21542:2011). An observation by Mwirigi (2017) when he carried out a study on disability infrastructure in Meru town compares with the current study. Though his study had a different objective from the current one the findings about inaccessible infrastructure and failure to observe universal standards for infrastructure provides a point of comparison between these two studies. It is more critical with the findings of the current study because it is a variable that has ramifications on access to education by students with disabilities. If students cannot move around the campus or gain access to a building, they are effectively denied access to higher education. Mwirigi (2017) concluded that the regulations on the provision of modifications to suit disability on public buildings have not been enforced. In this study a high percentage of SWD and lecturers reported that most infrastructures were not accessible to SWD. The response from administrators as pertains to the available and accessible infrastructure greatly differed with that of students and lecturers in most cases. While most administrators said that the available infrastructure was accessible students and lecturers reported that it was not accessible. A study by Gathumbi et al (2015) and Opini (2009) where they established that most physical infrastructure was completely inaccessible and unsuitable for use by students with disabilities compares with the findings of the current study as well. In the current research much of the infrastructure failed to meet the recommended ISO 21542:2011 standards for infrastructure.

4.6.7 Disability toilets

Most existing disability toilets in the sampled universities did not observe the ISO 21542:2011 standard and therefore they were not accessible to wheelchair users. Nine (9) out of 11(82%) of the administrators said that the disability toilets were accessible and 2 out of 11 (18%) said they were not accessible, 74 out of 202 (37%) of the students said that they were accessible while 127 out of 202 (63%) said they were not accessible, 9 out of 46 (20%) of the lecturers said they were accessible and 37 out of 46(80%) said they were not inaccessible. The disability toilets in PU2 had circulation spaces of less than 1500mm-2000mm in the inside and the doorways were less than 900 mm. During the FGD this is what SwdPU2 who uses a wheelchair said:

“I sincerely dread visiting the toilet because I must first dismount from the wheelchair in order to crawl to the inside of the toilet since the circulation space for the wheelchair is not enough. The ramp is also narrow and steep. It becomes more complicated because the toilet is not preserved for PWD. Mostly the toilet seat is misused by those who have no disabilities. It is really challenging to use such a toilet if you have a disability. I think most students without disabilities are not aware that such a toilet is meant for wheelchair users and others who have challenges that dictate the use of this toilet and that the seat must always be left usable.”

In this study, it was concluded that with the situation of existing toilets in public universities, students with disabilities have difficulties of coping with inaccessible toilets. This factor has far reaching consequences as far as their education is concerned. Poor toilets subject SWD to constant stress and this affects the status of their wellbeing. This is likely to spill over to their academic performance. Disability toilets therefore affect the education and performance of SWD. Universities should ease access to education by providing quality disability toilets.

4.6.8 Access to Libraries by SWD

Table 4.19 illustrates the status of infrastructure in public universities.

In PU3 University, the loan counter could not be reached by wheelchair users. The tables could not meet universal design standards for the comfort of access by wheelchair users. Carrels had narrow entrances and dimensions, and this made them inaccessible for wheelchairs. Furthermore, all of them were found upstairs. Shelves were too high, and it was difficult for them to reach the information resources they needed. Therefore, they used friends and library staff to search for them and sometimes they preferred not to use the library. This is what SwdPU6 who is deaf observed about the state of the library in PU6 during the FGD session:

“The library attendants are not conversant with sign language. It is not easy for me to get assistance at the loans counter. It forces me to consult the catalogue on the computer on my own. But sometimes they are not up to date. Furthermore, most of the computers are old and too slow.

Table 4.19 Administrators, SWD and lecturers' report on Disability friendly infrastructure in Public Universities

Name of infrastructure/facility	Response from administrators			Response from SWD			admin Response %			SWD response %			Lecturer's Response			Lecturer's response %		
	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total
Accessible Disability toilets	9	2	11	74	127	202	82	18	100	37	63	100	9	37	46	20	80	100
Acc. Disability bathroom	6	5	11	45	157	202	55	45	100	22	78	100	14	32	46	30	70	100
Spacious lecture	10	1	11	104	98	202	90	10	100	51	49	100	31	15	46	67	33	100
Accessible lecture rooms	8	4	11	77	125	202	73	27	100	38	62	100	16	30	46	35	65	100
Accessible doorways	9	2	11	94	108	202	82	18	100	47	53	100	14	32	46	30	70	100
Tactile surfaces	9	2	11	46	156	202	82	18	100	23	77	100	13	33	46	28	72	100
Accessible libraries	2	9	11	55	147	202	18	82	100	27	73	100	18	38	46	39	61	100
Accessible Ramps	10	1	11	86	116	202	90	10	100	43	57	100	12	34	46	26	74	100
Accessible hostels	9	2	11	80	122	202	82	18	100	40	60	100	26	20	46	56	44	100
Accessible lifts	7	4	11	85	117	202	64	36	100	43	57	100	19	27	46	41	69	100
Acc. Music rooms	2	9	11	30	172	202	18	82	100	15	85	100	7	39	46	15	85	100

Most respondents reported that libraries posed a challenge for SWD. Nine (9) out of 11 (82%) of the administrators said that libraries were not accessible, 47 out of 202 (73%) SWD said that they were not accessible and 38 out of 46 (61%) of the lecturers said that they were not accessible. In PU2 the library, as observed by the researcher had the following challenges: there were no accessible lifts for use by wheelchair users who needed to access the periodicals section which is found on the upstairs. There were no braille versions of most reading materials and no JAWS and Kurzweil software to assist in accessing electronic materials. Interaction with the disability desk officer revealed that he was not conversant with disability issues therefore he had no capacity to assist SWD in the selection of reading materials.

It was observed that library shelves were high, and it was difficult for people in wheelchairs to locate information resources by browsing. Therefore, they used friends and the library staff on duty to locate information resources they needed in the library. This factor affected their independence of accessing relevant reading materials. They also tended to wait for too long before getting assistance because the library attendant seemed overwhelmed. Majinge (2014) looked at library buildings and their access to persons with visual impairments and in wheelchairs and found that they were neither inclusive nor universal. Although her study only concentrated on two types of disabilities, the findings compare well with what the current study discovered.

4.6.9 Access to Lecture rooms by SWD

In table 4.19 respondents reported about how spacious and accessible the classrooms were. 10 out of 11 (90%) of the administrators said that classrooms were spacious, 104 out of 204 (51%) of SWD said that they were spacious while 31 out of 46 (67%) of the lecturers said that they were spacious. The researcher observed that lecture rooms were generally spacious in all the universities. On whether they were accessible this is how they responded: 8 out of 11 (73%), of the administrators said that they were accessible, 77 out of 202 (38%), of the students said they were accessible and 16 out of 46 (35%) of the lecturers said they were accessible. Most lecturers and students indicated that lecture rooms were not accessible to SWD. The administrators said that they were accessible. The big range between what the administrators said versus what students and lecturers said could be because the administrators do not interact with the lecture rooms during teaching/learning and they may have given their opinion from the “outsiders” point of view. An observation in PU6 University revealed extreme inaccessibility of the lecture rooms for students with physical impairment. Most of the lecture rooms had either step at the entrance or they were on the not on ground floor. This made the university to relocate most students who have physical disabilities to another campus that was 1.30 hours’ drive away from the main campus. This new campus however did not have adequate infrastructure for these students. There was one big hall where most lectures were offered, however on this campus, bathrooms and toilets are not disability friendly. Students with disabilities were struggling to use these facilities because they were not built using the prescribed Universal design standards. The terrain of this campus was also very inaccessible because the campus was still under construction.

4.6.10 Hostels and access by SWD

This is what the respondents said about accessibility of the hostels: According to the information in fig. 16 82% of the administrators said hostels were accessible, 40% of the SWD said hostels were accessible, while 56% of the lecturers said that hostels were accessible to disabled students.

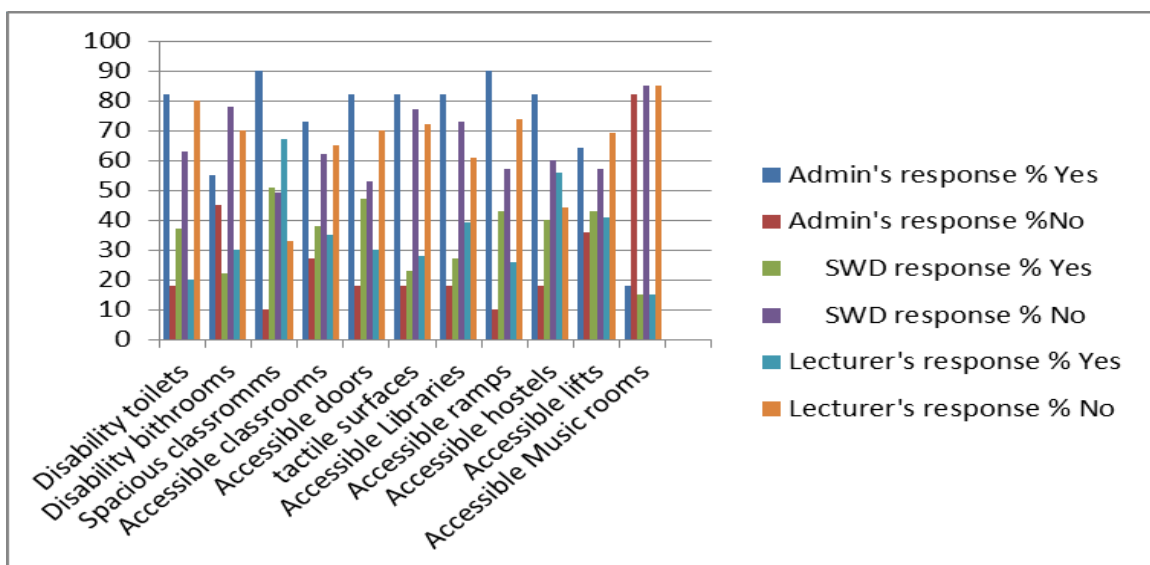


Figure 15: Response of administrators, SWD and lecturers on disability friendly infrastructure

On observation of hostels in PU5 the researcher came to the same conclusion with students. Most of the rooms were small without enough circulation spaces. Observation of one hostel that was accommodating SWD revealed several challenges; this hostel had neither a disability toilet nor bathroom. The laundry place had a raised washing area that posed a challenge to wheelchair users and persons with short stature (PWSS). The cloth lines were unreachable too. There were no warning blocks and tactile signs to give direction to the visually impaired users. The researcher concluded

that administrators and lecturers were not in touch with the SWD living conditions in the hostels. Distances covered by students from hostels to lecture rooms in PU1 were great. This mainly was a challenge to students who had mobility challenges.

4.6.11. Access to Recreational infrastructure by SWD

Recreational activities are part and parcel of learning for a healthy mind and body. When respondents were asked whether universities had put in place these facilities to cater for SWD this is how they responded: On the existence of accessible play grounds for SWD most respondents answered in the negative with 73% of administrators answering that play grounds were not accessible to SWD, 70% of the students said they were not accessible and 65% of the lecturers said they were not accessible. On observation of PU6 and PU3 the playgrounds had no modifications for use by disabled students. There were no playgrounds for wheelchair racing, no place to accommodate various disability ball games. Furthermore, there were no specialized games facilities for their use. The researcher observed using the observation checklist that the responses from the questionnaires confirmed what was real. The indoor games that were provided by all the universities were mainly scrabble, chess, and snakes and ladders. Table tennis was available but not for SWD. On whether there were racing games for SWD, this is what respondents reported 82%, administrators reported that there were no racing games while 18% reported that there were racing games in their universities, 85% of the students reported that there were no racing games and 15% reported that there were racing games in their university, 85% of the lecturers reported that there were while 15% reported that they were not provided. The consistency of the negative reporting made the researcher to conclude that

universities were ill prepared to offer this type of games to SWD. Most respondents reported that there were no swimming facilities. 91% of the administrators said that there were no swimming facilities and 9% said there were, 92% of SWD said there weren't and 8% said there was, 93% of lecturers reported that there weren't while 7% reported that there were. Respondents likewise reported on the negative on the question of availability of specialized devices for games for SWD as follows; 91% of the administrators, 94% of SWD and 91% of lecturers. About the gym facilities 82%, administrators reported that there wasn't and 18% answered that there was, 94% of the students answered that there wasn't while 6% answered that there was, 70% of the lecturers answered that there wasn't while 30% reported that there was. It can be deduced from these results that universities are not ready to provide extracurricular learning experience to SWD. One SwdPU4 who has a visual disability observed this:

“The university organizes for talent nights, but the announcements are in visual print which is normally posted on noticeboards. Often such information passes me because the organizers are not sensitive to my special needs. I once made inquiry because I was really psyched to showcase my talent only to be told that the activity had passed. You can imagine my disappointment. “He posed.

It should be noted that SWD can participate in sports and other recreational activities if only this consideration is addressed by university administrators. Without it this area of access to education remains a gap. It should be noted that education is not just about provision of academic but recreational facilities too. In the FGD one SwdPU6 who has a physical disability had this to say:

“In this university I see sports as a preserve of normal students because I have never seen games for SWD. Personally, I wanted to participate in Special Olympics. It has been my favorite because I used to compete when I was in high school but here the

atmosphere is different. Once I tried to voice this with the Dean of students, but they always say that they will consider. I feel my talent has been wasted because I am almost through with my studies and I have not participated in any games”

Another student (SwdPU5) with a physical disability had this to say

“I like singing since high school and when I came here, I found better music facilities. I have always participated in music competition including composing. I also see indoor games like scrabble, chess and badminton. But my general observation is this; there aren't a variety of sports and recreational facilities for SWD in this campus.”

4.6.12 Transport and access to education by SWD

In Table 4.20 the respondents generally agreed that transport and transport facilities were not up to standard. On whether university buses had detachable ramps and spacious seats and passages on the inside, this is how the respondents answered:

Table: 4.20 the response of administrators, SWD and lecturers on the availability of recreational infrastructure

Respondent	Administrators						SWD						Lecturers					
	Y	N	T	%Y	%N	%T	Y	N	T	%Y	%N	%T	Y	N	T	%Y	%N	%
Sports facilities																		
Ball games for SWD	1	10	11	9	91	100	12	188	202	7	93	100	17	35	46	24	76	100
Swimming facilities for SWD	1	10	11	9	91	100	96	186	202	8	92	100	3	43	46	7	93	100
Specialized devices for games	1	10	11	9	91	100	74	128	202	6	94	100	4	42	46	9	91	100
Accessible playgrounds	3	8	11	27	73	100	62	140	202	30	70	100	16	30	46	35	65	100
Racing games for SWD	2	9	11	18	82	100	30	172	202	15	85	100	7	39	46	15	85	100
Indoor games for SWD	10	1	11	91	9	100	86	116	202	43	57	100	12	34	46	26	74	100
Music facilities for SWD	9	2	11	18	82	100	100	102	202	15	85	100	7	39	46	15	85	100
Accessible Gym facilities	9	2	11	82	18	100	94	108	202	47	53	100	14	32	46	30	70	100
Laundry& grooming facilities	8	4	11	73	30	100	77	125	202	38	62	100	16	30	46	35	65	100

Eighty three (83%) of administrators, 92% of the SWD and 80% of the lecturers answered on the negative while 17% of the administrators, 8% of SWD and 20% of the lecturers answered on the positive on spacious seats and passages on the inside of the buses. 73%, of the administrators 89% of SWD and 77% of the lecturers answered on the negative while 27% administrators, 11% SWD and 23% of lecturers answered on the positive about availability of detachable ramps for buses. Respondents also generally reported that there was no adequate disability parking. The researcher observed the same because the available disability parking on most universities was below the recommendations of the universal design standards. The researcher observed that most universities except PU5 did not have specialized transport for SWD. In PU5 there was a great challenge for students with disability especially during field based academic trips and during the examination. This is clearly expressed in their focus group discussions. SwdPU5 observed this:

“The university has tried to provide transport for us for movement across campus. However, it poses a challenge to me as a wheelchair user because the vehicles are not spacious enough to accommodate my wheelchair. Furthermore, they do not have detachable ramps for ease of access. Also, university has only two vehicles for us; during exams we face challenges because many of us need to use them. This in the long run really affects our performance because of the associated anxiety.”

In the table that follows (table 4.21) respondents reported about existing transport and other transport facilities. The researcher chose the listed transport infrastructure because it is commonly accessed by students with disabilities. Most lecturers (57%) and students (56%) generally agreed that the transport was not accessible. Most of the respondents (73%) of the lecturers, 89% of the SWD) agreed that buses do not have detachable ramps. Whereas lecturers (72%) agree on the availability of adequate

disability parking, administrators (45%) and students (15%) reported the contrary. According to the observation checklist the parking areas in PU1, PU2, P5 and PU6 did not have the right dimensions i.e. Minimum dimensions of 5000 mm×3600 mm; with a firm, level surface; the researcher was using the recommendations from ISO 21542:2011 universal design. This observation confirmed what administrators and students reported.

In the FGD in PU5 students narrated their experiences with the state of transport access. This is one interesting experience of one SwdPU5 who is a wheelchair user:

“The college buses are too high and inaccessible for me .I normally don’t use them but one day I was forced to board a college bus when one of our student leaders lost his father and I had to go and condone with him.. Imagine I had to be carried over the steps and be placed on the seat. My wheelchair was kept in the cabin below the bus; this meant that I had to remain on my seat till the end of the journey. I did not take any water because that meant that I had to be carried again to get off the bus(with a mischievous smile) and it also meant doing the ritual in the presence of those who assisted me. Just imagine.”

Table: 4. 21 Response on existing transport and other transport facilities

Infrastructure	Administrator's response						SWD			Response			Lecturer's response					
	Y	N	T	%Y	%N	%T	%Y	%N	T	%Y	%N	%T	%Y	%N	T	%Y	%N	%T
Detachable ramps on bus	8	3	11	27	73	100	22	180	202	11	89	100	15	31	46	33	27	100
Spacious bus seats	9	2	11	83	17	100	46	156	202	28	72	100	9	37	46	20	80	100
Adequate Disability parking	5	6	11	45	55	100	30	172	202	15	85	100	33	13	46	72	28	100
Accessible transport	6	5	11	55	46	100	88	114	202	44	56	100	20	26	46	43	57	100

Another in university PU6 SwdPU6 said this:

“If the university can supply us with assistive devices like a personal computer to ease access to reference materials without requiring us to move from place to place it would ease our life....This is because only one vehicle is assigned to SWD but it also does a lot of other errands. Its schedule is too rigid too. Maybe the university could increase transport to take us from our rooms to classes. I think that if the management would come up with something like that, it would be very helpful.”

4.7. Lecturers’ competencies as a determinant of access to higher Education for SWD

The notion of competence and skills is guiding the development of undergraduate and postgraduate syllabuses in higher education today. The emergence of lifelong learning and the theory of human capital has led to a conception of Higher Education as a process which advances in people a capacity to update their knowledge continuously to adapt to the needs of their jobs and the market (Lozano et al 2012). This aptly resonates with the minor objective of this research on the lecturer’s competencies as an enabler of access to higher education by SWD. This study identified and categorized the lecturer’s competencies in four as professional, pedagogical, technological and communication. A competence model should include not only the positive (preferred, desirable) indicators pertaining to every key competence but also the negative indicators (Blaskova et al, 2014). The physical or material environment merely provides a context for teaching and learning, but the most potent barriers are those which inhibit the teaching/learning process (UNESCO, 2007). Ng Chiaw Gee (2018) agrees that Lecturer’s competencies influence student’s performance. Teacher /lecturer competency is the ability to plan, control and facilitate interaction in the classroom that is appropriate to the activity and which takes into account the different

needs and abilities of learners (Kusuma & Ramadevi, 2013). Kafu (2011) argues that teacher training needs to emphasize equipping a teacher with adequate competencies in both pedagogical and academic contents to prepare them for challenges of modern life. A study that relates well with the current one was done by Blaskova, Blasko & Kucharpikova, (2014). Their study listed eight competencies that were important for a university lecturer in facilitating the learning process. But a scrutiny by the current study found that they can just fall in four categories. The diversion point with the current study is that the eight competencies were collapsed in four categories as: Professional competence, Pedagogical competence, Technological competence, and communication competence. Lecturers and students were to respond to specially framed questions that intended to provide information on the lecturer's competencies. These were guided by the logic behind the social constructivist paradigm (Mertens, 2012) that this study adopted where learning needs to be authentic and real; students are encouraged to be self-regulatory, self-mediated, and self-aware; while the teacher is to be a guide and facilitator of the learning process and knowledge is a realia as well as experiential. The responses are presented in the subsequent tables and figures.

4.71 Professional Competence

Table 4.22 lists the components of the professional competence and shows how students responded to the six components of the professional competence.

Table: 4.22 Lists components of the professional competence

Professional component	Competence	SWD response		Total	%Agr ee	%Dis agree	Total %
		Agree	Disagree				
Lecturers have subject expertise knowledge		170	32	202	84	16	100
Lectures as role models		139	98	202	68	32	100
Lecturer as managers (time, resources. Planning, decision making)		84	118	202	41	59	100
Lectures have high moral & ethical code		62	140	202	31	69	100
Lecturers display mature Personality		150	52	202	72	28	100
Clear leadership		130	72	202	64	36	100

The six components are: Lecturer's subject expertise knowledge; lectures as role models; lecturer as managers (time, resources, planning, decision making), lecture's moral & ethical code; lecturer's display of mature personality and clear leadership. The components of knowledge expertise earned a response of 170 out of 202 (84%) display of mature personality 150 out of 202 (72%), clear leadership 130 out of 202 (64%) and role models 139 out of 202 (68%) were rated high. This indicates that lectures are keen on their role as authorities and custodians of knowledge in higher education. They show this by being role models in academia. However, professional components of good managers and moral ethical code were rated lowest at 84 out of 202 (41%) and 62 out of 202 (31%) respectively. During the FGD SwdPU2, who was visually impaired said this:

“My lecturer is very competent in his subject matter and teaches very well but he hardly gives our CAT scripts back. Many students complain about missing marks in his subject. I once missed my CAT marks and I was told to go and look for my script in the store. Surely it was complicated for someone in my situation to go to that store to look for a missing script. I was lucky that my friend assisted me, and we found it. I think this was not fair.”

Another student SwdPU1 who is visually impaired said this in the FGD:

“One of my lecturers has a habit of coming to class when he is high. He also often misses his classes, but he knows his subject well. The problem is that he decides to teach everything when the examinations are very near. This poses a challenge for me because I need time to transcript the lessons. Therefore, there is hardly enough time to prepare for the examinations. It is unfortunate that it is my favorite subject”

The sentiments of these students should be a wakeup call to show that there is need to build the capacity of lecturers in management of time, resources, planning, decision making and other managerial functions. It also borders on development of lecture’s soft skills so that they could be sensitive to the needs of SWD. The observation by (Kafu, 2011) that professional competence is critical for lecturers tends to agree with the current study. The professional competence distinguishes lecturers as authorities in their areas of specialization as role models, trustees of students’ academic future, good managers and ethical personalities. Professional competence enables the lecturer to handle student’s needs with expertise, objectivity and to take responsibility for any failures that may be encountered in the whole process. The fact that most students scored their lecturers high in this competence was an indication that lecturers were ready to provide knowledge and skills through proper planning and provision of clear leadership in their areas of teaching. However, as observed by swdPu2 in the focus group discussion, lecturers needed to improve in the way they handled student’s

marks and scripts. This factor watered down the components of moral and ethical code as well as the management component.

4.7.2 Pedagogical Competence

Table: 4. 23 shows components of pedagogical competence. Pedagogical competence is the ability to manage learning, which includes planning, implementation and evaluation of learning outcomes.

Table: 4. 23 Student responses to the pedagogical competence

Pedagogical competence	SWD response					
	Agree	Disagree	Total	% Agree	% disagree	%Total
Provision of lesson materials lecture notes /in advance	109	93	202	54	46	100
Utilization of teaching/learning materials in different versions (digital, audio, print, tactile) Course materials online	81	121	202	40	60	100
Utilization of a variety of teaching methods (lecture, FGD, use of body, senses, application, outdoor learning)	84	118	202	41	59	100
Classroom management, Attendance monitoring including to help identify any potential wellbeing issues among students	65	137	202	32	68	100
Instructional leadership	164	38	202	81	19	100

The pedagogical competence was divided into these components: Provision of lesson materials lecture notes /in advance; Utilization of teaching/learning materials in different versions(digital, audio ,print, tactile)Course materials online; Utilization of a variety of teaching methods(lecture, FGD, use of body, senses ,application, outdoor learning; Classroom management, attendance monitoring including identification of any potential wellbeing issues among students and Instructional leadership. The pedagogical competence that required students to rate lecturers on the ability to provide lesson materials in advance had 109 out of 202 (54%) SWD agreeing and 93 out of 202 (46%) disagreeing. Out of the five components this competence was rated fairly. The instructional leadership had 164 out of 202 (81%) agreeing and only 38 out of 202 (19%) disagreeing. This was also a fair rating. Other than these two components of this competence the rest of the components were rated poorly by the students as seen in table 4.23. The pedagogical competence is important because it is the core of construction, transfer and transmission of knowledge, skills and attitudes to the students. Students rated the component of provision of teaching/learning materials in different versions such as tactile, audio, video captioning poorly; 81(40%) agreed but 121(60%) disagreed. This meant that many students were finding challenges in accessing teaching/learning materials adequately. It implied that possibly lecturers were unable to use media in an appropriate manner. This finding compares with that of Gathumbi et al (2015) where they established that there is need to develop knowledge base on inclusive education in order to meet learning needs of individual students with special needs. Their study was however not specifically about the teacher's pedagogical competence. Though their study was carried out in secondary school it can be applied in a higher education situation. Looking at the

findings of the current study on the pedagogical competence, there is likelihood that this factor has negated access to higher education by SWD.

Writers have seen pedagogy as the ability of an individual to use a coordinated, synergistic combination of tangible resources (instruction materials) and intangible resources (knowledge, skills, experience) to achieve efficiency and/or effectiveness (Rahman, 2014; Madhavaram, Laverie, 2010,). Nasimiyu (2017) observes that preparation and production of a competent teacher especially in pedagogy involves training and being fully versed in the development and administration of instructional material. These observations are in agreement with this study because lecturer's pedagogical competence is critical in the teaching and learning of a student with disability. This is bound to affect access to learning. The lecturer should be able to transpose the subject's content into learning activities (Juan 2014). As much as possible, these must suit a disabled student's individual characteristics (learning style, learning needs as well as level of learning). Pedagogical skills enable teachers/lecturers to plan flexible instruction and to recognize the reality of differences between SWD, while yet being able to adapt learning goals, content, and the environment to the needs of individuals and the whole class. The information on pedagogical competence was important because it highlighted challenges of pedagogy and how this can affect access in terms of active participation and learning by SWD. The components of the pedagogical competence are listed in the following table.

4.7.3 Technological competence

Table 4.24 shows the response of lecturers on the technological competence. Lecturers were required to respond on questions about: Knowledge of assistive technology for various disabilities; Knowledge of ICT integration devices & software for teaching blind and deaf SWD such web based special education solutions; knowledge of recreational technology for SWD and knowledge of online performance management tools for SWD including types of specialist software.

Table 4.24 shows the response of lecturers on the technological competence.

Technological competence	Lecturers response					
	Agree	Disagree	Total	A %	D %	Total %
Knowledge of assistive technology	21	25	46	47	53	100
Knowledge of ICT integration devices & software for teaching blind and deaf SWD e.g. web based special ed. Solutions	16	30	46	35	65	100
recreational technology Knowledge	7	39	46	14	84	100
Knowledge of online performance management tools	6	40	46	13	87	100

Most lecturers indicated that they had limited knowledge of the assistive devices that SWD needed in general and for academic purposes. Likewise, most of them 30 (65%)

indicated that they had no knowledge about ICT integration devices and software for use by blind and deaf students. Thirty-five 16(35%) said they had this competence. On the competence of knowledge about sports technology for SWD 39 (84%) answered that they were not competent and only a small percentage 7(14%) answered that they were competent. Knowledge on the use of online performance management tools had a negative response of 40(87%) while the positive response was only 6(13%). the response about knowledge of assistive technology for various disabilities 21 (47%) agreed while 25(53%) did not agree. Technological competence is important for the lecturers because they are advisers on what technology students need in order to access education. Technological competence is critical in today's special needs education because it opens doors for SWD to benefit more and fully exploit their potential. Lecturers are key people in driving the process of technological integration in education. If lecturers do not have this competence, it is not possible for them to meet the special needs of SWD adequately and this in turn is likely to affect the latter's access to education. During the FGD SwdPU5 observed this:

“Technological competence concept is right but the understanding that goes along with it is sometimes limited. Understanding is at the moment wanting – some lecturers are good, and some have a long way to go. In short I can say we have a dearth of advisers in the making as far as our lecturers are concerned”

From the social constructivism point of view learning should take place in authentic and real-world environments, and teachers should provide for and encourage multiple perspectives and representations of content (Blaskova, et al 2014).A teacher has to be an excellent expert in the field he/she researches, discovers, and teaches. Technology is associated with creativity on the part of a lecturer, which in turn helps students with

disabilities to access learning as lecturers reach higher flexibility and differentiation in educational methodologies. With modern technology, lecturers can adapt to the potential of a student with minimum effort and choose one of the dozens of available learning tactics designed to meet the needs of SWD. Technological competence is therefore very important. Blaskova et al (2014) rightly observe that productive thinking, original ideas, discoveries and inventions go hand in hand with technology and they are the basis for expansion of knowledge. The progress of science, development of arts, technology, production and success lies in a scholar's abilities in practicum. The interactive use of technology for knowledge development must be elevated to a strategic level at higher education institutions and integrated into all academic and administrative activities. How technology is developed and used must therefore be an integral part of national and institutional strategies (Lillejord et al, 2018). The use of technology in teaching and learning of SWD can ease their access to education. The fact that most lecturers who teach these students have a challenge in technology is a negative pointer towards access to education for SWD in public universities in Kenya. This calls for universities to set aside time and resources to build capacity and technical know-how in this area..

4.7.4 Communication Competence

In table 4.25 students were required to give information about the lecturer's communication competence.

Table: 4. 25 Students' response as pertains to the lecturers' communication competence

Communication Competence	SWD Response					
	Yes	No	Total	% Yes	% No	%Total
Effectively deals with communication barriers	128	74	202	63	37	100
Uses a variety of mediums to communicate (visual, sign, print, verbal, tactile)	100	102	202	49	51	100
Effectively packages & relays information	78	124	202	37	63	100
Effectively handles intra/interpersonal, communication	112	90	202	55.5	44.5	100
Effectively handles feedback	52	150	202	26	74	100

This study established the following in this competence; about the lecturer's competence to deal with communication barriers effectively, 128(63%) of the students agreed while 74(47%) of the students did not agree. Students with disabilities especially the deaf need very clear signage when passing and receiving information. Barriers that involve lack of or presence of ambiguous signage posed a challenge to such students. During FGD SwdPU1 (ii) who communicated through both writing and using an interpreter said this:

“The interpreter records all lessons so that we can review them later because some lectures move very fast. Again, the interpreter is not normally seen clearly so it is possible to miss a lot of information. You see it is like I must attend class twice as compared to others who do not experience a challenge like mine.”

On the usage of a variety of mediums of communication such as visual, verbal, signage, tactile, print 102(51%)of the students reported on the that that was not the state of affairs while 100 (49%) reported that it was being done. It is imperative that this competence was slightly below the expectation of SWD and this was likely to affect their access to learning. On component of packaging and relaying information only 78(37%) agreed that this is done while 124(63%) reported that this is not done. Well packaged and relayed information is easy to digest hence understand.

The fact that lecturers were rated poorly in this area implied that students were not accessing information the way they should and therefore there was likelihood that they were not accessing learning adequately. When it came to be responding about effectively handling feedback only 52(26%) of the students responded that this was happening and 150(74%) responded that it was not happening. Feedback is very crucial if a lecturer must understand how to meet the needs of SWD. The fact that lecturers were rated poorly meant that SWD were facing a challenge in accessing education. Effective Communication in teaching/learning establishes preconditions, such as development of the students’ motivation, support characteristics of their work, affect education consequences of the teacher’s work, ensure optimal emotional atmosphere in classes and make space for wide range of specific properties of self-fulfillment of the teacher and students (Cernotova, 2005,) as cited by (Blaskova et al 2014).It means that not only information itself but also its application in an

appropriate situation and communication are very constructive for learning (Simonova, Poulouva & Bílek, 2010) as cited by (Blaskova et al 2014). Table 4.25 shows the response of students as pertains to the lecturer's communication competence. In the table three elements have been used to conceptualize this competence namely: effectiveness, appropriateness and goal attainment. It's not just about information itself but also its application in an appropriate manner and situation is very constructive for learning.

4.8 Curriculum inclusiveness and access to education

Inclusive curricula are based on a view of learning, as something, which takes place when students are actively involved in making sense of their experiences, which emphasizes the role of the teacher as a facilitator than the instructor (Kusuma & Ramadevi, 2013). Lecturers and students were asked to answer on whether curriculum has been made inclusive. Curriculum inclusiveness had three components namely: Multiple means of representation, multiple means of expression and multiple means of engagement. This as well as what was captured in the FGD and the observation checklist demonstrate what is in place in the universities in this area. Table 4.26 shows the responses of students and lecturers about curriculum inclusiveness.

Table: 4. 26 SWD and lecturers' response on curriculum inclusiveness

Curriculum component	Lecturer's response						Student's response					
	Yes	No	Total	%Y	%N	% Tot	Yes	No	Tot	%Y	%N	% Total
1.Teaching/learning materials in different formats)	39	7	46	85	15	100	23	179	100	11	89	100
2.Multiple means of expression (Customization of curriculum materials for various disabilities on case by case basis)	34	12	46	74	26	100	25	177	100	12	88	100
3.Multiple means of engagement i) compliance with web Content Accessibility Guidelines for tel/web conference	21	25	46	46	54	100	12	190	100	4	94	100
ii)Compliance accessibility standards	24	22	46	52	48	100	6	196	100	3	97	100
iii)Use of certified IT platforms	20	26	46	43	57	100	57	145	100	28	72	100
Flexibility	21	25	46	46	54	100	122	80	202	60	40	100

There was a big discrepancy on what the lecturers reported and what SWD reported. On the availability of teaching/learning materials 23(11%) of the SWD reported that they were not available while 39(85%) of the lecturers reported that materials were available in different formats. This could be interpreted to mean that there is limited awareness on the part of students about what is available or perhaps lecturers were economical with the truth.

However, on observation of most libraries in the targeted universities, most reading materials were in visual prints. The researcher managed to observe a law class in PU2 and noted that the lecturer mainly used the lecture method of teaching. Each student was required to write notes along as the lecture progressed. There were two students with visual impairment and one who had hearing impairment. Those with visual impairment were just listening to the lecturer. At one point a student tried to record the lecturer using the audio recording function of his mobile phone. But when I requested to listen to what he recorded later; it was not clear. According to these students, they are normally sent the handouts in soft copy where they use Job Access with Speech (JAWS) software to translate from writing to speech. Sometimes it takes a toll on their revision because of delays in providing the same by lecturers. The deaf student was copying from the neighbor and I could tell that he was struggling to make sense of what he was copying. The researcher later interacted with the three in the FGD to find out more about their classroom experience and access to teaching/learning materials. The following are their views during the FGD. SwdPU2 (i) who is visually impaired narrated his experience as follow

“I just listen and sometimes I record what I can. But recording has its challenges just like you have witnessed. Sometimes the battery goes empty in the process... then you wonder what next,” he posed. The lectures send us the soft copies to be accessible by the Job Access with Speech (JAWS) screen reader. Sometimes the JAWS fail because it is just a computer application. And of course, the lectures sometimes delay sending the copies and this makes us to lag. It becomes more stressful during preparation for exams. But there is nothing one can do. I wish the university could get for us Tactile Displays because they are too expensive for most of us to afford.”

SwdPU2 (ii) who is deaf communicated with me through an interpreter and sometimes scribbles on a paper because I do not speak sign language. She said this:

“The challenge is that the lecture theaters are not fitted with alternative listening devices (ALD). Currently my ear-mole is defective, so it is strenuous to follow on lecturers and therefore most of the time I lag. This is because notes come to my email three to five days later after the lesson. But I try to follow through the interpreter, or I copy from my classmates”

A flexible curriculum is one that offers students the opportunity to decide where and when they learn and sit their exams (Herma, Martz & Voogtz, 2020). On whether the curriculum was flexible, the responses were as follows: twenty one(46%) of the lecturers felt that the curriculum was flexible while 25 (54%) reported that it was not flexible. One hundred and twenty-two (60%) of the students reported that it was not flexible enough while 80(40%) reported that it was flexible. During the FGD in PU5 students expressed a concern that the curriculum is not flexible in terms of timetable arrangements, examinations and the teaching and learning materials formats.

SwdPU5:

“In most cases I just listen to lecturers because they provide us handouts notes after teaching. Most of the time the handouts delay yet they have very important content and rare information one will not easily find in the library. This really makes me lag behind and I also feel isolated. The timetable does not give room for virtual interaction with lecturers and examination administration is rigid. Furthermore, there are no Braille embossed Kiswahili books. As a visually impaired student, I rely on my colleagues to read for me to as I transcript. You can imagine doing this for ten books. This has definitely affected my performance a great deal.”

The researcher by using the observation check list method in lecture rooms saw that the curriculum flexibility was wanting in terms of timetabling and assessment. All universities except PU3 and PU6 had attempted this by having a section in their libraries that had learning/teaching material that could be accessed anywhere within the campus. At least blind students, with the help of Kurzweil software (text-speech translator) were able to access this section of the libraries. However, during the FGD in PU1, PU2 and PU4 students complained that access to the same is sporadic and unpredictable. From these groups, students expressed that online access of study materials has not been embraced by their lecturers.

4.9. Assistive technology that is available for SWD

Table 4.27 shows the responses on what AT was available in public universities. Assistive Technology is a one-on-one aide, highlighted classroom notes, and equipment such as tools, hardware, software, etc. that augment learning for SWD. Providing assistive technology can support students with disabilities, who face barriers in learning in universities in a general classroom (Theeratom, 2016). Yet in this study a very large percentage of students and lecturers showed that there was no necessary assistive technology (AT) in the universities that participated in this study. This compares with a study on AT carried out in Midwestern University in the United States (Ahmed, 2018). However, the study differs with this one in terms of objective and scope. Ahmed (2018) wanted to find out factors behind the lack of availability of assistive technology in the classroom and the attitude towards it while in this study the emphasis is on the need for acquisition of AT to enable SWD access education. Fourteen (7%) of the students responded that Job Access with Screen (JAWS) readers

were available while 188(93%) said it was not available. Twenty-one 46 (%) of the lecturers said it was not available while 25(53%) said it was not available. This software is very important for teaching/learning of visually challenged students and its availability is of crucial importance. Sixteen (8%) of the students said that Kurzweil software was available and 186(92%) said that it was not available. The lecturers who said that it was not available were 34(74%) while those who said it was available were 12 (26%). This difference in the response could mean that lecturers were not keen on whether this AT t was available or not or perhaps the condition of the Kurzweil software that was available was not in good condition to be effectively used by students hence the great discrepancy in the responses between lecturers and students. Looking at the responses, the response of students on the available AT in public universities greatly differed with that of their lecturers. This could be that lecturers are not keen about the needs of their students or the existing AT could be disused and therefore it is not meeting the needs of the students. That is why most students said it was not available. Alternatively, the existing AT could be privately owned by some students. In the FGD SwdPU1 (iii) said this:

“That software in the library are only two computers. There are some of us who own their own and they are reluctant to share because most of the time they are under use. The software is very important because they ease our academic work but accessing them is really a tall order.”

From the responses it can be concluded that most universities are wanting in terms of readiness with assistive technology that could enable SWD maximize their potential and ability to achieve individual learning/teaching objectives. Likewise, there is a

possibility that knowledge about teaching /learning assistive devices is limited among lecturers and students. Therefore, lecturers who teach SWD should try to get information about assistive devices, be conversant with disability technology and pass the same to students in order to ensure access to teaching /learning by students with disabilities. This data reveals that students with disabilities are struggling to access education in public universities because of lack /limited assistive technology for teaching/learning. Table 4.27 show the response of SWD and their lecturers on the existing assistive technology (AT) in public universities.

Table: 4. 27 SWD and lecturers' response on the existing assistive technology (AT) in public universities

Technology	SWD Response						Lecturer's response					
	Y	N	T	% Y	% N	%	Y	N	T	% Y	% N	%T
	Total											
Kurzweil (software	16	186	202	8	92	100	12	34	46	26	74	100
Refresh able Braille display	6	196	202	6	97	100	10	36	46	22	78	100
Braille writers	34	168	202	17	83	100	28	18	46	61	39	100
Handheld magnifiers	11	191	202	5	95	100	11	35	46	24	76	100
Video magnifiers	11	191	202	5	95	100	11	35	46	24	76	100
Braille labelers	13	189	202	6	94	100	16	30	46	35	65	100
Digital texts	9	193	202	5	95	100	11	35	46	24	76	100
Special Word processor	6	196	202	3	97	100	9	37	46	20	80	100
Braille embossers	12	190	202	6	94	100	16	30	46	35	65	100
Braille note takers	11	191	202	5	95	100	11	35	46	24	76	100
Adaptive paper & tactile graphic	4	198	202	2	98	100	9	37	46	20	80	100
Automatic page turners	2	200	202	1	99	100	5	41	46	11	89	100
Closed captioned on videos	6	196	202	3	97	100	7	39	46	15	85	100
Assistive L D	18	184	202	9	91	100	14	32	46	30	70	100

Table:4. 28 Administrators', lecturers' and students' response on the challenges of universities towards access for SW

Challenge	Admin response						Lecturer's Response						SWD response					
	Y	N	T	Y%	N%	T%	Y	N	T	Y	N	T%	Y	N	T	Y	N	T%
										%	%					%	%	
Lack of sports facilities for SWD	8	3	11	72	28	100	40	6	46	87	13	100	104	98	202	51	49	100
Lack games instructors for SWD	10	1	11	91	9	100	38	8	46	83	17	100	106	96	202	52	48	100
Lack of adaptive transport	9	2	11	82	18	100	42	4	46	91	9	100	114	88	202	56	44	100
Inaccessible infrastructure	9	2	11	82	18	100	40	6	46	87	13	100	196	6	202	97	23	100
Limited expertise	10	1	11	91	9	100	30	16	46	65	35	100	120	82	202	59	41	100
Inadequate lecturers	9	2	11	82	18	100	36	10	46	78	22	100	140	62	202	69	31	100
Competent lecturers	10	1	11	91	9	100	42	4	46	95	5	100	196	6	202	97	3	100
Limited recreational facilities	10	1	11	91	9	100	40	6	46	87	13	100	192	42	202	95	5	100
Ltd disability awareness	8	3	11	73	27	100	34	12	46	73	37	100	170	32	202	84	16	100

4.10. Institutional challenges and access to HE by SWD

Table 4.29 show how administrators, lecturers and students responded as pertains to the challenges that universities experienced in terms of readiness for access to education for SWD. There were challenges of provision of recreational facilities to meet the needs of SWD. Most respondents saw this as a challenge. 91% of the administrators listed this as a challenge, 87% of the lecturers too, and 95% of the SWD also listed limited provision of recreational facilities as a challenge. However, the respondents showed that lecturers were competent contrary to what they reported on various competencies of the lecturers earlier (91% of the administrators, 95% of the lecturers and 97% of SWD). This could mean that respondents did not have a deep understanding of what entails lecturer's competence. They looked at competence in terms of level of education and cognitive knowledge in their subject areas as confirmed by what students said in the FGD. Nevertheless, the researcher concluded that competencies to meet the learning needs of SWD were an issue that affected their access to education. All the respondents showed that expertise in disability needs was limited among most lecturers. This in part validated what the respondents said about the competencies of lecturers. Ninety one per cent (91%) of administrators reported that there was limited expertise in disability needs, 65% of lecturers and 82% of SWD reported the same. Most respondents agreed that inaccessible infrastructure was also a challenge in the universities. Eighty two percent (82%) of the administrators reported that it was a challenge, 87% of the lecturers said it was a challenge and 97% of the students said it was a challenge. The respondents equally agreed that there were inadequate lecturers who had specialized in special needs. Eighty two percent 82% of

the administrators agreed with this, 78% of the lecturers reported so and 69% of SWD said that there were inadequate lecturers with SNE specialization.

From the information given by the respondents, it can be interpreted that there are few lecturers who have specialized in special needs education. So, they are not able to adequately meet the learning needs of SWD. It is also possible that most lecturers do not have the capacity to in terms of AT that SWD directly need for their access to education. It is also possible that acquisition of AT is costly, and universities must set budget priorities. This may lead to their putting disability inclusiveness among the least priority items.

4.11. Summary

In this chapter data analysis, presentation and interpretation has been done in details. The study was to investigate the state of readiness for access (inclusion) to higher education by students with disabilities in Public Universities in Kenya. The main objective was broken into four other specific objectives according to the variables of: infrastructure, lecturer's competencies, curriculum inclusiveness, and how they influenced access to higher education by SWD. It is the findings as guided by these objectives and the derived research questions that have comprised the contents of the chapter. The main objective was to investigate institutional readiness for access to higher education by students with disabilities in public universities in Kenya were: i) to examine existing infrastructure in public universities in Kenya and its influence on access to higher education by students with disabilities (ii) to examine lecturers' competencies in public universities as a determinant of access to higher education by students with disabilities in Kenya (iii) to examine curriculum inclusiveness in public

universities as a determinant of access to education by students with disabilities in Kenya (iv) to determine challenges faced by public universities towards readiness for access by students with disabilities. And finally the research questions were : (i) How do infrastructure, lecturer's competencies, curriculum inclusiveness and institutional challenges influence access to higher education by students with disabilities? (ii) How does the state of existing infrastructure in public universities influence access to higher education by a student with disability in Kenya? (iii) How do competencies of lecturers determine access to higher education by SWD in public universities in Kenya? (iv) How does curriculum inclusiveness determine access to higher education by students with disabilities in Kenya? (v) What are the challenges that universities face in the process of getting ready for access to higher education by SWD in Kenya?

The study rested on the social model of disability, the systems approach theory as well as the social constructivism paradigm as pillars and theoretical framework (Bertalanffy, 1968; Immegart & Pilecki; 1973; Losty, 1976 ;UPIAS, 1976; Finkelstein, 1980 Oliver, 1990; Barnes, 1999, Mertens, 2010). The social model of disability looks at the environment as the disabling factor to the impaired person. The state of the environment within which a disabled person lives and operates has the capacity to incapacitate a disabled person or to enable them to be independent and productive. Thus, the physical and social environment in the university may facilitate or hinder access to education by SWD. The open systems approach looks at the university that has interconnected and interdependent parts which interact with each other and with its surrounding environment; the socially constructed environment; to affect a disabled student. The social constructivism paradigm perceives a university as a socially constructed system operating in a socially constructed environment in terms

of perceptions, ideas, constructs, attitudes, behavior, habits and culture about disability and may impact positively or negatively on access to education by SWD. The theoretical framework guided the researcher to choose the case study, basic qualitative, descriptive research design as the methodology for the study (Gay et al, 2012). It led the researcher to seek knowing through interacting with the participants. The target population of the study comprised of SWD, registrars academic, and deans of students and lecturers who taught SWD at the time the research was carried out. The administrators and lecturers are strategic respondents because they interact very closely with students on a regular basis. The information power model and purposive sampling technique were used in the selection of the six universities where the study was contacted (Malterud, 2012, Patton, 2015). Likewise, Krejcie and Morgan (1970) table of sample selection was used to arrive at the sample size of 204 disabled students. This is because Mukhwana et al (2016) estimated the total number of students with disability in public universities to be 540, logically, by using this model the sample was 204. However 202 were able to participate in the research. All the 12 administrators (registrars academic and deans of students) in the 6 universities participated in the research; while the lecturers numbered to 46 (Snowball purposive sampling was used in selecting this sample). The researcher had intended to interview 34 lecturers basing on the recommended ratio of student: lecturer (World Bank, 2019) but snowball sampling yielded 46. Data was collected using questionnaires, observation checklist and focus group discussion. Data analysis was done by use of SPSS 23 to generate nominal data in the form of descriptive statistics. Information from the FGD was integrated with that from the questionnaires and observation check list; a factor that increased validity of the collected data. It was revealed through this

study that indeed the state of readiness of infrastructure, lecturers' competencies and curriculum inclusiveness was wanting and this reduced chances of access to higher education for SWD. It was established that most of the infrastructure in public universities limits the abilities of SWD to access education because to a large extent it is not designed with consideration for use by disabled persons. Some universities had however tried to provide for access to lecture rooms, libraries and hostels but not so for most. Likewise, the lecturer's competencies and curriculum inclusiveness influenced access in specific ways. Notably most of the universities seemed to use the medical, accommodation and functional models to provide for the needs of SWD. Regrettably this practice slows down readiness for disability inclusiveness and eventually readiness.

This study proposed the Universal Design model. It is presented in detail in the next chapter. It will always ensure readiness for access by all and to move away from using the medical and accommodation models which have undertones of discrimination to SWD. The accommodation model of disability services is currently the most prevalent model in the universities and most of the research done has inclined towards it. Many writers defend this model as a social model approach (Wanja, 2016, Paseka, 2016, Tshifhiwa, 2016). Wanja, (2016) proposed a model for service delivery to SWD, a prototype from the one proposed by Kouroupetroglou et al (2011) for implementation at the National and Kapodistrian University of Athens. If this model is compared to the universal design model, it is clear that the model leans towards the medical and accommodation models line of thinking. A fact that Wanja (2016) has overlooked and erroneously mixed up the concept of individualized accommodations and Universal Design.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is the summary of the research findings, conclusion, recommendations and proposition for further research. The foregoing chapter has looked at the findings of the study. It has been revealed that indeed the readiness of universities in terms of infrastructure, lecturer's competencies and curriculum inclusiveness is important for access to education for SWD. But public universities in Kenya have been found to be wanting in their readiness. It has also been revealed that there are challenges that universities face as they attempt to accommodate SWD.

5.2. Summary of the findings

The following is the summary of the findings of the study organized according to the research objectives. The study set out to investigate the state of readiness for access (inclusion) to higher education by students with disabilities in Public Universities in Kenya with a view of making recommendations for action to universities and relevant agencies based on the findings. The objectives are:

a)To examine existing infrastructure in public universities in Kenya and its influence on access to higher education by students with disabilities b)To examine lecturers' competencies in public universities as a determinant of access to higher education by students with disabilities in Kenya)To examine curriculum inclusiveness in public universities as a determinant of access to education by students with disabilities in

Kenya d) To determine challenges faced by public universities towards readiness for access by students with disabilities.

The research used the social constructivism (interpretive) paradigm which looks at epistemology, ontology and axiology as socially constructed (Mertens, 2010). The Constructivist paradigm considers knowledge as a result of an interactive link between the researcher and participants and that knowledge and reality are socially constructed hence the adoption of the social model of disability as the theoretical framework (UPIAS, 1976). The social model of disability looks at disability in relation to the social environment within which a person with disability operates. Consequently, this model perceives disability as a socially constructed phenomenon (Oliver, 1990, Fine & Asch, 2000; Michalko, 2002; Gay et al 2012). Environmental and social barriers are all products of social constructivism and they have ramifications on the lifestyle of a PWD. From this understanding universities have a role to remove all socially constructed barriers that hinder access to higher education for students with disabilities. The theoretical framework and the research paradigm determined the methodology that was adopted by this study, which is a case study basic qualitative research method of a descriptive nature (Gay et al 2012).

5.2.1 Existing infrastructure in public universities in Kenya and its influence on access to education by SWD

This was addressed by the first objective. It sought to establish the existing infrastructure in public universities and how this influenced access to education by students with disabilities. The study established that indeed infrastructure in most universities was not accessible to a great section of SWD hence the need for

modification to enable them to access it. A high percentage of administrators except a few, accepted that most of the existing infrastructures needed major modifications for it to be accessible to many categories of disability especially the physical, visual and hearing impairments. This implied that there was lack of preparedness to accommodate SWD hence this is reaction approach towards addressing the needs of these students. Reaction approaches because it is imperative that if most of the infrastructure needs modification, then this is only done when such students get enrolled. This means that mostly some minor or major modifications were only done after admission of such students. Most buildings needed major modifications in order to be ready to accommodate students with disabilities. It was also established that most universities did not carry out internal or third party disability audits of their infrastructure. This has ramifications on disability compliance; and access of the infrastructure by SWD is not a priority in most public universities. The administrators reported that most of the buildings did not comply with ISO 21542:2011(CUD, 1997) as required by the National Council for Persons with Disability (NCPWD). On observation of some of the disability toilets that existed; it was established that their construction did not observe this standard and therefore they were not accessible to wheelchair users. Most of the libraries were also not accessible to SWD by virtue of their design. In most cases warning blocks and tactile surfaces were missing on the approaches to the libraries and the staircase landings. To crown it all, most hostels had rooms that were below the universal design standards with limited circulation spaces for wheelchair users. In addition, most washrooms were substandard and laundry areas inaccessible. Generally, information gathered through this research indicated that most of the infrastructure was below the recommended ISO 21542:2011 universal

design standards for infrastructure. This made the infrastructure to be inaccessible by a cross section of SWD. This factor impacted negatively on their access to education.

About recreational infrastructure, it was noted that recreational facilities for SWD were not available in most universities. All the respondents indicated that there were no specialized devices for games for SWD. Likewise, they agreed that there were no swimming facilities for SWD. They also said that the playgrounds were not disability friendly. However, there was availability of indoor games and music facilities in some universities. This was mainly in PU5. This limiting of provision of recreational facilities for SWD certainly discriminates them and denies them the opportunity to fully exploit their abilities and talents. This is inaccessibility to education because education is not only about academics but also through experiential outdoor recreation.

About the state of transport facilities, the study established that transport was not accessible to SWD. Only PU5 provided transport to and from lecture halls, however during the examination period, when there was a peak in demand for the limited vehicles, SWD find themselves at crossroads. They arrive in examination rooms when the rest (normal students) have settled down. This increases their anxiety, and this is likely to affect their performance. Furthermore, the available vehicles were not fully accessible to all SWD, especially those with mobility impairments. There were no detachable, ramps for wheelchairs, voice prompting or appropriate signage on the vehicles. They were also not spacious enough for free maneuvers for those with alternative movement styles as a result of various impairments. Designated disability parking spaces in most universities were either poorly positioned, too few for the population at the university, or were wanting in terms of the recommended

dimensions and failed to meet the requirement of a universal design. The researcher concluded that the state of infrastructure in the sampled universities was wanting in terms of accessibility. This affected access to education by students with disabilities.

5.2.2. Lecturers' competencies in public universities and access to higher education by SWD

The findings of this study showed that lecturer's competencies influenced access to education. It was established that there was need to enhance competencies of lecturers for them to be able to deliver effective teaching and learning. From the social constructivism point of view, learning should take place in authentic and real-world environments, and teachers should provide for and encourage multiple perspectives and representations of content (Blaskova et al 2014). This factor is more realistic during teaching/learning of students with disabilities because of their special needs. The lecturers who participated in the research were 46 and most of them indicated that they did not specialize in teaching SWD. They also accepted that they had limited knowledge of the assistive technology that SWD needed in general and for academic purposes. Likewise, most of them indicated that they had no knowledge about ICT integration devices and a range of software for use by students with visual disabilities. With modern technology, lecturers can adapt to the potential of a student with minimum effort and choose one of the dozens of available learning tactics designed to meet the needs of SWD. Lecturers are no doubt key people in driving the process of technological integration in education. If lecturers do not have this competence, it is imperative that they too have challenges in meeting learning needs of students with disabilities and this in turn affects the latter's access to education. Lecturers who lack knowledge about assistive technology are lecturers who are not able to effectively

meet the needs of their SWD. Technology makes teaching/learning as well as interaction with students to be flexible, accessible and captivating. Limited knowledge of technology by lecturers implies that students with disabilities are not able to adequately explore a wide range of learning possibilities hence their access to education is compromised.

Pedagogy is the ability of a lecturer to transpose the subject's content into learning activities. The lecturer must use a wide range of methods to suit the disabled student's individual characteristics (learning style, learning needs, level of learning, and technological inclination). The pedagogical competence, which is closely related to technological competence, was important because it is the core of construction, transfer and transmission of knowledge, skills and attitudes to the students. The study established that provision of teaching/learning materials in different formats such as tactile, audio, digital and video captioning was inadequate. Also, lecturers mainly used the lecture method to deliver their lessons where some students with disabilities found it difficult to cope. This meant that many students especially those with visual and hearing impairments were finding challenges in accessing teaching/learning adequately because they would just listen to the teaching and access handouts later. Further complications existed in the process of availability of appropriate software to translate the scripts for access. This implies that lecturers were unable to competently meet the special needs of disabled students. There is therefore a likelihood that this factor has negated access to education for SWD.

The study revealed that lecturers were relatively good with professional competence. This competence is critical for the lecturer because in it he/she influences access to education by creating a conducive atmosphere and by extension dealing with positive

or negative attitude towards learning and performance. This factor is good because it motivates students and makes them open to learning. It contributes positively to access to education. However, students rated lecturers poorly on the component of management (classroom, lesson, time, resources, planning, decision making). The component of moral ethical code in professional competence was also rated low. There is need to build capacity in some aspects of professional competence in order to make lecturers more effective in meeting the needs of their students.

Competent classroom communication includes selection of information, packaging and relaying it in the most efficient and effective manner in anticipation for positive feedback. This is the essence of the communication competence. Most lecturers were rated well on handling communication barriers. They however were rated low on the use of a variety of mediums of communication by SWD. They were also rated low on the packaging and relaying of communication. Feedback was also rated low. Feedback is very important evidence that learning truly took place, a low score on this item implies that some SWD struggle in their quest to access education.

5.2.3. Curriculum inclusiveness in public universities and access to education by disabled

An inclusive curriculum is one where all students' entitlement to access a course is anticipated, acknowledged and considered (Morgan & Houghton, 2011). It considers the student's characteristics recognizing that students have multiple identities that are shaped by their previous experiences and that a diverse range of personal circumstances influence how they study. Flexibility of the curriculum is important when considering curriculum inclusivity. It should be susceptible to multiple means of

representation. This study established that in most cases the curriculum was not flexible enough to suit the needs of some students. Specifically, it was not flexible in terms of timetable arrangements, examinations and the teaching and learning materials formats. It was also established that online presentation of study materials for access by SWD has not been embraced by most lecturers.

5.2.4. Challenges universities face in the process of meeting access needs of disabled students in Kenya

The study established that universities had challenges while positioning themselves for readiness to meet the needs of students with disabilities. One glaring challenge was lack of capacity among staff members on the needs of SWD. This was implied through the existence of other challenges such as lack of provision of recreational facilities to meet the needs of SWD, equipment, technological aids and other devices were insufficient, existence of infrastructure that did not meet the required disability audit standards as well as substandard transport facilities. The fact that there was lack of priority on disability readiness pointed to a more underlying challenge of capacity among staff in most universities. Likewise lack of disability audits pointed to a capacity need. Lecturer's competence to meet the learning needs of SWD was also a challenge that affected student's access to education. Most lecturers who taught SWD indicated that they do not have the basic training about the needs of students with disability. They end up delivering instruction without disability inclusiveness in mind. There were notably very few lecturers who had specialized in special needs (a negligible percentage of less than 1%). Likewise, it was established that expertise in alternative technology (AT) in disability needs was limited among most lecturers. This factor led to less disability inclusiveness in their pedagogical skills. The study

also established that inaccessible and substandard infrastructure was also a challenge in the universities. This too was a pointer to a lack of capacity on standards for disability infrastructure and limited financial resources to address disability readiness. In most universities, infrastructure was not designed with consideration for disability inclusiveness. Transport provision was also a challenge because vehicles, especially buses had no provision for access of those with mobility and visual impairments. These factors existed because of limited expertise on disability needs among staff of the university. University administrators indicated that their universities subscribed to the universal design principles but on observation there was no evidence of practice of the same. Respondents reported that no disability audits are done either internally or by third party arrangement in most universities. They also indicated that although the position of most universities is that new buildings must meet the minimum requirement of the universal standards, this factor was not being considered practically. There was therefore a disconnection between what was expected and what was being practiced. This practice is a negative pointer on access to higher education by students with disabilities.

Lack of adequate funds because of limited budgetary allocations and subsequent inability to provide facilities for SWD by the university administration was a challenge. This was clearly stated by administrators. This has serious consequences on the provision of teaching/learning resources as well as building capacities and technical know-how in special needs education.

There was also the challenge of under staffing and a taxing demand on the part of the lecturers because generally enrolment of students in public universities was very high.

This left the lecturers with limited time for giving attention to students with disabilities.

Data availability about SWD in the visited universities was sporadic and unpredictable. Most deans of students relied on SWD leaders to manage data. They were not sure about the exact enrolment of SWD. This was partly because some students with disabilities were uncomfortable to register as such and partly because of poor record management on the part of administrators. This implied that universities could not properly project about disability needs, hence limited readiness for education by SWD.

5.3 Conclusion

This Study investigated institutional readiness for access to higher education by students with disabilities in public universities in Kenya. It was anchored on the social model of disability, the systems theory and the social constructivism paradigm. The answer to this problem was sought through collecting data on how accessible education was in the universities in terms of the state of affairs and readiness of infrastructure, lecturer's competencies (professionalism, pedagogy, assistive technology, and communication), how inclusive curriculum was and what challenges universities were facing as they endeavored to attain readiness for access to education. Four questions were used to prepare research tools that comprised of questionnaire, observation checklist and focus group discussion (FGD). The case study descriptive basic qualitative research study method was appropriate for the study because the researcher wished to understand how students with disabilities interpret their experiences of education and social life in the university in the environment within

which they operate and how they construct their educational world, what meaning they attribute to their experiences and subsequently how they make sense of their lives and their learning experiences.

The study found out that indeed the state of infrastructure, the lecturers' competences and curriculum inclusiveness were important if universities were to make them ready to meet the education needs of students with disabilities. It was concluded that: The existing infrastructure in public universities does not meet the threshold of disability inclusiveness. Most of the infrastructure is not accessible.

Most of the lecturers who teach students with disabilities have limited competencies to meet their (SWD) learning needs because they do not have a background in special needs education. The curricula offered in Kenyan universities are not flexible enough to adequately meet the diverse needs of various disabilities. Universities have capacity, technical know-how and resource scarcity challenges that need to be addressed in order to be able to face the issue of readiness for access to education by SWD.

5.4 Recommendations

This study recommends that universities need to adopt the Universal Design Model for their infrastructure, Teaching/learning and curricula designs. This will ensure that everyone's needs will be addressed irrespective of whether they have disabilities or not and it will minimize the need to provide special accommodations for SWD from time to time. This is because the accommodations are sometimes very cumbersome in terms of the process SWD must go through and have undertones of discrimination. This will enable universities to move towards inclusiveness of students with

disabilities without making them feel too special or isolated. It will also reduce the bureaucracy that students with disabilities undergo in the process of seeking for special accommodations in terms of learning and other personal lifestyle needs.

The Universal Design (UD) department will work with likeminded stakeholders with a view of ensuring that universal designs are observed, and the universal standards are maintained. This department should also be responsible for disability audits and inspection of all disability mainstreaming in the university. It should also be the coordinator of capacity building of lecturers in special education. The Universal Design model should look like this:

5.4.1 Proposed Universal Design Model (UD) of institutional readiness for access to higher education for SWD

This study proposes the universal Design model to fill the gap of institutional readiness. This will apply to architectural designs, instructional design and technological design that use a UD model. UD provides a philosophical framework for the design of a broad range of educational products and environments. These include, computer and science labs, curriculum, educational software, instruction, libraries, professional organizations, registration options, student housing and residential life, websites, and other student services. Universal design puts high value on both diversity and inclusiveness. Universal Design has been applied to many educational products (computers, websites, software, textbooks, and lab equipment) and environments (dormitories, classrooms, student union buildings, libraries, and distance learning courses). Unlike an accommodation for a specific person with a disability, the practice of UD benefits all students, including those who are not

receiving disability related accommodations. Universal Design concept is a key tool that this research proposes for implementing social model approaches to disability service provisions in the universities. Universal Design is an architectural paradigm that provides seven principles of design. The purpose of these design principles is for products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design (Center for Universal Design, 1997). This concept, according to this research is very appropriate because it provides very practical solutions that deliver outcomes which match the goals of the social model. Its broadened outreach from the confines of architectural and product design to instructional and software design gives it a flexible countenance. The research promotes the UD as an approach to access on campus in contrast to the accommodation disability models and the medical model because it is an all-inclusive approach.

Focusing chiefly on architectural and product design, UD allows for the widest use possible by the widest number of people at a marketable cost. The research applies principles of UD as a means of attaining institutional readiness for access in the educational setting in terms of the physical environment and instructional practices. UD can incorporate the majority of students from diverse backgrounds, including disabled students, leaving only a minority who will require special accommodations, reducing the need for assistive technologies or at the very least making resources compatible with assistive technologies. Universal design is a framework for thinking about environments that goes hand in hand with the social model of disability. The principles of universal design support the creation of products, services and environments that are usable by the widest range of users without modification or

retrofitting. The thinking behind the UD is that disability is not the problem of the individual but the responsibility of the institution to ensure inclusion is consistent with an understanding of disability not simply as a deficit within the individual but as a social construct. The following are the Universal Design Principles (UD) which this study proposes that universities should implement in order ensures readiness for access. They were borrowed from (Burgstahler, 2 007) and domesticated for this study.

1. Equitable use. The design is useful and marketable to people with diverse abilities. A website or building that is designed so that it is accessible to everyone, including people who are blind or those with physical disabilities employ this principle.
2. Flexibility in use. The design accommodates a wide range of individual preferences and abilities. A lesson that allows a student to choose to read or listen to the contents of the lesson employs this principle
3. Simple and intuitive: Easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Assessment example: Testing in a predictable, straightforward manner.
4. Perceptible information. The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. Video captioning employs this principle.
5. Tolerance for error. The design minimizes hazards and the adverse consequences of accidental or unintended actions. An educational software program that provides guidance when the user makes an inappropriate selection employs this principle.

6. Low physical effort. The design can be used efficiently and comfortably, and with a minimum of fatigue. Doors that open automatically employ this principle.
7. Size and space for approach and use. The design provides appropriate size and space for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility. A science lab with adjustable tables employs this principle. These seven principles will form a base for the proposed model of Universal Design that should be adopted by the universities. Figure 18 shows a summary of the proposed UDM for use in the universities.

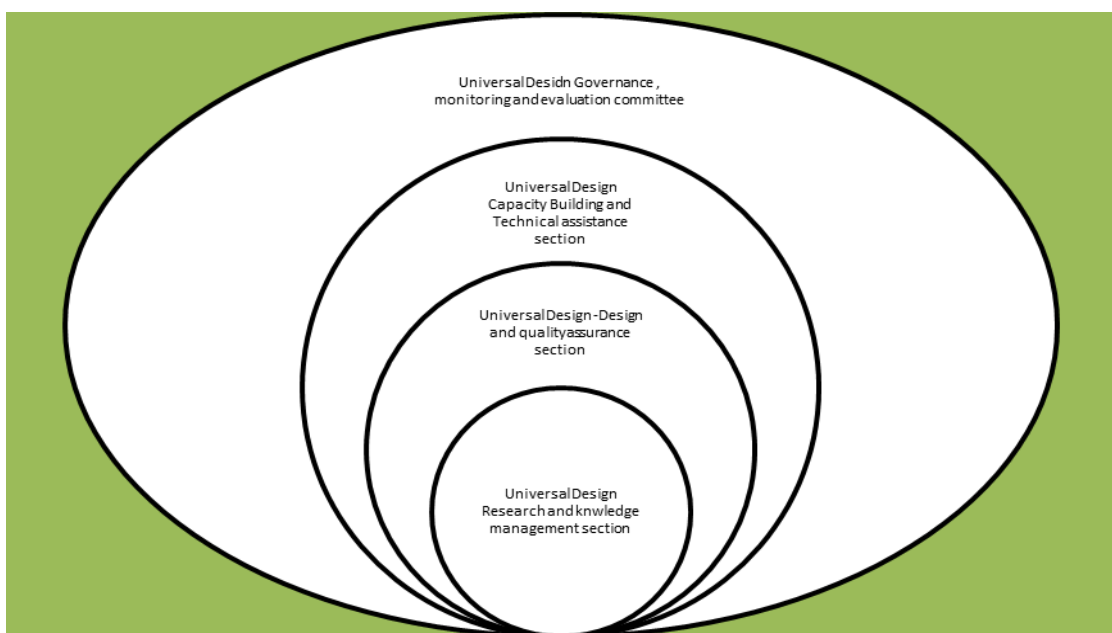


Figure 18: The Proposed UD Model Butalanyi, UD Model (2020)

5.4.2 Universal Design Governance, Monitoring and evaluation Committee (UDGM&E)

This is the oversight committee. The Vice Chancellor is the ex-official of this committee and the chairperson of this is the DVC Universal Design. It provides strategic direction for the sections responsible for UD. It is charged with planning, resource mobilization, stakeholder engagement, coordination, organization, dissemination and sharing of the Universal Design information. This Is the governance committee and it also comprises of user representatives. It hosts the UD information desk. All Deputy Vice Chancellors, HODs of UD sections, dean of students, registrar academic Chairpersons of departments and chairpersons of students' council sections are members of the governance committee. This Committee co-opts other members on an ad hoc basis depending on the prevailing needs. It is the committee that coordinates the actualization of the 7 principles of UD in ensuring institutional readiness for access by SWD in the university.

5.4.3 Universal Design Capacity Building and Technical Assistance Section (UDCB&TA)

This section is charged with ensuring that there are capacities and systems for universal design principles sustainability in the university. It is in the office of the DVC UD. It hosts experts in relevant areas of capacity building and technical assistance. It also hosts the offshore sourcing desk. It provides capacities for staff in all areas pertinent to universal design architecture, Universal design teaching/learning, Universal Design instruction, Universal design in assessment and evaluation, and many other pertinent capacities and technical know-how. It works hand in hand with

the research section to ensure that capacity gaps are continually addressed. The DVC Universal Design is the chairperson of the Capacity Building and technical assistance sub-committee. The DVC Academic affairs are members and the VC are the ex-official.

5.4.4 Universal design -Design and Quality Assurance Section (UDDQA)

This section works hand in hand with the research and knowledge management section to ensure that recommendations as per research findings are implemented. It is charged with designing all architectural facilities including science labs, libraries, classrooms, hostels, playgrounds, parking areas, as well as information technology, assistive technology including websites, teaching/learning products and technologies, instructional designs and inclusive curriculum as well as the environment according to the principles of universal design. The head of this section is the university architecture and he/she also chair the sub-committee for design and quality assurance. The Registrar academic and the head of ICT & library services are co-chairs of this sub-committee depending on the issues at hand.

5.4.5 Universal Design Research and Knowledge Management section (UDR&KM)

This is the section that is charged with carrying out research on the needs and recommending on the mode of addressing the gaps according to the principles of the universal design. It will carry out research on computer and science labs, curriculum, educational software, instructional technologies, libraries, professional organizations, registration options, student housing and residential life, websites, and other student services. It is also the custodian of data and knowledge management. This section also

hosts the Center for Applied Special Technology (CAST) laboratory. The DVC UD is the chairperson of this sub-committee. The DVC research is the alternate chair depending on the issues at hand. This section is the oil that lubricates other sections.

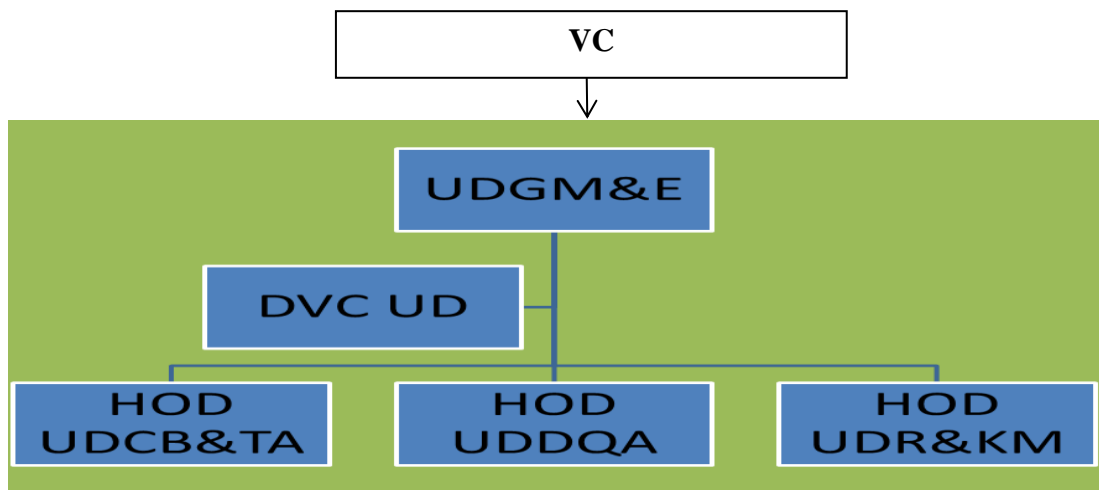


Figure 19: Proposed UD Departmental Management Structure Rebecca K. Butalanyi (2020)

Key

UDGM&E:	Universal Design Governance Monitoring and evaluation
DVC UD:	Deputy Vice chancellor Universal Design
HOD UDCB&TA:	Head of Department Universal Design Capacity Building & Technical Assistance
HOD UDDQA:	Head of department Universal Design, Design and Quality Assurance
HOD UDR&KM:	Head of Department Universal Design Research and knowledge Management

The proposed model will ensure institutionalization of disability auditing by universities. The audit reports will help the responsible departments to monitor the implementation of readiness for access. The model will also provide for continuous capacity building of university staff on disability issues and needs of students with disabilities.

There is necessity for involvement of key stakeholders, including students with disabilities, disabled persons' organizations, disability rights activists, and staff in the process of curriculum design. This should be in turn part of university practice if the curriculum in the university is to be accessed by all including SWD.

5.5 Suggestion for Further Research

This study focused on how public universities in Kenya have made themselves ready to ensure that students with disabilities access education on getting enrolled.

Further research should be done on:

- I. Application of alternative technology in teaching/learning of students with disabilities in higher education. Application of AT to ensure that SWD access learning was a gap. There is need for a study to specifically address this area.
- II. Factors that influence the choice of courses by SWD in higher education. This gap was identified and there is need for further research to address this area
- III. Perception of lecturers towards teaching/learning needs of SWD in Higher Education. This study will address classroom behavior of lecturers who teach SWD
- IV. Determinants of curriculum inclusiveness in higher education

REFERENCES

- Ackoff, R. L. (1945). Science in the systems age: Beyond IE, OR, and MS. *In Operations Research* <https://doi.org/10.1287/opre.21.3.661-885> Published online: 1 Jun 1973
- Ackoff, RL (1999) *Ackoff's best: His Classic Writings on Management*. Wiley, New York
- Ackoff, R. L., & Emery, F. E. (2005). *On purposeful systems: An interdisciplinary analysis of individual and social behavior as a system of purposeful events*. Transaction Publishers.
- Adams, L. A. Bell, & P. Griffin (Eds.), *teach for diversity and social justice* (2nd Ed.) New York: Routledge
- Admon, Z. (2007). The right to accessibility in the international and Israeli legislation. In: *The accessibility of the Israeli Society for Persons with Disabilities on the threshold of the 21st century*. Lapam Publication, Tel Aviv. Pp.177-221 (Hebrew).
- Ahmed A (n.d) *Perceptions of Using Assistive Technology for Students with Disabilities in the Classroom*, Ohio University, Athens, 45701; Ohio
- Ainscow M , Goldrick S & Dyson A ,(2015) *Developing Equitable Education Systems* DOI: [10.4324/9780203818077](https://doi.org/10.4324/9780203818077)
- Allen, C. (2004). Bourdieu's Habitus, Social Class and the Spatial Worlds of Visually Impaired Children. *Urban Studies*, 41(3), 487-506
- Avramidis, E. & Skidmore, D. (2004) Reappraising Learning Support in Higher Education, *Research in post-compulsory Education*, Vol. 9, Nov 1st,2004, University of Bath, UK
- Anderson, J.A. 2012. *Media research methods: understanding metric and interpretive approaches*. Los Angeles: Sage Publications
- Aoife M, Casey H, Desmond D & Gallagher P (2019): The impact of assistive technology use for students with disabilities in higher education: a systematic review, *Disability and Rehabilitation: Assistive Technology*, DOI: [10.1080/17483107.2019.1642395](https://doi.org/10.1080/17483107.2019.1642395)
- Azad L. (2008), *Financing and Management of Higher Education in India*, Gyan Publishing House, New Delhi
- Bailey, K.D. Social Entropy Theory: An overview. *Systems Practice* **3**, 365–382 (1990). <https://doi.org/10.1007/BF01063441>

- Banathy, B. H. (1991). *Systems Design of education: A journey to create the future. Educational Technology*. Springer Science & Business Media
- Banathy, B. H. (1992). *A Systems view of Education: Concepts and principles for effective practice. Educational Technology*. Springer Science & Business Media.
- Banathy, B. H. (2013). *Designing social systems in a changing world*. Springer Science & Business Media.
- Banathy, B. H., & Jenlink, P. M. (2003). *Systems inquiry and its application in education. Handbook of research for educational communications and technology*, 37- 58.
- Barazandeh, G. (2005). *Attitudes toward disabilities and reasonable accommodations at the university*. *The Undergraduate Research Journal*, 7, 1-12.
- Barnes C, Mercer G, Tom Shakespeare (2010) *Exploring Disability: A Sociological Introduction*, Polity Press, 65 Bridge Street, Cambridge, CB2 IUR, UK
- Barnes, C. 1991: *Disabled People in Britain and Discrimination: A Case for Anti-discrimination Legislation*. London: Hurst and Co. in association with the British Council of Organizations of Disabled People.
- Barnes, C. 1999. *A Working Social Model? Disability and Work in the 21st Century*, Disability Studies Conference, Edinburgh
- Bathseba M. Opini (2010) A review of the participation of disabled persons in the labour force: the Kenyan context, *Disability & Society*, 25:3, 271-287, DOI: [10.1080/09687591003701181](https://doi.org/10.1080/09687591003701181)
- Beerel, A. (2009) .*Critical Systems Thinking in Leadership and Change Management*, Sage Publications Ltd, <http://dx.doi.org/10.4135/9781446269336.n2> p 31
- Berger PL and Luckmann T, (1967) *the Social Construction of Reality A Treatise in the Sociology of Knowledge*, Penguin Press, London
- Bernard HR (2002). *Research methods in anthropology: Qualitative and quantitative approaches*. (3rd edition); Walnut Creek, CA: Alta Mira Press
- Bertalanffy L. (1968) *General System Theory Foundations, Development, Applications*, University of Alberta, Edmonton Canada, George Braziller, New York
- Billing D (1997) *Induction of New Students to Higher Education*, University of Westminster, UK <https://doi.org/10.1080/1355800970340208>
- Blaskova, M Blasko R, & Kucharpikova A, (2014). *Competences and Competence Model of University Teachers*, *Procedia - Social and Behavioral Sciences* 159 (2014) 457 – 467,a University of Žilina, Slovakia

- Boardman, J. and B. Sauser, (2006). *System of Systems - the meaning of*, in IEEE International System of Systems Conference. Los Angeles, CA.
- Boardman, J., B. Sauser & A Gorod(2008) *Paradox: Holarchical View of System of Systems Engineering Management*, School of Systems and Enterprises Stevens Institute of Technology Castle Point on Hudson Hoboken, N.J. 07030, USA
- Borland J and James S. (1999) *The Learning Experience of Students with Disabilities in Higher Education. A case study of a U K university*, Disability and Society
- Bowe F (2000). *Universal Design in Education: Teaching Nontraditional Students*, Greenwood Publishing Group, NY
- Braddock L and Parish L (2001). *An Institutional History of Disability at the Dawn of the 21st Century and The State of the States*, American Association on Mental Retardation, NY
- Brod .M Tesler. E Christensen L (2009), *Qualitative research and content validity: developing best practices based on science and experience*, Springer Science+Business Media B.V. DOI 10.1007/s11136-009-9540-9
- Brown, S. & Colling, C. (1993). *Observing teaching: Issues and outcomes*. In S. Brown, G. Jones & S. Rawnsley (Eds.), *Observing teaching* (pp. 19-22). Birmingham: SEDA Paper 79.
- Bualar, (2018). *Barriers to Inclusive Higher Education in Thailand: Voices of Blind Students*, *Asia Pacific Education Review*, 19 (4) 469-477. Retrieved from <https://link.springer.com/>
- Burgstahler S (2007), *Universal design in education: Principles and applications*, DO-IT, University of Washington
- Burgstahler S (2007). *Universal design in education: Principles and applications*, Publisher: DO-IT, University of Washington, Washington
- Burgstahler, S. (2007a). *Equal access: Universal design of instruction*. Seattle: University of Washington. www.uw.edu/doi/Brochures/Academics/equal_access_udi.html
- Burgstahler, S. (2007b). *Equal access: Universal design of physical spaces*. Seattle: University of Washington. www.uw.edu/doi/Brochures/Programs/equal_access_spaces.html
- Burgstahler, S. (2007c). *Equal access: Universal design of student services*. Seattle: University of Washington. www.uw.edu/doi/Brochures/Academics/equal_access_ss.html

- Burns, D. (2007). *Systemic action research: A strategy for whole system change*. Policy Press
- Carr, S., Francis, M., Rixlin, L.G. & Stone, A.M. (1992) *Environment and behavior series public space*. The press syndicates the University of Cambridge, New York.
- Carey, G., Weier, M., Malbon, E., Dickinson, H. Alexander, D., & Duff, G. 2018, 'How is the Disability sector faring? A report from National Disability Services' Annual Market Survey'. ISBN: 987-0-7334- 3852-3
- Castaneda, R., & Peters, M. L. (2000). Ableism. In M. Adams, W. J. Blumenfeld, R. Castañeda, H. W. Hackman, M. L. Peters, & X. Zúñiga (Eds.), *Readings for diversity and social justice* (pp. 319-323). New York: Routledge.
- Center for Applied Special Technology (2008). Research and development. In UDL guidelines. Retrieved from www.CAST.org/research/index.html
- Chickering, A. W., & Reisser, L. (1993). *Education and identity* (2nd ed.). San Francisco: Jossey-Bass.
- Chioma. O., (2012.) Minor thesis in partial fulfillment for the degree of master's in philosophy (MPhil) In Disability Studies at the University of Cape Town Thesis
- Clarke, P. J., Ailshire, J. A., Nieuwenhuijsen, E. R., & de Kleijn–de Vrankrijker, M. W. (2011). Participation among adults with disability: the role of the urban environment. *Soc Sci Med*. 2011 May;72(10):1674-84. doi: 10.1016/j.socscimed.2011.03.025. Epub 2011 Apr 5. Elsevier Ltd
- Creamer, D., 2009, *Disability and Christian theology: Embodied limits and constructive possibilities*, Oxford University Press, Oxford.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. (2nd ed.). Thousand Oaks, CA: Sage
- Crotty, M. (2003). *The foundation of social research: Meaning and perspective in the research process*. Thousand Oaks CA: Sage.
- Dalia S. & Naomi S. (2011), Inclusion of Students with Disabilities in Higher Education: Performance and participation in student's experiences. *Disability Studies Quarterly*, 31(2)
- Engelbrecht, L., & De Beer J., (2014); Access constraints experienced by physically disabled students at a South African higher education institution. *African Education Review* 11(4) 544-562.

- Engelbrecht, P. & Green, L. (Eds.) (2001) *Promoting Learner Development: Preventing and Working with Barriers to Learning*. Cape Town: Van Schaik.
Experiences of disabled students of learning at university, London: Routledge Falmer.
- Fine, M., Asch, A. (1988): Disability beyond stigma: social interaction, discrimination and activism. *J. Soc. Issues* 44(1), 3–22
- Finkelstein, V. 1980: *Attitudes and Disabled People: Issues for Discussion*. New York: World Rehabilitation Fund.
- Fiona J. M (2015). *The Road to the Ivory Tower: The Learning Experiences of Students with Disabilities at the University of Manitoba*, University of Manitoba, Canada.
- Florian L & Natasha P (2015) Developing teachers as agents of inclusion and social justice <https://doi.org/10.3402/edui.v6.27311>
- Friedson, e. (1965) Disability as social deviance, in: M. Sussman (Ed.) *Sociology and Rehabilitation* (New York, Arno Press).
- Foreman, P., Dempsey, I., Robinson, G., & Manning, E., (2001). *Characteristics, academic, and post-university outcomes of students with a disability at the University of Newcastle*. *Higher Education Research & Development*, 20(3), 313-325.
- Forlin & Sin, (2010) a professional learning approach for teachers in Hong Kong
<https://www.researchgate.net/publication/255660747>
- Fuller, M., Georgeson, J., Healey, M., Hurst, A., Kelly, K., Riddell, S., Roberts, H. and Weedon, E. (2009) *Improving Disabled Students' Learning: Experiences and Outcomes* London: Routledge
- Gathumbi et al (2015), Teachers' and School Administrators' Preparedness in Handling Students with Special Needs In Inclusive Education In Kenya, *Journal of Education and Practice* ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.6, No.24, 2015, www.iiste.org
- Gay, R., Mills, E., & Airasian P. (2012), *Educational Research Competencies for Analysis and Applications*, (10th edition). Pearson Education, Inc., New York.
- Gebrehiwot, Y. G. (2015). *Towards more inclusive University Curricula: the learning experiences of visually impaired students in HE institutions in Ethiopia*. Thesis UNISA URI: <http://hdl.handle.net/10500/19196>
- Gibbs G R (2007). Thematic Coding and Categorizing In: *Analyzing Qualitative Data* <https://dx.doi.org/10.4135/9781849208574.n4>
- Githinji J.W (2015), *Access to university education for Persons with Disabilities: towards inclusion*. (Master's thesis in law), *University of Nairobi*.

- Glatthorn A. (2000) *The Principal as Curriculum Leader*. California: Thousand Oaks, ICAN Home, Modules, And Social interventions: Hidden Curriculum. URL <http://www.autismnetwork.org/modules/social/hidden/index.html> (15 November 2010)
- Goode J (2007) 'Managing' disability: early experiences of university students with Disabilities University of Nottingham, UK <https://doi.org/10.1080/09687590601056204>
- Griffin, P., & McClintock, M. (1997). History of Ableism in Europe and the United States-A selected timeline. In M. Adams, L. A. Bell, & P. Griffin (Eds.), *Teaching for diversity and social justice*. New York: Routledge.
- Griffin, P., Peters, M. L., Smith, R. M. (2007). *Ableism curriculum design*. In M. Adams, L.A.Bell,& P. Griffin (Eds.), *Teaching for diversity and social justice* (2nd Ed.). Routledge/Taylor & Francis Group.
- Guba, E. G., Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco, CA: Jossey-Bass.
- Guba, E.G. & Lincoln, Y.S. (1998). *Fourth Generation evaluation*. Newbury Park: Sage.
- Guy D, Karen C, Dave R, Mark R & Ian S (2004) *The anti-social model of disability, Disability & Society*, Vol. 19, No. 2, March 2004, Carfax, and London
- H, März V&Voogt J(2020), Curriculum flexibility in a blended curriculum, *Australasian Journal of Educational Technology* 36(1):68-84 DOI: [10.14742/ajet.4926](https://doi.org/10.14742/ajet.4926)
- Hammersley (1992). *What's wrong with ethnography?* London, Routledge Hanafin J et al (2006), *Including young people with disabilities: Assessment challenges in higher education* Springer Science Business Media, Inc.
- Healey, M.; Fuller, M.; Bradley, A., & Hall, T. (2006). *Listening to students: The Inclusion*. Harlow: Addison Wesley Long man
- Herma J, März V & Voogt J (2020). *Curriculum flexibility in a blended curriculum*, *Australasian Journal of Educational Technology*, 2020, 36(1)
- Hoffman, L. P. (2009). *Educational leadership and social activism: A call for action*. *Journal of Educational Administration and History*, 41(4), 391-410.
- Holland J.M& G. Hornby (1992) Competences for Teachers of Children with Special Educational Needs, *Journal of In-Service Education*, 18:1, 59-62, DOI: [10.1080/0305763920180109](https://doi.org/10.1080/0305763920180109)

- Hughes B (2004) - *Disability and the body* in (Disabling barriers–Enabling environments Chapter 9), SAGE, London
- Immegart GL, Pilecki FJ (1973). *An Introduction to Systems for the Educational Administrator*. Addison-Wesley Longman Inc. (Digitized 2006).
- Imurana B. A, Teresa J.E Arko M.M (2018) Mega-Lecture theatres, disability education and human rights: A comparative study of four selected Ghanaian public universities, *International Journal of Research Studies in Education 2018 Volume 7 Number 4, 27-40*, ISSN: 2243-7703 Online ISSN: 2243-7711 opens access
- ISO: 201542:2011(E) (2011), *Building Construction- Accessibility and Usability of the Build Environment*, Case Postale 56.CH-2011, Geneva 20
- Jeanne& Goff (2008) *Pedagogy and Student Services for Institutional Transformation: Implementing Universal Design in Higher Education* (Jeanne L. Higbee and Emily Goff Editors)
- Johnson, A. L. (2006). *Students with disabilities in postsecondary education: Barriers to Success and implication to professionals*. <http://counselingoutfitters.com/vistas2006>, on 11.11.2015.
- Jones, S. R. (1996). Toward inclusive theory: Disability as a social construction. *NASPA Journal*, 33, 347-354.
- Jucan D (2014) Ways of delivering the academic lecture. Applications for pedagogic disciplines *Procedia - Social and Behavioral Sciences* 180 (2015) 834 – 840
- Jung, K. E. (2003). *Chronic illness and academic accommodation: Meeting disabled; unique needs and preserving the institutional order of the university*. *Journal of Sociology and Social Welfare*, 30(1), 91-112.
- Kafu P. A. (2011) Teacher Education in Kenya: Emerging Issues, *International Journal of Curriculum and Instruction* Vol. 1(1), pp. 43 - 52, April 2011 Available online at <http://www.muk.ac.ke/ijci/>
- Kasser, S. & Lytle, R., 2005, *Inclusive physical activity*, Human Kinetics, Champaign, IL. Lewis, H., 2007, *Deaf liberation theology*, Ashgate, London, UK.
- Kigen H (2017), *Teacher Competencies in Implementation of Curriculum for Learners with Special Needs in Kenyan Schools*, *IOSR Journal of Research & Method in Education*, e-ISSN: 2320–7388,p-ISSN: 2320–737X Volume 7, Issue 4 Ver. IV (Jul - Aug 2017), PP 62-66 www.iosrjournals.org
- Kiare MW (2014) Educating Students with Physical Disabilities in Kenya: Progress and Promises, *Int. J. Educ. Stud.* 01 (02) 2014. 109-118
- Kiru EW (2018) *Special Education in Kenya*: sagepub.com/journals Permissions. nav DOI: 10.1177/1053451218767919 isc.sagepub.com I Institute on Disabilities

- Kithuka N B (2018) Factors influencing PWD readiness to participate in Development Projects in Kenya: A case of Makueni County
- Kusuma. A& K. Ramadevi (2013), Inclusive Education-Teacher Competencies, Vol.1 No.3 July, 2013 ISSN: 2320 –2653
- KNBS (2015). *The Student Enrollment in Public Universities: 2007-08to 2012-13*. Nairobi: KNBS Economic Survey report.
- Kothari, C. R. 2004. *Research methodology: methods and techniques*. 2nd Ed. New Delhi: New Age International.
- Kouroupetroglou. G Pino.A & Kacorri.H (2011) *A Model of Accessibility Services Provision for Students with Disabilities in Higher Education*, International , National and Kapodistrian University of Athens, Accessibility Unit for Students with Disabilities, Panepistimiopolis, Ilissia, GR-15784, Athens, Greece ,Conference Universal Learning Design, 8-11 February 2011, Brno
- Kraska, M. 2003. *Post-secondary students with disabilities and perception of faculty Members*. The Journal for Vocational Special Needs Education, 25(2), 11-19.
- Krejcie VR, W. Morgan W D (1970).Determining Sample Size for Research, Research Article <https://doi.org/10.1177/001316447003000308>
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: SAGE
- Laron (2005). Report of the public commission to examine matters relating to persons with disabilities and to promote their integration into the community. Headed by judge (ret.) late Ephraim Laron Jerusalem (Hebrew).
- Laszlo, A., & Krippner, S. (1998). *Systems theories: Their origins, foundations, and development*. Advances in psychology-Amsterdam-, 126, 47-76
- Lillejord S, Børte K, Nesje K & Ruud E(2018) *Learning And Teaching With Technology In Higher Education – a systematic review*, Oslo: Knowledge Centre for Education,
- Lozano J. F, Boni A, Peris J& Hueso A (2012). *Competencies in Higher Education: A critical analysis from the capabilities approach* Journal of Philosophy of Education, 46 (1), pp132-147.
- Lincoln, Y. S., & Guba, E. G. (2000). *Paradigmatic controversies, contradictions and emerging confluences*. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). California: Sage Publications
- Lincoln, Y. S., & Guba, E. G. (2013). *The constructivist credo*. Left Coast Press

- Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic Inquiry*. Beverly Hills: Sage Publications
- Literature Report Volume 20, Number 11, Article 4, 1772-1789. McMaster University, Hamilton, Ontario, Canada
- Losty, P. (1976). *Journal of the Royal Statistical Society. Series A (General)*, 139(4), 544-545. doi: 10.2307/2344360
- Louise Morley and Alison Croft (2011), Agency and Advocacy: disabled students in higher education in Ghana and Tanzania, *Research in Comparative and International Education Volume 6 Number 4 2011* www.worldwords.uk/RCIE
- Luhmann, N. (1995). *Social Systems*. Stanford, CT: Stanford University Press.
- Mackenzie, K., & Schweitzer, R., (2001). Who succeeds at university? Factors predicting academic performance in first year Australian University students. *Higher Education Research & Development*, 20(1), 21-23.
- Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in Educational Research*, 16(2), 1-11.
- Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in Educational Research*, 16(2), 193-205
- Madhavaram S & Laverie D (2010) Developing Pedagogical Competence: Issues and Implications for Marketing Education *Journal of Marketing Education* 32(2):197-213 DOI: [10.1177/0273475309360162](https://doi.org/10.1177/0273475309360162)
- Majinge RM (2014) Library Services' Provision for People with Visual Impairments and In Wheelchairs in Academic Libraries In Tanzania, Thesis_University of KwaZulu-Natal, Pietermaritzburg, South Africa
- Makanya, S. (2015), Investigating FET College Lecturers' Experiences of the Inclusion of Students with Disabilities in a Mainstream Classroom. A Master's Thesis. University of KwaZulu-Natal, Edgewood Campus, Pinetown, South Africa.
- Marie José Schmitt and Mark Priestley (2011) Inclusive education for young disabled people in Europe: Trends, issues and challenges, Academic Network of European Disability experts (ANED)
- Mary Kiarie, (2014) Legislation and Litigation in the Development of Special Education in Kenya and the United States. An Overview. *International Journal of Liberal Arts and Social Science* September.

- Malterud K, Siersma V.D & Guesser AD, (2015) Sample Size in Qualitative Interview Studies: Guided by Information Power *Qualitative Health Research* sagepub.com/journalsPermissions.nav DOI:10.1177/1049732315617444 qhr.sagepub.com
- Matshediso, (2007) Access to higher education for disabled students in South Africa: a contradictory conjuncture of benevolence, rights and the social model of disability, *Disability & Society*, 22:7, 685-699,
- Maxwell, J. (2012). *Qualitative Research Design: An Interactive Approach to:* <https://www.researchgate.net/publication/43220402>
- McBurney D.H& White L.W (2009) *Research Methods*, Cengage Learning Inc.8th Edition
- Merriam, S. (2009). *Qualitative research: A guide to design and implementation* (Revised and expanded) from 'Qualitative research and case study applications in education'. Hoboken, NJ: Jossey-Bass (Wiley)
- Mertens, D. M. (2010). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods.* (3rd Ed.) Thousand Oaks, CA: Sage
- Michalko, R. (2002). *The difference that disability makes.* Philadelphia: Temple University Press.
- Mole H (2012). *Services for disabled students in US higher education: Implementing a social model approach*, Thesis the University of Leeds.
- Mayer A, Rose D, Hitchcock C and Jackson R (n.d) *Providing New Access to the General Curriculum Universal Design for Learning*
- Morgan P. (2005): *The Idea and practice of systems thinking and their relevance for capacity development*, European Centre for Development Policy Management
- Morina a & Morgado B, (2016), University surroundings and infrastructures that are accessible and inclusive for all: listening to students with disabilities; *Journal of Further and Higher Education*, 2018VOL.42, NO.1, 13–23 <https://doi.org/10.1080/0309877X.2016.1188900>
- Morley & Croft (2011) Agency and Advocacy: disabled students in higher education in Ghana and Tanzania 'Widening Participation in Higher Education in Ghana and Tanzania: developing an Equity Scorecard', *Research in Comparative and International Education* Volume 6 Number 4 2011 www.worldwords.uk/RCIE
- Mpofu, E. & Wilson, K. (2004). Opportunity structure and transition practices with students with disabilities: The role of family, culture, and community. *Journal of Applied Rehabilitation Counseling*, 35(2), 9-16.

- Mugo J. & Signal N ;(2010) testing youth transitions in Kenya: Are young people with disabilities falling through the cracks? (RECOUP Working Paper No. 34).
- Mukhwana. E, Oure. S, Kiptoo, S, Kande. A, Njue R, Too. J and Some D.K. (2016). *State of University Education in Kenya*. Commission for University Education. Discussion Paper 04. Nairobi, Kenya.
- Mwirigi G J (2017) Factors affecting accessibility of building infrastructure By Physically handicapped Persons: The Case of Meru Town, Meru County Kenya (unpublished) Thesis
- Nasimiyu G (2017) Preparation of Prospective Teachers in Pedagogy in Kenya; a Case of Selected Universities (Unpublished Thesis)
- Natalie W, (2017), Assessment of University Infrastructure Impact on the Safety of Individuals with Physical Disabilities at the University of Texas At Austin, Thesis (unpublished)
- Nel et al (2015) *The challenges experienced by students with a physical disability (SWPD) at a higher education institution in South Africa*, African, Journal for Physical, Health Education, Recreation and Dance, (AJPHERD) December 2015 (Supplement 1:4), pp. 801-811
- Ng Chiaw G (2018), *The Impact of Lecturers' Competencies on Students' Satisfaction*, Journal of Arts & Social Sciences Vol 1, Issue 2, 74-86 (2018)
- Nic J. T. A. Kramer Jacob de Smit (1977). *Systems thinking: Concepts and Notions*, Springer, Boston, MA, DOI: 10.1007/978-1-4613-4229-8 pp. 11-28, 37- 46
- OECD (2019) "What is the student-teacher ratio and how big are classes?", in *Education at a Glance 2019: OECD Indicators*, OECD Publishing, Paris DOI: <https://doi.org/10.1787/a1ef3bfe-en>
- OECD (2018), *OECD Handbook for Internationally Comparative Education Statistics: Concepts, Standards, Definitions and Classifications*, OECD Publishing, Paris,
- Olkin, R., 1999, *What psychotherapists should know about disability*, Guilford Press, New York.
- Oliver, M. 1983: *Social Work with Disabled People*. Basingstoke: Macmillan.
- Oliver, M. 1990: *The Politics of Disablement*. Basingstoke: Macmillan.
- Oliver, M. 1992: 'Changing the Social Relations of Research Production?' *Disability, Handicap and Society*, 7 (2), 101-14.

- Oliver, M. 1996: *Understanding Disability: From Theory to Practice*. London: Macmillan.
- Olusegun A ,Ojo A (2014), Framework for assessing institutional readiness of government organisations to deliver open, collaborative and participatory services DOI:[10.1145/2691195.2691251](https://doi.org/10.1145/2691195.2691251)
- Opini (2009), Barriers to Participation of Women Students with Disabilities in University Education in Kenya, *Journal of Postsecondary Education and Disability*, 25(1), 65 – 79
- Parsons, T. (1951) *The Social System* (Glencoe, The Free Press).
- Paseka (2017). Access to curriculum for students with disabilities at higher education institutions (Doctor of Education) Thesis, University of South Africa.
- Paseka A. M & Nareadi P (2017) *Access to curriculum for students with disabilities at higher education institutions: How does the National University of Lesotho fare?* African Journal of Disability ISSN: (Online) 2226-7220, (Print) 2223-9170
- Paseka M & Phasha N, (2018). Access to curriculum for students with disabilities at higher education institutions: How does the National University of Lesotho fare? African Journal of Disability ISSN: (Online) 2226-7220, (Print) 2223-9170
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*. 3rd edition. Sage Publications, Inc.
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: SAGE
- Phillips S & Clarke A (2010) *Pathways for Students with Disabilities to Tertiary Education and Employment (Case Studies from Ireland)*, Kilbogget House, Shrewsbury Wood Cabinteely Dublin 18.
- Podzo B.Z& Chipika C.G(2019) Curriculum Reform: A Key Driver to the Inclusion of Students with Disabilities in Higher Education *Journal of Education and Practice* www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) DOI: 10.7176/JEP Vol.10, No.6, 2019
- Rahman M (2014) Professional Competence, Pedagogical Competence and the Performance of Junior High School of Science Teachers *Journal of Education and Practice* ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.5, No.9, 2014
- Rao, S. (2004). Faculty attitudes and students with disabilities in higher education - a literature reviews. *College Student Journal*, 38(2), 191-198.

- Raue, K., & Lewis, L. (2011). *Students with Disabilities at Degree-Granting Post-secondary Institutions*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office. Retrieved from <http://nces.ed.gov>
- Rauscher, L., & McClintock, M. (1997). Ableism curriculum design. In M. Adams, L. A. Bell, & P. Griffin (Eds.), *Teaching for diversity and social justice* (pp. 198-229). New York: Routledge
- Republic of Kenya (2005). *Persons with Disabilities Act no. 14 of 2003: Kenya Gazette Supplement No.111 (Acts No.14)*, GP, Nairobi
- Republic of Kenya (2007) *Kenya National Survey for Persons with Disabilities*, National Coordinating Agency for Population and Development, Nairobi.
- Republic of Kenya (2008) *Kenya's Vision 2030, a Globally Competitive and Prosperous Kenya*, GP, Nairobi
- Republic of Kenya. (2010). *Constitution of Kenya 2010*, GP, Nairobi
- Republic of Kenya (2005), *Persons With disabilities Act 2003*, GP, Nairobi
- Republic of Kenya (2016), Ministry of Education. *Basic education statistical booklet (2016)*, GP, Nairobi
- Republic of Kenya, (2010) *Laws of Kenya, The constitution of Kenya 2010*, National Council for Law Reporting, Nairobi
- Republic of Kenya, (2012) *The Universities Act No. 42 of 2012*, GP, Nairobi
- Republic of Kenya, (2013) *The Basic Education Act No.14 of 2013*, GP, Nairobi
- Reynolds C, Kimberly J., Janzen F (2014) *Encyclopedia of Special Education: A Reference for the Education of Children, Adolescents, and Adults with Disabilities and Other Exceptional Individuals*, Volume 4, ISBN: 978-0-470-94938-2
- Rose and Meyer (2008), *the Future Is in the Margins: The Role of Technology and Disability in Educational Reform*, American Institute for Research
- Santoshi, H., & Argyropolous, V. (2019). *Inclusion, Equity and Access for Individuals with Disabilities: Insights for educators across the World*, (2nd edition.). Palmgrave Macmillan e-Book.
- Schwandt T (2000), *Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructivism*, Sage Publications, Thousand Oaks, California

- Silverman, D. (2000). *Doing qualitative research: A practical handbook*. Thousand Oaks, CA: Sage.
- Spradley JP (1979). *The ethnographic interview*, New York: Holt Rinehart & Winston
- Stephen J. Gentles, Cathy Charles, Jenny Ploeg, and K. Ann McKibbin (2015). *The Qualitative Sampling in Qualitative Research: Insights from an Overview of the Methods*
- Suri, Harsh (2011). *Purposeful sampling in qualitative research synthesis*, *Qualitative research journal*, vol. 11, no. 2, pp. 63- 75
- Syed S & Jameel, S. (2011). *Disability in the Context of Higher Education: Issues and Concerns in India*, *Electronic Journal for Inclusive education* 2(7) 10-22. Retrieved from <https://corescholar.libraries.wright.edu/ejie/vol2/iss7/3>
- Tawanda, M (2019) *Teacher Key Competencies for Inclusive Education: Tapping Pragmatic Realities of Zimbabwean Special Needs Education Teachers*, SAGE Open January-March 2019: journals.sagepub.com/home/sgo
- Terreblanche and Durrheim (2007). *Research in practice: Applied methods for the social sciences*, Cape Town, S Africa
- Theeratorn L (2016) *Assistive Technology and Educational Services for Undergraduate Students with Disabilities at Universities in the Northern Thailand DOI: [10.1016/j.proenv.2016.09.012](https://doi.org/10.1016/j.proenv.2016.09.012)*
- Thomas G & O'Hanlon C (. 2004) *Special Teaching for Special Children? Pedagogies for Inclusion: A Pedagogy for inclusion* McGraw-Hill Education (UK)
- Thomas R. and Patricia E. S, (2004), *Opportunities for Students with Disabilities, A primer for policy makers*, The institute for higher education policy.
- Togo, M. (2009). *A Systems Approach to mainstreaming environment and sustainability in universities; the case of Rhodes University; South Africa*. Unpublished doctoral dissertation, Rhodes University, Rhodes. 378
- Togo, M., & Lotz-Sisitka, H. (2013). *Exploring a systems approach to mainstreaming sustainability in universities: a case study of Rhodes University in South Africa*. *Environmental Education Research*, 19 (5), 673-693
- Tshifhiwa R.M (2016). *Educational Support of Students with Disabilities at Institutions of Higher Learning in South Africa: A Case Study of the University of Venda University of Limpopo*, Published Thesis
- UN (2003) *Accessibility for the Disabled: A Design Manual for a Barrier Free Environment*: Department of Economic and Social Affairs Division for Social Policy and Development, Switzerland, Geneva 20,

- UNCRPD (2006). *Convention on the Rights of Persons with Disabilities and optional Protocol* www.un.org/disabilities/documents/convention/convoptprot-e.pdf
Accessed on 21.4.2019
- UNDP (2019), *Sustainable Development Goals, 2030* United Nations, New York
- UNESCO. (1998). *World conference on Higher Education: Higher Education in the Twenty-First Century Vision and Action*. UNESCO: Paris
- UNGA, (2015), *United Nations Sustainable Development Summit 2015, Sustainable Development Goals*, Switzerland, Geneva 20
- UPIAS (1976). *Fundamental Principles of Disability the Disability Alliance: 96 Union of the Physically Impaired against Segregation*. Portland Place, c/o Flat 2, St. Giles Court, Dane Road, Ealing, London, W13 London, W1N 4EX
- US Congress (1991) *The Americans with disabilities Act 1990*,
- Voss F Gruber T (2006) *The desired teaching qualities of lecturers in higher education: A means end analysis*
- DOI: 10.1108/09684880610678540 Loughborough University
- Wasim H (2018). *Inclusive Education: Policy Perspectives*. *Journal of Disability Management and Rehabilitation*, [S.l.], p. 1-3, apr. 2018. ISSN 2454-6437.
- Wayne T. O, (2004) *Perspectives on Disability, Discrimination, Accommodations, and Law: A Comparison of the Canadian and American Experience*.
- Weinberg G. M. (1975). *An Introduction to General Systems Thinking*. *Journal of the Royal Statistical Society*. Vol. 139, No. 4, Wiley DOI: 10.2307/2344360
- Weston N (2017). *Assessment of University Infrastructure Impact on The Safety of Individuals with Physical Disabilities*, At the University Of Texas At Austin Thesis
- WHO & WB (2011) *World report on disability*, WHO Press, World Health Organization, 20 Avenue Apia, 1211 Geneva 27, Switzerland Executive Summary, The International Bank for Reconstruction and Development/The World Bank
- WHO&World Bank, (2011) *Learning for All: Investing in People’s Knowledge and Skills to Promote Development*, World Bank Group Education Strategy 2020
- Willcoxson, L. (1998), “The impact of academics’ learning and teaching preferences on their teaching practice: a pilot study”, *Studies in Higher Education*, Vol. 23 No. 1, pp. 59-70.

World Bank (2017). Improving Higher Education Performance in Kenya: A Policy Report, 1818 H Street NW, Washington DC 20433

Yvonne Hill, Laurie Lomas, & Janet MacGregor (2003) Students' perceptions of quality in higher education Quality Assurance in Education
ISSN: 0968-4883 Publication date: 1 March 2003

Zaiontz C (2015) Statistics Using Excel Succinctly, Amazon

APPENDICES

Appendix I

Questionnaire for disabled students

This questionnaire seeks to collect data on institutional readiness for access to higher education by students with disabilities in Public Universities in Kenya. The information will be used only for the purpose of this study. Try to respond to all questions as openly as possible. Your honest response will help towards completion of an objective and valuable report.

1. Are you a student living with a disability? (a)Yes (b) No
2. What type of disability? (a)Physical (b)Visual (c)Hearing (d) Dyslexia
3. (d) others
4. Year of study(a) First () (b) Second () (c) Third () (d) Fourth () (e) fifth () (f) Other ()
5. What degree are you studying? Tick (√) appropriately
 - i. Agriculture, ()
 - ii. Forestry and Fisheries ()
 - iii. Architecture ()
 - iv. Business and administration ()
 - v. Computing ()
 - vi. Education (Arts) ()
 - vii. Education (Science) ()
 - viii. Engineering ()
 - ix. Environment ()
 - x. Health and Welfare ()
 - xi. Humanities and Arts ()
 - xii. Journalism and Information ()
 - xiii. Law ()
 - xiv. Life Science and Physical Science ()
 - xv. Manufacturing ()
 - xvi. Mathematics and Statistics ()
 - xvii. Security and Conflict Resolution ()
 - xviii. Services ()

xix. Social and Behavioral Science ()

xx. Teacher Training ()

xxi. Veterinary ()

xxii. Other ()

6. If I am given another chance I would choose the a) same () b) another ()
course for the following reasons

i) accessible content ()

ii) Inaccessible content ()

iii) Availability of instructors ()

iv) Unavailability of instructors ()

v) Sensitive to my special needs ()

vi) Insensitive to my special needs ()

vii) Others.....

Circle the kind of support you got when you arrived for admission at the university?

(b)Wheelchair (b) a guide (b) sign language interpreter (b) others (d) none

7. Indicate by a tick (√) or cross (X) against the available infrastructure for your
special needs in this institution/university

(i) Ramps in appropriate locations for wheelchairs ()

(ii) Accessible Disability toilets ()

(iii) Accessible Disability bathrooms ()

(iv) Tactile pavements for white cane users ()

(v) Spacious classrooms () offices (), Hostels ()

(vi) Accessible classrooms () offices ()Hostels ()

(vii) Accessible laundry facilities ()

(viii)Visible Signs for hearing impairments in appropriate places ()

(viii) Audible signs for visual impairments in appropriate places ()

(ix) Accessible doors to: offices () classrooms (), library (), hostels ()

(x) GPS Devices for the visually impaired ease of finding direction ()

(xi) Adaptive Tools for games ()

(xii) Adaptive spaces / fields for games ()

(xiii) Accessible lifts on Storey buildings ()

(xiv) Accessible college buses with manually folding ramps () Spacious seats ()

(xv) Library attendants for the Visually impaired () hearing impaired ()
wheelchair users ()

(xvi) Ray electronic mobility aid

(xvii) Others please specify

.....
.....

8. Respond with (A) to agree and (D) to disagree with the following statements
about lecturer's competences:

Lecturer are good managers (time, resources, Planning, decision making () .

- i. Lectures as role models ()
- ii. Lectures have high moral & ethical code()
- iii. Lecturers display mature Personality ()
- iv. Lecturers have subject expertise knowledge ()
- v. Clear leadership ()
- vi. Lecturers have subject expertise knowledge ()
- vii. creates a conducive learning environment for me ()
- viii. Able to effectively design disability inclusive lessons ()
- ix. Uses teaching methods that are disability inclusive ()
- x. Sensitive my special needs without making me feel different ()
- xi. Able to advise on the right technology my use ()
- xii. Ability to communicate effectively during teaching ()
- xiii. Maintain professional appearance ()
- xiv. Provision of lesson materials lecture notes /in advance ()
- xv. Utilization of teaching/learning materials in different versions (digital, audio,
print, tactile) Course materials online ()
- xvi. Utilization of a variety of teaching methods (lecture, FGD, use of body, senses,
application, outdoor learning ()
- xvii. Classroom management, Attendance monitoring including to help identify any
potential wellbeing issues among students ()
- xviii. Instructional leadership ()
- xix. Knowledge of ICT integration devices & software for teaching blind and deaf
SWD e.g. web based special ed. Solutions ()
- xx. Knowledge of recreational technology for SWD ()

- xxi. Knowledge of online performance management tools for SWD, Specialist software ()
- xxii. Knowledge of assistive technology for various disabilities ()
- xxiii. Knowledge of assistive technology for various disabilities ()
- xxiv. Knowledge of ICT integration devices & software for teaching blind and deaf SWD e.g. web based special ed. Solutions ()
- xxv. Knowledge of online performance management tools for SWD, Specialist software ()
- xxvi. Knowledge of recreational technology for SWD ()
9. Which of the following assistive technology/device is available for your use during teaching/learning? Tick (✓) or cross (X) appropriately
- i) JAWS screen readers (Job Access With Speech) ()
 - ii) Kurzweil Education (text-to-speech software) ()
 - iii) Refreshable Braille Displays on computers ()
 - iv) Braille writers ()
 - v) Wide tables () Chairs fitted with support grips on the edges ()
 - vi) Handheld Magnifiers
 - vii) Video Magnifiers ()
 - viii) Braille Labelers ()
 - ix) Audio Books ()
 - x) Digital Text ()
 - xi) Slates and stylus ()
 - xii) Word processors with specialized features ()
 - xiii) Braille Embossers ()
 - xiv) Braille note takers ()
 - xv) Abacus ()
 - xvi) Adaptive Paper and Tactile Graphics ()
 - xvii) automatic page turners ()
 - xviii) Closed captioning on video lessons ()
 - xix) Assistive listening devices (ALDs) ()
 - xx) Others not listed

10. Show by ticking (√) or crossing(X) what is applicable

- i) The library has adequate books and other reading materials in: a) visual () audio () braille () others
- ii) Reading lists are provided to the library at least 4 weeks prior to the start of teaching ()
- iii) Copies of lecture outlines, handouts or presentations are made available 24 hours prior to the lesson ()
- iv) Learning materials available use inclusive language throughout the programme therefore I do not feel different ()
- v) I am permitted to audio record my lectures, tutorials and supervision sessions using my own equipment for my own personal learning ()
- vi) Assessment titles and due/test dates are published in the course outline or are otherwise communicated at the start of the semester ()
- vii) I am able to access learning materials with irrespective of time, manner and place ()
- viii) I am given adequate examination preparation time according to my special needs ()
- ix) I am allowed to access specialized devices that suit my disability during examinations ()

11. Tick (√) the barriers you experience which hinder your full participation in various activities:

- i) No sports facilities to suit my needs ()
- ii) No Sports instructors to handle my special needs ()
- iii) Prejudices from fellow students ()
- iv) Prejudices from staff ()
- v) Lack of adequate adaptive facilities ()
- vi) Lack of adaptive transport means ()

- vii) Unreasonable distances to recreational facilities ()
- viii) Limited variety of special needs recreational facilities ()

Thank you very much for your time.

Appendix II: Questionnaire for the Registrar Academic / Dean of Students

This questionnaire seeks to collect data on institutional readiness for access to higher education by disabled students in Public Universities. The information will be used only for the purpose of this study. Try to respond to all questions as openly as possible. Your honest response will help towards completion of an objective and valuable report.

1. What is your administrative position? a) Registrar academic () b) Dean of Students ()
2. Total enrolment of disabled students is a) more than 50% () b) between 20- 50% () c) between 10- 20 % d) less than 10% of the total enrolment
3. How does your university assist newly admitted students with disabilities to adapt to their new environment? Please select the option/s applicable to your university
 - i. An extended induction and orientation exist for students with disabilities,
 - ii. Accommodating their basic needs ()
 - iii. Induction programmes are specially designed and a senior employee is appointed as a coordinator for smooth induction and adaptation of students with disabilities on the campus ()
 - iv. Disability Specialists (internal or external) are available to hand hold and support students with disabilities and facilitate smooth induction ()
 - v. Others (please specify)
4. Is the physical infrastructure in your organization accessible to students with disabilities? Please select the option/s applicable to your organization.
 - i. Minor modifications done in the physical facilities and infrastructure; accessible to at least two types of disabilities ()
 - ii. Major modifications are done in physical infrastructure to comply with more than 50 % standards of universal design of buildings (ISO 21542:2011). Accessible to at least three types of disabilities ()
 - iii. An accessibility audit of physical facilities/ infrastructure is carried out at least once in three years by technical experts ()
 - iv. Universal design features (ISO 21542:2011) are part of the organization's standards for offices, redesigns and new buildings. Accessible to people with all types of disabilities ()

- v. More than 80 % of buildings comply with universal design standards (ISO 21542:2011) ()
 - vi. Third party certification (National council for Persons with Disabilities) is undertaken for offices and buildings to assess whether they meet international benchmarks of universal design once in three years ()
 - vii. None of the above ()
5. Tick (√) or cross (X) appropriately the disability friendly infrastructure that this university has/ has not put in place for access by students with disabilities
- i. Ramps at appropriate places ()
 - ii. Disability toilets ()
 - iii. Disability bathrooms ()
 - iv. Disability friendly Classrooms ()
 - v. Accessible Hostels ()
 - vi. Accessible Pavements for cane users ()
 - vii. Doors ways that are accessible with ease ()
 - viii. Disability friendly lifts on storey buildings ()
 - ix. Disability inclusive ball game facilities ()
 - x. Disability inclusive music rooms ()

Others.....

6. Which of the following teaching/learning facilities are available for access by lecturers and disabled students in this university? Tick (√) or cross (X) appropriately
- i) All learning material (text-based, audio and/or visual) ()
 - ii) Hand held Magnifiers ()
 - iii) Video Magnifiers ()
 - iv) Braille ()
 - v) Braille Labelers ()
 - vi) Audio Books ()
 - vii) Digital text materials ()
 - viii) Adaptive Paper ()
 - ix) Slate and Stylus ()
 - x) Hand held Digital Recorders ()

- xi) Word Processor with Specialized Software ()
 - xii) Sound Field systems Coupling accessories and Hearing Aids
 - xiii) Infrared and Audio Induction Loop systems
 - xiv) Real-Time Transcription (Communication Access Real-time Translation (CART))
 - xv) Telecommunications Device for the Deaf. (TDD) ()
7. Which of the following competencies exist among lecturers of disabled students in this university?
- i. Ability to interact well with disabled students
 - ii. Ability to create a learning environment for disabled students
 - iii. Ability to design disability inclusive lessons
 - iv. Ability to use varied teaching strategies
 - v. Ability to identify special needs of their students and advice accordingly
 - vi. Ability to advise on the right technology for use by disabled students
 - vii. Ability to communicate effectively with their students
 - viii. Ability to maintain professional appearance
8. What are the institutional challenges that this university experiences in its effort to meet access needs of students with disabilities? Tick (√) or cross (X) appropriately
- i. Inadequate infrastructural facilities for disabled students
 - ii. Inadequate teaching/learning facilities for various disabilities
 - iii. inadequate disability inclusiveness in the curriculum
 - iv. Inadequate recreational facilities for disabled students
 - v. Inadequate competent lecturers
 - vi. Inadequate disability awareness among staff and students
 - vii. Fear of disclosure of disabilities by some disabled students
 - viii. Lack of willingness by some institutions to offer attachment to disabled students
 - ix. Other eases specify
-

Thank for your time

Appendix III: Questionnaire for Lecturers of disabled students

This questionnaire seeks to collect data on institutional readiness for access to higher education by disabled students in Public Universities. The information will be used only for the purpose of this study. Try to respond to all questions as openly as possible. Your honest response will help towards completion of an objective and valuable report.

1. Tick (√) your highest academic level a) Bachelors () b) masters () c) PhD ()
2. Tick (√) your area of specialization
 - i. Hearing impairment ()
 - ii. Visual impairment ()
 - iii. Physical impairment ()
 - iv. Autism ()
 - v. Multiple impairments ()
4. What disability friendly infrastructure has this institution put in place for your disabled students to access education adequately? Tick (√) or cross (X) appropriately
 - i. Ramps for wheelchair accessibility ()
 - ii. GPS for visual impairment ()
 - iii. Disability friendly pavements ()
 - iv. Disability friendly lifts on storey buildings ()
 - v. Disability friendly classrooms ()
 - vi. Accessible playgrounds ()
 - vii. Web Content Accessibility accessible by all types of disabilities (0.5) ()
5. How have you ensured that teaching/learning and curriculum materials are more inclusive and accessible to Students with Disabilities? Please select the option/s applicable to your organization.
 - i. Basic efforts in making teaching/learning materials accessible to students with disabilities in alternative formats ()
 - ii. Reasonable assistive technologies and devices are available to students with disabilities on demand for better teaching/learning ()

- iii. The curriculum materials are made available to people with different kinds of disabilities in a customized manner or case-by-case basis ()
 - iv. Compliance with ISO 17069:2014 international standards for making physical, tele-conference or web conference teaching/learning accessible to PW Ds ()
 - v. Special training programmes are conducted within the organization (such as sign language, lip reading) for effective communication with PW Ds ()
 - vi. The university adopts ISO 14289 standards for making all electronic documents accessible to PW Ds ()
 - vii. The university uses ISO/IEC 13066-1:2011 certified IT platforms that have interoperability with assistive technology (AT) and devices are provided to PW Ds for better information and communication ()
 - viii. Annual assessment & third party certification are undertaken to review accessibility barriers in teaching/learning and infrastructure ()
 - ix. Others (please specify)
6. Which of the following assistive devices/technologies are available for your students with disabilities? Tick (√) or cross (X) appropriately
- i) JAWS screen readers (Job Access With Speech) ()
 - ii) Kurzweil Education (text-to-speech software) ()
 - iii) Refreshable Braille Displays on computers ()
 - iv) Braille writers ()
 - v) Wide tables () Chairs fitted with support grips on the edges ()
 - vi) Handheld Magnifiers
 - vii) Video Magnifiers ()
 - viii) Braille Labelers ()
 - ix) Audio Books ()
 - x) Digital Text ()
 - xi) Slates and stylus ()
 - xii) Word processors with specialized features () Braille Embossers ()
 - xiii) Braille note takers ()
 - xiv) Abacus ()
 - xv) Adaptive Paper and Tactile Graphics ()

- xvi) automatic page turners ()
- xvii) Closed captioning on video lessons ()
- xviii) Assistive listening devices (ALDs) ()
- xix) Others not listed

.....

7. Which of the following is applicable? Please tick (√) or cross (X) appropriately

.....

- i. The library has adequate books and other reading materials in: a) visual ()
audio () braille () others
 - ii. Reading lists are provided to the library at least 4 weeks prior to the start of teaching ()
 - iii. Copies of lecture outlines, handouts or presentations are made available 24 hours prior to the lesson ()
 - iv. Teaching /Learning materials available use inclusive language throughout the programme therefore students with disability do not feel different ()
 - v. Students are permitted to audio record their lectures, tutorials and supervision sessions using their own equipment personal learning ()
 - vi. Assessment titles and due/test dates are published in the course outline or are otherwise communicated at the start of the semester ()
 - vii. Students are able to access learning materials irrespective of time, manner and place ()
 - viii. I give adequate examination preparation time according to their special needs ()
 - ix. Students are allowed to access specialized devices that suit their disability during examinations ()
8. Tick (√) or cross (X) what is applicable. The curriculum is accessible in :
- i. Digital content ()
 - ii. Visual content ()
 - iii. Audio content ()
 - iv. Others

9. Which of the following methodology/assessment does the curriculum in this college accommodate? Tick (√) or cross (X) appropriately
- i. Lecture ()
 - ii. Peer learning ()
 - iii. Focus group discussions ()
 - iv. Visual methodologies ()
 - v. Tactile methods (using body senses) ()
 - vi. Diversified assessment methods ()
 - vii. Outdoor teaching/learning ()
 - viii. Application methods ()
10. Which of the following do you consider as institutional challenges as pertains to access to education for disabled students in this institution? Tick (√) or cross () appropriately
- i. Inadequate accessible infrastructure ()
 - ii. Limited expertise on disability needs ()
 - iii. Inadequate lecturers for special needs ()
 - iv. Lack of competent lecturers in special needs ()
 - v. Inadequate learning/teaching resources for disabled students ()
 - vi. Limited disability inclusivity in the curriculum ()
 - vii. Limited recreational facilities for disabled students ()
 - viii. Limited awareness on disability issues among staff and students ()
 - ix. Lack of institutional readiness for access by disabled students ()
 - x. Others please specify

Thank you for your time

Appendix IV: Observation Checklists

This checklist will be used to collect data on institutional readiness for access to higher education by disabled students in Public Universities.

Name of University:

Observer's Name:

1. INFRASTRUCTURAL READINESS

S/N	Item	Yes	No	Description
A	Physical Facilities			
	Accessible walkways			
	Ramps with Universal Design standards.			
	Wheelchair(s) at strategic points (e.g. gates, at start of long walkways etc.)			
	Low tables in classrooms for easy reach by disabled students.			
	Tactile surfaces as specified in the ISO:21542 Standard manual			
	Accessible Disability Bathrooms			
	Accessible Disability Toilets			
	Universal logos in appropriately locations			
	Accessible lifts			
	Wide doors to allow for easy passage of wheelchairs			
	Visible symbols in sign language on various structures for those with hearing impairment			
	Disability audit evidence from NCPWD			
B	Recreational Facilities			
	Sports facilities:			
	Ball games facilities for various disabilities			
	Swimming facilities for various disabilities			
	Racing games facilities for various disabilities			
	Disability friendly indoor games facilities for games like chase boards, scrabble boards, badminton, pool etc.			

	Disability friendly music facilities e.g. music written in braille			
	Provision of disability friendly Laundry and grooming facilities within easy reach			
	Disability friendly gyms			
C	Teaching/learning facilities			
	i) Classroom characteristics: Controlled lighting i.e. bright and dim depending on sight impairment			
	Adequate space for maneuvering of wheelchairs/crutches			
	Ample spacing between seats			
	Rough floor texture for easy movement with wheelchairs/crutches			
	ii) Reading/teaching materials (from Library or Disability Unit)			
	Availability of a Disability Unit (DU)			
	Types of reading/teaching materials in braille (state courses covered)			
	Types of reading/teaching materials in sign language (state courses covered)			
	Types of reading/teaching materials in audio form i.e. CDs (state courses covered)			
	Obtain samples of brochures in the University: collect including those in braille, sign language etc.			
	Provision of lectures and discussions with students with various categories of disabilities			
D	iii) Availability of learning/teaching aids:			
	Blackboard			
	White board			
	Overhead projectors			

	Availability of tape recorders			
	Large print handouts			
	Braille machines			
2	<p>STAFF COMPETENCES:(Knowledge on the subject - Course objective - Lecture notes - Lecturer attendance - Lecturer clarity - Class activity - Assignment - Examination - Interpersonal Competency - Evaluation and Feedback)</p> <p>Is any of the following used in lesson delivery?</p>			
	Professional competence (manager, leader, integrity)			
	Pedagogical competence (Variation in teaching and presentation)			
	Technological competence (Video captioning, Audio tapes, digital presentation, online teaching etc.)			
	Communication competence (information packaging, feedback use, Audibility and visibility, interpersonal behavior)			
	Is the lecturer's voice audible to students with low hearing impairment			
	Is lecturer visible to students with very low vision?			
	Was there any support for students with special needs e.g. presence of assistants for blind students?			
	Were students with disabilities allowed to record the lecture (audio or video)?			
	Was a combination of methods of presentation used? E.g. dictation, visual, prior to lesson availability of handouts			
	<p>Classroom demographics:</p> <p>Number of disabled students</p>			
	Number of students without disability			
	Types of disabilities			
	Year of study of observed class			

3	CURRICULUM INCLUSIVENESS			
	Curriculum material (books, course outlines etc.) can easily be converted to audio, visual, large print PDF for access to different disabilities			
	Are the learning/teaching activities accessible for all disabilities (e.g. Practical lesson activities, project design needs etc.)			
	All learning material (text-based, audio and/or visual), including scenarios and examples of practice provide for disability conclusiveness			
	ISO/IEC 13066-1:2011 certification			
4	INSTITUTIONAL CHALLENGES			
	Has the design of already existing old buildings affected institutional efforts to enable access by disabled students			
	Limited technological competence on special needs among lecturers			
	Prioritization of disability issues			
	There are enough lecturers to handle different disabilities			
	Teaching/learning materials are available in braille, sign language, audio and large prints in the library			
	The library has attendants for different disabilities			
	There are attendants for different disabilities in classrooms			

Appendix V: The Focus Group Discussion (FGD) questions

This FGD seeks to collect data on institutional readiness for access to higher education by disabled students in Public Universities. The information will be used only for the purpose of this study. Try to respond to all questions as openly as possible. Your honest response will help towards completion of an objective and valuable report.

- a) How is your experience of campus life in the existing physical environment?
- b) How is your experience of the following as a SWD?
 - i) Infrastructure (lecture rooms, libraries, hostels, toilets, bathrooms, practical rooms, ramps, lifts,)
 - ii) Lecture's professionalism, pedagogy, technological ability, communication ability
 - iii) Curriculum inclusiveness.
- c) How they responded to the daily challenges posed by physical, social and academic barriers?
- d) What are your needs as a SWD in terms of infrastructure, curriculum and their expectation from lecturers?
- e) What are your vulnerabilities/challenges?

Thank you for your time!

Appendix VI: Determining Sample Size from a Given Population

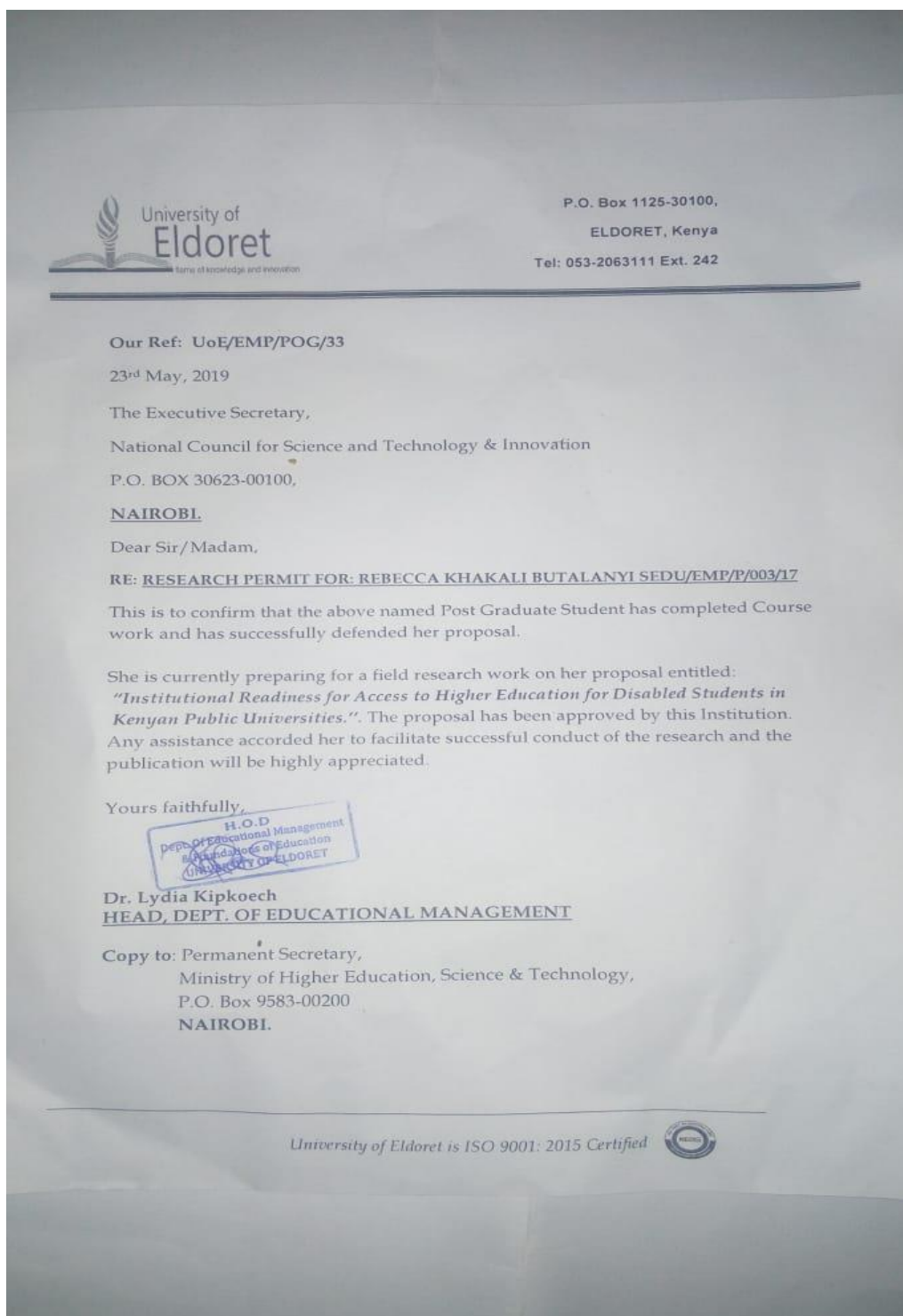
<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382

Appendix VII: Enrolment of SWD in Public Universities in Kenya


Category	Enrolment		Total
	Male	Female	
Sensory	2	1	3
Mental	12	6	18
Visual	95	60	155
Hearing	25	27	52
Learning	0	1	1
Physical	100	69	169
others	22	20	42
	256	184	440

Source: Commission for University Education (CUE) 2016

**Appendix: VIII: Letter from the HOD Education University of Education to
NACOSTI**



Appendix IX: Research Authorization letter from NACOSTI



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

<p>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</p>	<p>NACOSTI, Upper Kabete Off Waiyaki Way P.O. Box 30623-00100 NAIROBI-KENYA</p>
--	---

Ref. No. **NACOSTI/P/19/10648/31165** Date: **17th June, 2019.**

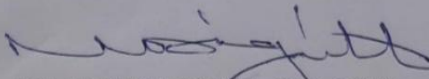
Rebecca Khakali Butalanyi
University of Eldoret
P.O. Box 1125- 30100
ELDORET.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Institutional readiness for access to higher education by disabled students in Kenyan Public Universities.”* I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **14th June, 2020.**

You are advised to report to **the County Commissioners and the County Directors of Education, all Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.



DR. MOSES RUGUTT., PhD, OGW
DIRECTOR-GENERAL/CEO

Copy to:
The County Commissioners
All Counties.


The County Directors of Education
All Counties.

National Commission for Science, Technology and Innovation is ISO9001: 2008 Certified

Appendix X: Research Permit from NACOSTI

THIS IS TO CERTIFY THAT:
MS. REBECCA KHAKALI BUTALANYI
of UNIVERSITY OF ELDORET, 6379-30100
Eldoret, has been permitted to conduct
research in All Counties
on the topic: INSTITUTIONAL
READINESS FOR ACCESS TO HIGHER
EDUCATION BY DISABLED STUDENTS IN
KENYAN PUBLIC UNIVERSITIES
for the period ending:
14th June,2020

Permit No : NACOSTI/P/19/10648/31165
Date Of Issue : 17th June,2019
Fee Recieved :Ksh 2000



Applicant's
Signature

Director General
National Commission for Science,
Technology & Innovation

Appendix XI: Authority to do Research in Kenyatta University

Rebecca K Butalanyi,

P.O Box 6379 – 30100,

Eldoret.

September 25, 2019

The Deputy Vice Chancellor, Research Innovation and Outreach,
Kenyatta University,
P.O Box 43844 – 00100,
Nairobi.

Dear Sir/Madam

**REQUEST TO CARRY OUT A RESEARCH IN KENYATTA UNIVERSITY AND
HER CAMPUSES**

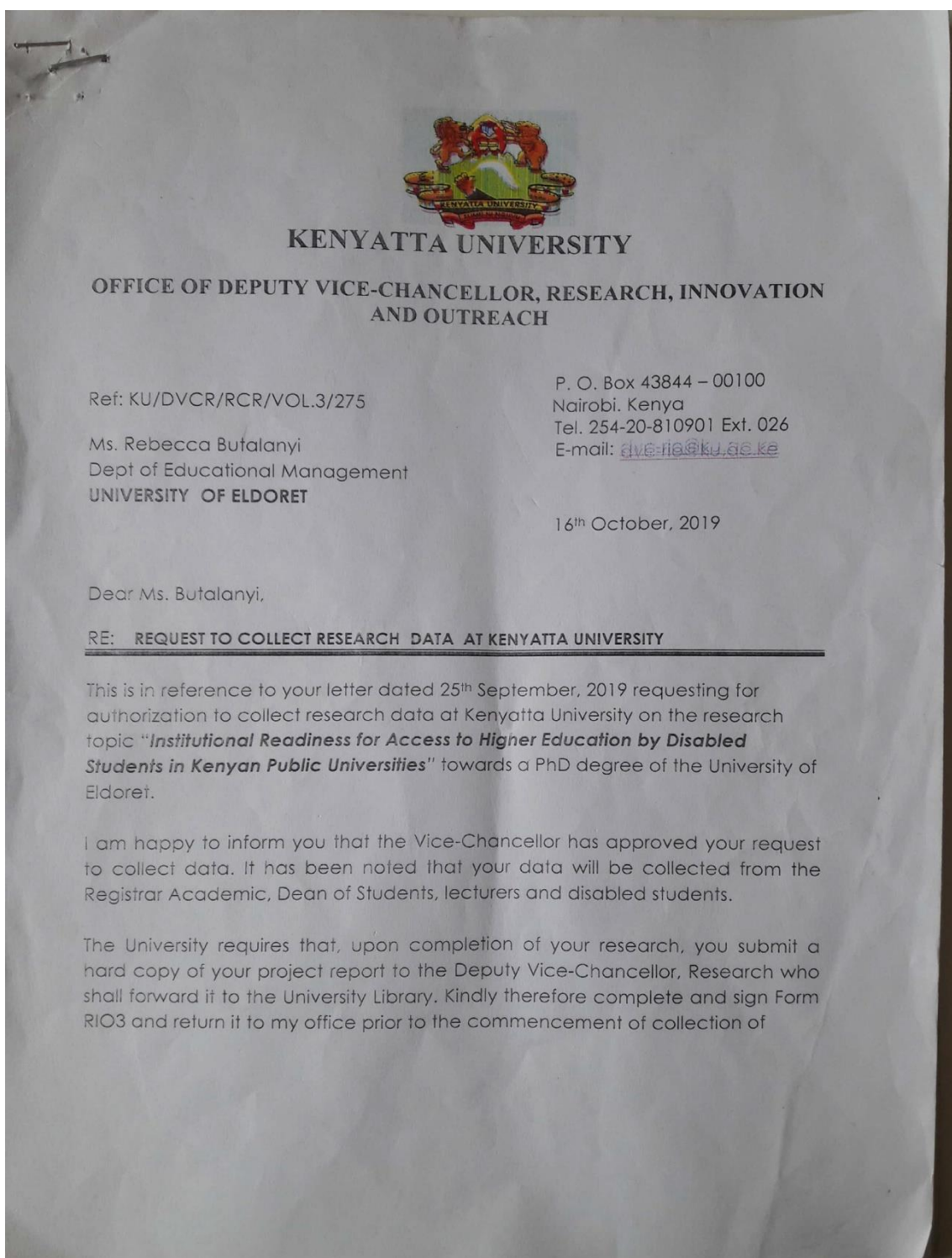
I am a PHD student in the University of Eldoret and at the same time the Deputy Director of Capacity Building and Technical Assistance in the Ministry of Devolution and ASAL. I intend to carry out a study on **INSTITUTIONAL READINESS FOR ACCESS TO HIGHER EDUCATION BY DISABLED STUDENTS IN KENYAN PUBLIC UNIVERSITIES**. To do this I have several research assistants who will assist me in collecting data for the same. Kindly see a copy of my research permit from NACOSTI and that of my passport for your verification.

The purpose of this letter is to request you to allow me carry out research in Kenyatta University. Thanking you in anticipation.

Many Regards

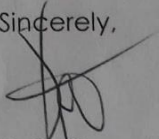


Rebecca K Butalanyi

Appendix XII: Letter of Authority to do Research in Kenyatta University


data.

Yours Sincerely,



Prof. F. G. Gravenir
Deputy Vice-Chancellor
Research, Innovation & Outreach
cc. Vice-Chancellor
Registrar, Academic
Director, Students

Appendix XIII: Letter of Authority from County Commissioner Kiambu County


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

26th September, 2019

Ref.No: **ED.12 (A)/1/VOL.III/147**


Rebecca Khakali Butalanyi
 University of Eldoret
 P.O. Box 1125-30100
ELDORET.

RE: RESEARCH AUTHORIZATION

Reference is made to National Commission for Science, Technology and Innovation
 Letter Ref No. NACOSTI/P/19/10648/31165 Dated 17th June, 2019.

You have been authorized to conduct research on "*Institutional readiness for access
 to higher education by disabled students in Kenyan Public Universities.*" The data
 collection will be carried out in *Kiambu County* for a period ending 14th June, 2020.

You are requested to share your findings with the County Education Office upon
 completion of your research.



Alice M. Nyathoko
 FOR: COUNTY COMMISSIONER
KIAMBU COUNTY

Cc National Commission for Science, Technology and Innovation
 P.O. Box 30623-00100
 NAIROBI

 County Director of Education
 KIAMBU COUNTY

 Deputy County Commissioners (*For information and record purposes*)
 KIAMBU COUNTY

Appendix XIV: Letter of Authority from the CDE Kiambu County



MINISTRY OF EDUCATION
State Department of Early Learning & Basic 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

KBU/CDE/DEPT 8/Vol. I/(56) 26th September, 2019


Rebecca Khakali Butalanyi
 University of Eldoret
 P.O Box 61125 -30100
ELDORET

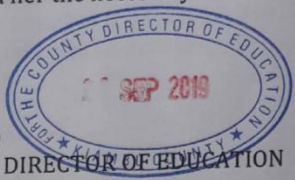
RE: RESEARCH AUTHORIZATION

Reference is made to the National Commission for Science Technology and Innovation letter Ref. No NACOSTI/P/19/10648/31165 dated 17th June, 2019.

The above named has been authorized to carry out research on "*Institutional readiness for access to higher education by disabled students in Kenya Public Universities in Kiambu County, Kenya*" for a period ending 14th June, 2020.

Please accord her the necessary assistance.





LEAH ROIKO
 For: COUNTY DIRECTOR OF EDUCATION
KIAMBU COUNTY

Appendix XV: Request for Authority to do Research in the Technical

Rebecca K Butalanyi,
P.O Box 6379-30100,
Eldoret.
19-8-2019

The Deputy Vice Chancellor Research Innovation and Extension
Technical University of Mombasa,
P.O Box 90420 – 80100,
Mombasa, Kenya


Dear Sir/Madam

**REQUEST TO CARRY OUT A RESEARCH IN THE TECHNICAL UNIVERSITY OF
MOMBASA AND HER CAMPASSES**

I am a PHD student in the University of Eldoret and at the same time the Deputy Director of Capacity Building and Technical Assistance in the Ministry of Devolution and ASAL. I intend to carry out a study on INSTITUTIONAL READINESS FOR ACCESS TO HIGHER EDUCATION BY DISABLED STUDENTS IN KENYAN PUBLIC UNIVERSITIES. To do this I have several research assistants who will assist me in collecting data for the same. Kindly see copy of my research permit from NACOSTI and that of my passport for your verification.

The purpose of this letter is to request you to allow me to carry out research in the Technical University of Mombasa. Thanking you in anticipation.

Many Regards


Rebecca K Butalanyi

Appendix XVI: Letter of Authority to do Research in Mombasa County



**OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT**

Telegrams, "DISTRICTER", Mombasa
Email: demombasa@yahoo.com

DEPUTY COUNTY COMMISSIONER'S OFFICE
P.O. Box 90430 - 80100,
MOMBASA

When Replying please quote:

REF: ADM.4 VOL.IX/43

9th September, 2019

Assistant County Commissioner
ISLAND WARD

RE: RESEARCH AUTHORIZATION
REBECCA KHAKALI BUTALANYI PERMIT NO.
NACOSTI/P/19/10648/31165


Reference is hereby made to letter No. MCC/ADM.25 VOL.II/ (152) dated 9th September, 2019 from the County Commissioner Mombasa.

This is to authorize the above named student from University of Eldoret, to carry out research on "**Institutional readiness for access to higher education by disabled students in Kenya Public Universities**" in Mombasa County for the period ending **14th June, 2020**.

Any assistance accorded to her will be highly appreciated.

ALY TIMA OMAR
For: **DEPUTY COUNTY COMMISSIONER**
MOMBASA

Appendix XVII: Letter of Authority to conduct Research in the Technical University of Mombasa


TECHNICAL UNIVERSITY OF MOMBASA

All enquiries must be addressed to the Vice Chancellor
When replying please quote: TUM/PRI/G/RAER/16 (20) Date: 9th September, 2019

Ms. Rebecca K. Butalanyo
P. O Box 6379-30100
ELDORET

Dear Madam

RE: PERMISSION TO CARRY OUT RESEARCH IN OUR INSTITUTION (TUM)

Reference is made to your letter dated 10th June, 2019 on the above subject matter.

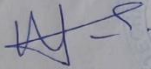
Permission is hereby granted for you to carry out research entitled **“Institutional Readiness for Access to Higher Education by Disabled Students in Kenyan Public Universities.”**

Please note that the data and information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.


You may liaise with the Deans of Schools, Dean of Students and the Director, Institute of Computing and Informatics for the exercise.

Thank you.

Yours Sincerely,


Dr. Michael Juma Saulo
Registrar, Partnership Research and Innovation

cc: Vice Chancellor
Deputy Vice Chancellor (ARE)
All Deans of Schools
Director, Institute of Computing and Informatics
Dean of Students

 TUM is ISO 9001:2015 Certified

Technical University of Mombasa,
Tom Mboya Avenue P. O. Box 90420 - 80100, MOMBASA - KENYA.
TEL: (254) 41-2492222/3, FAX: (254) 41- 2495632, Mobile: (254) 0724-955377 | 0733 -955377
E-mail : info@tum.ac.ke, vc@tum.ac.ke, Website: www.tum.ac.ke

Appendix XVIII: Letter of Authority to do research in Tharaka Nithi County



THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegrams: "DISTRICTER", Chuka

Telephone: Chuka 630005

Fax No. 630356

Email: cctharakanithi@gmail.com

While replying please quote:

TNC/ED/1/VOL.1/208

OFFICE OF THE COUNTY COMMISSIONER

THARAKA NITHI COUNTY

P.O BOX 80-60400

CHUKA

17/09/2019

All Deputy County Commissioners
THARAKA NITHI COUNTY

RE: RE RESEARCH AUTHORIZATION-REBECCA KHAKALI BUTALANYI

Reference is made to the letter No. NACOSTI/P/19/10648/31165 dated 17th June, 2019 from National Commission for Science, Technology and Innovation.

The above mentioned person has been authorized to carry research in Tharaka Nithi County on "Institutional readiness for access to higher education by disabled students in Kenyan Public Universities" for the period ending 14th June, 2020.

You are requested to accord him the necessary support when he reports to your Sub County.

Please inform officers under you on the same.


Rukia N. Chitechi
For: COUNTY COMMISSIONER
THARAKA NITHI COUNTY

Cc
Rebecca Khakali Butalanyi
University of Eldoret
P.O. Box 1125- 30100
ELDORET.

Appendix XIX: Letter of Authority from the CDE Tharaka Nithi


REPUBLIC OF KENYA

**MINISTRY OF EDUCATION SCIENCE AND TECHNOLOGY
STATE DEPARTMENT EARLY LEARNING AND BASIC OF EDUCATION**

<p>Telegrams: "Elimu", Chuka Telephone: Chuka 630353 FAX: 064 630166 Email: <i>tharakanithicountyedu@gmail.com</i> <i>When replying please quote:</i></p>	<p>COUNTY DIRECTOR OF EDUCATION THARAKA NITHI P.O. BOX 113-60400 CHUKA.</p>
---	---

TNC/ED/GC/GEN/5.VOL.111/146 16TH SEPTEMBER, 2019

Rebecca Khakali Butalanyi
 University of Eldoret
 P.O Box, 1125-30100
 Eldoret.

RE: RESEARCH AUTHORIZATION

Your letter of authorization from National Commission for Science, Technology and Innovation Referenced **NACOSTI/P/19/10648/31165** dated **17TH JUNE, 2019** refers.

You are hereby authorized to undertake research on "Institutional *readiness for access to higher education by disabled students in Kenyan Public Universities.*"

You shall be expected to deposit a copy of the final research report in both **soft** and **hard** copy to the office of the County Director of Education, Tharaka-Nithi, within one year of completion.

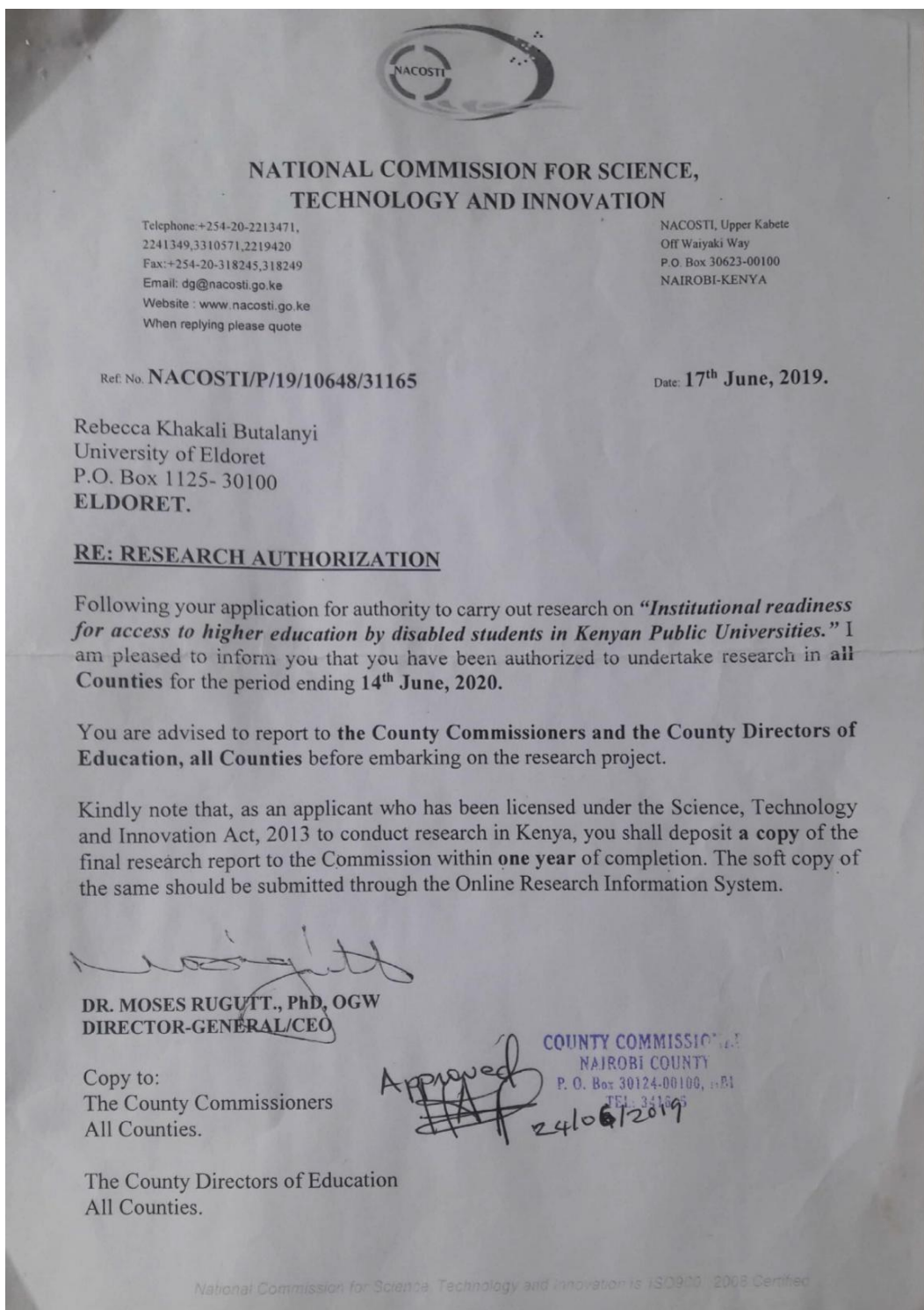
Kindly comply.

COUNTY DIRECTOR OF EDUCATION

 THARAKA NITHI
 P.O. BOX 113 CHUKA

Donald Etyang
 For: County Director of Education
THARAKA NITHI

Appendix XX: Stamp of Authority from County Commissioner Nairobi



Appendix XXI: Letter of authority from the Regional Coordinator of Education

Nairobi


 Republic of Kenya
MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING AND 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: 24th September, 2019

Rebecca Khakali Butalanyi
 University of Eldoret
 P. O. Box 1125-30100
 ELDORET.

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 "*Institutional readiness for access to higher education by disabled students in Kenya Public Universities.*"

This office has no objection and authority is hereby granted for a period ending **14th June, 2020** as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.



ANTHONY MBASI
FOR: REGIONAL DIRECTOR OF EDUCATION
NAIROBI.



Copy to: Director General/CEO
 National Commission for Science, Technology and Innovation
 NAIROBI.



**Appendix XXII: Letter of Authority to conduct Research in the University of
Nairobi**


UNIVERSITY OF NAIROBI
OFFICE OF THE DEPUTY VICE - CHANCELLOR
(Research, Innovation & Enterprise)

P.O. Box 30197-00100
Nairobi, Kenya
Telephone: +254-20-4910000, Ext 28711
+254-020-4913164 (DL)

Email: dvcrie@uonbi.ac.ke
Website: www.uonbi.ac.ke

UON/RPE/3/5/Vol.XIX August 26, 2019

Rebecca K. Butalanyi
PO Box 6379-30100
ELDORET.

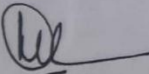
Dear Rebecca,

AUTHORITY TO CONDUCT RESEARCH

I refer to your request to conduct research at the University of Nairobi, towards your PhD thesis entitled: *"Institutional readiness for access to higher education by disabled students in Kenyan Public Universities."*

I write to inform you that your request has been approved.

You are however required to share the findings of your study with the University of Nairobi by depositing a copy of your research findings with the Director, Library & Information Services on completion of your study.


MADARA OGOT
DEPUTY VICE-CHANCELLOR
(RESEARCH, INNOVATION AND ENTERPRISE)
AND
PROFESSOR OF MECHANICAL ENGINEERING

Copy to: Director, Library and Information Services

/skb

Appendix XXIII: Letter of Authority from the County Commissioner Kisumu**THE PRESIDENCY**

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: Kisumu 2022219/Fax: 2022219
Email: ckisumucounty@gmail.comCOUNTY COMMISSIONER
KISUMU COUNTY
P.O. BOX 1912-40100
KISUMU

Ref: CC/KC/RES/VOL.III (250)

Date: 9th September, 2019Deputy County Commissioner
KISUMU COUNTY**RESEARCH AUTHORIZATION: REBECCA KHAKALI BUTANYI**Reference is made to a letter from the National Commission for Science, Technology and Innovation No. NACOSTI/P/19/10648/31165 of 24th June 2019.The above named is a student of University of Eldoret. She has been authorized to carry out a research on "*Institutional readiness for access to higher education by disabled students in Kenyan Public Universities.*" The research period ends on 23rd July 2020.


Kindly accord her any assistance that she may need.


ABDI M. HASSAN
COUNTY COMMISSIONER
KISUMU COUNTY

Copy to:

Rebecca Khakali Butanyi
University of Eldoret
P.O. Box 1125-30100
ELDORET

**Appendix XXIV: Letter of Authority to Conduct Research from Maseno
University**


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
 Email: dvcpri@maseno.ac.ke

Private Bag
MASENO
 Kenya

Ref: MSU/DVCPRI/PC/R3/VOL2 **Date:** 11 September 2019

Ms Rebecca K. Butalanyi
 P.O. Box 6379-30100
ELDORET

Dear Ms. Butalanyi,

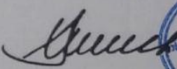

RE: AUTHORITY TO CARRY OUT RESEARCH

Reference is made to your letter dated 19th August, 2019 on the above subject matter.

I am pleased to inform you that your request to carry out research on a topic titled: *"Institutional Readiness for Access to Higher Education by Disable Students in Kenyan Public Universities"* has been approved.

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 sincerely,

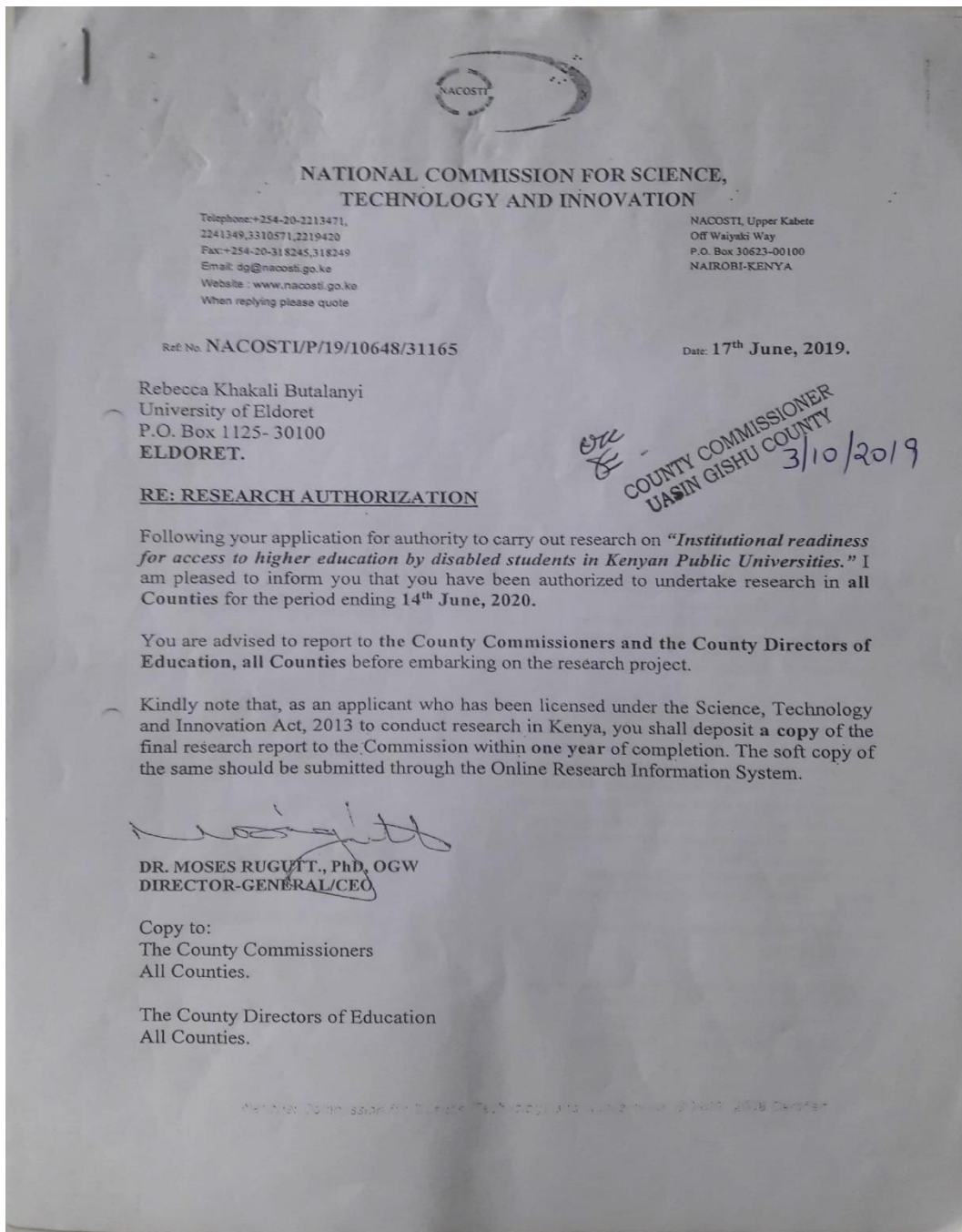



Prof. Joseph S. Chacha
 Deputy Vice-Chancellor (Partnerships, Research and Innovations)



Copy to: - Vice-Chancellor
 - Chief Security Officer

Appendix XXV: Stamp of Authority from the County Commissioner Uasin

Gishu



Appendix XXVI: Letter of Authority from the CDE Uasin Gishu

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 dvcaremoi@gmail.com

P.O. Box 3900
Eldoret - 30100
Kenya.

MU/DVC/REP/27B **Date: 27th September, 2019**

TO WHOM IT MAY CONCERN

RE: AUTHORITY TO CARRY OUT RESEARCH – REBECCA BUTALANYI


Ms. **REBECCA BUTALANYI** is a Ph.D. student at University of Eldoret. She has applied for authority to carry out her research in the University.

The purpose of this letter is to request you to accord her all the support as she conducts her research on the topic: *"Institutional Readiness for Access to Higher Education by Disabled Students in Kenya Public Universities."* By copy of this letter, authority is hereby granted to her to conduct the said research.

After the completion of the research, a complete report in both hard and soft copy shall be submitted to the office of Deputy Vice-Chancellor, Academics, Research & Extension.

Any assistance accorded to her will be highly appreciated.

Yours faithfully,



PROF. I.N. KIMENGI, Ph. D
DEPUTY VICE-CHANCELLOR
ACADEMICS, RESEARCH & EXTENSION

Appendix XXVII: Similarity Report

Document Viewer

Turnitin Originality Report

Processed on: 25-May-2021 13:19 EAT
 ID: 1593797737
 Word Count: 52607
 Submitted: 1

University of Eldoret

25 MAY 2021

UNIVERSITY LIBRARIAN
P.O. Box 1125, ELDORET-30100

**SEDU/EMP/P/003/17 By
Rebecca Khakali Butalanyi**

Similarity Index <h2 style="margin: 0;">16%</h2>	Similarity by Source Internet Sources: 12% Publications: 8% Student Papers: 8%
---	--

include quoted
 include bibliography
 excluding matches < 5 words
 mode:

<1% match (publications)
J.M. Holland, G. Hornby. "Competences for Teachers of Children with Special Educational Needs", British Journal of In-Service Education, 1992 ✕

<1% match (Internet from 03-May-2016)
<http://www.kessa.org> ✕

<1% match (Internet from 16-Sep-2020)
<https://cyberleninka.org/article/n/159469> ✕

<1% match (student papers from 27-Jun-2017)
Submitted to Zimbabwe Open University on 2017-06-27 ✕

<1% match (Internet from 18-Jul-2020)
<https://ccaps.umn.edu/documents/CPE-Conferences/MnLC/MNStateCaptioningToolkit.pdf> ✕

<1% match (Internet from 29-Aug-2019)
<https://idus.us.es/xmlui/bitstream/handle/11441/88732/University%20surroundings%20and%20infrastructures%20that%20are%20acc%20%281%29.pdf?isAllowed=y&sequence=1> ✕

<1% match (Internet from 21-Dec-2015)
<http://corescholar.libraries.wright.edu> ✕

<1% match (Internet from 07-Apr-2016)
<http://www.gcu.ac.uk> ✕

<1% match (publications)
Ann Gervasoni, Lena Lindenskov. "Chapter 22 Students with 'Special Rights' for ✕