

**ACADEMIC IMPEDIMENTS STUDENTS WITH VISUAL
IMPAIRMENTS ENCOUNTER IN THE COLLEGES OF UNIVERSITY
OF RWANDA.**

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E83/EA/25453/2011**

**A thesis submitted to school of education in fulfillment of the
requirements for the award of the degree of Doctor of Philosophy of
Kenyatta University.**

August, 2015

DECLARATION

I confirm that this research thesis is my original work and has not been presented in any other University/Institution. The thesis has been complemented by referenced works duly acknowledged. Where text, data, graphics, pictures or tables, have been borrowed from other works, including the internet, these are specifically accredited through referencing in accordance with anti-plagiarism regulations.

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DEDICATION

This thesis is dedicated to my beloved daughter Yvonne Kayitesi Blenda who tirelessly moved up and down with me for the long period while I was studying.

To all my beloved friends who gave me a lot of encouragement throughout my writing of this thesis. May God bless you all.

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TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES.....	x
LIST OF FIGURES	xi
ABBREVIATIONS	xii
ABSTRACT.....	xiii
CHAPTER ONE:	1
INTRODUCTION	1
1.1. Introduction.....	1
1.2 Background to the study	1
1.3 Statement of the Problem.....	7
1.4 Purpose of the study.....	8
1.5 Objectives of the study.....	9
1.6 Research Questions.....	9
1.7 Significance of the study	10
1.8 Assumptions of the Study	11
1.9 Limitations	11
1.10 Delimitation	12
1.11 Theoretical framework.....	12
1.12 Conceptual framework.....	15
1.13 Operational definition of terms	17

CHAPTER TWO	19
LITERATURE REVIEW	19
2.1 Introduction.....	19
2.2 Historical background of inclusive education.....	19
2.2.1 Background of Rwandan education	22
2.3 The concept of inclusion	23
2.3.1 Advantages and disadvantages of inclusion.....	27
2.4 Teaching methods for learners with visual impairment.....	28
2.4.1 Special Education training for teachers teaching in inclusive schools	34
2.5 Adaptations necessary for learners with visual impairments in inclusive schools.....	40
2.5.1 Curriculum Adaptations.....	40
2.5.2 Instructional and Environmental adaptations.....	43
2.5.3 Assistive devices for learners with visual impairment.....	48
2.6 Problems encountered by administrators & learners with visual impairment in inclusive schools.....	52
2.6.1 Learning problems faced by students with visual impairments	58
2.6.2. Attitudes of students with visual impairment towards inclusion.	61
2.6.3 Factors Influencing Teachers' Attitudes towards Inclusive Education	63
2.7 Effect of orientation and mobility on students with Visual impairment	68
2.7.1 Importance of the white canes in training orientation and mobility.	70
2.8 Summary and Gap Identification	73
 CHAPTER THREE	 76
RESEARCH DESIGN AND METHODOLOGY	76
3.1 Introduction.....	76

3.2 Research design and Locale.....	76
3.2.1 Research variables	78
3.3 Population	78
3.4 Sampling Techniques and Sample Size	79
3.4.1 Sampling techniques	79
3.4.2 Sample size	80
3.5 Research instruments	81
3.5.1 Pilot study	82
3.5.2 Validity	83
3.5.3 Reliability.....	83
3.6 Data collection	84
3.7 Data analysis.....	84
3.8 Logistical and ethical considerations	85
CHAPTER FOUR.....	87
FINDINGS, INTERPRETATION AND DISCUSSION	87
4.1 Introduction.....	87
4.2 Demographic information	87
4.2.1 Demographic data for lecturers.....	88
4.2.1.1 Gender and age of lectures.....	88
4.2.1.2 Teaching experience	89
4.2.1.3 Area of specialization	90
4.2.2 Data for students with visual impairments.....	91
4.2.2.1 Gender and age of students with visual impairments	92
4.2.2.2 Year of study.....	94

4.2.2.3 Area of study.....	94
4.3 Findings on methods used in teaching students with visual impairment	95
4.3.1 Students' views on teaching method used by lecturers.....	97
4.4 Teaching resources available to address academic needs of students with visual impairment in colleges of University of Rwanda.	107
4.5 The extent to which lecturers adapt the teaching/learning resources and examinations to address needs of students with visual impairments.	110
4.6 How administrative staff facilitate students with visual impairments to access teaching and learning materials in inclusive colleges.	112
4.7 Students' level of orientation and mobility.....	116
 CHAPTER FIVE	 122
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	122
5.1 Introduction.....	122
5.2 Summary of the findings.....	122
5.2.1 Teaching methods used in inclusive colleges	122
5.2.2 Appropriate learning/teaching resources available in inclusive colleges.....	123
5.2.3 Adaptation of teaching/learning resources and examinations.....	123
5.2.4 Facilitation by the administrative staff towards the learning of students with Visual Impairment (VI)	123
5.2.5 Effects of orientation and mobility on the learning of students with VI.....	124
5.4 Recommendations.....	124
5.4.1 Policy recommendations.....	124
5.4.2 Recommendations for further research.....	125
 REFERENCES	 126

APPENDICES	140
Appendix (i): Questionnaire for learners with visual impairments.....	140
Appendix (ii): Questionnaire for sighted learners.....	144
Appendix (iii): Questionnaire for Lecturers.....	147
Appendix (iv): Interview guide for administrators	151
Translated questionnaires and interview guide in French.....	154
Appendix (v): Budget	169
Appendix (vi): Time work plan	170
Appendix vii: The informed consent form for respondents	172
Appendix viii: Le formulaire de consentement éclairé pour les répondants.....	174
Appendix (ix)Map of Rwanda.....	177

LIST OF TABLES

Table 3.1 Population and selected sample size	79
Table 3.2 Selected sample size	81
Table 4.1 Gender and age of lecturers	88
Table 4.2 Teaching Experience for lecturers	90
Table 4.3 Lecturers' areas of specialization.....	91
Table 4.4 Gender and age of students with visual impairments	92
Table 4.5 Level of study	94
Table 4.6 Area of study.....	94
Table 4.7 Methods used in teaching students with Visual impairments.	95
Table 4.8 Students' views on teaching methods used by lecturers	97
Table 4.9 Students with VI's views on adaptation of the curriculum used in the University.....	99
Table 4.11 Adaptation of teaching/learning resources and examinations to suit the needs of students with VI.....	111
Table 4.12 Training in orientation and mobility	116
Table 4.13 Availability of white canes to all students who are touch readers	119

LIST OF FIGURES

Figure 1. 1 Factors affecting inclusive education of students with visual
impairments..... 15

ABBREVIATIONS

ADRA:	African Development Relief Agent
CASHRA:	Canadian Association of Statutory Human Rights Agencies
CFS:	Child Friendly School
E.F.A:	Education for All
ESSP:	Education Sector Strategic Plan
IEP:	Individualized Education Plan
LRE:	Least Restrictive Environment
MINEDUC:	Ministry of Education
PL:	Public Law
PWDs:	Persons with disabilities
REI:	Regular Education Initiative
SNE:	Special Needs Education
UN:	United Nations
UNESCO:	United Nation Education, Social and Cultural organization
UNICEF:	United Nations Children Education Fund
VI:	Visual Impairment
WHO:	World Health Organization

ABSTRACT

The Purpose of this research was to investigate academic impediments students with visual impairments encounter in the colleges of the University of Rwanda. This study addressed the following objectives: the suitability of teaching methods used in colleges of the university of Rwanda to accommodate students with Visual Impairment; lecturers ability to adapt to the learning/teaching resources available in public colleges to suit academic needs of students with visual impairments; determine the extent to which lecturers adapt the teaching/learning resources and examinations to suit the needs of students with visual impairment; how administrative staff facilitate the learning of students with visual impairments in inclusive colleges and how orientation and mobility affect the learning of students with visual impairments in inclusive colleges. The researcher used descriptive survey design. The study was carried out at the college of arts and social sciences in Huye District in the Southern Province and college of Education in Gasabo District in Kigali city. The target population was 1405 respondents who included deans of faculties, resource room managers, lecturers, all learners with visual impairments and all level four sighted learners. A sample size of 125 respondents was obtained through the use of purposive sampling, stratified random sampling and snow ball methods. Questionnaires and interview guides were used to collect data. Content validity was tested to ascertain whether the items in the questionnaires were suitable for their task. The correlation indicated that there was a strong positive correlation between two tests of scores where $r=0.829$ for the lecturers questionnaire and 0.801 for the students questionnaire. Data collected was analyzed using descriptive statistics. Findings showed that majority of respondents confirmed that the curriculum was not adapted, learning resources which aid in the learning of students with visual impairment were not available and the learning resources available and examinations were not adapted by the lecturers to suit the needs of students with visual impairment. Staff development was done in other areas but inclusive education was still at a very low level and majority of the students with visual impairment were not trained in orientation and mobility and did not have white canes. It was recommended that the Ministry of Education should provide funds for organizing seminars and workshops in the area of the SNE to allow lecturers to be able to teach effectively. The University curriculum and the environment of the University should be adapted to accommodate students with VI.

CHAPTER ONE:

INTRODUCTION

1.1. Introduction

The chapter covered the following sections: Background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, and significance of the study, limitations and delimitations of the study, theoretical framework, conceptual framework and definition of operational terms.

1.2 Background to the study

Inclusive education refers to the process of addressing and responding to the diversity of needs of all learners. It involves changes and modifications in content, structures and strategies with common vision, which covers all children in the appropriate age range and is conversed on the principles that all children have a range of different abilities; all children can experience difficulties in learning (Smith, Tom, Allyn & Bacon 1998). An inclusive education initiative often has a particular focus on those groups, which, in the past, have been excluded from educational opportunities. These groups include children living in poverty, those from ethnic and linguistic minorities, girls (in some societies), children from remote areas and those with disabilities or other special educational needs. The latter are often the most marginalized both within education and in society in general (Lewis, 2002).

The Education for All (EFA) movement was launched at the World Conference on Education for All in Jomtien, Thailand in 1990 with the aims at

providing all children, young people and adults the right to education. A decade after its declaration, its vision was reaffirmed at the World Education Forum meeting in Dakar, held to review progress in achieving Education for All (World Education Forum, 2000). The Forum highlighted the continuing barriers to education experienced by disadvantaged groups and called for positive action to overcome them. The impetus for inclusive education came from the 1994 World Conference on Special Needs Education in Salamanca. The conference recommendations were based on the principle of inclusion: 'schools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions' (UNESCO, 1994, Framework for Action on Special Needs Education).

Inclusive education gathered momentum as early as mid 1960s as a result of a broader rights momentum in society towards normalization (Norah & Tony, 2002). In Britain, the Education for handicapped children Act of 1970 removed legal distinction between those who were and were not educable in school. This enactment saw an increment in enrollment for children with disabilities. In the USA similarly PL94-142 Education for All Handicapped Act of 1975 established the principle of Zero Reject or entitlement for all in public education advocating for Least Restrictive Environment (LRE). PL94-142 demanded for provision of a free appropriate public education for all children with disabilities regardless of the severity of the condition. Soon after the passage of PL94-142 parents of children with significant cognitive disabilities began to express dissatisfaction at the separation of their children

education. Children were now entitled to access public schools but they were housed in schools that had typical learners or were in separate wing of a school and not treated as though they were part of the rest of the school community.

According to UNESCO report of the year 2000, there are around 30 million children in India suffering some form of disability, among India's 200 million school-aged children (6-14yrs), 20 million require special needs education. While the national average gross enrollment in school is over 90%, less than 5% of children with disabilities are in schools. The Indian government and NGOs are however initiating measures to review and plan appropriate strategies for special needs and inclusive education. Before 18th Century, education was not considered important for the visually impaired persons. Persons with visual impairments were viewed with contempt and lived in ignorance and abject poverty. (Rex, Koenig, Wormsley & Baker, 1995). It was not until the 18th century that people started developing positive attitudes towards persons who were blind and considered them as capable and worthy of being education. France was the first country to champion positive attitudes towards blindness with the introduction of the first school for the blind children in 1784, followed by the United Kingdom in 1791, Germany in 1806, Sweden in 1809 and United States in 1829 (Moodley, 2002).

In Africa SNE implementation was the concern of missionaries. The development of SNE has passed through a series of stages during which

education system has explored different ways of responding to children with learning disabilities. Most African governments' commitments to SNE began in the 1970s. While countries within the advanced economies have gone beyond categorical provisions to full inclusion, most countries in Africa are still grappling with the problem of making provisions for children with special needs even on mainstreaming basis. SNE in Africa is still a new concept to many of its nations (Bennet, Bruns and Deluca, 1997). Many African countries have shown theoretical interest in SNE by formulating policies such as mainstreaming, family, community or social rehabilitation and showing the desire to give concrete meaning to the idea of equalizing education opportunities for all children irrespective of their physical or mental conditions (Bennet et al, 1997).

Dissatisfaction with the progress towards SNE has caused demands for more changes in many African countries according to Simon, Echeita, Sandoval and Lopez (2010).The Nigerian constitution makes a provision for suitable education for all children. Inclusion in Nigeria has not been well implemented since the number of children with special needs stands at 0.42% while that of their regular counterparts is around 67.05%. Inclusion of all learners in the mainstream schools is part of an international agenda which calls for the full inclusion of all pupils with learning disabilities into all aspects of life (Barton, 2009).

According to Naicker (1999), South Africa, there are 12 million children in schools and about 366,000 teachers in approximately 28,000 schools including 390 schools for children with special needs. Teachers in South Africa deal with a remnant of an inherited education system based on segregation and exclusion of particular group of students. The introduction of SNE in South Africa was a direct response to Act 108 of 1996 and a national commitment to the EFA movement as stated in the UNESCO Salamanca of 1994. The education White Paper 6 is the guiding document for the implementation of inclusive education in South Africa. The apartheid government had already established about 380 special schools. SNE today includes the provision of education to children with special needs within the mainstream schools. The values of inclusive education are embraced in the light of a progressive constitution to the republic of South Africa. However; support in inclusive education is a complex multi-layered phenomenon.

In Tanzania, the government is trying to implement the inclusive education programme according to the Salamanca statement of 1994. The Ministry of Education in Tanzania is sensitizing parents to send their children with disabilities to inclusive schools. The government is becoming more positive towards the rights of people with disabilities. Today, there are several primary schools in Tanzania that are involved in inclusive education programmes (Massenga & Mkandawire, 2007).

In Kenya, the first school for the blind was established in 1946 by the Salvation Army as a vocational school for those who had been wounded in the Second World War. This was later moved to Thika currently known as Thika School for the Visually Impaired. By 1986, there was one secondary school for the blind (Thika Secondary School for Blind), six primary schools for the blind, two integrated programmes in secondary schools, four integrated programmes in primary schools.(Ministry of Education, 1987).

The situation of people with disability in Rwanda more or less mirrored that of people with disabilities in other parts of the world. In Rwanda the first school for students with disability was built in the 1960's by Roman Catholic organizations at Gatagara in the Southern Province. Since then, a number of other special schools have been built, although they are still too few to take care of the number of Rwandan children with special educational needs. In 1997 the Ministry of Education at the time set up a Department of special Education to promote Special Needs Education in Rwanda. Similarly, in the year 2000 Kigali Institute of Education set up a resource center, among whose responsibilities was to cater for the needs of learners with disabilities (Karangwa & Kabano, 2004). The policy on special needs education is an instrument for full implementation of Article 40 of the 2003 constitution of Rwanda, which provides education and provisions for education of all learners regardless of the nature of their needs. It is also in consonance with the national commitment to both the UN Convention on the Rights of a Child and the African Charter on the Rights and Welfare of a Child (Karangwa &

Kabano, 2004). Therefore, Rwanda being a young country struggling to develop inclusive education is facing a lot of constraints such as inflexible curriculum, inappropriate communication, inaccessible and unsafe environments, inadequately and inappropriately trained lecturers and overcrowded classrooms among others (Ministry of Education, 2007). It is with these constraints that the researcher felt that there was a need to carry out a research in inclusive education for learners with Visual Impairment.

1.3 Statement of the Problem

Exclusion of children with visual impairments from education may result in being denied opportunities for further development particularly diminishing their access to vocational training and employment. Failure to access education and training may prevent the achievement of economic and social independence. This increases vulnerability to poverty in what can become a self-perpetuating intergenerational cycle (Bennet, Bruns & Deluca, 1997). To make the inclusion experience successful, teachers and administrators need to be trained to work in such a new educational environment (Douglas, Corcoran & Charles 2007).

Even though there are ample ways in which learners with disabilities can be supported in a regular class, research shows that many learners with disabilities in mainstream schools are not always receiving the special educational services that they need to gain full access to the curriculum. This

lack of meaningful participation is more often than not due to inaccessible instructional methods (Ajuwon & Oyinland, 2008).

According to the previous academic records from the year 2008 when the first group of students with visual impairment was admitted in College of Education and College of Arts and Social Sciences, up to 2013, it was only four students out of 45 who had never sat for a supplementary exam. A review of the graduation booklets of 2011 to 2013 indicated that many students with visual impairments learning in colleges of the University of Rwanda did not perform well in their academic work as compared to their sighted peers. Most of them had a second class lower division and others only managed to get a pass. The poor performance for students with visual impairments despite the fact that they were educated with their sighted peers prompted the researcher to investigate the prevailing problems that hamper them from performing to their optimal academic potential.

1.4 Purpose of the study

The purpose of the study was to find out the academic impediments students with visual impairment encounter in the colleges of University of Rwanda.

1.5 Objectives of the study

The research addressed the following objectives:

1. To find out whether the teaching methods used in the colleges accommodate students with visual impairments.
2. To examine whether learning/teaching resources used in colleges suit academic needs of students with visual impairments.
3. To determine the extent to which lecturers adapt the teaching/learning resources and examinations to address the needs of students with visual impairments.
4. To establish how administrative staff support students with visual impairments to access teaching and learning materials in inclusive colleges.
5. To find out how students' level of orientation and mobility affect access to learning resources in the colleges.

1.6 Research Questions

This research addressed the following research questions:

1. How do the teaching methods used by lecturers in the colleges accommodate learners with visual impairment?
2. What appropriate learning/ teaching resources are available to address the needs of students with visual impairments in the colleges?
3. To what extent do lecturers adapt the teaching/learning resources and examinations to address the needs of students with visual impairment in the colleges?

4. How do administrative staffs support students with visual impairments to access learning/ teaching materials in inclusive colleges?
5. How does students' level of orientation and mobility affect the access to learning resources the access in inclusive colleges?

1.7 Significance of the study

The study may fulfill a major need for studies on inclusion of students with visual impairment in the country by providing data from which future educational policies on inclusion could be based in Rwanda.

Knowledge of the impediments encountered by learners with visual impairments may help the Rwandan Education planners in designing of appropriate inclusive education programmes suitable to the needs of learners with visual impairments. It may be of importance to the Ministry of Education because it may assist in determining quality education for students with visual impairments in inclusive colleges. The results may help to change the attitudes of the administrators, teachers, non- handicapped students in the colleges and also the community at large towards the achievement and acceptance of students with visual impairment in inclusive society.

1.8 Assumptions of the Study

The researcher assumed that:

1. Since special education was fairly new in Rwanda, the respondents would have little knowledge on inclusive education.
2. The students who were totally blind would be conversant with English braille.
3. All respondents would be available, cooperative and would give correct information.

1.9 Limitations

The study was to investigate the impediments encountered during learning of students with visual impairments in colleges of University of Rwanda. During this study many limitations arose. First, this study was carried out in two colleges of University of Rwanda practicing inclusive education; private universities practicing inclusive education were not included. Therefore, the findings cannot be generalized to private universities. Second, being visually impaired, the researcher needed an assistant to help her collect data; however, sometimes the assistant was not available, this delayed and affected data collection process. Given the nature of the research design, descriptive survey, the study describes only the academic impediments that students with visual impairment encounter; it doesn't describe the relationship between those impediments and students' performance. Finally, limited resources are available in braille; therefore, the researcher was not able to access other

resources that are not in braille in case the assistant was not available to help. This may have affected the quality of the literature review.

1.10 Delimitation

This study was conducted only in the two colleges of the University of Rwanda that practice inclusive education. Other colleges of the university as well as private universities were not concerned with this study. It had only focused on academic impediments that students with visual impairments encounter; support and attitudes impediments were not included in this study. Only the literature related to the variables of this study was reviewed to provide information on academic impediments encountered by students with visual impairment. Students who were in session during the academic years 2013-2014 in the two were the only ones who participated in this study. Finally, the study confined itself to the description of the academic impediments that students with visual impairment encounter; the extent to which they affect their performance was not the concern of this study.

1.11 Theoretical framework

The study was based on social model of disability, as discussed by Rieser (2002). This model encourages the society to view the issue of including persons with disabilities from a human right and equality perspective rather than a focus on the persons with disabilities from participating in any situation as what handicaps them (Oliver & Barnes, 1998). PWDs are often made to feel that it is their own fault that they are different. Impairments do not make

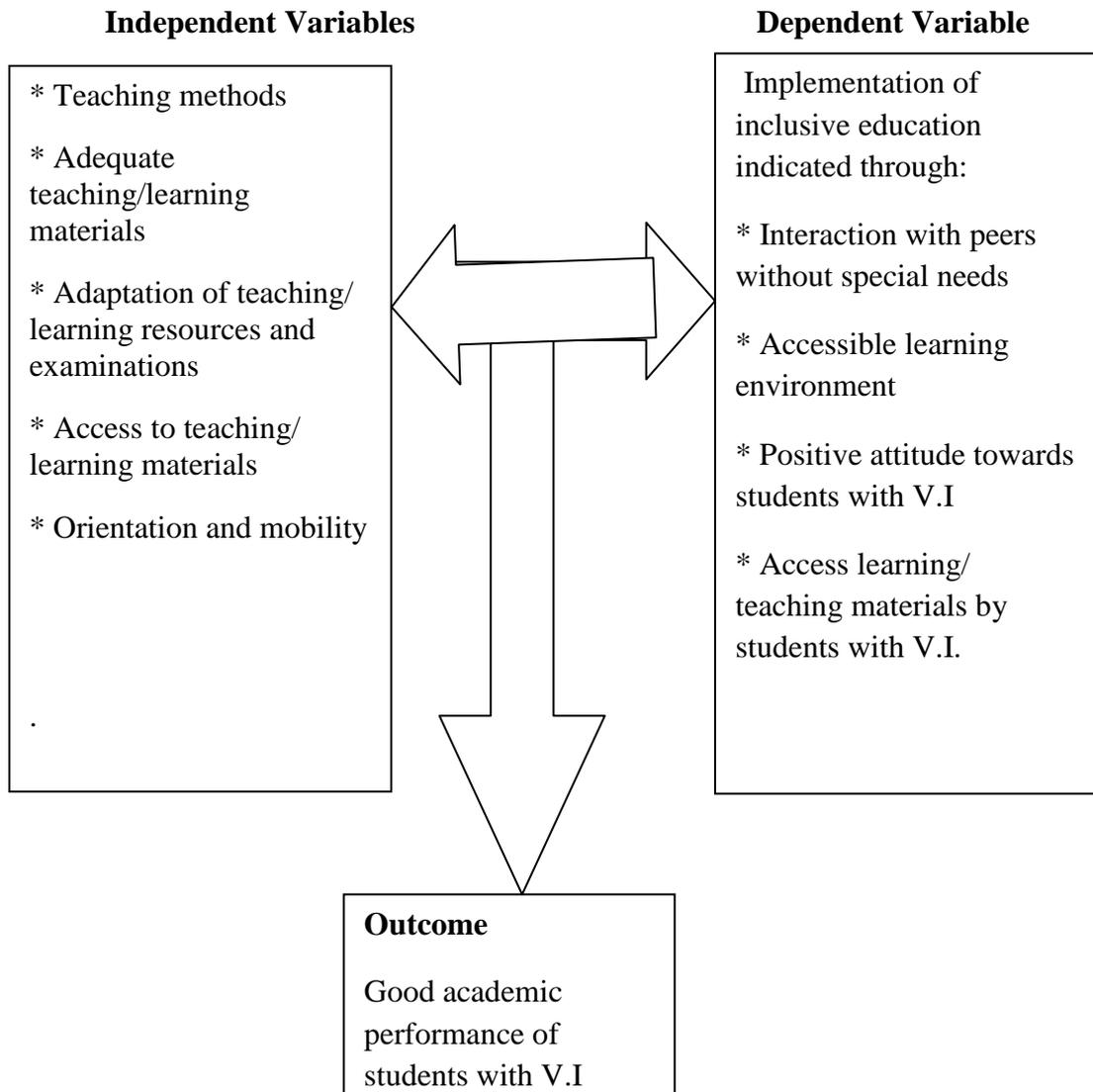
them less human beings. This is emphasized well by the social model. The PWDs movement believes that cure to the problem of disability lies in the restructuring of the society, and not focusing on the individual's impairments.

In an inclusive setting, it is the school's responsibility to re-adjust in order to meet the needs of learners with visual impairments. In the social model, it is well emphasized that children with disabilities could experience difficulties in the education system. This could be due to extensive, demanding, rigid and inflexible curriculum, inaccessible school environment, lack of adequate resources and materials, negative attitude among others. The inclusive education approach however suggests that those difficulties should not be explained simply in terms of children's impairments. It discourages the view that the learner faces such problems due to his/her impairments. Under those circumstances, the option is not to establish a separate special school, which could further separate these children from their peers and families, neither is it cost effective. Instead the school should not be seen as creating barriers to learning for the learners with special needs by failing to create an enabling and supportive environment for them. A more appropriate response is to understand the barriers to learning and work out systematically to alleviate them. This model first sees the strength of the child, rather than the disability. It advocates for the inclusion of all children, however "severe" the disability is in the mainstream education system (Diana, 2008).

According to Rieser (2002), the social model of disability makes an important distinction between the terms impairment and disability. It applies in this study in that many learners with special needs especially those with visual impairments are locked out of education opportunities due to barriers related to school, teacher and expensive educational resources which are not locally available. To work towards inclusion calls for the removal of such barriers. That could be done by trying certain intervention measures which could lead to removal of barriers. When this is done, it is expected that the disability would be limited even though the impairments would still be there (Wormnaes, 2001). This study therefore, used the social model of disability for it supports the ideas of inclusive education and encourages the removal of barriers that hinder the learners with visual impairments from accessing quality higher education. The performance of students with visually impairments learning in colleges of the university of Rwanda may be highly affected by barriers highlighted in this model of disabilities and unless these barriers are removed, individual's academic performance of students with visual impairments may not be achieved.

1.12 Conceptual framework.

Figure 1. 1 Factors affecting inclusive education of students with visual impairments.



Implementation of inclusive education is the dependent variable entirely dependent on four independent variables. These include: adaptation of materials/ equipment, infrastructure, readiness of society and relevant curriculum (Wormnaes, 2001).

Effective implementation of inclusive education for learners with visual impairments is possible through provision of the four independent variables. The reverse is also true that failure to provide for the same will lead to poor implementation of inclusive education in colleges where students with visual impairments have enrolled. For effective implementation of inclusive education, societal readiness is crucial. Parents, teachers, students and administrators must have a positive attitude towards inclusive education. Students with visual impairments must possess positive self esteem in order to interact and compete with their peers with and without special needs. Again adequate teaching/ learning materials and equipment are essential in the implementation process. The institution's environment must be conducive to learning with the necessary infrastructure such as classrooms, adapted toilets and pavements. Adequate trained teachers and a relevant curriculum is another determinant of effectiveness of inclusive education. The reverse of all the variables and or lack of one of the variables will lead to poor implementation of inclusive education for students with visual impairments (Porter & Richter, 1991).

1.13 Operational definition of terms.

Academic impediments: Any factor that may hinder conducive teaching/learning process and leads to poor performance.

Inclusive education: This is a process where by the school systems, strategic plans and policies adapt and change to include teaching strategies for a wider more diverse range of students. It implicitly means to identify a child's learning style and adapt the classroom and teaching strategies to ensure high quality learning outcomes for all members of the class.

Integration: it refers to the education of children with special needs in mainstream settings. It also refers to the practice of educating students with special needs in classes with non-disabled students during specific time periods based on their skills. The schools do not adapt to meet the needs of learners with disabilities.

Residential institutions: they refer to special boarding schools that admit learners with disabilities to be taught alone. They have specially trained teachers, adapted curriculum and special equipment to support them in learning.

Special needs education: This is education which provides appropriate modification in curricula, teaching methods, educational resources, medium of communication or the learning environment in order to meet the special educational needs.

Visual impairments: Limitations imposed by visual loss or reduction on a person's ability to interact with environment. It also includes children with total blindness and those with low vision.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review is the framework of the study and serves to organize all the literature relevant to the study (Marriam, 1998); the literature was reviewed under the following headings:

- Historical background of inclusive education
- The concept of inclusion
- Teaching methods for learners with visual impairments
- Adaptations necessary for learners with visual impairment in inclusive schools.
- Assistive devices for learners with visual impairment.
- Problems faced by administrators and learners with VI in inclusive schools
- Effects of Orientation and Mobility.

2.2 Historical background of inclusive education

Inclusion movement began in the early 1980's with the advent of Regular Education Initiative (REI) in USA. The REI 1986 debate criticized special education services offered in USA as excluding many students who need special education support (Hallahan & Kauffman, 1982). It is stigmatizing students in special education by segregating them from their peers and general school activities and not promoting cooperative partners between educators and parents. Education for students with disabilities, Children Act of 1975

(PL94-142) specified that all children, despite the disability, had a right to free and appropriate education. In response special education resources and self contained rooms expanded in regular schools. The public law of 1975 broadened the range of placement possibilities for all special education students with the mandate of “appropriate education” for every child (IDEA 1997). It required development of Individualized Education Plan (IEP) for every child with disabilities, and instituted due process procedures for parents to question the decisions made for their children and education within least restrictive environment.

Inclusive education is the current trend of delivery of services to children with special needs. The World Conference on Special Needs Education held in Salamanca, Spain (1994), recommended national and local policies that stipulate that learners with disability attend schools they would have attended if they had no disabilities. This was a follow up to the Jomtien Declaration on Education for All (EFA), (1990) in (UNESCO, 2000) which recommended that all children have a right to education regardless of individual differences. Various international policies came up in pursuant to the conference recommendations. The Dakar Framework for Action (UNESCO, 2000) was held to assess progress of Jomtien. It concluded that the progress in Africa was slow towards achieving EFA and recommended that by 2015, all children; the children with disabilities included should have access to free, compulsory and quality education. Every country was to draw its own special program plans in line with priorities, objectives, legal and policy framework (UNESCO, 2000).

The World Health Organization (WHO) estimates that 10% of any population is people with disabilities and in addition approximately 85% of the world's children with disability who are below 15yrs, live in the developing countries. In 1994, UNESCO world conference on special needs held in Salamanca, Spain the idea of inclusive education was given further impetus. Every child has unique characteristics, interests, abilities, learning needs and those with special needs must have access to regular schools which should accommodate them with a child-centered pedagogy capable of meeting those needs. According to Simon, Echeita, Sandoval and Lopez (2010) some countries in the world such as Canada, Spain, Italy and the USA have shown considerable progress in the implementation of SNE programme. The field of special education has developed relatively recently and unevenly in different parts of the world (Simon, Echeita, Sandoval and Lopez, 2010).

The Canadian Association of Statutory Human Rights Agencies (CASHRA) convened a national forum on human rights and inclusive education in Toronto. This focused on the well being and social inclusion of people with an intellectual disability. However, inclusive education is not seen as important in all quarters and therefore there has not been consistent demand for it. Children with learning disabilities lack confidentiality since everyone knows about their problem. The readiness for acceptance of inclusion varies across countries and continents of the world. According to Hegarty & Mithu (2002) many children do not receive any form of conventional schooling and this includes a large number of those with special learning needs.

2.2.1 Background of Rwandan education

Most of young Rwandans with Special Needs appear to attend ordinary schools which are increasingly adjusting their teaching/learning approaches and environments to accommodate them. These include over 120 Child-Friendly Schools or Inclusive schools often supported by international organizations such as African Development Relief Agent (ADRA) and Handicap International through their collaboration with UNICEF, European Union (EU) and MINEDUC. It is the practice and services in these settings that actually constitute much of the present reports. (Karangwa and Kabano, 2004).

The Child-Friendly Schools' (CFS) initiative in Rwanda is clearly an innovative educational strategy that is geared towards ensuring that schools are transformed into centers of effective delivery of quality education for all learners irrespective of their differences, abilities and constraints. The learners with disabilities who are included are those with visual impairment, hearing impaired and those with physical disabilities.

The survey affirmed that by supporting CFS initiatives with Inclusive education inputs, an indirect outreach program to the children at risk is easily accommodated. Besides, the field survey proved beyond any reasonable doubts that the 9 Year Basic Education (9YBE) strategies offers yet more openings for this category of disadvantaged learners by providing improved

access to 12 years of basic education in the neighbourhood of their communities.

However, all the teachers met testified that, because they were obliged to stick to the traditional program and methods of work, they had no room to attend to the needs of learners with severe SEN. This challenge is coupled with other challenges they shared with those in special schools and centres, which is inadequate skills, resources, budget, information and unsupportive infrastructure and culture (Ministry of Education Research 2010).

Adjustment of the School Environment to reinforce Inclusive/ Child-Friendly School Environment (Social & Physical) is a key contributor to ensuring equal and sustained access to learning and teaching for all, also appeared to meet many attitudinal and resource constraints in many schools and centers. Though the Ministry of Education has provided standards for school infrastructural developments, there was hardly evidence that these are known. In other words, developing accessible infrastructure and resources; appropriate attitudes and school policies, rendering all school fully accessible for even those at risk of exclusion still required joint efforts of both the community and government stake holders (Ministry of Education, 2010).

2.3 The concept of inclusion

According to studies done in the USA, inclusion has different meanings. The national center on education restriction and inclusion defines inclusion as the

provision of services to children (persons) with disabilities including those with severe impairments in the neighborhood school in age appropriate general education class with the necessary support services and supplementary aids to ensure child's success-academic, behavioral and social, and to prepare the child to participate as a full contributing member of the society (Norah & Tony, 2002).

Friend (2008) says that inclusive education is about educating all children so that they reach their potential. He claims that although the physical location of students in schools and classrooms is not about where children sit as much as about how adults and classmates welcome all children took access learning and recognize that the diversity of learners in today's schools dictates that no single approach is appropriate for all. Inclusive education is based on the principle that school should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic, and other conditions.

A survey of the Rwandan educational fields in pursuit of educational developments aroused the following principles, which were perceived as the key fundamentals in educating and supporting children with disabilities and other SNE in Rwanda, basing on both international trends and ongoing socio-political developments that have also greatly shaped the educational strategies. (Karangwa & Kabano 2004)

According to Karangwa and Kabano (2004), Children and youths of varying disabilities and abilities, cultures, socio-economic backgrounds, languages, gender and religions access and share a learning environment that supports their strengths and responds to their diverse needs. This is apparent in the educational reforms that include the recent 9 year basic Education strategies (9YBE).

Education administration works collaboratively with all stakeholders to ensure that each and every student feels welcome, is learning and thriving, apparent and developing in the growing number of CFS and Inclusive schools around the country. Families are empowered to participate in their children's education, and communities surrounding the school embrace the principles of inclusion among their citizens. This is apparent in the impetus shown in the 9YBE programs, as well as the reinforcements of PTAs in basic education decision making committees, in which the local communities and families have a key role to play in increasing their local school capacities (MINEDUC, 2010)

According to MINEDUC (2007) inclusive schools and CFS which are clearly increasing in Rwanda are leading in shaping the future of its education system. National Policy strategies, legislation, research and social movements do not seem to pay much attention to these important phenomena within the Rwandan education, and the present report insists that they need not ignore

their developments and sustainability for they are already instrumental parts and parcel of the educational system.

The foundation of Inclusive schooling and CFS principles is built on the strong philosophical belief that all children can learn and be successful. Culturally responsive educational strategies, differentiated instruction and positive behavioral supports are some of the inclusive practices that must be evident in academic and non-academic settings within the Rwandan education system. It ought to accord all students opportunities and support that will allow them to become self-determined, productive, and socially involved in order to achieve the MINEDUC's ESSP, 2010-2015 objectives (MINEDUC, 2010).

The present report therefore is centered on what it perceived as the key components that constitute appropriate education and support to young people with SNE in Rwandan Schooling, notably: education administrative strategies; School Curriculum, learning and teaching strategies, educational resources used, the Learning and teaching environment, support services jointly availed by the schools, family, communities and the government (MINEDUC, 2010).

According to a survey conducted by the ministry of Education in 2010, it is clear that six key factors of inclusive education were considered:

- The curriculum in schools,
- The school environment and its accessibility,
- The teaching approaches and capacities,

- The parent-community support,
- The teaching resources,
- Support services and resources.

All these consider the learning and teaching process within the Rwandan education contexts, within which the opportunities and impediments emerge, and the practice in school are required to adopt themselves accordingly.

The children and young people with Special Educational Needs (SNE) considered in the study were those who usually presented limitations and barriers in the learning and teaching processes, to the extent that the educational system is expected to make adjustments, and/or avail extra support in order to help them access and/or proceed in education attainments. It is for this reason that special schools/centers that accommodated them were surveyed for the special approaches and tools used (MINEDUC, 2010)\

2.3.1 Advantages and disadvantages of inclusion

According to Hardman, Drew & Egan (2005), some parents fear that their children will be teased or that they will learn inappropriate behaviors in general setting. Their fear is that their children with education needs cannot be met adequately in general education classroom. Professionals doubt whether teachers in general setting are able to meet the needs of children with special needs since most of them have no knowledge on special needs education. Furthermore class size, specialized instructional methods and for some a curriculum that emphasizes life skills that can be delivered most readily in a

special education classroom for most of the part of the school day. These arguments place the policy of inclusion on a crossroad. A situational analysis is required in order to assess the success or failure of the policy. Deanne, Kosleski and Nancy (2000) observe that inclusion of children with special needs is essentially the responsibility of the regular education system yet special education professionals, parents of children with special needs as well as parents of non-disabled peer groups. Pupils without disabilities and the community as a whole have to be empowered for inclusive education to be successful. According to Barbara, Michael and William (1998), successful inclusion of children with disabilities is possible only when the regular schools are involved and committed to inclusion. Methods have to be evolved at the national level by planning and implementing policies and procedures on inclusion. Suitable assessment procedures, curricular adaptations, improved and innovative teaching procedures to meet the needs of the child and objective evaluation procedures are important for effective inclusive education.

2.4 Teaching methods for learners with visual impairment

Classroom accommodations will be quite varied and should be individualized according to the specific needs of the student. However, there are some basic best practices that can guide the development of the most effective adaptations. One thing to always consider is that it is often difficult for these students to become as fully independent as they are capable of being. The classroom teacher should encourage independence as often as possible to

avoid the trap of “learned helplessness” (Simon, et al, 2010). Encourage the student to move independently through the classroom, and organize your classroom accordingly. Materials, desks, and other objects in the classroom should be maintained in consistent locations. Ensuring that cabinets are fully closed, chairs pushed in, and doors are not left half opened will help with safety in navigating the classroom. Part of becoming independent for students with visual impairment is learning when to advocate for assistance (Baraka, 2013). Not all instructional tasks will be immediately possible for a student with a visual impairment, even with accommodations. The key is designing instruction so that the student has the most opportunity to act independently. The student’s orientation and mobility specialist and teacher of students with visual impairments can assist with room arrangements and room familiarization.

Adapting your classroom to accommodate a student with visual impairment is a relatively easy task, it just requires an awareness of the student’s level of visual functioning (how the student sees) and how the student works and learns. For example, for the student with low vision, making sure that he is near the front of the room where he can see the blackboard. Controlling lighting variables when presenting learning materials to those students who are sensitive to light and glare. Use of verbal cues with those students who cannot see body movements or physical cues. A trained teacher of students with visual impairments can help the regular classroom teacher to make a few

simple changes to classroom design that may mean all the difference in the education of the student with visual impairment (Mapsea, 2006).

According to Marylyn (2008), one key accommodation that is absolutely essential is access to textbooks and instructional materials in the appropriate media and at the same time as their sighted peers. For students who are blind this may mean braille and/or recorded media. For the student with low vision, this may mean large print text or the use of optical devices to access text and/or recorded media while in class. Working closely with students with visual impairments in advance helps ensure accessible materials and availability of these materials in a timely manner. In addition Carmen (2014) reports that ability to read printed material or diagrams, student with visual impairment may access information in a variety of ways, for example Braille, audio or enlarged print. Braille readers cannot skim read and may take up to three times as long as other students to read a text. Students with some vision may be large- print readers or may not be able to read at all without using special computer software or low vision devices. Many blind students prefer materials in electronic format and may use screen readers such as Jaws. Some students may want material reformatted into alternative formats. Extra time is often needed for this, and the student may have to wait for the material to be produced for them. Skim reading may be very difficult or impossible and reading may need to be carefully paced to avoid fatigue or eye strain. Furthermore finding books in the library may be impossible without assistance, many will be unable to read examination questions and handout in

standard print or read their own handwriting when answering examination questions. They may also be unable to take their own notes. Extra time is needed to carry out some tasks, such as locating words in a text when shifting from one reading medium to another.

According to Baraka (2013), lectures may take longer for students to write down notes and they may be unable to see power point slides or board work. Diagrams and new vocabulary can be problematic unless an oral description or additional clarification is given. TV and video/DVD are generally less problematic than might be expected, but students should be told when they are to be used. Some students who are sensitive to light or screen glare may struggle with TV and video conference. Some students may choose to have a note-taker and others prefer to take their own notes on to a computer or other equipment. Recording lectures can also be useful and staff should be prepared to accept such requests.

According to Lowenfeld (1973), there are three principles of special methods that should be used for effective teaching for learners with visual impairment. These methods are as discussed:

Need for concrete experiences

First, teacher should provide early and ongoing opportunities for students to learn about their environments through tactile exploration of real objects and situations as well as through other available senses. For students with low

vision, such experiences should be supplemented but not replaced, by visual exploration. When actual objects are not available models may be useful.

Need for unifying experience

Because a visual impairment limits the ability to perceive the wholeness of objects and events, teachers should provide opportunities for students to integrate parts into wholes. Developing study units, where connections among academic subjects and real life experience can be enhanced (e.g. studying the work of community workers in social studies by visiting those workers in their natural workplaces), is an important way to provide unifying experiences.

Need for Learning by Doing

One can quickly understand the absurdity of providing a verbal description of bowling without the actual event to make it meaningful. Most of the areas of the expanded core curriculum lend themselves very readily to learning by doing approach. All students, regardless of whether they are visually impaired would benefit from instruction based on these three principles of special methods and using methods such as these is integral to the concept of universal design for learning (UDL) that has been mentioned. For students with visual impairments however, the use of a concrete, activity –oriented approach is necessity and must be an integral part of teacher’s plans for differentiation (Marilyn, 2008).

Smith, Polloway, Patton & Dowdy (2012) emphasized that teachers teaching students with visual impairments should consider the following: Introduce students with visual impairments the same way you would introduce any other student, Include students' with visual impairment problem in all classroom activities, including physical education and home economics, Encourage students with visual problems to seek leadership and high visibility role in classroom, Use the same disciplinary procedures for all students, Use verbal cues as often as necessary to cue students with visual impairments about something that is happening, Encourage students with visual impairments to use their specialized equipment such as braille writer, Always tell a person with visual impairment who you are as you approach them, Expect the same level of work from the students with visual impairments as you do from the other students.

Research done by Fraser and Maguvhe (2008) shows that the context in which the learning occurs; inflexible curriculum and inappropriate assessment procedures, are some of the factors leading to ineffective learning among students with visual impairment. Furthermore, inclusive learning environment should be different from the ordinary learning environment, because an inclusive classroom contains students with different learning needs and abilities (Simon et al, 2010). For quality learning of students with visual impairment, some features and conditions should be adhered to. This include; special services from specialized teachers, teaching and learning resources, as

well as assistive devices like Braille and magnifying glasses and the use of flexible teaching methods (Webster & Roe, 1998; Simon et al, 2010).

Simon et al (2010) conducted a study in Spain with the aim of analyzing the process of inclusion to students with visual impairment. The study found out that schools do not have appropriate teaching and learning resources to help students with visual impairment learn better in inclusive classrooms. . Moreover the findings revealed that, teachers do not have enough knowledge of inclusion and how to teach students with visual impairment in inclusive classrooms.

The above mentioned teaching methods for learners with visual impairment are very important because they enhance touch, examining and performance of activities in order for them to acquire accurate information rather than just theory and verbal explanation (Lowenfeld, 1974).

2.4.1 Special Education training for teachers teaching in inclusive schools

UNESCO (2001) asserts that upgrading teacher's skills is a developmental process that goes beyond workshops and other in-service training activities. Teachers need time to develop confidence and coping strategies and do this in the context of continuous support in the classrooms. Karugu (2001) conducted a survey on the status of inclusion in Kenya, where he sampled administrators, educators and curriculum developers in 3 out of 8 provinces and 4 out of 50 districts. In his study about 90% of the respondents agreed that Kenya should practice this philosophy in delivering services for children with special

learning needs. He reckons that other recommendations include: massive public awareness campaigns and education policy on inclusive education to be enacted, national curriculum to be revisited and all teachers to be trained in the practice of inclusive education. Kenya who is a signatory to the international educational policies on special needs education has worked in providing education to all children. It has thus established many education commissions and bills to look into sustainability of educational provision for all children. Some policies that govern special needs education have been adopted from presidential directives, cabinet papers, commissions, and legal notices from the minister of education. The Kenya Education Commission (1964) popularly known as the Ominde Report stressed on training of teachers. It advocated for the integration of children with special needs in regular schools. It also advocated for teacher training to include a component of learners with special needs in regular classrooms. This shows that training on inclusive practices was recommended many years ago.

Simon, et al (2010) found that increased knowledge per se was not a significant factor in affecting modification in teacher's attitude but that classroom experience with these children played a crucial role. The teachers in the study had the following major reasons for their anxiety: coping generally, fear of injury, what to do in P.E. or games, coping with other classmates' reaction, being able to give enough attention, personal feelings about the handicapped and coping with the content. Many of the worries described above resulted from lack of information. Though the teachers were given early

information about the children, they were not satisfied. The same teachers were also asked about the content of their training courses and about prior contact with people with visual impairment. Some of the teachers had attended lectures in information and the visits had helped them very little in coping with the present situation. Some admitted that prior personal contact with the handicapped children and adults had given them better understanding of the problems for learners with disabilities.

Hunt and Goetz (1997) reviewed effects of integration on children with special needs and research on full time placement of children with severe disabilities in mainstream schools. From the reviews they found out that all these were centers for the development of positive identity among pupils and staff consensus on the value that all children belong to the mainstream schools. They also suggested that there may be relationship between the severity of the disability and the attitudes although the teachers who had experience working with learners with special needs tend to have a more positive attitude. When teachers and other support staff are able to work together, for example in co-teaching situation, problems associated with the severity of the learning difficulty and the relevance of the curriculum are diminished they asserted.

(Gay, 1976), pointed out that, school staff needs training and support to take on these new roles and responsibilities. An unskilled teacher however open-minded and willing to try will fail to provide an appropriate education for pupils with learning difficulties or other special educational needs if he or she is not supported by more experienced colleagues. Likewise skill in the use of

various teaching methods is insufficient without knowledge of pupils learning difficulties and the belief that such pupils can learn. This can lead to teachers having negative attitude.

Simon et al (2010) confirmed that the education system in South Africa today has not yet addressed the needs of learners who are exceptional due to the fact that educators are not trained to deal with them. Moreover, learners do not receive enough support to enable them access education. Many educators feel that these learners belong to special schools and feel helpless when dealing with children presenting such diversity. They reckon that staffing in Zambia is faced with lack of qualified teachers putting its basic education at risk. They also assert that of the total number of teachers in Zambia only 24% have proper pedagogical training. In the North Western province 39% of the totals of basic school teachers in 1996 were untrained. They revealed that the biggest proportion of teachers in Mufumbwe which was 33% of the sampled school teachers without qualification. One reason for high number of untrained teachers in Zambia is underpayment. This can be compared with Rwanda whereby teachers' remuneration has not been introduced. Following the results of the survey carried out in 2010 by the MINEDUC it was evident that, teachers teaching in special and inclusive schools, had no training in special needs education, most of the time they used trial and error method in trying to assist learners with special needs who are included in their schools. In some schools, some learning resources for learners with visual impairments were still lying in stores because teachers had no knowledge of using them.

Assessment centers were lacking in the whole country. Some schools had resource rooms but teachers said that they lacked time for using them to assist learners with special needs; this was because of a heavy workload and the large classes that they have (MINEDUC, 2010).

There seems to be a big gap in the education system in catering for learners with special needs. Thus the ordinary / regular schools are not able to cater for learners with special needs because the educators claim they don't have enough expertise in teaching methods and also learning resources used by learners with impairments such as braille machines and hearing aids. The gap between the special schools and the ordinary regular schools can only be closed by including learners with special needs in ordinary schools and all the educators sharing in teaching. This is what called for the assessment of educators' attitudes, as they are the sole determinants of the implementation of such a worthy policy.

In all the centres and schools visited in Rwanda according to the ministry of education survey report in 2010, capacity and awareness of educators was repeatedly recognised as the key agents in their educational transformations, which is urgently required. Training sessions using tailored modules are often organised by the supporting NGOs, and intending to transform from the traditional methods towards Individualized Educational approaches such as Peer teaching, group and collaborative learning approaches, all confirmed by educators as resourceful learner-centered strategies that enable those with SEN

to study interactively and inclusively. Besides, study tours in neighbouring countries are sometimes organised by NGOs, and educators have progressively become aware of alternative practice in educating learners with SEN. However, though educators receive a relatively adequate training, there is an established complaint among the trainees that none of these is recognised by the Ministry of education, and there is pressure to provide a credible teacher training program by Kigali Institute of Education (KIE).

Adaptation of the whole School curriculum appears to be in its basic stages. To deliberately design an adapted school program to suit transformations in both CFS and Special schools demand a nationally coordinated program, in which all stakeholders would review the formal and non-formal school curriculum, by enriching it with flexibility and Inclusive education qualities. All the CFS visited for example, the head teachers testified that they are restricted to the national Curriculum, which imposes rigour and rigidity to any form of transformations geared towards supporting learners with disabilities and other SEN. A headmistress in Kamabuye School (9YBE) in Bugesera for example affirmed that, *“we cannot afford to deploy a teacher for extra support to the children with SEN, because they must have the full load and must teach at least 46 students and 60 at most, failure to achieve this, the teacher will not be paid”*. When inquired the reasons from the District education of Kamonyi, he remarked that *“the district is accorded a budget in terms of teacher-pupil ratio and we cannot change the policy”*. In other words, an inclusive education program which demands that the school program be flexible enough

to accommodate diversity of abilities and educational needs, is still greatly hampered by the rigidity and restrictions entailed in the regular curriculum. However, though in all the special schools and centres visited, the teachers had general qualifications (Level 'A' 2) and all other staff members seemed to be experienced in the services they were entrusted with. They were on average, aware of curriculum differentiation and basic adapted teaching resources required, and required proper training to be able to work effectively in supporting learners with special needs (MINEDUC, 2010).

According to Johnsen (2001), a teacher teaching students with visual impairment should face the class when speaking, speak clearly in a normal voice, not loudly, slowly or with exaggeration, keep hands away from mouth when speaking, identify yourself by name in case the student does not recognize your voice and indicate verbally when you are entering or leaving the person's presence.

2.5 Adaptations necessary for learners with visual impairments in inclusive schools

2.5.1 Curriculum Adaptations

Apart from adapting the way in which the curriculum is accessed (by means of specific instructional methods and equipment), the curriculum in itself must be adapted. Hatlen (1996) and Johnsen (2001) maintain that together with the core curriculum, learners with visual impairments need an expanded core curriculum in order to accommodate the various barriers to learning that visual

impairments bring on education. Schwartz (2008) adds to this by stating that the most important goal of curricular adaptation and modification is to try and match the cognitive, communicative, emotional, and physical aspects of the curriculum with the abilities, strengths and needs of the learners. For learners with visual impairments, this is not the case when the basic curriculum is not adapted for them.

Hatlen (1996) quotes a woman who is blind who said that what people with visual impairments really need from society is “the opportunity to be equal, and the right to be different.” Hatlen (1996) writes that the existing curriculum of sighted learners allows learners with visual impairments the “opportunity to be equal”; however, the “right to be different” implies that they will need additional help and services in order to be truly included.

Together with the core curriculum for the sighted population, the additional services make up the expanded core curriculum for the learners with visual impairments. The areas covered in this expanded core curriculum are directly related to the barriers to learning experienced by these learners. Hatlen (1996) argues that the development and implementation of the expanded core curriculum for learners with visual impairments should be thoroughly planned. What follows are the key components to an expanded core curriculum for learners with visual impairments:

1. *Social interaction skills*: This second component states that social skills must be deliberately taught to the learners with visual impairments due to the

fact that they cannot see and therefore cannot read the visual cues of non verbal behavior. Teachers must be available for these learners should they require help to deal with a specific social situation. Role plays and relevant stories are good ways to address important social issues.

2. *Independent (daily) living skills*: To help the learners to fully participate within society, they must be taught responsibilities such as banking, taking care of health needs, using public and private services, shopping etc.

3. *Recreation and leisure skills*: Learners with visual impairments should be included in sport activities. It is important to help them develop recreational activities which they can enjoy throughout their lives. This must be planned and purposefully taught.

Allwright (1990) argues that materials should teach students to learn, that they should be resource books for ideas and activities for instruction/learning, and that they should give teachers rationales for what they do. From Allwright's point of view, textbooks are too inflexible to be used directly as instructional material. Idol (2006), in contrast, argues that material may be suitable for students' needs, even if they are not designed specifically for them, that text books make it possible for students to review and prepare their lessons, that text books are efficient in terms of time and money, and that text books can and should allow for adaptation and improvisation. Materials include text books, video tapes, computer software and visual aids. They influence the content and the procedures of learning.

The principle of suitably adapted education in inclusive schools requires teachers to change their teaching and adopt strategies that will consider the needs of every student in the class individually, because these students have different abilities and different learning styles. This calls for all regular teachers in inclusive classrooms to adapt and modify their teaching to meet these individual needs of specific students (Johnsen, 2001).

Mitchell (2008) found out that tools used to assess students in inclusive classrooms are rigid and not adapted. Students are not evaluated on the basis of their individual ability and specific educational needs. A normative kind of assessment seems to dominate in these classes. She also points out that crowded classes cannot be left out. This has been a big challenge towards inclusive education in many countries, but mostly third world countries.

2.5.2 Instructional and Environmental adaptations

Besides curricular adaptations, instructional and environmental adaptations will also have to be made. Instructional adaptations involve any part of the teaching-learning process, that is, the teacher's instructional methods, materials and strategies; learning activities; performance requirements for each learner; and assessment procedures.

Doorlag and Lewis (1999) as well as UNESCO (2005) gave some examples on how to make instructional and environmental adaptations. They suggested that the teacher provides additional instruction and assistance in areas where

the learners experience difficulty; structure practice activities to provide learners with enough time to master skills; be flexible with regard to time-frame; provide special support in particular subjects (e.g. orientation and mobility) over and above the periods allotted for more traditional subjects; and change task requirements so that learners can listen rather than read, or give answers orally rather than write. It is helpful if teachers limit the number of problems that the learners with learning difficulties must solve or the number of paragraphs that they must write. They also recommended that teachers group learners with similar needs for instruction and then change again as needed. Finally, teachers must also allow learners who struggle extra time in their exams and tests and allow them to use aids such as calculators and dictionaries.

The Final Report of the National Policy on Inclusive Education in Namibia (Varynen, 2000) stated that with regard to exams, a wide range of assessment methods should be developed in order to reflect the diversity of the learners and not to place any learner at a disadvantage due to background, language, or disability.

Westling and Fox (2005) explained the importance of setting up Individualized Education Programs (IEPs) for learners who experience barriers to learning. The IEP should include the present level of the learner's performance as well as goals and short-term objectives. It should also include the support services as well as the supplementary aids and modifications

needed by each learner and the extent to which the learner will be able to participate with other learners in the mainstream class. The IEP should contain a statement of modifications to assessments, alternative assessments, or a statement of why the learner will not be able to participate in the assessment. Furthermore, the IEP should indicate the date on which the support services were started as well as the frequency, location and duration of the support and/or modifications. Beginning at age 14, the IEP must specify transition service needs that focus on the learner's course of study and at age 16, the IEP must provide an individual transition plan that includes interagency responsibilities.

Finally, the IEP should show the learner's progress on the individual goals and objectives as well as indicate how the parents of the learner will be informed. In Namibia, the learners who move from a special school to a mainstream school (for example from a school for the Blind to a mainstream secondary school) do not have IEPs that accompany them. The new school therefore do not know what support and modifications have been made and what still need to be made. Even though there are ample ways in which learners with disabilities can be supported in a regular class, research shows that many learners with disabilities in mainstream schools are not always receiving the special educational services that they need to gain full access to the curriculum. This lack of meaningful participation is more often than not due to inaccessible instructional methods (Ajuwon & Oyinland, 2008). This is an

issue that should be considered with the participants of this particular case study.

Environmental changes are changes in the physical environment of the classroom. For example, a teacher may arrange learner desks or learning materials in such a way as to make it easily accessible to all learners. Learners with hearing impairments for example can be placed in the front of the room. Learners with behavioral problems may also be seated close to the teacher. The classroom itself may be structured so that there are several work stations with activities of different levels of difficulty and activities for different styles of learning (Doorlag & Lewis, 1999). For example, one station can be more visually-based such as maps, diagrams and pictures; another station can focus on auditory learning with a tape recorder or the teacher giving verbal instructions; and lastly another station may have computers where learners can type instead of write and do extra research on the topic of the week.

According to Carmen (2014), the role of the classroom teacher is to manage the classroom in a manner that meets the individual needs of each student in the class. This includes promoting learning and supplementing activities, coordinating and collaborating with support staff, using a variety of teaching approaches, and adapting instruction to include all students. The classroom teacher is in charge of each student's overall academic program. Charema and Peresuh (1996) contend that inadequate relevant resources and facilities is an obstacle to the implementation of inclusive education in developing countries.

A study done by Kisanji (1995) in Tanzania revealed that, appropriate materials were insufficient for children with disabilities enrolled in regular schools.

According to Spungin (2002), there are basically three ways through which students with visual impairment can get information from the environments. Verbal description is the most important source of information to visually impaired students. However, verbal description provided by others is always incomplete and cannot satisfy the person's needs. Another way is the use of tactile stimuli. However, a tactile method is also not effective, because a student needs to feel an object repeatedly in order to grasp the image of the object. Finally, students with visual impairment rely on self-exploration about the world. This way is limited in amount of information that can be accessible to students with visual impairment. All in all, these modalities together cannot effectively compensate for loss of visual stimuli; they are there just to reduce the impact to learning caused by lack of vision.

A study conducted in Tanzania on how inclusive education was provided at classroom level, showed that education system continues with segregating and labeling students into "bright students and dull students". The bright students were given more attention than dull students (Mmbaga, 2002). Practices of inclusive education in the way these teachers were doing, shows that general teachers are far away from the realities of inclusive education provisions, because learning environments are not adapted and adjusted enough to

accommodate and accept the differences among students (Miles, 2003; Mmbaga, 2002).

2.5.3 Assistive devices for learners with visual impairment.

For learners who are partially sighted, video systems that magnify print, handheld magnifiers, magnifiers attached to eyeglasses and other telescopic aids can be used (Lewis, 2002). In addition to this, there are five environmental dimensions that can be modified by the teacher to maximize the functional vision of the learner. These are: color; contrast; time; illumination; and space (size, pattern, distance, detail, and position (Lewis, 2002). The teachers should assess the learner with the visual impairments in order to determine which shades of colors he/she can most easily see. Some learners with visual impairments see bright colors with greater ease, whereas other learners with different visual impairments find it easier to identify dull colors (Keller, 2005). This must be accommodated for. The use of contrast is valuable when teaching learners who are partially sighted. Providing high contrast between an item and its background aids the visual discrimination of the activity. When holding up an object, the teacher must make sure that the background is a single, solid color, for example a well-erased blackboard, and not a busy, multi-colored bulletin board (Keller, 2005).

According to Keller (2005), learners with low-vision take one to one and a half times longer to read and complete the assignment than their sighted peers, whereas learners using Braille take twice as long. It is important to keep this in

mind and to give them extra time where needed. Learners with visual impairments also tire visually and may need short breaks or different approaches to the same task, for example, listening to audio tapes after reading a few pages. Concerning illumination, learners may benefit from additional or reduced lighting, depending on their specific visual disorder. Learners with retinal detachments will usually benefit from increased lighting and learners with intact cataracts will need variable lighting or lighting from behind (Keller, 2005). The final dimension to consider is space. Learners with visual impairments might benefit from moving to different positions in the classroom. A learner with poor distance acuity may perform better by sitting in the front row of the class. A learner with visual field loss may benefit from sitting in a seat that favors the remaining fields. For example, a learner with a loss of his/her left field of vision should sit on the left side of the classroom in order to see the other learners. A learner with a central field loss – as with certain kinds of cataracts and macular dystrophy – might need to use eccentric viewing to take advantage of his/her peripheral vision.

The size of the print is another dimension of space. Some learners benefit from enlarged print, whereas others (learners with a reduced field of vision such as with retinitis pigmentosa and glaucoma) may find large print difficult to read because it does not fit into their visual fields. With regards to size, optical devices can be very useful; it can enlarge or reduce the size of the items (Keller, 2005). The Merlin is a very useful device used to enlarge the print for a visually impaired learner. An opaque projector can also be used to enlarge

text (Lewis, 2002). A recent study done in the UK found that increased letter spacing benefits the reading speed of learners with partial sight. This is useful information for the teacher because it can help solve the problem of time. Another way in which time can be saved for learners who are partially sighted is to help them preview the following day's topic by providing advanced organizers. These advanced organizers show the type of instructional approach and materials that will be used as well as introduce new concepts and vocabulary to be learnt.

Unlike partially sighted learners who can use their remaining vision in combination with other senses, persons who are blind must rely solely on their other senses. For persons who are blind, their tactile sense allows them to enter the world of literature and reading. Braille is the most commonly used tactile medium for teaching reading. Braille writing can be done by using a slate and stylus. Another innovation in the field of communication mediums for persons who are blind is the Braille and Speak. This is a battery-powered, pocket-size Braille note taker which has a small keyboard for data entry and voice output. The device translates Braille into synthesized speech or into print (Hardman et al., 2005).

The Optacon Scanner is a device that does not use the Braille system, but relies on the tactile sense. Printed material is exposed to a camera that produces the printed material on a finger pad by using a set of vibrating pins. These pins are tactile reproductions of the print. Thousands of people use this

device; however, reading still remains a laborious and slow process and great tactile sensitivity is needed to read well. For those who struggle with reading Braille; reading machines that convert printed material into synthetic speech can be very useful. These machines can also convert print into Braille. JAWS for Windows is a powerful program that allows persons with visual impairments to access and use any of the information and applications on a computer by converting the text displayed on the screen into speech or into a refreshable Braille displays (Smith, Tom, Allyn & Bacon 1998; Smith, et al 2012). There are also devices on the market for helping individuals with visual impairments. Examples are talking calculators, rulers and compasses. The Crammer abacus is an ingenious device for the quick calculation of basic math functions, decimals and fractions (Albertter & Hartleys, 2002).

All of the above-mentioned innovations greatly increase a learner's chance of accessing the curriculum. If the learning environment is not adapted to the learner's specific needs, then the learner's intrinsic barrier of not being able to see and therefore not being able to access the curriculum in the normal way, becomes an extrinsic barrier. Unfortunately, many of the adaptations that are needed are too expensive for many mainstream schools to afford. Many teachers in mainstream schools are not trained to work with these apparatus. According to Lewis (2002), it is advisable that learners go to special schools for the first few years of their education to learn how to effectively use the specialized equipment as well as other specific skills needed. However, the

issue that remains is the fact that they will need access to these assistive devices should they then be placed in mainstream schools.

2.6 Problems encountered by administrators & learners with visual impairment in inclusive schools

According to Dimmock (1993) fourteen principals from public schools in New York and Tennessee were sampled and given in depth interviews to discover their beliefs and perceptions on restructuring. The teachers were asked to respond to series of open ended non-cued questions regarding their beliefs and feelings about which they thought might be affected and the changes they would like to make. Their findings revealed that there would be potential impact on teacher's attitude. They would have more responsibilities to take. The administrators expressed serious concerns of pressures and tensions on decision making. Large class sizes were seen as a barrier to inclusion of children with disabilities. According to Keller (2005), large class sizes are a major characteristic of many developing countries an example is Zimbabwe and Ghana had over 50 pupils per class. With the introduction of free primary education in Kenya and Rwanda, the figures are equally overwhelming. According to Friend's (2008) research, many teachers interviewed had expressed concern over the impact inclusion is likely to have on their teaching and on other pupils. One teacher remarked, "How is a teacher expected to attend to these children meaningfully when, in fact his day is already full?" Teachers in many developing countries have very heavy workload unlike those in developed countries, who work with smaller class sizes.

Webb (1967) points out that the variable pace and responsibility of individual of small group's works makes consideration of special needs less difficult than it might be in a more rigid situation. Large class sizes are always big barriers to children with special needs because teachers will always cater for the average learner. Webb (1967) adds that teachers can only be expected to give the right kind of help to the children they are familiar with and who are their daily responsibility, when they have full information about them particularly from doctors and parents. An example was cited of one of the head teachers who enquired to know more information of a child with spina bifida and was told that he couldn't have access to confidential medical records. Often teachers wanted straight forward technical details of the condition and how to cope with it. Some teachers also wanted to know the educational implications of the conditions; how far they would push these children educationally and what standards to expect.

On admission of children with disabilities to regular schools, Voltz, Brasil and Ford (2001) points out that it was agreed that the head teacher of the receiving school should certainly be involved in decision of admitting the child rather than being simply informed of a new entrant. It is still the case that admissions of children with disabilities into ordinary schools depend very much on chance; where they happen to live. The admission and placement of children with disabilities can only be possible with the positive attitude and assistance of class teachers. A child being accepted by an ordinary school doesn't mean

that his problems are over. The attitude of the staff towards him or her is of enormous importance (Voltz, et al 2001).

The greatest responsibility for the success of an educational programme rests on administration. There may be proven needs, accepted philosophy, trained personnel, proper study and testing of learners, sufficient funds, available facilities and resources but the development of an effective programme depends on proper and efficient administration. It is the control centre for determining the need of creating, fostering and extending programme. Administration practices have too often shown negative attitudes towards providing special training/ care for children with exceptional needs. Many school administrators avoid these responsibilities instead of accepting them. Their attitude is generally that they provide a regular school programme for all children and if any cases do not fit into the patterns, it is not the responsibility of the school. Most implementation efforts focus on teaching teachers effective instructional strategies and ignore the conditions within which the teachers have to carry them out.

Issues such as teachers' salary have been found to negatively impact on the teacher participation (EFA monitoring Report 2002) other issues are class ratios, physical layout, administration support and supervision, incentives for participation and release time for preparation and evaluation (Jangira and Ahuja 1994). Attitude of the administrators who have insufficient time and patient to learn about and understand its object has also discouraged the

teachers. Arbetter and Hartleys (2002) contend that positive attitude towards inclusive education have been directly linked to teacher support. Furthermore, students with visual impairment will need to speak to staff about the management of their course, but difficulties may occur with the following: finding rooms, finding people in a crowd, recognizing people, using pigeon holes and finding information on notice boards.

According to a survey report conducted in 2010 by the Rwandan Ministry of Education, UNICEF and Handicap International, school administration appears to play a crucial role in the development of inclusive education. The field survey indicated that in all the centres and schools visited, the approaches and services reserved for learners with SNE were quite varied, especially in all the Special Schools and centres, only 40% are subsidised by the government. The vision and awareness of the founder organisation and which is often the administrator, determined the priorities and methods of functioning. This implies that even the collaboration with Handicap International (HI) or Adventist Development Relief Agency projects depended on the leadership. Two centres for example were reported to have failed to work with HI because their leaders viewed their support more of an impediment than facilitation. On the other hand all the CFS are rural and semi urban government aided schools, and their services to the disadvantaged learners (with SNE) also proved too that where the head teacher is visionary and open to changes, school-based innovations towards inclusion took off and vice versa. It was obvious that all the centers under the parents' associations had a wide range of resource related

constraints. Most of the management limitations observed was associated with inadequate space for accommodation and learning, as well as inadequate funds to afford enough materials and capable staff.

The survey also pointed out that in the three centers run by the parent' associations (HRD, Umana Nk' Abandi and Jyamubandi Mwana) for example, indicated that the founder parents were the key managers of the center, with whom a team of educators, para-educators, para-medics and other support staff worked. Apparently, the accomplishments of the center/school depend solely on how the team was coordinated by the leaders, putting to appropriate use the limited resources in place. The management appeared in all the three cases above familiar and strongly traditional. Therefore, any support and collaboration with the centers ought to take into consideration the Rwandan cultural way of family management first, and develop the new management system with time. The leaders were also the leading decision makers, appearing to be answerable for all, and were the respectable pivot of all the activities and services. Where the activities seemed to be relatively successful, it was also evident that the relationships between the leaders and other staff members was relatively cordial, and the leaders were directly implicated and in control. On the other hand, the management of Centre Amizero in Gikondo which is under the Methodist church for example is much more of a traditional primary school. Therefore, any collaboration towards inclusive Education development ought to consider classroom-based activities support and inter-school activity orientation, and will require more support to the school

leadership, and this appears to apply in many similar centers (MINEDUC, 2010)

It has to be admitted that private organs especially religious agencies and organisations and NGOs seem to be spearheading Inclusive education and Special Needs Education, and even most of the support for young vulnerable groups in Rwanda. All the 39 special schools and centres that are increasingly becoming inclusive, are all privately-owned and only a small subsidies for teachers' salaries is accorded to only 5 of them. It was also established during the field visits that the religious groups have to raise their funds to support the children in all their needs including Health and education (MINEDUC, 2010)

The Ministry of Education Rwanda, UNICEF, and Handicap international survey report in 2010, also stated that national education policy strategies seem to be serving mainly as the facilitating leeway towards the achievement of the privately run centres. It is only the CFS system which functions within the Government-owned basic schools, but still through NGO support (ADRA, HI & UNICEF), envisions a systematic 'adaptation' of the whole school system, as an integrated centre for delivery of a range of educational and social services for all learners. In Rwandan school, it envisages a school-family-community continuum for subsequent quality leaning and teaching, especially under circumstances where normal provisions are under constraints. Effective inclusion of disadvantaged learners in Rwandan CFS program seem to be based on the principle of transformational adjustments at both school and community levels, entailing widely encompassing adaptations in which even

the most disadvantaged schools are enabled to adjust innovatively in a way that ultimately leads to supporting those with disabilities and other Special Educational Needs (SNE).

2.6.1 Learning problems faced by students with visual impairments

Visual impairment can be defined legally and educationally. Legal definition describes visual impairment by considering the visual acuity of a person. It describes a blind person as the one having visual acuity of 20/200 or less than that, even by using optical devices. This means that, a person with blindness can see an object at 20 feet whereas a sighted person can see at 200 feet. A legal definition considers a person with low vision as having visual acuity of 20/70 meaning that, a person with low vision can see an object at 20 feet whereas a person with normal vision can see at 70 feet (Spungin, 2002). Visual impairment can be congenital, occurring at or shortly after birth or acquired through other means later in life. Before imposing any teaching to a student with visual impairment it is important that a teacher knows how the loss in vision influence the learning process (Sacks and Silberman, 1998). Visual information is crucial in helping children observe and interpret what happens in the environment. It is also an important prerequisite for conceptual development in a student's learning. Malformation and destruction of this part of the body, brings about a reduced amount of sensory data to the learner, leading to deficit or delay in various skills learned through watching and imitation from others. This impacts language development, reasoning skills, problem solving abilities and abstract thinking. This finally causes great

impact on the individual's learning and performance, because a student cannot observe and use visual information to interpret various learning situations happening in the environment (Bishop, 1996; Fraser and Maguvhe, 2008; Webster and Roe, 1998).

The cognitive abilities of learners with visual impairments will vary independent of their visual impairments. Learners with visual impairments may reach developmental milestones at different rates than other learners due to their lack of sensory input and restricted interactions with the environment. This contributes to their incomplete concept development. This can later affect their ability to infer, comprehend, predict, and create during learning activities (Bardin and Lewis, 2008).

Learners with visual impairments may lack concepts such as positioning the body; object characteristics (short, long); time; spatial awareness; actions (throw); quantity; environmental awareness; and certain symbols (for example, green means go) (Marilyn, 2008). As a result of this, teachers should make their lessons as concrete as possible. Learners with visual impairments should also be given direct exposure to objects, sounds, smells and tastes. This can be done by means of expeditions and outings; apparatus; models; blocks; stuffed animals; embossed maps; mathematical forms; natural products; raw materials (Sarah, Neal and Cathy, 2005). An American study revealed that 49.9% of learners with visual impairments have failed at least one course in general mainstream education (Bardin and Lewis, 2008). According to Bardin

and Lewis (2008), 15.2% fewer learners with visual impairments score at state-defined levels of proficiency or higher in reading and nearly 20% of them score lower in math. One of the causes is that they are not able to fully participate in the lessons in the mainstream classroom (Bardin and Lewis, 2008). High-achieving learners with visual impairments were engaged in the classroom activities 75% of the time, and low-achieving learners 51% of the time (Bardin & Lewis, 2008). Teachers should be encouraged and helped to develop strategies to ensure that these learners participate fully in the whole range of educational opportunities offered throughout the day (Sarah, Nail & Cathy 2005).

According to a study by Nasiforo (2010), conducted in Kenyan teachers colleges, it revealed that tutors felt that since there were no adaptations in all the practical subjects, they lacked skills of assisting the students, thus they left them to depend on sighted students for explanations. In addition, sighted students play a big role in the success of the students with visual impairments, since most of the teaching/learning resources were not available in Braille. On the other hand teacher trainees with visual impairments said that they used Braille machines to take notes in class and sometimes when the lecturers were too fast they missed a lot of information, this forced them to depend on their sighted peers to dictate and explain to them the information that they missed during the lessons (Nasiforo, 2010). Mugambi (2012) found out that teachers are not confident enough with their level of training to enable them to teach

students with visual impairments. This calls for in servicing courses to update their knowledge and make them gain confidence in carrying out their duties.

A research done in Kenyan teacher training colleges in 2010 by Nasiforo, findings revealed that students with visual impairments faced challenges during teaching practice. The greatest challenge as revealed by the findings was in the area of general preparation for teaching. For effective teaching, preparation was paramount. Students with visual impairments lacked books in Braille for preparation. They also needed to present their schemes of work and lessons in print for approval by their tutors who could not read them in Braille. That meant that those students had to look for readers among the sighted students who were equally busy preparing for the same activity. There was also need for the students to rely on their colleagues to help them in preparing teaching/learning resources which were usually visual. In most cases they found themselves teaching without teaching/learning resources which would have led to being penalized by their assessors (Nasiforo, 2010).

2.6.2. Attitudes of students with visual impairment towards inclusion.

Research on the impact of inclusion and mainstreaming of students with visual impairment has been mixed. Educators report that inclusion programmes have had positive effects on the academic performance, behaviour and social development of students with visual impairment. They learn targeted skills and had higher levels of engaged time than students with visual impairment educated in special education programmes. Students in inclusive classrooms

had fewer incomplete assignments, improved self-esteem, grades and task behaviour, a greater number of interactions with their peers and a more positive attitude towards school and learning (Avramidis, 2002)

The personal accounts of students with visual impairment with aspect to their experiences in general educational settings also present mixed picture. Some students report that life in the mainstream was characterized by fear, frustration, ridicule and isolation while others saw placement in general education as the defining moment in their lives in terms of friendship, intellectual challenges, self esteem and success in their careers (Sarah, et al 2005). Sharon, Vaughn, Candace, Bos and Schumm (2007) studied the effects of special education placements from the perspectives of nine high school students receiving special education services in a self-contained classroom. In terms of social development, they found that students worried that they would lose their friends, feel stigmatized and personally deficient. Academically, students viewed their special education placement as being low level, irrelevant and repetitive, and not helping them learn much. However, because they believed that it was not reasonable for their general education to accommodate their learning needs and that such accommodations would lead to increased academic stigma, they believed that their placement in a special education class was appropriate.

Barton (2009) analyzed students with disabilities narratives of their personal experiences with education in segregated schools and found that these students

experienced feelings of isolation, victimization, betrayal, oppression, being misunderstood and unappreciated. In addition Barton (2009) interviewed students with disabilities and found that these students viewed having to leave the general classroom to receive specialized services as a stigmatizing experience. As a result, they fabricated stories to justify to their friends why they were leaving class.

2.6.3 Factors Influencing Teachers' Attitudes towards Inclusive Education

While some studies point out that teachers' attitudes to inclusive education are typically positive, other studies reveal that teachers' attitudes may be influenced by the disquiet they experience regarding the impact such a process will have on their time and skills. The discussion that follows considers some of the factors raised by previous research, which may have influenced teachers' attitudes toward the inclusion of students with disabilities into mainstream classes (Avramids & Norwich., 2002).

Training Regarding Teaching Students with a Disability

Researchers note that teachers may resist inclusive practices on account of inadequate training (Sharon et al, 2007). It would appear that teachers perceive themselves as unprepared for inclusive education because they lack appropriate training in this area (Beirne-Smith, & Latham, 2000). Inadequate training relating to inclusive education may result in lowered teacher confidence as they plan for inclusive education (Sharon, et al, 2007). Teachers

who have not undertaken training regarding the inclusion of students with VI, may exhibit negative attitudes toward such inclusion while increased training was associated with more positive attitudes toward the inclusion of students with V.I. Training in the field of special education appears to enhance understanding and improve attitudes regarding inclusion. Introductory courses offered through teacher preparation programs may sometimes be inadequate in preparing the general educator for successful inclusion (Van Reusen, Shoho and Barker 2001).

Age, Teaching Experience and Teachers' Qualifications

There are several studies which have investigated whether there is any significant correlation between a teacher's age, years of experience and qualification to teacher's attitude toward the inclusion of students with disabilities into regular classrooms (Avramids et al, 2002). Some studies record that older teachers appear to foster less positive attitudes than younger teachers. Younger teachers appear more accepting of inclusive trends than their more experienced counterparts. It also seems that the most experienced educators have the lowest level of acceptance of inclusion. Further to this, Wormnaes (2001) is of the view that older, more experienced teachers are uncomfortable with inclusive practices, because they face an intrusion into their rooms by support personnel. The presence of other adults in the room may result in tension and discomfort especially as they perceive the visitor as an observer and not as additional support (Van Reusen et, al, 2001). Van Reusen et al, (2001) concluded that a teacher's level of educational

qualification does not significantly influence that teacher's attitude towards the inclusion of students with disabilities into regular classes, while the study by Stoler (1992), indicated that teachers with high levels of education have less positive attitudes towards inclusion, than those who have not achieved master's degree status.

Class Size

Large classes may be viewed as an obstacle to the successful implementation of inclusive education (Agran, Alper and Wehmeyer, 2002). Larger classes place additional demands on the regular educator, while reinforcing concern that all students may not receive proper time or attention (Stoler, 1992; Van Reusen et al., 2001). Agran, et al, (2002) make reference to Italian Law 517, which refers to the inclusion of students with disabilities into regular classes. Class sizes cannot exceed 20 if there is one student with a disability in a mainstream class. Consistency in terms of class size has allowed Italian teachers to be more supportive of inclusive education.

Level of Confidence

Agran et al (2002) concluded that mainstream educators generally lacked confidence as they attempted to include students with disabilities into their classes. This may be as a result of lacking proficiency about modifying the regular education curriculum to suit students with individual learning needs. Further, Avramids (2002) support the view that teachers who perceive themselves as competent inclusive educators, often have more positive

attitudes toward inclusive education. Teachers acquire increased competence as a result of increased training in the field of inclusive education. Inadequate knowledge with regard to instructional techniques and curricular adaptations, which contributes to decreased confidence, may be factors which influence a teacher's attitude toward inclusive education.

Previous Experiences Teaching Students with Disabilities

Avramidis et al. (2002) found out that possessing previous experience as an inclusive educator appears to positively predispose teachers toward inclusive education. It appears that previous experience in this field, allows mainstream teachers to feel more comfortable within the inclusive classroom. Direct experiences of including students with disabilities into mainstream settings appear to be an essential factor in shaping teachers' views towards inclusive settings. In addition, the nature of previous contact should be positive as it is this that results in positive attitudes toward inclusive education. (Avramidis et al., 2000).

Support from Administrative Staff

According to Idol (2006), administrative support has also been cited as a significant factor in determining teacher attitudes toward inclusion, as the teacher feels reaffirmed if the school principal fosters a positive learning environment for both teachers and students. Teachers believe that the support of the principal and other school leaders is critical in order for them to implement inclusive practices. In addition, "visionary" principal, who will

accept the challenge to create an inclusive environment for all students. Principals need to accept ownership of all students and support inclusive placement, in order to inspire these feelings among other school personnel.

However, research suggests that administrators' attitudes toward students with disabilities are less than positive; thereby impacting on the process of inclusion in schools (Deanna, Kozleski and Nancy, 2000), noted that administrative staffs lack sufficient understanding and expertise regarding the delivery of services to students with disabilities (Beirne et al, 2000). Further research commented that administrators may hold positive views of inclusion as they are further away than mainstream teachers, in terms of actual experiences. The students will need assistance learning their way around the school campus and classrooms. Although it will take extra planning, the student will also need special considerations to be fully included in the school campus activities. Developing friendships and having positive social interactions may require help on the part to advocate for learners with visual impairment and build acceptance. It can be a challenge to arrange seating in the classroom to foster friendships particularly when the student needs to be positioned in certain locations in the room to allow for lighting, proximity and access to outlets. Efforts should still be made to place the student with other students, especially if other students in the classroom are positioned in clusters (Beirne et al 2000).

2.7 Effect of orientation and mobility on students with Visual impairment

Orientation and mobility is knowing where one is in space and moving around safely, effectively and gracefully. Lowenfeld (1974) defined orientation as the process of utilizing the remaining senses in establishing one's position and the relationship to all other significant objects in the environment. Mobility was actual locomotion of the individual from his present field position to his desired position in another part of the environment. Lowenfeld continued to state that orientation and mobility terms had been used to describe the competency, which enabled the child to achieve safe, efficient and graceful movement through the environment. He added that the individual needed to be effectively oriented before he could achieve purposeful mobility. (Blasch and Welsh, 1980) indicated further that orientation and mobility was an ongoing process in which the individual must not only perceive his present position but must also perceive it anew with each step taken. This orientation process is acquired by the visually impaired through the use of their auditory, tactual and kinesthetic senses. The best way to remember the relationship of orientation and mobility was to recall Keller (2005) who observed that orientation and mobility was a skill of primary importance in the development of a person with visual impairment. That is because people with visual impairment have limited familiarization and also has to be taught how to move around, a skill which is almost automatic for sighted people (Carroll, 1961).

According to Uslan (1990), orientation and mobility (O & M) instruction prepares a student with a visual impairment to travel independently and safely.

Orientation skills help a student to be aware of his/her own body in space and the surrounding environment. Mobility skills are specific techniques used to enable a student to move easily from one place to another.

Orientation and mobility skills contribute to development in social skills, mental and physical interactions and the general well-being of the student. Learners with visual impairments often find it difficult to orientate and find their way in a strange place. It is important for teachers to teach the learners with visual impairments about their basic body image and their laterality as this correlates positively with orientation and mobility (Dodds, 1993). Learners should be taught how to move safely and independently whether they are in a well-known environment, a strange rural area, or busy city (Uslan, 1990). Learners with visual impairments should also be taught to use certain aids that will help them to move independently.

The Mowat Sensor is a “hand-held ultrasound travel aid that uses high-frequency sound to detect objects. Vibration frequency increases as objects become closer; the sensor vibrates at different rates to warn of obstacles in front of the individual. White canes are still widely used as reliable guides for people with visual impairments. Teaching learners to use these aids can help them to overcome the barriers related to their movement. Teachers in inclusive schools must ensure that the classrooms are arranged in a way that will allow the learners with visual impairments to move around freely and safely (Hardman et al., 2005). Since learners who are blind rely greatly on their memory in learning and in moving around (Torres and Corn, 1990), teachers

should make sure that the physical environment of the school and classroom remains the same. Lack of mobility skills affect the academic performance of learners with visual impairments because most of the time they miss attending lectures on time or miss them completely (Torres & Corn, 1990).

Yakura (1994), suggested that orientation and mobility (O & M) instruction prepares a student with a visual impairment to travel independently and safely. Orientation skills help a student to be aware of his/her own body in space and the surrounding environment. Mobility skills are specific techniques used to enable a student to move easily from one place to another. Orientation and mobility include both mental orientation and physical locomotion. Orientation and mobility skills contribute to development in social skills, mental and physical interactions and the general well-being of the student. These skills are needed for the student with low vision as well as the student with blindness.

2.7.1 Importance of the white canes in training orientation and mobility.

Most mobility experts and clients agree that the long cane was the most efficient, convenient and affordable and almost universally available mobility aid so far developed which was said to be one of the only proven and widely accepted primary modes of independent travel (Uslan, 1990). It was also a common observation that a properly trained cane user walks straight, upright and confident, which helped to change the public attitudes of pity towards him to that of admiration. The cane was first designed by Hank Levy, a visually impaired British man in 1872, but it was not accepted in England until 70

years later when Hoover modified Levy's touch technique in America in 1946 (Dodds, 1993).

The cane may come in different forms such as the long cane, the folding or collapsible cane, the white wooden cane, the support or orthopedic cane or the laser cane (Dodds, 1993). Each of those types of canes had advantages and disadvantages concerned storage, convenience, and efficiency among others. The basic purpose of using the cane was for protection, information about the basic texture under foot, detection of holes, drop-offs, and other changes in the level of the terrain. It also symbolizes the user as one with visual impairment, thus needing consideration on the road (Mullen, 1989).

The most commonly used technique was the touch technique. It required the user to use the proper skills for gripping the cane, tapping the right way from left to right, in step rhythm for foot and cane coordination among others. Training for the use of the cane was therefore paramount. Carrol (1961) puts it "the cane is worse than useless without proper instruction," for instance, like the sighted guide technique mentioned earlier, due to lack of training skills in Kenya, it was common to see a man who was visually impaired holding a cane or a long stick on one end following a small boy, who was walking ahead of him holding the other end of the cane. The study confirms an observation by many, (including the researcher) that there was an acute shortage to train the persons with visual impairment in these very important travel skills. In Kenya, the percentage of persons with visual impairments who have been trained in

orientation and mobility was negligible and the same was true for trained mobility trainers, though statistics were not available to support this. It however became evident from Ellis (1991), survey that, the ones trained in the cane skills had a clear mobility advantage over untrained ones.

In order to overcome or cope with the loss of sight, many teachers have highlighted the necessity of systematic training in orientation and mobility for the persons who are visually impaired. For instance, various speakers at the 16th international mobility conference in Spain claimed that orientation and mobility was a key factor in facilitating and promoting self confidence in a person with visual impairment (Malki, 1994). Independent mobility was often a critical factor in determining whether a person with visual impairment gets a job and keeps it, and maintains life style of independence and dignity (Uslan, 1990). Others have noted the importance of orientation and mobility training in creating self confidence to make a person who is visually impaired of whatever age to be self reliant (Tooze, 1981; Yakura, 1994). According to Blash and Welsh (1980), many individuals who had visual impairment, for a variety of reasons were unable to achieve that goal on their own. Formal or systematic mobility services have been developed to guarantee each individual the opportunity to learn how to travel to the fullest extent of his or her abilities. However, society must take steps to ensure that opportunity and each member will have that opportunity and that the acquisition of that knowledge was not left to chance. The opportunity for formalized orientation and mobility instruction must be provided for all handicapped and elderly person who

needed such assistance. That was necessary if we are to be consistent with policies, to integrate such people into the mainstream of our society more readily. Making policies, changing the environment and developing new equipment were not enough. Appropriate learning experience must be provided when needed and necessary (Tooze, 1981).

The orientation and mobility aids are rather expensive for the average Kenyan with visual impairment and therefore need to be provided for in the national or programme budgets. It was observed by a committee setup by the Kenyan government in 1976 to draw education objectives and policies in Kenya that students who were visually impaired required specialized and expensive equipment (Gachathi Report, 1976). However, in the current global and national economic crisis it was not always possible to provide the required aids for meeting the needs of the persons who were visually impaired adequately.

2.8 Summary and Gap Identification

This chapter has discussed the concept of inclusive Education in Rwanda whereby it is evident that the education in Rwanda has started including learners with visual impairments in child friendly schools, special schools and colleges of the University of Rwanda.

According to Hatlen, (1996) learners with visual impairments need an expanded core curriculum in order to accommodate the various barriers to learning that visual impairments bring to education. He goes on to emphasize

that learners with visual impairments will need additional help and services in order to be truly included in education. According to Hegarty and Mithu (2002) learners with visual impairments should be allowed to use the support services as well as the supplementary aids and modifications needed by each learner and the extent to which the learner will be able to participate with other learners in the mainstream class. In order for inclusion to succeed, there should be accepted philosophy, trained personnel, proper study and testing of learners, sufficient funds, available facilities and resources but the development of an effective programme depends on proper and efficient administration.

According to a research conducted by Ministry of Education in Rwanda (2010) all schools visited practiced inclusion even when teachers had little knowledge about it. This research aimed at finding out whether the teaching methods used to teach students with visual impairment were effective to facilitate knowledge acquisition, since most of the teachers had no training in the area of teaching students with visual impairment in schools and in the university.

According to Lowenfeld (1974), students with visual impairment should be taught using concrete methods; this means that learners should be in contact with objects being taught. The learning resources and examinations should be adapted to meet the needs of these learners. This research aimed at finding out whether the teaching methods and learning resources were adapted to

accommodate students in the colleges of the University of Rwanda. There is very little research that has been done in relation to students with visual impairment in Rwanda and therefore this research was to look at how the administrative staff facilitate students with visual impairment to access learning resources to assist them in their education. The idea of many teachers not having trained in teaching students with visual impairment implies that there could also be a problem in getting orientation and mobility trainers to assist these students with visual impairment to be able to move about in the colleges of the university of Rwanda. None of the above reviewed studies have focused on inclusion of students with VI in Rwanda hence the focus of the current study.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter discussed the methods that were used in the study. It focused on research design, locale, population, sampling technique and sample size determination, research instruments, data collection procedures and data analysis of this study.

3.2 Research design and Locale

This study used a mixed methods research approach. According to Creswell (2012) a mixed-methods research involves collecting, analyzing, and mixing both quantitative and qualitative methods in a single study to better understand the research problem. For Fraenkel and Wallen (2009) a mixed-methods research involves the use of descriptive statistics themes to analyze information. This approach was appropriate for this study because it helped compare quantitative data obtained by means of close-ended questions and qualitative data obtained through interview and open-ended questions to see if they are related.

The study adopted a descriptive survey research design. A descriptive survey design is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2004). This design aimed at obtaining pertinent and precise information concerning the current status of

a phenomenon and wherever possible to draw a valid general conclusion from the facts discovered (Gay 1976, Kombo & Tromp 2006). Likewise, it mainly sought to obtain information that describes the existing phenomena by asking individuals about their perceptions, attitudes, or values; it is therefore useful in describing the conditions or relations that exist between variables (Cohen, Manion & Morrison, 2000).

A descriptive survey design was chosen because the researcher sought to describe impediments encountered by learners with visual impairment in colleges of the University of Rwanda. Descriptive statistics and themes were used to analyze data that were collected from the selected sample through questionnaires and interviews. This is because, both methods supplement each other in that qualitative methods provide the in- depth explanations while quantitative methods provides the hard data needed to meet required objectives.

The study was carried out in two colleges of the university of Rwanda which are colleges of Arts and Social sciences located in Huye District in the southern province and is 100 kilometers from the capital of Rwanda and college of education located in Gasabo District which is 12 kilometers from the city center and in eastern part of the capital city of Rwanda, Kigali. Although there are many colleges of the University of Rwanda, these two colleges were selected for the study because they are the only ones that

practice inclusion of students with visual impairments and other disabilities in the country.

3.2.1 Research variables

In this study, independent variables comprised of teaching methods, adequate teaching/learning materials, and adaptation of teaching / learning resources access to teaching / learning resources and orientation and mobility. Dependent variable was inclusion as a factor of promoting good performance of learners with visual impairments in colleges of the University of Rwanda.

3.3 Population

The target population of the study consisted of deans of faculties accommodating students with visual impairment, lecturers, resource room managers, all students with visual impairments at all levels of education and level four students without visual impairment. The study was conducted in the two colleges with 6 deans of faculties, 150 lecturers, 4 resource room managers, 45 students with visual impairments and 1200 level four students without visual impairments. The total target population was 1405 persons in the two inclusive public colleges of the University of Rwanda.

Table 3.1 Population and selected sample size

Total Target population							
College	of	Deans	Lectures	Managers	VI	Sighted	Total
Education		3	73	2	20	550	648
College of Arts and Social Sciences		3	77	2	25	650	757
Total target Population		6	150	4	45	1200	1405

3.4 Sampling Techniques and Sample Size

This section discusses different sampling techniques that were used in the study to get the sample. It also discusses the size of the sample that was selected for the study and the reason for the selection.

3.4.1 Sampling techniques

College of education and college of Arts and social sciences were purposively selected because they are the only colleges of the University of Rwanda which included students with visual impairments. 6 deans of faculties were purposively selected because their faculties were the ones that accommodate students with visual impairments. 4 resource room managers, the manager and

the assistant manager from each college's resource room were purposively selected because they were all actively involved in assisting learners with visual impairments and managing the resource room as a whole.

Purposive sampling technique was used to select the required number of lecturers because they were the ones who taught and interacted with those students in their studies. Simple random sampling was used to select students with VI where every student was given an equal of participating in the study. The selection of students without visual impairments was purposively selected through snow ball technique. This implies that the researcher asked students with visual impairment to give names of the level four students without visual impairment who have been close to them in terms of socialization and academic work.

3.4.2 Sample size

The sample for this study comprised of 6 deans of faculties who were all selected because they were few in number. 4 resource room managers were all selected because they were few in number. The sample size comprised of 30 (20%) lecturers, 35 (78%) students with visual impairment and 50 (5%) students without visual impairments. Hence, the total sample size was 125 respondents (from college of Education and college of Arts and Social sciences).

The selection of the above sample size was guided by (Cottrell& Mckenzie, 2011) who said that there is no rule for sample size in qualitative inquiry that when determining the sample size for qualitative studies, the researcher has to balance the need for appropriate data with the resources necessary to collect it. In this research the total sample of 125 respondents was manageable and a representative sample with regard to the type of research and financial means available.

Table 3.2 Selected sample size

College of Education	Deans	Lectures	Managers	VI	Sighted	Total
	3	15	2	15	25	60
College of Arts and Social Sciences	3	15	2	20	25	65
Total	6	30	4	35	50	125

3.5 Research instruments

The researcher used questionnaires and interview guide to collect data. 3 sets of closed and open-ended questionnaires were constructed by the researcher to gather information from the lecturers, students with visual impairments and students without visual impairments. The questionnaires consisted of section A and B. Section A consisted of Bio-data information of the respondents, while section B consisted of question items about availability and adequacy of

teaching/learning materials, teaching methods, orientation and mobility, and staff training. Here the questions consisted mostly of closed and open-ended questions. Open-ended questions are best used in situations: where it is clear how the responses will be analyzed, or where the responses will be used not to create a statistical pattern, but how to explain it whereas closed ended questions are hard to design but easy to analyze (Gorard, 2001). However, the researcher also constructed an interview guide for the deans and resource room managers. The interview guide consisted of semi-structured questions that the researcher asked the respondents to get information about the challenges students with visual impairment encounter and challenges they face in implementing inclusive education (Kombo & Tromp, 2006).

3.5.1 Pilot study

The research instruments of this study were pre-tested in the college of education located in the capital city of Rwanda with learners and lecturers from the faculty of arts and languages. The reason for picking the faculty was because it has few students with VI as compared to the other faculties. The University of Rwanda is made up of eight colleges but students with visual impairments are only admitted in the college of Education and the college of Arts and Socio-sciences, therefore, this is why the researcher was forced to do piloting in the same college where she also carried out her research. The respondents for piloting included: 5 learners with visual impairments, 15 learners without visual impairments and 5 lecturers. Piloting provided a good opportunity for the researcher to identify any weakness in the instruments, and

to find out if the anticipated data analysis techniques were appropriate. The findings from the pilot study allowed the researcher to rework on the research instruments for the improvement in case of inconsistencies: typographic errors, language used, and any ambiguities were removed.

3.5.2 Validity

Validity is the degree to which a test measures what it is supposed to measure (Kothari, 2005). Content validity was tested to ascertain whether the items in the questionnaires were suitable for their task. Questions which brought confusion or misunderstanding to the respondents were identified and modified to ensure clarity of information in the questionnaires (Gorard, 2001). Difficult questions were reframed using appropriate language which could easily be understood by the respondents. Consultation with the experts in the area of special needs education was done and the instruments were modified and redesigned accordingly so as to achieve the intended task during the main study (Gorard, 2008).

3.5.3 Reliability

An instrument is said to be reliable if it consistently yields similar results when re-tested with similar subjects (Mugenda & Mugenda, 2003; Orodho, 2004). The reliability of the instruments for the study was measured using test-retest method. The questionnaires were given to the group selected for piloting. The respondent filled the questionnaires and their responses were scored manually. After two weeks the procedure was repeated. Lastly the

responses from the 2 occasions were compared using Pearson's product moment correlation. The scores were correlated using Pearson's product moment. The correlation indicated that there was a strong positive correlation between two tests of scores where $r=0.829$ for the lecturers questionnaire and 0.801 for the students questionnaire. Therefore the instruments were found to be reliable for data collection for this study.

3.6 Data collection

The researcher with the help of two research assistants administered the questionnaires to the respondents. The researcher explained to the students the importance of giving accurate information which will help in the improvement of their education in the colleges. The questionnaires were collected immediately after three hours with the help of the research assistants; lecturer's questionnaires were distributed to them on the same day and collected after five days. This gave them enough time to respond to the questionnaires. For interview, the researcher visited the inclusive colleges to interview the deans of the selected faculties and the resource room personnel. Victor reader was used to record information during interview.

3.7 Data analysis

Data collected through interview were of qualitative nature and they were analyzed by thematic analysis. The dominant themes were captured and presented through narratives. It also involved verbal explanations based on the education of students with visual impairment in the colleges of the University

of Rwanda. Data collected through questionnaires were of both quantitative and qualitative nature. Descriptive statistics was used to analyze quantitative data. They were coded, frequencies and percentages were computed to describe the teaching methods used, availability of learning resources, extent to which lecturers adapt teaching/learning resources and examinations to suit the needs of learners with visual impairment, and how academic environment affect learning of students with visual impairment. After the analysis of quantitative data, they were presented in tables indicating frequencies and percentages. Qualitative data generated from open-ended questions in the questionnaires were grouped according to themes and presented in narrative form.

3.8 Logistical and ethical considerations

The researcher sought clearance from Kenyatta University Ethical Research Committee (KUERC). She then obtained a permit from the Ministry of Education in Rwanda, to be able to collect data in the targeted colleges of the University of Rwanda.

The researcher visited the two selected colleges and briefed the deans and the lecturers on the purpose and objectives of the study, so that they could understand the importance of giving suggestions on how to improve the education of learners with visual impairments in the colleges. Questionnaires in Braille & prints were prepared in advance for touch readers and the sighted respondents respectively. The two assistants who were used to assist the

researcher in the course of data collection were trained to make them aware of the importance the research and the research ethics.

The researcher ensured and assured the respondents that all their responses were to be treated with strict confidentiality and was only to be used for the purpose of the study. She also informed them that their participation in the study was voluntary and they were at liberty to refuse to respond to some questions or to participate in the interview.

CHAPTER FOUR

FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

The study evaluated the academic impediments students with visual impairment encounter in colleges of the University of Rwanda in the five key areas addressed by the research objectives of the study. These were: To find out whether the teaching methods used in inclusive colleges accommodated students with VI, To identify the appropriate learning/ teaching resources available in colleges to suit academic needs of students with visual impairment, To determine the extent to which lecturers adapt the teaching/ learning resources and examinations to address the needs of students with visual impairments, To establish how administrative staff facilitate the learning of students with visual impairments in inclusive colleges and To find out how orientation and mobility affected the learning of students with visual impairments in the colleges.

4.2 Demographic information

This part presents demographic data collected from 30 lecturers and 35 students with Visual Impairment. The demographic data were analyzed alongside variables such as age, gender, teaching experience, area of specialization, level and area of study for students with visual impairments.

4.2.1 Demographic data for lecturers

This part answers section A of the questionnaires which was used to gather demographics details of the participants. The demographic characteristics of respondents were discussed in terms of age, gender, teaching experience and the area of specialization.

4.2.1.1 Gender and age of lectures

The lecturers were asked to indicate whether they were male or female. They were also asked to indicate their ages. Table 4.1 presents the findings on gender and age of lecturers.

Table 4.1 Gender and age of lecturers

	Female		Male		Total	Percentage
Age	Frequency	percentage	Frequency	Percentage		
30-39 years	3	75%	5	19%	8	27%
40-49 years	1	25	14	54%	15	50%
50-59 years	0	%	5	19%	5	17%
60-69 years	0	0%	2	8%	2	6%
70+ years	0	%	0	0%	0	0%
Total	4	100%	26	100%	30	100%

Table 4.1 shows that 8 (27%) lecturers were between 30-39 years of age, and 15 (50%) lectures were between 40-49 years old. Furthermore, table 4.1 indicates that 5 (17%) were between 50-59 years, and 2 (6%) lecturers were between 60-69 years old. No lecturer had or was above 70 years of age. Table 4.1 also indicates that 3 (75%) of female lecturers were between 30-39 years old while only 1 (25%) of female lecturers was between 40-49 years of age. On the other hand, 5 (19%) of male lecturers were between 30-39 years old, and 14 (54%) of them were between 40-49 years of age. While 5 (19%) of male lecturers were between 50-59 years old, only 2 (8%) were between 60-69 years of age. According to Murigande (2011) before 1994, education in Rwanda was reserved for the privileged few, but over the last 20 years, access to education has increased tremendously. This could be the reason why most of the lecturers are young.

4.2.1.2 Teaching experience

Lecturers were asked to mention their teaching experience. Table 4.3 presents teaching experience for Lecturers.

Table 4.2 Teaching Experience for lecturers

Experience	Frequency: n=30	Percentage
-5 years	4	13%
6-10 years	9	30%
11-15 years	11	37%
+15 years	6	20%
Total	30	100%

Table 4.2 shows the finding on lecturers' teaching experience, 4 (13%) of lecturers had -5 years of working experience, 9 (30%) of them had 6-10 years of experience, 11 (37%) of lecturers had 11-15 years and 6 (20%) had +15 years of working experience. The above results show that the majority of lecturers had teaching experience which ranged between 11-15 years. This indicated that lecturers teaching in the University of Rwanda are young and have not taught for a long period. This could be because many lectures who were teaching in the Universities before 1994 genocide against Tutsi lost their lives and others fled the country. Therefore, the lecturers who are teaching in the University are from the new Rwandan Generation.

4.2.1.3 Area of specialization

Lecturers were asked to indicate their area of specialization. The table 4.3 presents the findings on lectures' areas of specialization.

Table 4.3 Lecturers' areas of specialization

Areas of specialization	Frequency: n=30	Percentage
Education	9	30%
Arts	8	26.7%
Special Needs education	2	6.7%
Mass communication	3	10%
Humanities	5	16.7%
Law	3	10%
Total	30	100%

Table 4.4 shows that 9 (30%) of lecturers are specialized in Education, 8 (26.7%) in Arts, 2 (6.7%) in Special Education, 3 (10%) in mass communication, 5 (16.6%) in humanities and 3 (10%) in law. The findings show that the majority of teachers have some training in education while a small number of them are trained in clinical psychology. However there are a very small percentage of lectures that are specialized in special needs education. This implies that the above findings may seriously contribute to poor academic performance of learners with visual impairment in the university. Students with visual impairments need teachers who have knowledge and enough training in area of SNE in order to be able to adapt teaching/ learning resources, and be able to meet their individual academic needs in inclusive classes.

4.2.2 Data for students with visual impairments

This part answers section A of the questionnaires which was used to gather demographics details of the participants. The demographic characteristics of

respondents were discussed in terms of age, gender, year of study and area of study.

4.2.2.1 Gender and age of students with visual impairments

Learners were asked to indicate their gender and age. Table 4.4 shows gender of learners with visual impairments.

Table 4.4 Gender and age of students with visual impairments

Age	Female		Male		Total	Percentage
	Frequency	percentage	Frequency	Percentage		
18-21 years	1	11%	2	8%	3	9%
22-25 years	4	45%	9	35%	13	37%
26-29 years	3	33%	4	15%	7	20%
30-34 years	1	11%	10	38%	11	31%
35+ years	0	0%	1	4%	1	3%
Total	9	100%	26	100%	35	100%

Table 4.4 shows that 3 (9%) of learners with visual impairment were between 18- 21 years old, those between 22-25 years were 13 (37%), while those 26-29

years were 7 (20%) and those between 30- 34 years were 11 (31%). Finally, as table 4.4 indicates only 1 (3%) of learners with visual impairment was 35 years or above. This implies that the majority of learners with visual impairments in University of Rwanda are between ages 22-34 years of age. A quite good number of them have passed the age of being in the university pursuing their first degree. The main reason is that most of them stayed for quite a long time at home after completion of the primary education. As mentioned in chapter 1, learners with visual impairment started joining Gahini secondary school in the Eastern Province in the late 90s when the Rwanda Union of the Blind intervened for them. Some of them could have lost their sight when they were pursuing their secondary school education and needed lot of time to be rehabilitated so as to be able to continue with their education.

Table 4.4 also indicates that 1 (11%) of female students were between 18-21 years old while 4 (45%) of them were between 22-25 years. 3 (33%) of students with visual impairment were between 26-29 years and only 1 (11%) of them was between 30-34 years of age. On the other hand, 2 (8%) of male students with visual impairment were between 18-21 years old while 9 (35%) of them were between 22-25 years of age. Furthermore, 4 (15%) of students with visual impairment were between 26-29 years, and 10 (38%) of them were between 30-34 years old. Finally, table 4.4 indicates that only 1 (4%) of learners with visual impairment was 35 years or above.

4.2.2.2 Year of study

Learners with visual impairment were asked to indicate their level of study.

Table 4.5 presents findings on the level of study for learners with visual impairment.

Table 4.5 Level of study

Levels	Frequency: n=35	Percentage
Level 1	8	22.9%
Level 2	10	28.6%
Level 3	7	20%
Level 4	10	28.6%
Total	35	100%

Table 4.5 shows that 8 (22.8%) of learners with VI were in level 1, 10 (28.5%) of them were in level 2, 7 (20%) were in level 3 and 10 (28.5%) of them were in level 4. The findings show that majority of them were in level 2 and level 4. This is because the intake of these learners can be sometimes high and sometimes low depending on the academic performance in form six.

4.2.2.3 Area of study

Students with VI were requested to indicate their areas of study. Table 4.6 presents the areas of study for learners with VI.

Table 4.6 Area of study

Areas of study	Frequency: n=35	Percentage
Education	12	34.3%
Clinical psychology	3	8.6%
Mass communication	5	14.3%
Humanities	10	28.6%
Law	5	14.3%
Total	35	100%

Table 4.6 shows that 12 (34.3%) were in the Faculty of Education, 3 (8.6%) were in the Faculty of Clinical Psychology, 5 (14.3%) were in the Faculty of Mass Communication, 10 (28.6%) were in the Faculty of Humanities and 5 (14.3%) were in the Faculty of Law. The findings show that majority of learners with VI were taking their courses in Education while a few of them are taking their courses in Clinical Psychology.

4.3 Findings on methods used in teaching students with visual impairment

The first task was to find out whether students with visual impairment were comfortable in inclusive classrooms. Table 4.9 presents findings on methods used in teaching students with visual impairments.

Table 4.7 Methods used in teaching students with Visual impairments.

Do you feel comfortable in inclusive classrooms?	Frequency: n=35	Percentage
Yes	7	20%
No	28	80%
If not, give reasons		
-Classrooms are too large	24	85.7%
-Lecturers used power point in their lectures which made it difficult for us to follow	28	100%
-Not able to record all information being taught.	28	100%

Table 4.7 shows that 7 (20%) of students with visual impairment said that they were comfortable and 28 (80%) of them were not comfortable in inclusive

classrooms. Those students with V.I who were not comfortable in inclusive classrooms pointed out that the classrooms were too large for them to follow lectures and be able to record notes. The use of power point by the lecturers in teaching made them uncomfortable because they were not able to read what is on the screen but only depended on the few verbal explanations that the lecturers gave. These findings were supported by sighted students who felt that they were facing challenges in the classrooms when attending lectures.

The findings were supported by Baraka (2013) who found out that lectures may take longer for students with VI to write down note and they may be unable to see power point slides or board work. Diagrams and new vocabulary can be problematic unless an oral description or additional clarification is given. TV and video/DVD are generally less problematic than might be expected, but students should be told when they are to be used. Some students with VI who are sensitive to light or screen glare may struggle with TV and video conference. Some students may choose to have a note-taker and others prefer to take their own notes on to a computer or other equipment. Recording lectures can also be useful and staff should be prepared to accept such a request.

The findings were consistent with the study done by Agran, Alper, and Wehmeyer (2002) who found out that large class may be viewed as an obstacle to the successful implementation of inclusive education. Stoler,1992; Van Reusen et al., (2001) added that larger classes place additional demands

on the regular educator, while reinforcing concern that all students may not receive proper time or attention.

4.3.1 Students' views on teaching method used by lecturers

Students with visual impairment were asked whether the teaching methods used by lecturers were appropriate. Table 4.8 presents findings on students' views on teaching methods used by lecturers.

Table 4.8 Students' views on teaching methods used by lecturers

Are teaching methods used by lecturers appropriate for learners with VI?	Frequency: n=35	Percentage
Yes	7	20%
No	28	80%

Table 4.8 shows that 7 (20%) of students with VI said that the methods used by lecturers were appropriate and 28 (80%) of them said that the methods were not appropriate. Their sighted peers confirmed that the methods used by lecturers were not appropriate. They continued saying that lecturers used power point and lecture methods which made it difficult for students with VI to follow when they had nothing in braille to refer to in the lessons. Findings show that majority of students confirmed that methods used by lecturers were not suitable. The sighted peers suggested that if lecturers could be preparing braille notes, be audible and clear in their explanations and used materials that are tactile e.g. maps, the students with visual impairment would understand and follow better. They also felt that if lecturers prepared their lectures having in mind that they have students with visual impairment in their classes, they

would teach better and they would be able to participate like their sighted peers. Sighted students felt that the curriculum should be adapted to meet the needs of students with visual impairment, teachers to be trained in special needs education so as to be able to adapt the learning resources for students with visual impairment and vary their teaching methods and use some assistive devices for students with visual impairment. The sighted peers also felt that the lecturers should do more of talking to allow easy recording and less of power point projections and to slow down while talking to allow these students with visual impairment to get what is being taught.

In addition a trained teacher of students' with visual impairments can help in making a few simple changes to classroom design that may mean all the difference in the education of the student with visual impairment. According to Lowenfeld (1973), first, teacher should provide early and ongoing opportunities for students to learn about their environments through tactile exploration of real objects and situations as well as through other available senses. When actual objects are not available models may be useful.

According to Marlyn (2008) learners with visual impairments may lack concepts such as positioning the body; object characteristics (short, long); time; spatial awareness; actions (throw); quantity; environmental awareness; and certain symbols (for example, green means go). As a result of this, teachers should make their lessons as concrete as possible. Sarah and Cathy (2005) added that learners with visual impairments should also be given direct

exposure to objects, sounds, smells and tastes. This can be done by means of expeditions and outings, apparatus, models, blocks, stuffed animals, embossed maps, mathematical forms, natural products, raw materials.

Table 4.9 Students with VI's views on adaptation of the curriculum used in the University

Is the curriculum used in your institution adapted to suit the learning needs of students with VI?	Frequency: n=35	Percentage
Yes	7	20%
No	28	80%

Table 4.9 shows that 7 (20%) of students with VI confirmed that the curriculum used in the institution was adapted while 28 (80%) of them said that the curriculum was not adapted. The lecturers and sighted students also supported students with VI by agreeing that the curriculum was not adapted to suit the needs of students with VI. Findings show that majority of respondents confirmed that the curriculum was not adapted. In the interview with the administrators, majority of them presented some curriculum barriers which affected the education of students with VI such as lack of adapted mathematical symbols and adapted mathematic equipment to calculate mathematical problems. In addition the administrators pointed out that students with VI had limited choice in the area of study since they were not able to venture into science subjects and mathematics which have not been adapted to suit their educational needs. One of the administrators, had this to say,

“I have observed that students with visual impairment have limited choice in the area of study. Some of the students have the potential of venturing into areas like mathematics and applied sciences but because the curriculum is not adapted and the college lacks teaching/learning resources to facilitate them in all the subject areas, then it becomes a challenge to them. They end up taking courses not by choice but forced by circumstances (8th April 2014).”

Therefore it is evident that if the curriculum is not adapted it implies that the performance of these students with VI can easily be affected when they miss or fail to understand most of the information in their learning.

The findings have been supported by Hatlen (1996) who confirms that the existing curriculum of sighted learners allows learners with visual impairments the “opportunity to be equal”, however; the “right to be different” implies that they will need additional help and services in order to be truly included. Together with the core curriculum for the sighted population, the additional services make up the expanded core curriculum for the learners with visual impairments. The areas covered in this expanded core curriculum are directly related to barriers of learning experienced by those learners. Schwartz. (2008) adds to this by stating that the most important goal of curricular adaptation and modification is to try and match the cognitive, communicative, emotional, and physical aspects of the curriculum with the abilities, strengths and needs of the learners.

Lecturers were asked to explain whether students with visual impairment were able to take notes and cope with their lectures. The lecturers reported that some students used recorders in the class whereby they could record them as they taught and afterwards listen to the lesson on their own. Other lecturers said that the VI students depended on their sighted peers to dictate to them notes and others got their notes from the resource room after having been written in Braille. Findings show that majority of students with VI confirmed that they used vector reader when taking notes. However they said that they faced challenges when those vector readers broke down and there was no technician to repair them, or when two students shared one vector reader had a lesson at the same time and they were not in the same level of education. Sighted students confirmed that visually impaired students depended on them when it came to dictation of notes that they had not been given in Braille. Some lecturers agreed with this idea of visually impaired students depending on sighted students for notes while others said that they took soft copies in the resource room where the notes were produced in Braille for those students.

The findings were supported by a study done in Kenya teachers' colleges which revealed that tutors felt that since there were no adaptations in all the practical subjects, they lacked skills of assisting the students, thus they left them to depend on sighted students for explanations. In addition, sighted students played a big role in the success of the students with visual impairments, since most of the teaching/learning resources were not available in Braille. On the other hand teacher trainees with visual impairments said that

they used Braille machines to take notes in class and sometimes when the lecturers were too fast they missed a lot of information, this forced them to depend on their sighted peers to dictate and explain to them the information that they missed during the lessons (Nasiforo, 2010).

The researcher sought to find out problems that students with VI encounter during internship. The sighted learners said that the VI students relied on them because there were no special materials where they conducted internship; sometimes they needed assistance to get information which they could not easily get through the sense of touch e.g. observation in clinical psychology, assistance in orientation and mobility, lesson planning, schemes and marking of students work. The lecturers cited the following as some of the challenges that learners with visual impairment faced during their internship such as preparation of lesson plans, interaction with colleagues because they had no idea on how to work with them, use of the chalk board, classroom management, books available in their internship stations for reference were not in Braille, marking learners' work and giving feedback, lack of teaching aids, orientation and mobility, lack of confidence in teaching sighted learners and Supervisors not trained to assess those students with visual impairments.

The students with visual impairment reported that the assistance they received from the colleges were made up of a guide, laptops, recorders, brailers and braille papers to assist them in their internship. The lecturers felt that the performance of students with visual impairment compared to that of their sighted peers was better when they got support and assistance from their

sighted peers and when the environment was conducive. The lecturers said that they evaluated the VI students orally and by giving those braille exams where they wrote their answers using their computers and lecturers gave them the feedback.

The above findings were supported by a research done in Kenyan teacher training colleges 2010 whereby findings revealed that students with VI faced challenges during teaching practice. The greatest challenge as revealed by the study was in the area of general preparation for teaching. For effective teaching, preparation was paramount. Students with visual impairments lacked books in Braille for preparation. They also needed to present their schemes of work and lessons plans in print for approval by their tutors who could not be able to read them in Braille. That meant that those students had to look for readers among the sighted students who were equally busy preparing for the same. There was also a need for the students to rely on their colleagues to help them in preparing teaching/learning resources which were usually visual. In most cases they found themselves teaching without teaching/learning resources which would lead to being penalized by their assessors (Nasiforo, 2010).

Students with VI were asked whether they received any special attention from lecturers during the lessons. From the findings majority of them said that there was no special attention given to them and even some lecturers did not know

that they had such students in class. This was because lecturers had no information that the classes they were going to teach had students with V.I.

The findings were similar to study of Van Reusen, (2001) who found that teachers may resist inclusive practices on account of inadequate training. Beirne-Smith, and Latham, (2000) found out that it would appear that teachers perceive themselves as unprepared for inclusive education because they lack appropriate training in this area. Sharon, Vaughn, Bos and Schumm, (2001) added that inadequate training relating to inclusive education may result in lowered teacher confidence as they plan for inclusive education.

Lecturers were asked to list down the problems they encounter in teaching inclusive classes. The findings included lack of knowledge, skills and training in teaching students with visual impairment, lack of appropriate and adapted materials to teach learners with visual impairment e.g. braille books, brailers, tactile maps, the curriculum is not adapted to suit the needs of students with visual impairment, lack of enough personnel in the resource rooms to assist in writing Braille, too many students in the classrooms which makes it difficult to give the students with visual impairment the attention they require, students with V.I have got a low self esteem. They keep quiet in the lecture rooms that sometimes the lecturers forget that they are present, the classrooms are not adapted, lack of motivation on the side of the lecturers. For the inclusion of students with V.I to be successful in the colleges in the University of Rwanda, there is needed to try and solve the above problems that the lecturers encounter. Therefore, when students with visual impairments are not learning

in a least restrictive environment with the provision of all the relevant learning resources, their performance will be poor.

The findings were similar to the findings by Mitchell (2008) who found out that tools used to assess students in inclusive classrooms are rigid and not adapted. Students are not evaluated on the basis of their individual ability and specific educational needs. A normative kind of assessment seems to dominate in these classes. Crowded classes cannot be left out. This has been a big challenge towards inclusive education in many countries, but mostly third world countries.

The findings were supported by other researchers. According to EFA monitoring Report (2002) conditions such as teachers' salary have been found to negatively impact on the teacher participation. Jangira and Ahuja (1994) add that other conditions are class ratios, physical layout, administration support and supervision, incentives for participation and release time for preparation and evaluation. Attitude of the administrators who have insufficient time and patient to learn about and understand its object has also discouraged the teachers. According to Arbetter and Hartleys (2002) positive attitude towards inclusive education have been directly linked to teacher support.

Lecturers were asked whether they felt it necessary for seminars to be organized for them on how to teach students with visual impairment. The

findings revealed that all the respondents confirmed that it was necessary for the University administration to organize seminars on how to teach students with VI to sharpen their skills in the area of inclusive education. They continue to say that whatever they are doing is trial and error but if given the opportunity to attend seminars the academic performance of students with VI would improve because the lecturers would be having enough knowledge and skills in teaching students with VI.

The findings were supported by Mugambi (2012) who found out that teachers are not confident enough with their level of training to enable them to teach students with visual impairments. This calls for in service courses to update their knowledge and make them gain confidence in carrying out their duties. In addition UNESCO (2001) adds that upgrading teacher's skills is a developmental process that goes beyond workshops and other in-service training activities. Teachers need time to develop confidence and coping strategies and do this in the context of continuous support in the classrooms.

According to Doorlag & Lewis, (1999) the classroom itself may be structured so that there are several work stations with activities of different levels of difficulty and activities for different styles of learning. For example, one station can be more visually-based such as maps, diagrams and pictures; another station can focus on auditory learning with a tape recorder or the teacher giving verbal instructions; and lastly another station may have

computers where learners can type instead of write and do extra research on the topic of the week.

4.4 Teaching resources available to address academic needs of students with visual impairment in colleges of University of Rwanda.

The question sought to find out whether all students with visual impairment in the colleges were provided with enough learning materials to support them in their learning. Table 4.10 presents findings on learning resources provided for all students with VI.

Table 4.10 Learning resources provided for students with VI

Are the resources provided enough for all students with VI in your institution?	Frequency: n=35	Percentage
Yes	27	77.1
No	8	22.8
Total	35	100%

Table 4.10 show that 27 (77.1%) of students with VI said that they were being provided with the resources while 8 (22.8%) said that they were not being provided with them. However those who said that they were being provided with resources added that the resources provided were not enough for all students. According to the administrators interviewed they agreed that although the materials were provided they were not enough for all students. One of the administrators had this to say:

“The materials provided are not enough for all students. Some students are forced to share one victor reader and this becomes a challenge when the two students have lessons at the same time and

may be one is in level one and the other one level two or they are in the same level but taking different subjects. The braille machines are not enough and students shy off taking them to class because of the noise they produce and also some lack competence in using them. They fear that the noise produced by these machines may disturb the rest of the students (10th April 2014)''.

The findings revealed that although there were few braille machines in the resource room, students with visual impairment were not competent in using them and they did not like to use them in class because of the noise they produced which could disturb other students.

On the other hand all lecturers supported learners with visual impairment by confirming that there were no braille books in the colleges and the students highly depended on their sighted peers in doing their assignments through group discussions and some notes provided by the lecturers were put into braille by the resource room personnel.

The sighted students supported the lack of learning resources; they all said that libraries were not equipped with resources for students with visual impairments making it difficult for them to enjoy the library services especially when doing their research, assignments and revisions for their end of semester exams.

The administrators interviewed, also agreed with the students that the libraries were not equipped with the relevant materials for students with visual impairments. One of the administrators, said

The findings agreed with findings by Simon et al (2010) who found out that schools did not have appropriate teaching and learning resources to help students with visual impairment learn better in inclusive classrooms. Additionally, the study found out that, there was a lack of collaboration and participation of parents in the educational affairs of their children. Moreover the findings revealed that, teachers do not have enough knowledge of inclusion and how to teach students with visual impairment in inclusive classrooms.

The findings again agreed with a study done by Marylyn (2008) who found out that one key accommodation that is absolutely essential is access to textbooks and instructional materials in the appropriate media and at the same time as their sighted peers. For students who are blind this may mean braille and/or recorded media. For student with low vision, this may mean large print text or the use of optical devices to access text and/or recorded media while in class.

Students with visual impairment were asked whether there were other learning resources which were not available and if provided they could support them in their learning in inclusive institutions. Findings show that there were some learning resources which were not available in the colleges and if made available could aid in their learning. The materials mentioned were personal laptops, braille and large print course books in the library, tactile maps, and victor readers for all students, screen readers, braille machines for all students,

a braille section with up to date braille books in all areas of study in the library and jaws systems in all computers.

The findings were supported by other researchers. According to Allwright (1990) materials should teach students to learn, that there should be resource books for ideas and activities for instruction/learning, and that they should give teachers rationales for what they do. From Allwright's point of view, textbooks are too inflexible to be used directly as instructional material. Idol (2006), in contrast, argues that material may be suitable for students' needs, even if they are not designed specifically for them, that text books make it possible for students to review and prepare their lessons, that text books are efficient in terms of time and money, and that text books can and should allow for adaptation and improvisation. Materials include text books, video tapes, computer software and visual aids. They influence the content and the procedures of learning.

4.5 The extent to which lecturers adapt the teaching/learning resources and examinations to address needs of students with visual impairments.

The questions in this key area aimed at establishing the extent to which lecturers adapt the teaching/learning resources and examinations to suit the needs of students with visual impairments. Table 4.11 presents finding on adaptation of teaching/learning resources and exams to suit the needs of students with VI.

Table 4.11 Adaptation of teaching/learning resources and examinations to suit the needs of students with VI

Do you adapt learning resources that you use during lectures to suit the needs of the students with VI?	Frequency: n=30	Percentage
Yes	2	6.7
No	28	93.3
Total	30	100%

Table 4.11 shows that 28 (93.3%) of lecturers confirmed that they did not adapt teaching/learning resources and examinations to suit the needs of students with VI while 2 (6.7%) of them adapted teaching/learning resources and examinations to address needs of students with V.I. The findings show that majority of lecturers do not adapt teaching/learning resources and examinations to address needs of students with V.I. This is because most of the lecturers were not trained in the area of SNE and therefore they had no idea on how the adaptations could be done. In addition, students with VI agreed that they were given more time during the examinations but sometimes they faced challenges during exams because some questions were not adapted especially those with diagrams and tables where they had to fill in the answers. According to the resource room personnel the braille embosser is not able to produce tables and diagrams in braille. Therefore questions that require tables and map could not be clearly produced in Braille.

The findings were supported by Doorlag and Lewis (1999) as well as UNESCO (2005) who gave some examples on how to make instructional and environmental adaptations. They suggested that the teacher provides

additional instruction and assistance in areas where the learners experience difficulty; structure practice activities to provide learners with enough time to master skills; be flexible with regard to a time-frame; provide special support in particular subjects.

According to Carmen, W. (2014) the role of the classroom teacher is to manage the classroom in a manner that meets the individual needs of each student in the class. This includes promoting learning and supplementing activities, coordinating and collaborating with support staff, using a variety of teaching approaches, and adapting instruction to include all students. The classroom teacher is in charge of each student's overall academic program.

4.6 How administrative staff facilitate students with visual impairments to access teaching and learning materials in inclusive colleges.

This objective aimed at finding out the role of administrators in supporting students with visual impairment. The researcher interviewed ten administrators from the two colleges. This comprised of four resource rooms managers and six deans of faculties which included students with visual impairments. All these ten administrators interviewed agreed that they appreciated having students with visual impairment in their institutions and therefore they had catered for inclusive education in their Strategic Plan. One of the administrators had the following to say:

“I appreciate having students with visual impairments in my faculty because they are social and friendly. They have interest in

learning despite the fact that they face a lot of impediments. Therefore, there is no reason why I should not include inclusive education in my strategic plan (10th April 2014)”.

During the discussion, on whether they include other staff in making decision concerning inclusive education for students with visual impairment, it emerged out clearly that it was not done always but rarely. When asked about staff development in the area of inclusive education, majority of them said that this was done in other areas of academic but inclusive education was still at a very low level one of the administrators said:

“Special education has got very few lectures if any, and the students are also very few, therefore staff development can be done in the future when it is fully established (15th April 2014)”.

The discussions also revealed that majority of lecturers had no training in SNE. One of the administrators said:

“Most of the lecturers should be trained in SNE so as to be able to teach students with visual impairments (15th April 2014).”

Majority of administrators in their discussions with the researcher expressed the feeling that there was need for adaptation of the classes, proper arrangement of the seats in the classrooms, removal of stairs in the buildings and within the colleges and that they should be appropriate teaching aids as recommended worldwide, if learners with VI were to perform well in their academic work.

According to administrators, finances for buying equipment was available but due to the fact that equipment for students with VI are very expensive and were not locally available therefore, finances are not enough to buy all the required equipment for each individual student. Majority of the administrators pointed out that lack of equipment and materials affect the student's performance in academic work, in internship and Research.

“Brailers, victor readers and laptops are very expensive and not locally available. Efforts of the college management to buy these equipment is there but finances are not available unless an NGO volunteers to buy enough equipment for our students. Sometimes the few equipment we have in our resource room breaks down and due to shortage of personnel qualified in SNE, the materials are not repaired (10th Aril 2014)”.

The issue of the library being equipped with braille reading materials, all the administrators supported students with VI, sighted students and lecturers by accepting that the libraries are not equipped with any materials that students with VI could read. Therefore, they had no idea of using the library in the university. Most of the time, when they were doing their research or intensive reading they depended on internet and their sighted peers. Some of them just relied on the notes provided by the lecturers. This was therefore a challenge that could affect their academic performance. One of the administrators said:

“I have been in this college for over five years, and I can confirm that students with visual impairments have no idea on how to use the library in the colleges. This is because I have never seen them in the library (14th April 2014)”.

The discussion on strategies to improve inclusive education in University of Rwanda, majority of the administrators gave the views of creating awareness of what inclusive education was in the university and the community at large, need for providing enough learning resources/ equipment, training of lecturers to sharpen their skills so as to be able to teach those students without facing impediments. There should be adaptation of the university environment to make it friendly to students with VI. One of the administrators said:

“It has been my observation that for inclusion to succeed there should be proper planning especially on the availability of learning/ teaching materials and the adaptation of the environment. Many students I have interacted with complain of poor arrangement of the classes’ and sometimes they find it difficult to move around. They fall off the stairs most times and this affects them psychologically (9th April 2014)”.

According to Van Reusen et al. (2001) teachers who had not undertaken training regarding the inclusion of students with VI, might exhibit negative attitudes toward such inclusion, while increased training was associated with more positive attitudes toward the inclusion of students with VI. Training in the field of special education appears to enhance understanding and improve attitudes regarding inclusion. Introductory courses offered through teacher preparation program might sometimes be inadequate in preparing the general educator for successful inclusion.

4.7 Students' level of orientation and mobility.

Orientation and Mobility is very essential for students with visual impairments. In order for these students to be successful in life they need to be trained in this area. Table 4.12 presents findings on training in orientation and mobility.

Table 4.12 Training in orientation and mobility

Have you ever been trained in orientation and mobility?	Frequency: n=35	Percentage
Yes	10	28.6 %
No	25	71.4%
Total	35	100%

Table 4.12 shows that 10 (28.6%) of students with VI were trained in orientation and mobility and 25 (71.4%) of them were not trained in orientation and mobility. Findings show that majority of students with VI were not trained in orientation and mobility. Those who said that they were trained, it had been done through attending workshops on orientation and mobility, organized by handicap International and Rwanda Union of the blind. Therefore this is evident that most of the learners with VI learning in the University of Rwanda need to be given enough training in orientation and mobility so that they could be able to move freely and independently without having to depend on their sighted peers.

According to Uslan (1990), orientation and mobility instruction prepares a student with a visual impairment to travel independently and safely. Orientation skills help a student to be aware of his/her own body in space and

the surrounding environment. Mobility skills are specific techniques used to enable a student to move easily from one place to another.

Orientation and mobility skills contribute to development in social skills, mental and physical interactions and the general well-being of the student. Learners with visual impairments often find it difficult to orientate and find their way in a strange place.

The questions on whether students with VI joining the University as first year are given orientation and mobility the findings showed that all students with VI joining the University for the first time were not given orientation of the college. As a result of not being oriented, they faced many challenges before they could settle to concentrate with their studies. The challenges they mentioned were location of classes for different subjects. This implied that most of the time they were late for lessons which affect their overall performance.

According to sighted students, majority of them supported students with VI by saying that the environment of these two inclusive institutions was not adapted to suit the needs of students with visual impairments in Orientation and Mobility. Since they were many obstacles that they were not aware of, they feared moving without assistance because they might hurt themselves. Another problem pointed out was that the notice boards in the institutions do not cater for visually impaired students because all the information posted on

them was in print which meant that they had to look for sighted students who could read the information to them. They ended up missing very important information such as attending public lectures, changes of rooms for lessons and important announcement that concerned them. Learners with visual impairments should also be taught to use certain aids that would help them to move independently. The Mowat Sensor was a “hand-held ultrasound travel aid that uses high-frequency sound to detect objects. Vibration frequency increases as objects become closer; the sensor vibrates at different rates to warn of obstacles in front of the individual. White canes are still widely used as reliable guides for people with visual impairments. Teaching learners to use those aids could help them to overcome the barriers related to their movement.

Carrol (1961) puts it “the cane is worse than useless without proper instruction,” for instance, like the sighted guide technique mentioned earlier, due to lack of training skills in Kenya, it was common to see a man who was visually impaired holding a cane or a long stick on one end following a small boy, who was walking ahead of him holding the other end of the cane. The study confirms an observation by many, (including the researcher) that there was an acute shortage to train the persons with visual impairment in those very important travel skills.

Table 4.13 Availability of white canes to all students who are touch readers

Do all learners who are touch readers in your learning institution have white canes?	Frequency: n=35	Percentage
Yes	12	34.3
No	23	65.7
Total	35	100%

Table 4.13 shows that 12 (34.3%) of students with VI had white canes while 23 (65.7%) did not have white canes. Findings revealed that majority of students with VI did not have white canes. When asked how they moved around the institutions without white canes, majority of these students with VI explained that they relied so much on the assistance given to them by their sighted peers before they became familiar with the environment of the institutions. Therefore, even if they were to be trained in OM it would not be successful because they had no white canes. A white cane was a very important tool for a person with VI because it protects them from banging themselves into objects and also locating their ways within their environment. When one has a white cane it is easy to be noticed by the society and can be given assistance easily. Therefore it is very important for these institutions to find a way of providing each VI student with a white cane and train them on how to use it because this would help them to be fully independent and self reliable in terms of movement within and outside the colleges. If this is done successfully, there is an indication that even the academic performance would improve because they would be able to locate their classes and be there on time to attend their lessons.

According to Uslan (1990) most mobility experts and clients agree that the long cane was the most efficient, convenient and affordable and almost universally available mobility aid so far developed which was said to be one of the only proven and widely accepted primary modes of independent travel.

Generally, since the lecturers were the ones who spend most of the time in class with these students, they had a lot of experience and are able to give suggestions on how inclusive education could be improved. The lecturers were asked to give the recommendations on what could be done to improve the curriculum and teaching methods used in the University to accommodate the needs of students with VI. Findings revealed that all lecturers who responded to questionnaire in research recommended that there was a need for all lecturers to be trained in SNE and there should be some short courses organized for them to be taught how to read and write Braille and this could allow them to be able to mark their students' work and give them feedback on time without having to rely on the resource room personnel. There was an urgent need to adapt the curriculum, provision of teaching/learning resources that accommodate students with VI. The libraries should be well equipped with Braille course books and other books for further readings. There was a need to provide each VI student with an assistive device such as recorders, magnifiers, Braille machines and laptops so that they could learn effectively. The lecturers felt that there was a need for employment of qualified technicians to repair the above mentioned materials on time when they broke down. Lecturers also felt that if classes were well organized with enough

space between the desks they would be able to give individual attention to all learners. Buildings within the colleges should be adapted to allow easy accessibility for these students. In conclusion, it is very important to note that all the respondents who participated in this research expressed the need of adaptations in all areas of academic and the modification of the buildings and the environment in general to accommodate students with VI. If all the findings presented in this study were improved, inclusive education in colleges of the University of Rwanda would be successful.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the chapter, summary of the study in relation to the objectives and implications from the findings of the study and general conclusions are drawn. The recommendations for different stakeholders as well as suggestions for further research are also discussed in the chapter.

5.2 Summary of the findings

The findings of this study were organized in five objectives. The findings of these objectives were discussed as follows:

5.2.1 Teaching methods used in inclusive colleges

In relation to this objective the findings showed that the use of power point by the lecturers in teaching made students with VI uncomfortable because they were not able to read what is on the screen but only depended on the few verbal explanations that the lecturers gave. The sighted peers also felt that the lecturers should do more of talking to allow easy recording and less use of power point projections and to slow down while talking to allow these students with visual impairment to get what was being taught.

5.2.2 Appropriate learning/teaching resources available in inclusive colleges

From the findings, the administrators interviewed agreed that although the materials were provided, they were not enough for all students.

The findings revealed that libraries in the colleges were not equipped with resources for students with visual impairment which made it difficult for them to enjoy the library services this affected them more when they were expected to write their research projects, assignments and revisions at end of the semester examinations.

5.2.3 Adaptation of teaching/learning resources and examinations.

The findings revealed that majority of lecturers did not adapt teaching/learning resources and examinations to suit the needs of students with VI. This was because most of the lecturers were not trained in the area of SNE and therefore they had no idea on how the adaptations could be done.

5.2.4 Facilitation by the administrative staff towards the learning of students with Visual Impairment (VI)

Findings from the interviews between the researcher and the administrators revealed that staff development was done in other academic areas but inclusive education was still at a very low level. The discussions also revealed that majority of lecturers had no training in SNE. Most of lecturers should be trained in SNE so as to be able to teach students with VI.

5.2.5 Effects of orientation and mobility on the learning of students with VI

The findings revealed that majority of students with VI were not trained in orientation and mobility. Therefore it was evident that most of the learners with VI learning in the University of Rwanda needed to be given enough training in orientation and mobility so that they could be able to move freely and independently without having to depend on their sighted peers.

As a result of not being oriented, they faced many challenges before they could settle to concentrate on their studies. The challenges they mentioned were location of classes for different subjects. This implied that most of the time they were late for lessons and this affected their performance.

5.4 Recommendations

The following recommendations drawn from this study have been grouped in two sections. The first section shows the recommendations for policy makers, while the second section shows topics for further research.

5.4.1 Policy recommendations

- i) The University of Rwanda should equip the library and the resource room with up to date teaching/learning resources such as victor readers, computers with jaws, adapted maps, adapted mathematical equipments, large print and Braille books to cater for students with VI.
- ii) The Ministry of Education should provide funds to organize seminars and workshops in the area of SNE to allow lecturers to teach effectively.

iii) The University curriculum and the environment of the University should be adapted to accommodate students with VI.

iv) The National Council of People with Disability in Rwanda should provide training on orientation and mobility, white canes and learning resources like laptops and braille note takers to all students with VI who join the University.

5. 4.2 Recommendations for further research

The following topics have been recommended for further research by other researchers who would like to venture in inclusive education:

i) Employment opportunities for students with VI after completion of their studies

ii) Challenges encountered by teachers with visual impairment teaching in secondary schools in Rwanda.

iii) Learning difficulties faced by learners with VI in inclusive secondary school in Rwanda

vi) Problem encountered by teachers teaching learners with VI in inclusive secondary school in Rwanda.

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APPENDICES

Appendix (i): Questionnaire for learners with visual impairments

Please complete the questionnaire by responding to all questions. Information that you give will be kept confidential and only be used for the purpose of this study to improve education of students with visual impairments in the institutions of higher learning.

Section A (Personal information).

Please tick where appropriate

- | | | |
|-------------------|--------------|--------------------------|
| 1. Age: | 18yrs- 20yrs | <input type="checkbox"/> |
| | 21yrs-25yrs | <input type="checkbox"/> |
| | 26yrs-30yrs | <input type="checkbox"/> |
| | 31yrs-35yrs | <input type="checkbox"/> |
| 2. Sex: | Male | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> |
| 3. Year of study: | Level 1 | <input type="checkbox"/> |
| | Level 2 | <input type="checkbox"/> |
| | Level 3 | <input type="checkbox"/> |
| | Level 4 | <input type="checkbox"/> |
| 4. Area of study: | Education | <input type="checkbox"/> |

Arts

Clinical psychology

Mass communication

Humanities

Law

Section B

1. Are you provided with learning materials in your institution? Yes

No

2. Are the resources provided enough for all students with visual impairments in your institution? Yes No

3. Are there other learning resources which are not available and you feel if provided they can support your learning in this inclusive institution? Yes

No

If yes, list them

.....

4. What kind of assistance are you given by your learning institution when you go out for internships?.....

.....

5. Do you feel comfortable in inclusive classrooms? Yes No

6. Are the teaching methodology used by lecturers appropriate? Yes
No

7. How do you take notes during lectures?.....
.....
.....

8. Are you given extra time during exams? Yes No

If yes, How many more hours?.....
.....
.....

9. Is the curriculum used in your institution adapted to suit the learning needs
of learners with visual impairments? Yes No

Elaborate you answer above.
.....
.....

10. Have you ever been trained in orientation and mobility Yes No

If yes, explain

11. Are new learners with visual impairments given the orientation of the
institution before they begin their classes? Yes No

If no what challenges do they face when trying to locate for the classes where their lessons are taking place?

.....

.....

.....

12. Do all learners who are touch readers in your learning institution have white canes?

Yes No

If no who assists them in moving around within and outside the learning institution?

Appendix (ii): Questionnaire for sighted learners

Please complete the questionnaire by responding to all questions. Information that you give will be kept confidential and will only be used for the purpose of this study to improve education of students with visual impairments in the institutions of higher learning.

Section A (Personal information):

Please tick where appropriate

- | | | |
|-------------------|--------------|--------------------------|
| 1. Age: | 18yrs- 20yrs | <input type="checkbox"/> |
| | 21yrs-25yrs | <input type="checkbox"/> |
| | 26yrs-30yrs | <input type="checkbox"/> |
| | 31yrs-35yrs | <input type="checkbox"/> |
| 2. Sex: | Male | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> |
| 3. Year of study: | Level 1 | <input type="checkbox"/> |
| | Level 2 | <input type="checkbox"/> |
| | Level 3 | <input type="checkbox"/> |
| | Level 4 | <input type="checkbox"/> |
| 4. Area of study: | Education | <input type="checkbox"/> |
| | Arts | <input type="checkbox"/> |

Clinical psychology

Mass communication

Humanities

Law

Section B:

1. Do you think learners with visual impairments face challenges when they go out for internships? Yes No

2 Do you think that learners with visual impairments are comfortable learning together with you in class? Yes No

3. Are the teaching methods used by lecturers are appropriate for learners with visual impairments? Yes No

If No, how can they be improved?.....

.....
.....

4. Do learners with visual impairments depend on the sighted students in taking notes during the lectures? Yes No

5. Is the curriculum for learners with visual impairments the same as yours?
Yes No

6. From your observation, do you feel that lecturers give attention to learners with visual impairments? Yes No

7. Do you feel that learners with visual impairments rely too much on you during the lectures and internship? Yes No

If, Yes explain.....
.....
.....

8. Is the environment of your learning institution adapted to the needs of learners with visual impairments? Yes No

If No suggest ways through which it can be modified.....
.....
.....

9. Do you think that the library in your institution is well equipped to support learning needs for learners with visual impairments? Yes No

Appendix (iii): Questionnaire for Lecturers

Please complete the questionnaire by responding to all questions. Information that you give will be kept confidential and will be used for the purpose of this study to improve education of students with visual impairments in the institutions of higher learning.

Section A (Personal information):

Please tick where appropriate

1. Age:
- | | |
|-------------|--------------------------|
| <30yrs | <input type="checkbox"/> |
| 30yrs-45yrs | <input type="checkbox"/> |
| 46yrs-55yrs | <input type="checkbox"/> |
| 56yrs-65yrs | <input type="checkbox"/> |
| 66yrs-75yrs | <input type="checkbox"/> |
| >75yrs | <input type="checkbox"/> |
2. Sex:
- | | |
|--------|--------------------------|
| Male | <input type="checkbox"/> |
| Female | <input type="checkbox"/> |
3. Teaching experience.....
4. Area of specialization:
- | | |
|---------------------|--------------------------|
| Education | <input type="checkbox"/> |
| Arts | <input type="checkbox"/> |
| Clinical psychology | <input type="checkbox"/> |

Mass communication

Humanities

Law

Section B

5. Have you undergone any training on special needs education? Yes

No

If yes, what level? Certificate

Diploma

Degree

Post graduate

6. Do you think that it is possible to teach learners with visual impairments in an inclusive classroom? Yes No

7. Briefly explain the problems you encounter when interacting and teaching learners with visual impairments?

.....

8. Is the curriculum used in the university modified to suit the learning needs of students with visual impairments? Yes No

If yes, briefly explain

9. Do you adapt learning resources that you use during lectures to suit the needs of the learners with visual impairments? Yes No

10. Are learners with visual impairments able to take notes and cope with your lectures comfortably? Yes No

If no, where do they get notes for revision?.....
.....

11. Are the lecture rooms fitted with the right facilities for the learners with visual impairments? Yes No

12. How do you evaluate and give feedback to these learners?
.....
.....

13. Do you think it is necessary to organize seminars for lecturers in your university on how to teach learners with visual impairments? Yes
No

If yes, give reasons.....
.....

14. Do you have brailled materials including course books? Yes No

If no, how do they do their assignments and other further readings?
.....
.....

15. How do learners with visual impairments perform in their internships compared with their sighted peers?.....

.....
.....

16. What challenges do you feel that learners with visual impairments encounter during these internships?.....

.....

17. List problems that you encounter in the provision of inclusive education in the inclusive classroom?.....

.....

18. As a lecturer in the university, what recommendations would you give to improve on the curriculum and the teaching methods used in the university to accommodate the needs of learners with visual impairments?.....

.....

.....

Appendix (iv): Interview guide for administrators

1. Do appreciate having students with visual impairment in your institution?

Yes No

Explain

.....
.....

2. Have you included inclusive education in your strategic plan?

Yes No

Explain

.....
.....

3. Do you involve other academic staff when making decisions concerning inclusive education for learners with visual impairments?.....

.....
.....

4. Do you have any staff development programmes concerning inclusive education for learners with visual impairments in the university? Yes

No

5. What are the curriculum barriers for the implementation of inclusive education for learners with visual impairments?.....

.....

6. What do you think are the measures to be put in place to improve the accessibility in lecture rooms and the hostels?.....

.....
.....

7. Do you have lecturers who are trained in the special needs education? Yes

No

If yes for the above question, specify the level.....

.....
.....

8. When did your institution start including learners with visual impairments?

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

9. Is there enough financial allocation to learners with visual impairments to help in availing the special equipment needed for their teaching and learning process?.

Yes No

10. Who provides the required equipment and other learning materials for learners with visual impairments?.....

.....

11. What type of equipment is available in your institution for learners with visual impairments in order to facilitate their efficient learning process in the inclusive lecture rooms?.....

.....

12. Does every learner with visual impairment have enough learning resources to support them in their academic performance?.....

.....

13. If no to the above question, how does it affect their academic performance?.....

.....

14. Is the library equipped with the relevant braille materials for the use by learners with visual impairments? Yes No

If no to the above question, how do they spend their free time?

.....

.....

.....

15. Highlight on policy strategies that could be employed to address the factors hindering efficient provision of inclusive education in your institution.....

.....

.....

Translated questionnaires and interview guide in French

Annexe (i): Questionnaire pour les apprenants ayant une déficience visuelle

Veillez remplir le questionnaire en répondant à toutes les questions. Informations que vous donnez seront gardées confidentielles et ne seront utilisées qu'aux fins de cette étude pour améliorer l'éducation des élèves ayant une déficience visuelle dans les institutions d'enseignement supérieur.

Section A (renseignements personnels).

Veillez cocher le cas échéant

1. Âge: 18 ans- 20ans

21ans-25ans

26ans-30ans

31ans-35ans

2. Sexe: male femelle

3. Année d'étude: Niveau 1 Niveau 2 Niveau 3

Niveau

4. Niveau d'étude :

L'éducation

Arts

Psychologie clinique

Mass communication

Sciences Humaines

Droit

Section B

1. Êtes-vous fournis avec matériel d'apprentissage de votre institution? Oui
Non

2. Les ressources sont fournies pour tous les étudiants ayant une déficience visuelle dans votre institution? Oui Non

3. Y a-t-il d'autres ressources d'apprentissage qui ne sont pas disponibles et que vous vous sentiez si pourvu qu'ils peuvent soutenir votre apprentissage dans cette institution globale?

Oui Non

Si oui, énumérez

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

4. Quel genre d'aide avez-vous été donnée par votre institution d'enseignement lorsque vous allez vous aux stages?

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

5. Ne vous sentez à l'aise dans les salles inclusive? Oui Non

6. Les méthodes d'enseignement utilisées par les professeurs sont-elles appropriés?

Oui Non

7. Comment pouvez-vous prendre des notes pendant lectures?

.....
.....

8. Avez-vous accordé du temps supplémentaire lors des examens? Oui
Non

Si oui, combien plus hours?

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

9. Est-il le programme utilisé dans votre institution adapté aux besoins d'apprentissage des apprenants avec une déficience visuelle? Oui
Non

Elaborez vous réponse ci-dessus.

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

10. Avez-vous jamais été formés en orientation et mobilité? Oui
Non

11. Sont-ils de nouveaux apprenants ayant des déficiences visuelles étant donné l'orientation de l'institution avant de commencer leurs classes? Oui
Non

Si non, quels sont les défis auxquels ils font face lorsqu'ils tentent de localiser dans les classes où leurs enseignements ont lieu?

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

12. Faire tous les apprenants qui sont touchés les lecteurs dans votre établissement d'enseignement ont cannes blanches?

Oui Non

Si non, qui les assiste dans le déplacement au sein et en dehors de l'établissement d'enseignement?

Annexe (ii): Questionnaire de clairvoyance les apprenants

Veillez remplir le questionnaire en répondant à toutes les questions. Informations que vous donnez seront gardées confidentielles et seront utilisées uniquement dans le but de cette étude pour améliorer l'éducation des élèves ayant une déficience visuelle dans les institutions d'enseignement supérieur.

Section A (renseignements personnels):

Veillez cocher le cas échéant

1. Age: 18 ans- 20ans

21ans-25ans

26ans-30ans

31ans-35ans

2. Sexe: mâle femelle

3. Année d'étude: Niveau 1 Niveau 2 Niveau 3

Niveau 4

4. Niveau d'étude:

L'éducation

Arts

Psychologie Clinique

Mass Communication

Sciences Humaines

Droit

Section B :

1. Pensez-vous que les apprenants ayant une déficience visuelle sont confrontés à des difficultés lorsqu'ils sortent pour des stages? Oui Non

2. Pensez-vous que les apprenants ayant une déficience visuelle sont confortables apprendre ensemble avec vous en classe?

Oui Non

3. Sont-elles les méthodes d'enseignement utilisées par les professeurs sont appropriées pour les apprenants ayant une déficience visuelle? Oui

Non

Si non, comment peuvent-ils être améliorés?

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

4. Les étudiants ayant une déficience visuelle dépendent de la vision les étudiants de prendre des notes pendant les lectures?

Oui Non

5. Est-il le curriculum pour les apprenants ayant une déficience visuelle le même que le vôtre? Oui Non

6. De votre observation, pensez-vous que les lecteurs prêtent attention aux apprenants ayant une déficience visuelle?

Oui Non

7. Pensez-vous que les apprenants ayant des déficiences visuelles trop comptent sur vous pendant les leçons et les stages? Oui Non

Si oui, expliquez... ..
.....
.....

8. Est-il l'environnement de votre institution d'enseignement adapté aux besoins des apprenants ayant une déficience visuelle?

Oui Non

Si non, suggérez les moyens par lesquels elle peut être modifiée... ..
.....
.....
.....

9. Pensez-vous que la bibliothèque de votre institution est bien équipée pour combler les besoins en matière d'apprentissage pour les apprenants ayant une déficience visuelle? Oui Non

L'appendice (iii): Questionnaire à l'intention des professeurs

Veillez remplir le questionnaire en répondant à toutes les questions. Informations que vous donnez seront gardées confidentielles et seront utilisées aux fins de cette étude pour améliorer l'éducation des élèves ayant une déficience visuelle dans les institutions d'enseignement supérieur.

Section A (renseignements personnels):

Veillez cocher le cas échéant

1. Âge :

<30 ans

30 ans 45 ans

46 ans 55 ans

56 ans 65 ans

66 ans-75ans

>75 ans

2. Sexe: male femelle

3. Expérience d'enseignement... ..
.....

4. Domaine de spécialisation:

L'éducation

Arts

Psychologie clinique

Mass communication

Sciences Humaines

Droit

Section B

5. Avez-vous subi aucune formation sur les besoins spéciaux en éducation?

Oui Non

Si oui, quel niveau?

Certificat

degré diplôme

post-universitaire

6. Pensez-vous qu'il est possible d'enseigner les apprenants ayant une déficience visuelle dans une classe inclusive? Oui Non

7. Expliquez brièvement les problèmes que vous rencontrez lors de l'interaction et de l'enseignement aux élèves ayant une déficience visuelle?

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

8. Est le programme utilisé dans l'université modifié pour satisfaire les besoins d'apprentissage des élèves souffrant d'une déficience visuelle? Oui

Non

Si oui, expliquez brièvement

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

9. Voulez-vous adapter ressources de formation que vous utilisez au cours des lectures afin de l'adapter aux besoins des apprenants ayant des déficiences visuelles? Oui Non

10. Les étudiants ayant une déficience visuelle capable de prendre des notes et de faire face à vos lectures confortablement? Oui Non

Si non, où vont-ils obtenir des notes pour revision?
.....
.....
.....

11. Les salles de classes équipées avec les bonnes installations pour les apprenants ayant une déficience visuelle? Oui Non

12. Comment pouvez-vous évaluer et fournir de la rétroaction aux thèses apprenants?
.....
.....

13. Pensez-vous qu'il est nécessaire d'organiser des séminaires à l'intention de professeurs dans votre université sur la façon d'enseigner les apprenants ayant une déficience visuelle? Oui Non

Si oui, donner les raisons... ..
.....
.....
.....

14. Avez-vous matériaux en Braille y compris bien sûr les livres? Oui
Non

Si non, comment font-ils leurs affectations et autres lectures supplémentaires?

.....
.....

15. Comment les élèves ayant une déficience visuelle à effectuer leur stage en comparaison avec leur clairvoyance pairs?

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

16. Quels défis avez-vous le sentiment que les apprenants ayant des déficiences visuelles rencontrer pendant ces stages?

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

17. Enumérez les problèmes que vous rencontrez dans la fourniture de l'éducation pour l'inclusion dans la liste sale inclusive de classe?

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

18. En tant que professeur à l'université, quelles recommandations feriez-vous pour améliorer le cursus et les méthodes d'enseignement utilisées dans l'université pour répondre aux besoins des apprenants non voyants /non voyantes?

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

L'appendice (iv): guide d'entrevue pour les administrateurs

1. Apprécie les étudiants avec visual sévère dans votre institution?

Oui Non

Expliquez.....
.....
.....
.....
.....

2. Avez-vous inclus l'éducation inclusive dans votre plan stratégique?

Oui Non

Expliquez
.....
.....
.....

3. Avez-vous impliqué d'autres membres du personnel académique lors de la prise de décisions concernant l'éducation intégratrice des apprenants ayant une déficience visuelle?

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

4. Avez-vous des programmes de développement du personnel de l'éducation intégratrice pour les apprenants ayant une déficience visuelle à l'université?

Oui Non

5. Quels sont les cursus les obstacles à la mise en œuvre de l'éducation pour l'inclusion des apprenants non voyants or non voyantes?

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

6. Quels sont selon vous les mesures à mettre en place pour améliorer l'accessibilité dans les salles de cours et les dortoirs?

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

7. Avez-vous des professeurs qui sont formés dans les besoins spéciaux en éducation? Oui Non

Si oui à la question ci-dessus, indiquez le niveau

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

8. Lorsque votre institution a-t-elle lancé notamment les apprenants ayant une déficience visuelle?

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

9. Y a-t-il suffisamment allocation financière pour les apprenants ayant une déficience visuelle pour les aider à se prévaloir l'équipement spécial nécessaire pour leur processus d'enseignement et d'apprentissage?

Oui Non

10. Qui fournit le matériel nécessaire et d'autres matériels d'apprentissage pour les apprenants avec difficulté visuelle?

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

11. Quel type de matériel est disponible dans votre établissement pour les apprenants ayant une déficience visuelle afin de faciliter leur efficace processus d'apprentissage dans les salles inclusive de classes?

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

12. Est-ce que chaque apprenant de déficience visuelle a suffisamment ressources d'apprentissage pour les soutenir dans leurs resultants d'études?

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

13. Si non, à la question ci-dessus, comment cela affecte leurs résultats universitaires?

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

14. Est la bibliothèque équipée avec les documents en Braille pour l'utilisation par les apprenants ayant une déficience visuelle? Oui Non

Si non, à la question ci-dessus, comment ils passent leur temps libre?
.....
.....
.....
.....

15. Mettez en surbrillance les stratégies qui pourraient être employées pour traiter les facteurs qui entravent une bonne prestation de l'éducation inclusive dans votre institution... ..
.....
.....
.....

Appendix (v): Budget

Item	Cost/Unit in Rwf	Units	Total Cost	Cost in Ksh
Printing papers	500	6	3,000	375
Toner	7000	1	7,000	875
Laptop	40,000	1	40,000	5000
Braille	60,000	1		7500
Victor reader	59,500	1	60,000	7500
JAWS	114,750	1	114,750	14344
Pens	30		30	4
Research assistants	75,000	2	150,000	18750
Total			374,780	46848

Appendix (vi): Time work plan

Periods	Activities
Sept/2012- Oct/2013	Proposal writing
Oct-Nov/2013	Defense of the proposal and making corrections
Nov/2013- April/2014	Data collection and entry
April- June/2014	Data analysis and 1 st draft of a thesis
June-August/2014	Making corrections and submission of second draft
August- Sept/2014	Submission of third draft of thesis
Sept- Oct/2014	Submission of fourth draft of thesis
Oct- Dec/2014	Submission of 5 th draft of thesis
Dec/2014- Jan/2015	Submission of thesis for examination
Jan- March/2015	Defense of thesis at School level
March- April/2015	Making corrections from the examiners and submission of final copy of thesis
April-July/2015	Graduation

REPUBLIC OF RWANDA

Kigali, 24.03.2014
N° 748 /12.00/2014MINISTRY OF EDUCATION
P.O.BOX 622 KIGALIRe: **Permission to carry out research in Rwanda - No: MINEDUC/S&T/0198/2014**

The Permission is hereby granted to **MUKARWEGO NASIFORO Beth**, a Ph.D student in the department of special Needs Education at Kenyatta University, Kenya, to carry out research on: **"Academic Challenges encountered by Learners with Visual Impairments in Inclusive Public Colleges of the University of Rwanda"**.

The research will be carried out in the University of Rwanda- College of Arts and Social Sciences and College of Education located in Huye and Gasabo districts respectively.

The researcher will need access the students' performance records. She will interview the Deans of the faculties which accommodate students with visual impairments as well as resources room managers. She will also need to interview the lecturers and students with and without Visual impairments selected using Stratified random sampling, simple random sampling and Purposive sampling techniques.

The period of research for which this permission is granted is one year, **from 18th March, 2014 to 18th March, 2015**. It may be renewed if necessary, in which case a new permission will be sought by the researchers.

Please allow the **above mentioned researcher**, any help and support they might require to conduct this research

Yours sincerely

Dr. Marie Christine Gasingirwa
Director General,
Science Technology and Research
Ministry of Education

Appendix vii: The informed consent form for respondents

Informed consent

My name is Nasiforo Beth Mukarwego. I am a PhD Student from Kenyatta University. I am conducting a study on “Academic challenges encountered by students with visual impairments in inclusive public colleges of the University of Rwanda.” The information will be used by the Ministry of Education to Improve the education of students with visual impairment of the University of Rwanda.

Procedures to be followed

Participation in this study will require that you answer questions from the questionnaire and the information you will give will strictly be kept confidential by the researcher and will only be used for the purpose of this study to improve the education of students with visual impairments in the University of Rwanda. I will record the information from you in a questionnaire/interview.

You have the right to refuse participation in this study.

Please remember that participation in the study is voluntary. You may ask questions related to the study at any time.

You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you receive from your institution now or in the future.

Discomforts and risks

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time. The interview may add approximately 30 minutes to the time you wait before you resume your routine services.

Benefits

If you participate in this study you will help us and the country to improve the on the academic challenges that students with visual impairments face while undertaking their University education together with their peers in the University of Rwanda.

Confidentiality

The questionnaires and interviews will be conducted in a private setting, your name will not be recorded on the questionnaire the information provided will be kept confidential.

Contact information

If you have any questions you may contact Dr. Nelly Otube, supervisor1 on +254727405421 Or Dr. Evariste Karangwa, supervisor 2 from the University of Rwanda College Of Education on +250785489767 or the Kenyatta University Ethical Review Committee Secretariat on chaiman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com.

Participant's Statement

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that my decision to leave or to stay will not affect my job.

Name of participant : Uwamaliya Jovine

5/03/2014

Signature or thumb print

Date

Investigator's statement

I, the undersigned, have explained to the volunteer in a language s/he understands, the procedures to be followed in the study and the risks and benefits involved.

Name of interviewer : Mberimana Emmanuel

12/04/2014

Interviewer signature

Date

Appendix viii: Le formulaire de consentement éclairé pour les répondants
Consentement informé

Mon nom est Nasiforo Beth Mukarwego. Je suis un étudiant en Doctorat de l'Université de Kenyatta University. J'ai mené une étude sur les "**Défis académiques rencontrés par les étudiants et étudiantes ayant une déficience visuelle à inclusive collèges publics de l'Université du Rwanda.**" Les informations seront utilisées par le Ministère de l'Education pour améliorer l'éducation des élèves ayant une déficience visuelle de l'Université du Rwanda.

Procédures à suivre

La participation à cette étude, vous devrez répondre aux questions du questionnaire et les informations que vous donnerez seront strictement confidentielles par le chercheur et seront utilisées uniquement dans le but de cette étude pour améliorer l'éducation des élèves ayant une déficience visuelle à l'Université du Rwanda. Je vais enregistrer les informations de vous dans un questionnaire/interview.

Vous avez le droit de refuser la participation à cette étude.

N'oubliez pas que la participation à l'étude est volontaire. Vous pouvez poser des questions liées à l'étude à tout moment.

Vous pouvez refuser de répondre à toute question et vous pouvez arrêter une interview à tout moment. Vous pouvez également arrêter en participant à l'étude à tout moment sans que cela ait des conséquences pour les services que vous recevez de votre institution maintenant ou dans l'avenir.

Inconforts et certaines risques

Des questions que vous vous serez demandé sont intime sur objet et peut être gênant ou vous mettre mal à l'aise. Si cela se produit, vous pouvez refuser de répondre à ces questions si vous choisissez de le faire. Vous pouvez également interrompre l'entretien à tout moment. L'entrevue peut ajouter environ 30

minutes pour le temps que vous attendez avant de reprendre vos services quotidiens.

Avantages

Si vous participez à cette étude que vous allez nous aider et le pays pour améliorer les défis académiques que les élèves ayant une déficience visuelle face tout en entreprise leurs études universitaires avec leurs pairs dans l'université du Rwanda.

La confidentialité

Des questionnaires et des entretiens seront menés dans un cadre privé, votre nom ne sera pas enregistré sur le questionnaire, les informations fournies seront tenues confidentielles.

Informations de contact

Si vous avez des questions, vous pouvez contacter Dr. Nelly Otube, superviseur 1 sur +254727405421 ou Dr. Evariste Karangwa, superviseur 2 de l'Université du Rwanda College de l'Education sur +250785489767 ou the Kenyatta University Ethical Review Committee Secretariat on chaiman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, ercku2008@gmail.com.

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Participant de déclaration

Les informations ci-dessus concernant ma participation à l'étude est clair pour moi. J'ai eu la chance de poser des questions et mes questions ont reçu une réponse à ma satisfaction. Ma participation à cette étude est entièrement volontaire. Je comprends que mes dossiers seront maintenus privé et que je peux quitter l'étude à tout moment. Je crois comprendre que ma décision de quitter ou de rester n'affecte pas mon travail.

Nom du participant:

Signature ou le pouce

Date

Enquêteur ou de déclaration

Je, soussigné, ont expliqué au bénévolat dans une langue qu'il (elle) comprend, les procédures à suivre dans l'étude et les risques et les avantages inhérents.

Nom de l'intervieweur:

Intervieweur signature

Date

