

**INSTRUCTION AND ASSESSMENT ACCOMMODATIONS AS  
PREDICTORS OF ACADEMIC ACHIEVEMENT OF LEARNERS WITH  
PHYSICAL DISABILITIES IN SOUTHERN PROVINCE AND KIGALI  
CITY, RWANDA.**

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**E83EA/33643/2015**

**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE  
DEGREE OF DOCTOR OF PHILOSOPHY IN THE SCHOOL OF  
EDUCATION (EARLY CHILDHOOD AND SPECIAL NEEDS  
EDUCATION) OF KENYATTA UNIVERSITY**

**OCTOBER, 2020**

## DECLARATION

I confirm that the research thesis is my original work and has not been presented in any other university/institution for consideration of any certification. This thesis has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures or tables have been borrowed from other sources, including the internet, these are specifically accredited, and references cited using current APA system and in accordance with anti-plagiarism regulations.

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## **DEDICATION**

This thesis is dedicated to our lovely daughters Nganji and Sheja. May it be a source of inspiration to shape your destiny and spur you to greater academic heights. To my Husband, Uwambajimana, you sacrificed tremendously towards my success. To my mother and siblings, thank you for believing in me.

## ACKNOWLEDGEMENT

I wish to express my sincere appreciation to all individuals whose contributions made the completion of this thesis possible.

First and foremost, I wish to sincerely appreciate my university supervisors Dr. Franciscah Irangi Wamocho and Dr. Beatrice Bunyasi Awori for their critical evaluation and timely feedback throughout my study. My deep appreciation also goes to all the teaching and non-teaching staff in the Department of Early Childhood and Special Needs Education for their support in various ways. Thanks to Dr. Karia and Dr. Nelly for reading through my work and insightful comments.

I extend my sincere gratitude to all Head teachers, teachers, Rwanda Education Board Heads of departments and learners with Physical Disabilities who with joy and enthusiasm collaborated and provided all help I needed during my data collection. I would like to express my hearty gratitude to the African Union Commission and to the Government of Rwanda, with the sponsorship, my dreams came to pass.

I want in a special way to acknowledge my mother and my siblings who supported and believed in me. My friends Josette, Rabi and Aidah, you made my stay in Kenya wonderful. I am indebted to Olive Utamuriza, your support in taking care of our children will long be remembered.

Finally, my deepest appreciation and gratitude are due to my beloved husband, Viateur Uwambajimana and our children Nganji Mwiza and Sheja Neza, without you, there is no way I would have completed this academic race. I share with you my success.

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## ABBREVIATIONS AND ACRONYMS

<b>CBC</b>	Competence Based Curriculum
<b>CRPD</b>	Convention on the Rights of Persons with Disabilities
<b>CP</b>	Cerebral Palsy
<b>CTLR</b>	Curriculum, Teaching and Learning Resources
<b>EFA</b>	Education for All
<b>EP</b>	Ecole Primaire
<b>ESAD</b>	Examination, Selection and Assessment Department
<b>GPA</b>	Grade Point Average
<b>GS</b>	Groupe Scholaire
<b>HVP</b>	Home de la Vierge des Pauvres
<b>LARS</b>	Learning Achievements in Rwandan Schools
<b>MD</b>	Muscular Dystrophy
<b>MDGs</b>	Millennium Development Goals
<b>MINEDUC</b>	Ministry of Education
<b>MoE</b>	Ministry of Education
<b>PD</b>	Physical Disabilities
<b>REB</b>	Rwanda Education Board
<b>SDGs</b>	Sustainable Development Goals
<b>SNE</b>	Special Needs Education
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNICEF</b>	United Nations Children’s Fund
<b>VSO</b>	Voluntary Services Overseas

## ABSTRACT

The purpose of this study was to determine the degree to which instruction and assessment accommodations predict academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda. Specifically, the study sought to establish the academic achievement of learners with Physical Disabilities in inclusive primary schools, establish the relationship between adapted curricula, adapted instructional materials/ facilities, instructional methods, assessment accommodations and academic achievement of learners with Physical Disabilities. Anchored by the Social Model of disability theory, the study adopted a correlational research design. The target population involved 36 headteachers, 437 primary school teachers, 109 learners with Physical Disabilities and 2 National heads of departments at Rwanda Education Board. A sample of 11 head teachers, 66 teachers, 55 learners with PD and 2 National heads of departments at Rwanda Education Board was used. Purposive sampling technique was used to select schools, headteachers, learners with PD and National Heads of departments. Stratified sampling technique was used to select teachers. Questionnaires were used for teachers and headteachers, Focus Group Discussions for learners with PD, Interview Guide for National Heads of departments, Lesson Observation Schedule, and Document Analysis Guide. Expert judgment and Split Half technique were used to test instruments' validity and reliability respectively. Descriptive statistics were used to describe instruction and assessment accommodations and Pearson's Product Moment Correlation Co-efficient was used to establish the relationship between variables. ANOVA was used to establish the difference in the academic achievement of learners with PD based on the type of schools. Finally, Multiple Regression analysis was used to measure the quality of the prediction of academic achievement of learners with Physical Disabilities. Qualitative data were analyzed using a thematic approach and verbatim reporting. Results revealed that there was strong evidence of poor academic achievement of learners with PD in Primary Leaving National Examinations. Results further revealed that there was a significant difference in the academic achievement of learners with PD based on the type of the schools they attended ( $F(92.63) = 11.84$ ,  $p = .001$ ). The study found that all instruction accommodations were good predictors of academic achievement of learners with PD (Use of adapted curriculum,  $r(64) = .475$ ,  $p = .001$ ), availability and use of adapted instructional materials/ facilities,  $r(64) = .843$ ,  $p = .001$ ), use of recommended instructional methods  $r(64) = .589$ ,  $p = .001$ ). The study further established that all assessment accommodations were powerful predictors of academic achievement of learners with PD (provision of extra time  $r(64) = .707$ ,  $p = .001$ ), provision of rest break,  $r(64) = .246$ ,  $p = .047$ ), provision of special venue  $r(64) = .481$ ,  $p = .001$ ), and provision of scribes  $r(64) = .731$ ,  $p = .001$ ). The study recommended an increase in the budget for the provision of adapted instructional materials. Teachers should be trained on curriculum adaptations and teaching methodologies. Setting and marking of examination should be re-evaluated by Rwanda Education Board.

## **CHAPTER ONE**

### **INTRODUCTION AND BACKGROUND TO THE STUDY**

#### **1.0 Introduction**

This chapter presents the following sections: background to the study, statement of the problem, purpose of the study, objectives of the study, research hypothesis, significance of the study, limitations and delimitations of the study, assumptions, theoretical and conceptual framework and operational definition of key terms.

#### **1.1 Background to the Study**

Education is increasingly seen as a key to the inclusive and sustained development of a society. Experiences in many countries demonstrate that persistent social and economic inequalities and exclusion can lead to disaffection, social fragmentation and even conflicts (Tikly, 2011). Furthermore, exclusion from quality educational opportunities is often related to inequalities in society (UNESCO, 2013).

Quality learning is essential for meeting people's basic needs and fundamental in fostering the conditions for global peace and sustainable development (Gill, 2017). However, the crisis in quality learning is evident. Despite increased enrolments, an estimated 250 million children cannot read, write or count well, whether they have been to school or not (UNESCO, 2014). Across the world, 200 million young people leave school without the skills they need to thrive (UNESCO, 2014). Further, UNESCO (2017) pointed out that globally 50% of primary school aged children do not reach the minimum proficiency level in reading and mathematics. They are often several grades behind the planned curriculum and struggle to understand the skills taught.

According to the World Report on Disabilities approximately one billion people in the world are living with a disability, with at least 1 in 10 being children and 80% living in developing countries. Children with disabilities including those with Physical Disabilities are especially at a disadvantage in terms of school enrolment, educational attainment, and learning. Many children with disabilities never enrol in school or drop out prematurely. They also often learn less while in school (Rose, Sabates, Alcott and Ilie (2016). All over the world, available statistics indicate that very few children with disabilities are receiving quality education either through inclusive or special schools. Disability is posing a serious challenge to learning and to demonstrating knowledge and abilities fully (Gill, 2017).

Sustainable Development Goal 4 (SDG 4) calls for countries to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. The SDGs explicitly mention equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities. Unfortunately, gaps in education outcomes between children with and without disabilities have been increasing over time (Chato and Wodon, 2017). For children without disabilities, completion rates at the primary level have increased substantially over the last few decades. Smaller gains have been observed for children with disabilities. As a result, the gap in primary completion rates between children with and without disabilities has increased over time. Overall, the analysis demonstrates that children with disabilities are being left behind by global efforts to improve education opportunities for all therefore, the rising gaps between children with and without disabilities in developing countries call for stronger policies and

interventions to achieve the target of inclusive education adopted under the Sustainable Development Goals (Chato and Wodon, 2017).

As countries seek to strengthen their national education systems, finding ways of including all learners and ensuring equal opportunities to learn remain major challenges for education sector analysis and planning. While inclusive education must address all forms of exclusion, children with disabilities continue to be one of the most excluded groups of children in terms of access to education and learning (UNICEF, 2018). The global initiative on out of school children, a report by UNESCO (2015) asserts that even if children with disabilities can gain access to school, they are particularly disadvantaged by non-inclusive teaching methods, inflexible curricula and examination systems.

Learners with Physical Disabilities are those ‘with physical, neurological and chronic health impairments. They have problems performing one or more motor activities due to muscular skeletal disorders, neurological, and/or chronic health impairments. The motor activities affected may include movement, writing and speech. Generally, these are students who require aids, wheelchairs, prosthesis, helmets, book readers, page turners, writing aids, rest equipment, special tables and desks to fully participate in learning and examination (Heller, Forney, Alberto, Schwartzman and Goeckel 2009).

Learners with Physical Disabilities encountered challenges in educations due to an inappropriate curriculum, constant ill health, mobility problems, and lack of specialized equipment, inability to manipulate reading and writing materials, slowness in completing learning tasks among others (Heller et al (2009)

According to Jillian (2008) amputation poses challenges on many levels: physical, emotional, social, spiritual, financial and may hinder temporarily one's ability to think clearly and solve problems. Jillian (2008) concluded that the emotional challenges encountered by students with amputation may adversely affect their academic achievements. Woltz, Albeto and Meagher (2010) established that educators must understand not only the physical impairments itself, but the several psychological aspects associated with physical Disabilities. Chiwandire and Louise (2017) observed that students with Physical Disabilities, especially wheelchairs users face several challenges and those included inaccessible lectures rooms, inaccessible toilets, libraries and lack of transport facilities. Chiwandire and Louise (2017) concluded that students with Physical Disabilities often miss classes and lack information which eventually leads to poor academic achievements.

According to Muscular Dystrophy Canada (2012), learners with Muscular Dystrophy (MD) have difficulty with the volume of the written work required in a class. To assist these learners, teachers should consider introducing alternative recording methods that utilize information and communication technology and present computer-generated or photocopied worksheets where possible. Lamport, Grave and Ward (2012) established that some learners with MD may struggle with retention and processing of complex spoken information.

Villa, Thousand, Nevin and Liston (2005) noted that learners with MD will require rearranging classroom furniture in every area for the learner to access the curriculum. Doorways should be widened. The chalkboard should not be very high or too low. This is to allow all learners to see the chalk board including those confined in a wheelchair. Lamport et al (2012) illustrated that learners with MD may

face difficulties with accessing a curriculum if it is not designed for their needs. They may face academic difficulties if the instructional strategies used by the teachers do not cater for their diverse needs.

Osteogenesis Imperfect (OI) is a group of genetic diseases of collagen in which the bones are formed improperly, making them fragile and prone to breaking. Woltt et al (2010) observed that pain, fatigue and fracture care often associated with (OI) make it difficult for learners with OI to attend class every day and the long absence from schools lead to poor academic achievements. Researcher further noted that the psychological aspect of OI which include in most cases depression and lack of zeal had a negative impact on academic achievements of students with OI.

Cerebral palsy can be defined as a group of non-progressive disorders characterized by impaired voluntary movement of posture resulting from a brain injury or brain defect occurring before birth, during birth, or within the first few years of life (Karth, 2011). Cerebral palsy is often accompanied by disorders of sensation, communication, perception, and behavior as well as epilepsy (Samantha, 2017). Common to all individuals with cerebral palsy is the difficulty controlling and coordinating muscles. This makes even very simple movements difficult.

Kartha (2011) noted that learners with Cerebral Palsy may need adaptations to the classroom and modifications of the curriculum. These can include changes such as preferential seating for hearing or vision problems or taping lessons to replay later. He or she may need more time to complete written assignments or note taking assistance from a peer or a teaching assistant. A learner might need to take tests orally and take frequent breaks for muscle fatigue. The researcher further insisted

that the academic success of learners with Cerebral Palsy will depend on the type of support they receive in schools.

Spina Bifida is a condition in which the neural tube, a layer of cells that ultimately develops into the brain and spinal cord, fails to close completely during the first few weeks of embryonic development. As a result, when the spine forms, the bones of the spinal column do not close completely around the developing nerves of the spinal cord. Part of the spinal cord may stick out through an opening in the spine, leading to permanent nerve damage (Andrew and Shaw, 2015). According to Phyllis (2014) many children with Spina Bifida have trouble in the following areas: Math difficulty, especially affecting math reasoning, poor handwriting skills, organizational problems, distractibility and inattentiveness sensory integration problems, inappropriate language usage, auditory processing difficulties and visual perception problems. The researcher concluded that despite performance within the normal range of intelligence, most of these students exhibit major learning problems which affect their academic achievement. He established that the learning problems may be the result of physical and neurological complications, as well as prolonged and/or multiple hospitalizations.

In USA, a variety of special education services for students with Physically Disabilities are available. There are laws and acts that protect the rights of special education students in the classroom and ensure that they are provided a quality education. The Individuals with Disabilities Education Act of 1975 (IDEA) ensures that all children are offered a free education through their local public schools (Renk, Kimberly, Wiley, and Rachel, 2007). There are several categories of physical challenges that are defined under special education law, and each involves certain

accommodations that can be made for students with disabilities in the public school setting. Depending on the severity of their disabilities, these children are eligible for an extensive range of provisions as outlined by the IEP (Eriksson, Lilly, Granlund, Mats, Welunder and Jonas, 2007). Teachers of students with Physical Disabilities are trained on teaching methodologies and classroom management to help students with Physical Disabilities participate in all lessons. Services like physical therapy and occupational therapy services are provided to students with Physical Disabilities and this improves their fine and motor skills. There is also accessible schools bus transportation for students with Physical Disabilities, and special assistance for transportation to and from the school can also be arranged by the IEP team if necessary (Sonja de Groot, 2005). Despite all these provisions, students with Physical Disabilities in USA, experienced segregations in the classrooms. They seem to interact more with adults (assist teachers and teachers) and not with their peers. According to Jillian (2008), the rate of segregation for students with Physical Disabilities stands at 33%. This affects the social and emotional aspects of students with Physical Disabilities and eventually affects negatively their academic performance.

In Canada, everyone has the right to a quality education that opens doors and creates opportunities. But for many learners with physical disabilities, Canada's education system seems like a closed door. A significant proportion of students with disabilities report experiencing bullying, encountering barriers and being excluded at schools. Students with Physical Disabilities are lacking the institutional support, the accommodation, the funding and the programs and infrastructure required to access and benefit from the same quality of education as their fellow students. As a result,

10% of students with Physical Disabilities stop their education altogether, long before they have had a chance to obtain their desired level (Canadian Human Right Commission, 2010). The report went further saying that those who persist in education are learning less compared to students without disabilities. This country with developed economy still needs to do more to ensure that children with disabilities not only access education, but also are learning the basic skills in literacy and numeracy which will help them become independent and productive member of the society.

In England, while students with Physical Disabilities access school, multiple concerns have been raised in relation to their learning. The educational attainments of these children are significantly lower than those without disabilities at every level of the national curriculum (Egilson and Traustadottir, 2009). In 2017 the Department for Education reported that, at key stage 2 level, only 14% of students with Physical Disabilities reached the expected level for reading, writing and maths in contrast to 62% of children without disabilities.

According to the UNESCO (2014) in most African countries, children with special needs are mostly disadvantaged since they are unable to join school early in life. They eventually end up dropping out of school due to uncondusive school environment that is characterized by congestion, lack of specialized personnel and facilities. Subsequently, most students with special needs who require special attention and facilities to achieve their academic aspirations drop out. The teachers are unable to support them individually or in small classes since all classes are overwhelmingly large.

In Nigeria, the academic achievement of learners with Physical Disabilities was poor compared to that without disabilities. Adeyemi (2015) revealed that the poor academic achievement of students with Physical Disabilities were influenced by the lack of essential facilities and materials like hand railings, inaccessible toilets and insufficient instructional materials. The same study further noted that few available materials like typewriters, resource rooms, wheelchairs were in poor condition (Adeyemi, 2015).

The Ethiopian government has registered a prodigious stride in improving educational access in the last couple of decades. Moving from 51% in 2000 to 95.3% in 2016 (Lupanga, 2013). It is however different for Students with Special Educational Needs and Disabilities. According to the Ministry of Education (2010) fewer than 3% of students with disabilities have access to primary education, and access to schooling decreases rapidly as students move up the education ladder (MoE, 2010). According to Oswald and Forlin (2016), the challenges include teacher apathy, curriculum rigidity, parental prejudices, shortage of staffing and limited resources. Corman (2014) mentioned challenges like inadequate learning support in the classroom and lack of effective strategies to address both learner diversity. Facilities such as adapted toilet, adapted seats in library, adequate space for wheelchairs, ramps, signage, water supply, playgrounds were also missing. All these challenges according to the researcher, affected academic achievement of students with Special Educational Needs and Disabilities, including those with Physical Disabilities.

In Kenya, Kiarie (2014) established that students with Physical Disabilities encountered challenges in their education including lack of assistive devices and other adapted equipment like adapted seats, writing equipment, adapted computers, sport and recreational facilities, wheelchairs and crutches. Inaccessible environment and learning materials were also hindering quality education of learners with Physical Disabilities. The Kenya Ministry of Education report of 2003 noted that because the main problems of learners with Physical Disabilities in the general education relate to mobility, manipulation of learning materials and access to the learning environment, there is need to restructure the physical environment in all schools to accommodate these learners who are constantly faced with such obstacles as inaccessible toilets, doorways, desks, chairs, tables, reading and writing materials.

In Tanzania, there is a well-structured programmes and policies in support of education of children with Disabilities. However, these, children with Disabilities, including those with Physical Disabilities are facing challenges in Tanzanian education system. According to the UNESCO (2014), Tanzania remains one of the 14 countries with the lowest number of children attending school. Over one million children were not attending school in the country, and children with disabilities were the most disadvantaged (UNESCO, 2014). A study by Bathseba and Hezron (2016) revealed that students with Physical Disabilities continue to lag behind in term of academic achievements. The same study noted that inclusive education in Tanzania does not guarantee quality education and the main factors attributed to these include the large number of unqualified teachers teaching in inclusive schools, insufficient of teaching and learning materials and inaccessible environment.

Tungaraza, (2015) noted that the government of Tanzania continues to perform dismally when it comes to providing materials and resources essential for teaching students with disabilities and this has affected the academic achievement of learners with Physical Disabilities. Additionally, there is a lack of adequate, accessible physical infrastructure to allow easy access to school for many children with disabilities. The researcher further mentioned that classrooms in many schools in Tanzania have one or more staircase. Students with Physical Disabilities are carried up these stairs by their peers, a practice that is unsafe for both parties. There are also inadequate and often inaccessible sanitation facilities (Lupanga, 2013). Washrooms are small, and a student using a wheelchair cannot easily navigate these spaces. UNESCO (2014) urged that it is important that every inclusive school has enough resources, in both quality and quantity, including qualified teaching staff, to meet the academic needs of learners with disabilities including those with Physical Disabilities.

In Uganda, the repetition rate of students with disabilities was higher than that of students without disabilities standing at 14.4% compared to 11.8% for students without disabilities (Uwezo report, 2016). The same report revealed that the performance rate in literacy and numeracy for students with disabilities was lower than that of students without disabilities. Moyo (2012) found that only 10% of students with Physical Disabilities had completed grade 5 in the school year 2016 as a result of inadequate facilities, untrained teachers, lack of funds and inflexible curriculum. According to Nyende (2012) the enrolment rate of students with disabilities in pre-primary, primary and secondary school was very low. About 9% of students with disabilities attended school and only 6% of these students

completed primary school and went to study in secondary schools. Researcher further established that in addition to those challenges, teachers are not motivated to take care of the needs of CWDs, resulting in low morale.

Due to these challenges, the researchers established that students with Physical Disabilities are underachieving academically compared to their peers without disabilities. According to Kapinga, (2012); Martha and Cathryn (2008) students with Physical Disabilities encounter different problems in inclusive settings and those challenges include: the school curriculum which is not sensitive to the educational needs of students with physical disabilities, inflexible examination system, unfriendly school infrastructures, schools which are not within the reach of students with Physical Disabilities and the provision of insufficient instructional materials.

In Rwanda, facts from statistics indicate that there is a decrease in terms of enrolment for learners with Disabilities. In 2018, pupils with disabilities enrolled in primary schools decreased from 24,980 to 17,133 (MINEDUC, 2018). Furthermore, several studies indicated that learners with disabilities had persistent poor academic performance compared to others without disabilities (Karangwa, Susie, Ingrid, 2010; Twagirimana, 2016, Suubi and Mattingly, 2016). Learners with Physical Disabilities who constitute the majority (36.9%) of the learners with disabilities enrolled in primary schools are not exception. For example, over the years, learners with Physical Disabilities in HVP Gatagara Primary School have performed poorly in National Examination compared to their counterpart without disabilities as evidenced by the following table:

**Table 1.1: Performance of learners with PD in HVP Gatagara from 2015-2018**

Division	Children Without Disabilities								Children With Physical Disabilities							
	2015		2016		2017		2018		2015		2016		2017		2018	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Division 1	14	28.6	23	45.1	27	49.1	33	57.9	0	0%	0	0%	1	2%	0	0%
Division 2	27	55.1	25	49.0	16	29.1	24	42.1	0	0%	1	2%	3	5%	2	4%
Division 3	8	16.3	3	5.9	12	21.8	0	0	2	3%	1	2%	0	0%	1	3%
Division 4	0	0	0	0	0	0	0	0	5	9%	12	21%	14	23%	6	8%
Division 5	0	0	0	0	0	0	0	0	49	88%	43	75%	42	70%	53	85%
Total	49	100%	51	100%	55	100%	57	100%	56	100%	57	100%	60	100%	62	100%

Source: Rwanda Education Board, Primary National Examinations results analysis report

It is apparent that majority of learners with Physical Disabilities were classified in the last four divisions while majority of those without disabilities are classified in the first two divisions. In the context of Rwanda, those who are classified in the division four and five have no chance to be admitted into boarding schools. These learners were only allowed to attend secondary public day schools. According to Ntawiha (2016) public day secondary schools in Rwanda are poorly equipped and academic achievement of students is jeopardized by the lack of appropriate instructional materials and facilities. Bots (2015) established that learners with Physical Disabilities attending regular schools have a high rate of school absenteeism mainly due to the long distance between home and schools. Chato and Wodon (2017) argue that in many countries there is insufficient knowledge on inclusive education. Often, there is a lack of accessible infrastructure, strategies, teacher training, and learning materials for inclusive education. UNESCO Go

According to the VSO position paper (2015) despite the introduction of Competence Based Curriculum (CBC) teachers find it difficult to adapt the curriculum content to meet the diverse needs of learners with disabilities. Furthermore, there is no guideline on assessment and examinations procedures to meet the needs of learners

with Special Needs. Moreover, only 24% of primary schools in Rwanda had adapted infrastructure and materials. Beside only 4,102 teachers out of 44,544 are trained in Special Needs and Inclusive Education (Mineduc, 2018). Schools are poorly resourced and there is a lack of adapted scholastic materials especially for learners with Physical Disabilities (Suubi and Mattingly, 2016). Wu and Thurlow (2018) established that changes in classroom materials and procedures together with changes in testing materials and procedures can greatly influence academic achievement of students with disabilities including those with Physical Disabilities. According to Eyanat and Baty (2010), for many students with Physical Disabilities to success in the classroom, appropriate accommodations should be made to the curriculum, instruction and other classroom activities. The researchers further established that accommodations are all that a student with Physical Disability needs to be successful in the classroom. Therefore, a need arises to seek to examine instruction and assessment accommodations provided to learners with Physical Disabilities in inclusive schools and their influence on academic achievement of learners with Physical Disabilities in Rwanda.

## **1.2 Statement of the Problem**

The goal of the school is learning. Every child irrespective of his/her physical or mental condition should have a chance to learn, demonstrate what he/she has learned and excel academically. Nevertheless, in Rwanda, there is a persistent poor academic achievement of learners with Physical Disabilities (Suubi and Mattingly, 2016; Ministry of Education, 2017). For example, from 2015 to 2018, learners with Physical Disabilities in Home de la Vierge des Pauvres performed dismally in National Examinations, majority of them were classified in the last two divisions.

Researchers have demonstrated that learners with Physical Disabilities encountered several challenges that hinder effective learning. Cited were: Lack of adapted instructional materials, ineffective teaching methods, inaccessible environment and unclear guidelines regarding entitlements to support during national examinations (Suubi and Mattingly, 2016; VSO, 2015). What remains unknown, however, is whether inappropriate accommodations in instruction and assessment affect the academic achievement of learners with Physical Disabilities in inclusive primary schools in Rwanda.

If the accommodations given to learners with Physical Disabilities in instruction and assessments are not explored, their academic achievement will remain poor. Unless it is changed, the aspirations of Rwanda to achieve inclusively and quality education for all will not be met and learners with Physical Disabilities will be deprived of attaining a high level of education which is associated with a better life. Their adulthood will be compromised and would remain dependent throughout their lives.

### **1.3 Purpose of the Study**

The purpose of the study was to determine the degree to which instruction and assessment accommodations predict academic achievement of learners with Physical Disabilities in inclusive primary schools in southern Province and Kigali City, Rwanda.

#### **1.4 Objectives of the study**

The study sought to achieve the following objectives:

- i. To establish the level of academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.
- ii. To investigate the extent to which the use of adapted curricula affects academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.
- iii. To find out the relationship between the use of adapted instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.
- iv. To examine the extent to which the use of recommended instructional methods influences academic achievement of learners with Physical Disabilities in inclusive primary schools in in Southern Province and Kigali City, Rwanda.
- v. To find out the relationship between assessment accommodations and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.

#### **1.5 Research Hypothesis**

The study tested the following null hypothesis:

- i. There is no statistically significant difference in academic achievement of learners with Physical Disabilities enrolled in inclusive boarding schools,

inclusive model schools and plain inclusive schools in Southern Province and Kigali City, Rwanda.

- ii. There is no statistically significant relationship between the use of adapted curricula and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.
- iii. There is no statistically significant relationship between the use and availability of adapted instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.
- iv. There is no statistically significant relationship between the use of instructional methods and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.
- v. There is no statistically significant relationship between assessment accommodations (extended time, separate venue, special venue and scribes) and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.

### **1.6 Significance of the study**

Quality of education is a prerequisite for the future of mankind. Children with disabilities are attending schools in greater number than ever before but what they learn once they are in schools is still problematic. The Education 2030 Framework for Action has been adopted by the global education community to advance progress towards SDG4 and its targets. The Framework stresses the need to address all forms of exclusion and marginalization. It specifically calls for addressing inequalities

related to access, participation, and learning processes and outcomes, paying attention to children with disabilities.

This study was undertaken at a time when there is a lot of concern being expressed about global learning crisis and a time when all countries are striving to achieve the Sustainable Development Goals by 2030. SDG 4 calls for countries to ‘ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’.

The last 15 years have seen significant progress globally in expanding access to education, particularly at the primary level. Rwanda has had much success in meeting the MDGs, especially towards achieving Universal Primary Education, free education has been extended from 9 years to 12 years of schooling, thereby including the entire primary and secondary cycle. Rwanda is one of the few African countries on track to achieve seven of the eight Millennium Development Goals, one of which is universal access to primary education by 2015. In 2013, primary school enrolment in Rwanda reached 97 per cent, in 2018, the primary school enrolment rate is 98.6%. To this end, Rwanda is considered as the first in Sub Sahara Africa to have a high primary enrolment rate (UNICEF, 2014). However, the provision of quality education to those enrolled remains a big challenge in Rwanda. This is evidenced by the high dropout and repetition rates of learners in primary schools, standing at 6.7% and 13.4% respectively (MINEDUC, 2018). For learners with Special Educational Needs and Disabilities, the situation is even worse. The Education Sector Strategic Plan 2018/19-2023/2024 recognize that a 7 to 8-year-old child with disabilities is three times less likely to start school at the right age than a child without disabilities. It also revealed that a child with disabilities has an 18%

greater chance of repeating a primary school than another without disabilities and that his or her chance of dropping out of school is four times higher than those of a child without disabilities. Ensuring that children with disabilities are getting the quality education they deserve constitute a major challenge to the education sector in Rwanda. This study provides a way to overcome this challenge. The study makes a significant and valuable contribution to the knowledge and understanding particularly in the following areas:

- ❖ Accommodation services for learners with Physical Disabilities
- ❖ Instructional and assessment accommodations for learners with Physical Disabilities.

The study fulfils a major need for studies on education of students with disabilities in Rwanda by providing data from which future educational policies and programs could be based on. The information and recommendation of the study is useful to teachers, curriculum developers, examination officers and policy makers for future curriculum development, examination administration and scoring and teaching in order to assist learners who may be victims of Physical Impairments. It is also hoped that the syllabus, textbooks and other educational materials and resources will be adapted to suit the needs of learners with Physical Disabilities. Finally, learners with Physical Disabilities will stand to gain as their learning will not be compromised.

## **1.7 Limitation and Delimitation of the study**

### **1.7.1 Limitation of the study**

The study was based in two districts in Southern Province and two districts in Kigali City. Only public schools were included in the study. Private schools were not included in the study as their accommodation services could be different from those

in public schools. Furthermore, due to the design of this study, correlation design, which explores the relationship between two variables without manipulating them, the correlation between the two variables does not imply a causal relationship. This study intended to find out the degree to which instruction and assessment accommodations correlate with academic achievement. It did not intend to establish the cause effect relationship between the two variables. This may necessitate another study.

### **1.7.2 Delimitation of the study**

The study confined itself to instruction and assessment accommodations and their implications on academic achievement of learners with Physical Disabilities. Only subjects which are examinable during the primary school leaving examination were objects of the study, those are Mathematics, English, Kinyarwanda, Social studies and Science & Technology, other subjects other than those were not part of the study. Services like medical services and financial services as well as other factors like family factors were not concerned with the present study though they may also have influence on academic achievement of learners with Physical Disabilities. Only National Examination results were used as indicator of academic achievement; this is because it is a standardized test.

### **1.8 Assumptions of the study**

This study was conducted under the following assumptions:

- i. The respondents would participate freely without fear or bias and provide true information
- ii. The respondents have the knowledge of what academic achievement in National examination entails.

- iii. Students with Physical Disabilities are included in regular schools in Southern province and Kigali City

## **1.9 Theoretical and Conceptual Framework**

### **1.9.1 Theoretical Framework**

The study was guided by the system theory and the Social Model of Disability theory. The systems theory was developed by Bertalanffy in 1968. He defined a system as a set of interrelated elements where each element influences the functioning of the whole and each is affected by at least one other element in the system. A major assumption of the theory is that all systems are purposeful, and goal directed. The school system exists to achieve objectives through the collective efforts of individuals and in the institutional settings. Academic achievement is one such phenomenon that can be explained as a product of dysfunctional elements within the education system. Academic achievement is an output of the school's educational activities which include instructional and assessment activities. Instructional or assessment elements do not operate in isolation but are interrelated making academic achievement of learners with Physical Disabilities a process. The applicability of the theory in this study is seen in the fact that the school is a system which is often affected by other systems in the environment for example; the quality of infrastructures and teachers, the availability of educational materials, appropriate curricula, the examination procedures, individual and family factors (input) determines academic achievement of learners with Physical disabilities (output). Using the theory, the study seeks to unearth the elements that affect academic achievement of learners with Physical Disabilities.

The social perspective postulates that it is society's response to the individual's impairments that creates disability and limits participation in society, and that changes in social and institutional environments are required (Seirlis, 2003). Currently, in the early 21st century, despite the 'weighty presence' of the medical perspective, the social model has become increasingly important. The concept of the social model has been widely and internationally acknowledged among both academics and activists and given appropriate local orientation. The social model of disability is based on the belief that the discrimination the individual with disabilities faces is a socially created phenomenon and has nothing to do with the impairments of that person with a disability (Seirlis, 2003). The disability rights movement was deduced that the cure to the problem of disability lies within the reconstruction of society (Gray, 2009). This implies a paradigm shift in how we perceive 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 and what handicapped them. The model views the barriers that prevent people with disabilities from participating in any situation as what handicaps them. The disability movement comprising of the disabled and their supporters are of the view that the position of the disabled and discrimination against them are socially created (Rieser, 2002). Through fear, ignorance and prejudice, barriers and discriminatory practices are developed and hinder progress of persons with disabilities. People with disabilities are often made to feel that it is their own fault that they are different. But the fact is that the impairment does not make them less human beings. This is what the social model

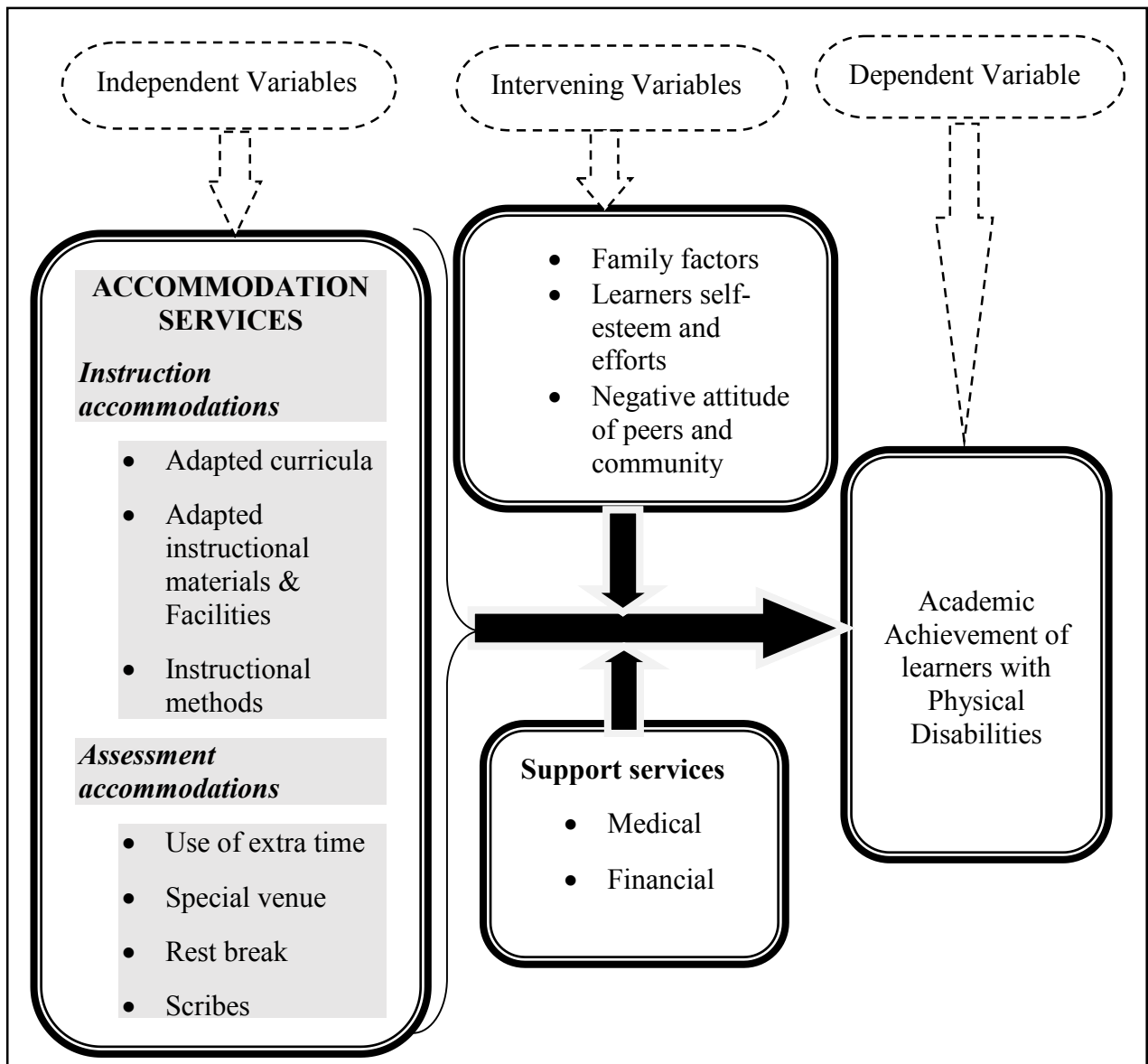
strives to make others understand. The people with disabilities' movement believes the 'cure' to the problem of disability lies in the restructuring of the society, and not focusing on the individual's impairment. In an inclusive setting, it is the school's responsibility to re-adjust to meet the learner's need but not the learners to adjust to meet the school's requirements (UNESCO, 2015).

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. However, the Social Model of disability theory suggests that the school system must re-adjust to meet the learner's need but not the learners to adjust to meet the school's requirements. The social model seeks to remove unnecessary barriers which prevent people with disabilities from participating in society, accessing work and living independently. Some of these barriers for learners with Physical Disabilities might be in the form of inappropriate curriculum, inflexible teaching and assessment methodologies and unadapted instructional materials as well as inaccessible environment.

These theories applied in this study in the sense they recognized that learners with Physical Disabilities risk to leave primary education without having necessary skills to thrive and progress to further education if education system is not removing environmental, material, curriculum and assessment related barriers that restrict them from participation in learning activities. For instance, schools should adapt curricula, adapt teaching/ learning materials and adapt teaching and assessment methods to enable learners with Physical Disabilities get quality learning and

improve academic achievement. Besides, deliberate measures and strategies should be put in place to assure students with Physical Disabilities equal opportunity of participation and learning. These strategies should be able to embrace the fact that learners with Physical Disabilities are individuals with different abilities, needs and capacities. Whatever strategies that is to be employed should therefore seek to open chances for learners with Physical Disabilities to learn and be able to demonstrate what they can do. This will be achieved by using proper and individualized accommodations both in classroom and in assessment.

### 1.9.2 Conceptual Framework



*Source: Researcher's conceptualization of the research variables (2019)*

**Figure 1.1: Instruction and assessment accommodations predict academic achievement of learners with Physical Disabilities**

According to UNESCO (2010), children with disabilities remain one of the main groups being widely excluded from quality learning. They may be included in schools but excluded from learning. Appropriate accommodations may have great impact on learning (Martha Cathryn, 2008; Candace, 2005). The use of accommodation services both in classroom and in assessment help learners with Physical Disabilities learn and be able to demonstrate what they have learnt. Eyanat

and Baty (2010) established that classroom and assessment accommodations are what students with Physical Disabilities need to be successful academically. However, these researchers established that the lack of accommodations during instruction and assessment has been associated with the poor academic achievements of learners with Physical Disabilities in inclusive education. As indicated in figure 1.1, accommodation services are divided into two categories which include instruction accommodations and assessment accommodations. Instruction accommodations include: adapted curricula, the use of instructional methods and adapted instructional materials and facilities. Assessment accommodations include: Use of extra time, special venue, rest break and scribes. All these accommodations were considered as Independent Variables and Depended Variable was academic achievement of learners with Physical Disability. This means that academic achievement of learners with Physical Disabilities depends on the various accommodations they receive while learning and while demonstrating what they have learned. Changes in classroom materials and procedures together with changes in testing materials and procedures can greatly influence academic achievement of learners with Physical Disabilities. Teachers should be able to adapt the regular curriculum to meet the needs of learners with Physical Disabilities, they should be knowledgeable on which methodologies to use and schools in general should be friendly, that is: infrastructures should be accessible to all and more importantly materials should be adapted and available. Equally important, examination procedures should be appropriate to cater for the examination needs of learners with Physical Disabilities.

### **1.10 Operational definition of key terms**

**Accommodation** is an adaptation or change in the way instruction is presented or in the way an assessment tool is administered. Instruction and assessment can be adapted or changed to help students meet the established standards goals, objectives, and outcomes. This implies that the standard is not reduced or minimized in any way, but that students have taken an alternate route in meeting the standard (Candace, 2005).

**Assessment accommodations** are changes in testing materials or procedures that allow students to show their knowledge and skills rather than the effects of their disabilities (Wu and Thurlow, 2018).

**Academic Achievement:** Ability to exhibit possession of desirable knowledge, skills and competences after some years of schooling.

**Inclusive School:** In an inclusive school, children with disabilities do not study in separate classes; instead teaching methods, textbooks, materials, and the school environment are designed so that girls and boys with a range of abilities and disabilities can be included in the same class (UNESCO, 2015).

**Inclusive model schools:** These are day schools which were supported by Humanity and Inclusion under the project "Inclusive Futures in Rwanda" to be a model of inclusive school in Rwanda.

**Instruction accommodations:** Changes in classroom materials or procedures that enables the student to participate in learning in ways that allow the student to fully access the content being taught (Wu and Thurlow, 2018).

**Physical Disabilities:** A Physical Disability is the long-term loss or impairment of part of the body's physical function. It can involve difficulties with walking and mobility, sitting and standing, use of your hands and arms, sight, hearing, speech, breathing, bladder control, muscle control, sleeping, fits and seizures or chronic tiredness (Herward, 2006).

**Plain Inclusive schools:** These are day schools that accommodate learners with disabilities but have no additional support from Non-Governmental Organizations.

**Presentation accommodations:** Allow students to access information in a way that does not require them to visually read standard print. These alternate modes of access are auditory, multi-sensory, tactile and visual (Martha and Cathryn, 2008).

**Response accommodations:** Allow students to complete assignments, test and activities in different ways or to solve problems using some types of assistive device (Martha and Cathryn, 2008).

**Setting accommodation:** Change the location in which a test or assignment is given or conditions of the assessment setting (Martha and Cathryn, 2008).

**Scheduling accommodations:** Increase the allowable length of time to complete a test or assignment and may also change the way the time is organized (Martha and Cathryn, 2008).

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.0 Introduction**

This chapter presents and discusses the following sections: academic achievement of learners with Physical Disabilities, curriculum adaptations and academic achievement of learners with Physical Disabilities, adapted instructional materials/facilities and academic achievement of learners with Physical Disabilities, the use of recommended instructional methods and academic achievement of learners with Physical Disabilities and assessment accommodations and academic achievement of learners with Physical Disabilities. The literature review summary is also provided.

#### **2.1 Academic achievement of learners with Physical Disabilities in inclusive primary schools**

Learners with Physical Disabilities may underachieve in the school setting when their unique needs are not met. Educators must understand not only the physical impairment itself, but the several factors that may affect performance. Once these factors are identified for specific learners, their negative effects on performance may be decreased through provision of accommodations and adaptations (Woltt, Alberto and Meagher, 2010).

According to UNESCO (2014) many learners with Physical Disabilities find themselves in classrooms without adequate support and with little assistance from teachers to participate meaningfully in the curriculum or classroom activities. The failure of schools to provide reasonable accommodations to children regardless of their disability is discriminatory.

In USA, the No Child Left behind Act (NCLB) of 2001 states that all students must meet state measured academic proficiencies by the 2013-2014 school year. According to NCLB, students with disabilities are to be included in state assessments with appropriate accommodations as determined by each student's Individualized Education Plan (IEP) team. Students with disabilities must also meet the minimum requirements. Student subgroups are categorized by race, ethnicity, limited English proficiency, socioeconomic status, and disability. Each student subgroup, as well as the student population as a whole, must meet the state's annual measurable objective in order to make Adequate Yearly Progress (AYP) as set forth by NCLB legislation. Since the introduction of NCLB, teachers and school administrators have been held to a higher level of accountability and have been searching for ways to improve the academic performance of all students, especially those with disabilities (Richler, 2004).

During the second half of the twentieth century, the public school system in America was commissioned by the court system to educate all students regardless of race, ethnicity, or disability in an equitable and consistent manner. As a direct result of these sanctions, services were provided to special education students in three major ways: self-contained classroom, mainstreaming, and inclusion (Richler, 2004).

Placement in a self-contained classroom essentially removes a child from the general school population for all academic subjects to work in a small controlled setting with a special education teacher. During the middle portion of the twentieth century, the vast majorities of special education students were placed in self-contained classrooms or specialized schools with other special education students. Research has shown that there was 'very limited' academic improvement on

standardized or curriculum-based measures for students in self-contained classrooms or students attending specialized self-contained schools (Lane, 2005).

Public Law 94-142 called for the placement of special education students in the least restrictive environment. Since the majority of special education students were being educated in self-contained classroom settings or self-contained schools, many advocates for students with disabilities felt that the rules outlined in Public Law 94-142 were not being followed as intended. The idea of mainstreaming came about as a result of the efforts of those advocates (Oswald and Forlin, 2016). Mainstreaming is a term that refers to the practice of educating students with disabilities in a regular education classroom during specified portions of the school day. A student who is mainstreamed will spend part of the day in a self-contained classroom and the other portion in a regular education classroom. Therefore, mainstreaming is different than self-containing in that the student will not spend the entire day in the same room with other students with disabilities. The research cited several benefits to mainstreaming students with disabilities into the regular education classroom. Mainstreaming was found to be more academically effective for special education students than the exclusionary practices found in self-containing (Korenich, 2006).

Providing learning opportunities for students with disabilities in the public school system has changed dramatically in the past 50 years. While most students with disabilities were not allowed to enter public schools before 1950, educators today have found themselves including these students in the regular education settings for the majority of the school day (Kemp, 2006). Research has shown definite advantages to inclusion programs for special education students. Inclusion facilitated

a more appropriate social behaviour because of higher expectations in the general education classroom (British Columbia Teachers Federation, 2006). The research provided three barriers to educating students with disabilities in an inclusive setting: attitudes, knowledge, and organization (Richler, 2004). The attitudes of both the special education teacher and the regular education teacher could have had a negative impact on inclusion. Both parties must be willing to work together and the collaboration that comes with inclusion calls for a shift in control of the learning environment. Perceived lack of knowledge was also shown to be a barrier to inclusion. Regular education teachers were found to feel inadequately trained to work with special education students, while the special education teacher had common feeling towards the content knowledge of the regular education teacher (Isherwood and Barger, 2008).

According to Villa et al (2005), more students with disabilities than ever before were being educated in a general education classroom. The three researchers also cited improved access to curriculum, instruction and assessment as leading to greater student achievement outcomes for students with disabilities. Special Education students placed in regular education classes perform better academically and socially than comparable students in non-inclusive classrooms (Zigmond, 2001).

Weiss and Lloyd (2002) examined co-teaching in secondary education classrooms by interviewing and observing special education teachers in inclusive and special education classrooms. The two researchers used qualitative methods. Weiss and Lloyd (2002) concluded that the special education students in this study did not improve their academic performance when placed in an inclusive setting; although no description of how that performance was determined was provided. This study

was conducted in USA and in secondary schools, the current study was conducted in Rwanda in primary inclusive schools.

Keefe and Moore (2004) explored the challenges of general and special education teachers who worked together in inclusive settings in a large suburban high school in the south western United States. The two researchers used qualitative research techniques to conduct interviews and analyze common themes in order to develop a list of critical themes. The final theme described by Keefe and Moore (2004) was expected student outcomes and the effects that inclusion would have on the students served in the classrooms. Both special education teachers and regular education teachers felt that all students benefited from involvement in the inclusive classroom setting. Although there was no precise measurement of student achievement, both sets of teachers believed that the special education students performed better in the inclusive setting.

Castro (2007) provided information on the academic effects of inclusion on the performance of students with disabilities. Terra Nova test scores for first and second grade children attending school in a northern public school district in New Jersey were compared. The study focused on two groups of students; special education students in inclusive settings and special education students not in inclusive settings. Castro (2007) concluded that the academic performance as measured by the Terra Nova test was significantly better for students with disabilities in the inclusive setting.

Fore, Burke, Boon, and Smith (2008) examined the academic performance of students with learning disabilities in inclusive settings. The researchers collected data from fifty-seven high school students from two high schools in the southeastern United States. Reading and math scores from the Multilevel Academic Survey Test (MAST) were examined relative to grade level, number of special education classes attended, and placement in inclusive or non-inclusive settings. The results revealed no statistically significant difference in the student achievement based on the MAST scores, for special education students in non-inclusive settings compared to special education students in inclusive settings. The only notable achievement differences were found for special education students in an inclusive literature class compared to those students placed in a special education class for literature. In this case, the students in the inclusive setting performed significantly better than the students in the non-inclusive setting. All these findings support the importance of teaching learners with disabilities in an inclusive setting. UNESCO (2018) stated that children with disabilities should be educated along with other children in inclusive setting and that appropriate support should be provided to students with disabilities.

In England, Egilson and Traustadottir (2009) carried out a study on 'Participation of students with Physical Disabilities in the school environment' revealed that students with Physical Disabilities performed poorly compared to their counterparts without disabilities. The researchers established that the poor academic achievement of students with Physical Disabilities were the result of unfavourable environment in most of the schools. Researchers concluded that the issues of negative teacher perspectives, lack of knowledge regarding special education terminology, issues and

laws, poor collaboration skills, lack of administrative support, limited instructional repertoire, inappropriate assessment procedures, and conflict between scheduling and time management must be addressed if we are to improve academic achievements of students with disabilities.

In South Africa, a study by Adewumi, Rembe, Shumba and Akinyemi (2017) revealed that despite the implementation of inclusive education, learners with Special Needs Education including those with Physical Disabilities still face challenges in access to quality education. Those challenges are attributed to teachers using the same criteria for teaching and assessing all learners in the class, despite their diverse needs. As a result of such prevailing conditions, learners with Special Needs Education including those with Physical Disabilities repeatedly have a high dropout rate, are often not in school at all and have poor academic performance (Ainscow, 2012; Motala, 2011; Tikly 2011).

Like other nations, Tanzania views education as key to providing the young with opportunities to achieve their full potential in terms of acquiring the knowledge, skills, values, and attitudes needed for them to grow and develop and to enter adulthood and the workforce (Sanga, 2000). As noted by the government, ‘education is vital to improving health; increasing productivity of the poor; creating competitive economies; enhancing quality of life in society; enlightening and empowering individuals; practicing good governance; and addressing problems such as poverty and conflict’. However, this policy statement is not reflected in the academic life of learners with disabilities. A study by Bathseba and Hezron (2016) on “Education for all and students with disabilities in Tanzanian primary schools’ established that learners with disabilities continue to lag behind in term of academic achievements

compared to their peers without disabilities. Sanga (2000) noted that many schools in Tanzania are not appropriately equipped to accommodate students with Disabilities.

In Kenya, Kimondiu (2012) conducted a study on ‘factors affecting performance of pupils in Kenya Certificate for Primary Education in Special School for Physically Handicapped’. Findings revealed that most pupils with Physical Disabilities enrolled in special primary schools for learners with Physical Disabilities usually score lowly in the Kenya Certificate for Primary Examination. The researcher established that the causes of poor academic achievement of pupils with Physical Disabilities are lower expectations among teachers, inappropriate teaching strategies and unfair examination procedures. Furthermore, a baseline survey conducted by Caroline and Larissa (2013) in 3 special schools in Kisumu, Kiambu and Mombasa Counties in Kenya showed that, from the year 2009 to 2011, more than a half, 28(88%) out of 32(100%) Learners with Cerebral Palsy repeated grades due to inability to read and write.

In Rwanda, despite the increased enrolment of learners with Physical Disabilities in both inclusive and special schools, several studies revealed persistent poor academic achievement among learners with Physical Disabilities (Suubi and Mattingly, 2016, VSO, 2015, MINEDUC, 2018). Studies documented few teaching and learning materials and lack of adapted scholastic materials, unfriendly environment, and inappropriate teaching and examination approaches in inclusive and special schools in Rwanda. However, no scientific study has attempted to associate that situation with poor academic performance of learners with Physical Disabilities.

## **2.2 Curriculum adaptations and academic achievement of learners with Physical Disabilities in inclusive primary schools.**

The curriculum is the central means for enacting the principles of inclusion and equity within an education system. Developing a curriculum that will include all learners may well involve broadening the definition of learning used by teachers and education decision-makers (Rose et al, 2016). As long as learning is defined narrowly as the acquisition of knowledge presented by a teacher, schools will likely be locked into rigidly organized curricula and teaching practices. In stark contrast, inclusive curricula are based on the view that learning occurs when students are actively involved, taking the lead in making sense of their experiences (UNESCO, 2014).

In this changed view, the teacher's role becomes one of guiding and facilitating engagement and learning, rather than instructing. This makes it possible for a diverse group of students to be educated together, since the students need not to be at the same point in their learning or receive the same instruction from their teacher. Rather, they can work at their own pace and in their own way, within a common framework of objectives and activities (UNESCO, 2017).

Rigid, demanding and inflexible curriculum has long been recognized as a major hindrance to learning for learners with Special Needs Education including those with Physical Disabilities. UNESCO (2014), pointed out that in any education system, the curriculum is one of the major obstacles to successful inclusion. Children with special needs face different kinds of barriers in accessing education. Consequently, barriers within the curriculum must be identified and addressed (Richler, 2004).

The Salamanca Statement devotes considerable attention on the nature of curriculum that should be used in an inclusive setting. The statement provides in paragraph 28 that:

‘Curricula should be adapted to children’s needs, not vice. The curriculum has to be structured and be implemented in such a way that all learners can access it.

Richler (2004) observed that curriculum must be sensitive and responsive to the diverse cultures, beliefs and values. It must consider individual needs and progress of each learn. Van and Ineke (2010) mentioned that in Netherlands, education policy promotes integrating pupils with special education needs into mainstream education. While core curriculum objectives must be covered in all schools and inspectorates monitor how the content specified in these objectives is implemented, schools have significant freedom to organize the curriculum so that it responds to the needs and capacities of their learners. Scenarios have been created to guide schools in organizing the different learning areas within their curriculum. While developing these tailor-made curricula puts additional demands on schools and teachers, it is also part of ensuring the quality of education for students with special educational needs, wherever that education takes place (Van and Ineke, 2010).

Adewumi et al (2017) carried out a study on ‘adaptation of the curriculum for inclusion of learners with special education needs in primary schools in the Fort Beaufort District in South Africa. The target population was primary teachers, districts officials and provincial official. They adopted a qualitative approach and used a case study design. Their findings revealed that teachers were not adapting the curriculum to meet the needs of all learners with Special Needs because of the size of classes as well as a lack of training. They further established that the province was not providing guidelines to help teachers adapt the curriculum for learners with

Special Needs Education. Consequently, learners with special Needs Education fell short in terms of learning. The districts officials reaffirmed that many learners with Special Needs cannot read or write. This study however did not mention any category of Special Needs Education and they did not mention whether there was relationship between adapted curriculum and learning outcomes of any specific types of disability. This study examined the influence of adapted curriculum on academic achievement of learners with Physical Disabilities in Rwanda.

In Tanzania, Bathseba and Hezron (2016) conducted a study on ‘Education for all and students with disabilities in Tanzanian primary schools. Researchers used a descriptive research design and target teachers and governmental officials. The study established that despite the establishment of the Department of Special Education at the Tanzanian Institute of Curriculum Development to develop curricula and teaching and learning materials for students with disabilities, there was still a problem of inappropriate teaching and learning resources in most of the primary schools. Curriculum was still inadequate and did not respond to the needs of learners with disabilities. Sanga (2000) mentioned that despite the ‘Primary Education Development Plan’ (PEDP), that ensure education for all, the overall quality of primary education in Tanzania remained generally poor for children with disabilities. The shortages of teachers trained on special educational needs professionals, as well as the lack of teaching facilities, have a negative effect on the delivery of quality education to children with disability. The researcher further illustrated that in many schools, class sizes were too big for teachers to facilitate quality learning and teachers were unable to adapt the curriculum to meet the needs of learners with disabilities. The study however did not mention any relationship

between the inadequate curriculum and academic achievement of learners with Physical Disabilities.

In Kenya, Kiarie (2014) carried out a study on 'educating students with physical Disabilities in Kenya: Progress and Promises'. She found that whilst considerable efforts have been made in promoting access to education for children with disabilities, inadequacies in educational services for children with disabilities persisted. She further revealed that most students with disabilities were educated with their peers in the general education classroom, without any modifications or adaptations to the content of curriculum or to activities. This study, however, did not attempt to establish any relationship between adapted curriculum and academic achievement of learners with Physical Disabilities.

Wanjiku (2010) conducted a study on 'Instructional constraints faced by learners with Duchenne Muscular Dystrophy (DMD): A case of Joy town special primary school for Physically Handicapped, Thika, Kenya.' The researcher used a descriptive survey design and targeted teachers, learners and head teachers. Findings revealed that the regular curriculum posed academic difficulties to learners with DMD because it was developed considering the average learner. The researcher recommended that the curriculum developers should diversify the regular curriculum to suit learners with DMD. This calls for curriculum differentiation that involves modifying the time, teaching methods and resources. Muscular Dystrophy Canada (2012) suggested that learners with DMD will require more time, appropriate teaching methods and specialized resources or adapted regular resources like adapted pens and adapted pencils to fully participate in learning and achieve academically.

In Uganda, Nyende (2012) carried out conducted on ‘children with disabilities in Universal Primary Education: A right based analysis to inclusive education’. He was targeting primary teachers, lecturers, Member of Parliament and members of disabilities organizations and used a descriptive research design. His findings revealed that the curriculum has not undergone the modification that is necessary for it to become relevant to the children with special needs. He further noted that the curriculum at primary level has become increasingly irrelevant to the skills that these children need in their day-to-day lives outside school. Teachers reported that only learners who were able to cope with the existing rigid curriculum were benefiting from quality education. Paragraph 30 of the Salamanca Statement provides that:

“The acquisition of knowledge is not only a matter of formal and theoretical instruction. The content of education should be geared to high standards and the needs of individuals with a view to enabling them to participate fully in development. Teaching should be related to pupils’ own experience and to practical concerns in order to motivate them better. The present design of the curriculum is more inappropriate for the nondisabled children. This makes it hard for CWDs to participate actively. Although they may continue attending, it is unlikely that the knowledge and skills imparted in such an arrangement will have impact on their lives” (UNESCO, 2004).

His study, however, did not specify any category of Special Needs Education and was limited to inclusive schools only. This study was carried out in inclusive schools but targeted learners with Physical disabilities in Rwanda. The study also established the relationship between curriculum adaptation and academic achievement of learners with Physical Disabilities which made it different from that of Nyende (2012).

Rwanda as a knowledge-based economy country has put more emphasis on providing quality education for all children including children with disabilities. Much has been done to ensure access to education for children with disabilities. In

the last decade, children with disabilities attended schools than ever before. Many of these children are with Physical Disabilities who constitute 36.9% of all learners with disabilities (MINEDUC, 2018).

However, the quality of education they are receiving remain a challenge to the Ministry of Education. Studies have shown that children with disabilities are more likely to drop out from the schools before they complete a primary school level and those who manage to go through the primary, they complete with very poor academic achievements (Bots, 2015; Karangwa, Susie and Ingrid, 2010).

A study by UNICEF (2014) pointed out that due to the lack of trained teachers who are able to adapt the curriculum content to meet the needs of learners with disabilities, there is a danger that children are being placed in school without the specialist support they need for full participation and learning. The New Competence Based Curriculum recently introduced in Rwandan schools had no clear indication on how children with disabilities should be supported. There is no guideline on curriculum adaptations for any category of disabilities.

Furthermore, there is no single subject where curriculum has been adapted for learners with Special Needs. However, some learning areas in mathematics, languages, creative arts, elementary science and technology need to be adapted for learners with PD as they involve movement, manipulation, measurements, drawing and other manipulative and motor skills. This leaves a concern on how teachers can adapt the curriculum without guidelines and syllabus given the fact that teachers are not professionally trained in special needs education (Mutezigaju, 2015, Suubi and Mattingly, 2016). The Education Sector Strategic Plan 2018/2019-2023/2024

recognized the need for teacher training in Special Needs and Inclusive Education and highlighted the measure to train at least one teacher per primary school who will be in charge of inclusive education and provide support to all teachers in terms of teaching methodologies, production teaching and learning materials and classroom management.

There was no research that has been conducted in Rwanda to analyse how curriculum content is being adapted by teachers in Kinyarwanda, English and Mathematics and science subjects to suit the needs of learners with Physical Disabilities and their effect on academic achievement of Learners with PD in Rwanda.

### **2.3 Adapting instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools**

Learners with Physical Disabilities will need adapted materials for them to access the general curriculum and perform in their classwork as their peers without disabilities (Awoar, 2010). Teachers teaching learners with Physical Disabilities must be aware of how to adapt a variety of teaching materials to facilitate learners with Physical Disabilities participate in studies.

Candace (2005) established that for learners with Physical Disabilities adaptations and instructions are crucial in writing, science, social studies, mathematics, literacy and language art, and personal independence. A physical disability can affect how a student performs in the classroom. They may have difficulty performing basic functions such as gripping objects with their hands, moving arms or legs in a full or even limited range of motion. These issues can lead to difficulties in turning pages,

writing, using keyboards or a computer mouse. Materials need to be adapted to meet the needs of these learners.

Several studies have been conducted to examine the relationship between instructional materials and academic achievement of the students and their findings revealed in some instances a relationship between instructional materials and student academic performance exist or not. For instance, Isola (2010) conducted a research on “the effects of instructional resources on students’ performance in Kwara State in Nigeria”. He correlated material resources with academic achievements of students in ten subjects. His findings revealed that achievements of students for the past five years were related to the resources available for teaching each of the subjects. He therefore concluded that material resources had a significant effect on student’s achievement in each of the subjects. Mary (2016) found out that facilities like hostels, bathrooms, classrooms, libraries and ramps were not adapted to meet the need of learners with Special Needs Education. However, the researcher established that the adapted facilities had no significance impact on academic performance of students.

In USA, Martha and Cathryn (2008) carried out a study on ‘Prevalence of physical Disability and accommodation needs among students in physical therapy education program’. The researchers used a descriptive survey design and targeted lectures and students with physical disability. They found that there was a positive effect/relationship between adapted instructional materials and academic performance of students with Physical Disabilities. Researchers established that a student whose instructional materials were not adapted was 88.7% less likely to perform better in

academics compared to a student who was in a classroom where materials have been adapted.

In Comoros, Mattingly and Lamiat (2016) carried out a study on ‘children with Disabilities and their right to education’. They used a descriptive survey design and targeted teachers and education officials. Findings revealed that physical environment of schools in Comoros was not accessible to children with Physical Disability. They found that inaccessible latrines posed a challenge to children with Physical Disabilities. They pointed out that children with disabilities in Comoros were excluded from education and few who enrolled due to their commitments were excluded from learning because of inadequacy of facilities and materials.

Tungaraza (2015) conducted a study on” The arduous march toward inclusive education in Tanzania”. He used descriptive survey design and targeted teachers and Headteachers. He revealed that the government of Tanzania continues to perform dismally when it comes to providing materials and resources essential for teaching students with disabilities. He further established that there were only a few up-to-date resources that teachers can use to support students with disabilities. Because schools were poorly funded, very limited resources were available to carry out the requisite assessment and intervention processes. The researcher went further to report that in Tanzanian schools, there were insufficient resource specialists, combined with inaccessible classrooms and a lack of Braille materials and sign language interpreters. Class sizes were large, which poses a challenge to delivering quality instruction.

Cabot (2010) carried out a study on “Inclusive Education in Tanzania” a part of WASH project report, the report noted that in Tanzanian primary schools, there was a lack of adequate, accessible physical infrastructure to allow easy access to school for the majority of children with Physical Disabilities. The researcher described that classrooms in many schools in Tanzania had one or more staircase. Students with physical disabilities were carried up these stairs by their peers, a practice that is unsafe for both parties. The report went further revealing that there were inadequate and often inaccessible sanitation facilities in primary schools. Washrooms were small, and a student using a wheelchair cannot easily navigate these spaces. The researcher concluded that altering some of the physical features of schools, both within and outside school buildings, was critical to realizing the inclusion of students with Physical Disabilities in Tanzania. All these studies however were conducted in Tanzania and not in Rwanda.

Ojoro (2017) conducted a study on ‘ implementation of Individualized Education Programme for effective teaching of learners with Cerebral Palsy in two special primary schools in Kenya’. He used a descriptive survey design and targeted teachers, head teachers and learners with Cerebral palsy. Findings revealed that the adaptations were made to the instructions materials and these included: enlarging lengths and sizes of handles, adding gripping materials on pens and handles, using attachment supports and velcro, and using double single ruled exercise books. He further concluded that majority of teachers did adaptations on materials used in teaching and learning of learners with Cerebral Palsy. His study however did not mention whether adaptations made to the instructional materials had an impact on academic achievement of learners with physical Disabilities.

Wanjira (2012) carried out a study on “factors affecting performance in Physics among learners with Cerebral Palsy in the Kenya certificate of secondary education.’ She used a descriptive survey design and targeted 156 respondents including head teachers, teachers and learners with Cerebral Palsy. On adaptation of facilities and equipment 67% of students felt that the laboratories were not adapted to cater for learners with Cerebral Palsy. They further cited the high cost of equipment as a contributing factor to lack of their availability. This led to a shortage or inadequacy of the equipment required. The fact that most of the equipment’s that were specially designed for learners with Cerebral Palsy were not readily available was also cited as a problem. The head teachers further expressed that facilities were not enough and that facilities were not adequately adapted to the unique conditions of learners with Cerebral Palsy.

Kiyuba and Sani (2014) carried out a study on ‘Challenges of providing special education to Children with Disabilities in Uganda: View of teachers and education officials’’. The researchers used a descriptive survey design and targeted educational officials and teachers. The researchers established that schools were less equipped with teaching and learning resources for use with learners with Disability and this affected their educational performance. The Special Needs Education Task Force (2005) in Kenya noted that learners with SNE required a barrier free environment to maximize their functional potentials. They noted that the physical structures in institutions for learners with SNE were so inconducive to the learners with special needs that most of them cannot cope. The inconducive structures include inaccessible toilets, desks, chairs, tables, writing and reading materials and writing system and many others.

Wanjiku (2010) carried out a study on “Instructional constraints faced by learners with Duchenne Muscular Dystrophy (DMD): A case of Joy town special primary school for Physically Handicapped, Thika, Kenya”. The researcher used a descriptive survey design and targeted teachers, learners and head teachers. Findings revealed that there was no specialized equipment for handling learners with DMD at Joy Town Special Primary School. Such equipment assists to make the learners comfortable and increase the level of independence. On the availability of resources, the majority cited the availability of wheelchairs which aided the learners with DMD when they were no longer able to walk. It was reported that there were adapted pencils in the lower primary but there were no adapted pens in the upper primary. The researcher concluded that there was a need to modify wheelchairs to make the learners comfortable for them to absorb pedagogical instructions with some ease.

In Senegal, Elizabeth and Kamphoff (2014) carried out a study on ‘Perceptions of disabilities and access to inclusive education in West Africa: A comparative case study in Dakar, Senegal’ The researchers used a comparative research design and document analysis and interviews to capture information. Researchers established that 50% of students with disabilities who had attended school at one point in their lives, 34.2% of that population dropped out of school before they completed their primary. The reason of this high dropout among learners with Disabilities included but not limited to fear of violence and sexual harassment and the lack of physical accessibility to classrooms and bathrooms. The study further revealed that many children with disabilities lack orthopaedic devices (canes, crutches, hearing aids, glasses, etc.) that would make manoeuvring around the school building. During an interview teacher stated that children with physical disabilities were more likely to

go to school, but unfortunately the schools were inaccessible. There was sand everywhere and there were stairs at the entrances to the building. Another issue highlighted by teachers during the interview were overcrowding classrooms (Average class sizes in Senegal were between 50-60 students). The researcher noted that overcrowded classrooms made the learning environment inaccessible for students with Physical Disabilities because they were unable to move around the classroom.

In Rwanda, the Education Sector Strategic Plan, 2013-2018 recognized the lack of adapted instructional materials as a major hindrance to access and participation of learners with Physical Disabilities. The Ministry of Education Statistical Year Booklet (2018) revealed that only 24% of primary schools in Rwanda had adapted instructional materials and facilities. The report by Humanity and Inclusion, (2016) in inclusive schools revealed that the lack of adapted instructional materials and adapted facilities posed a serious challenge to the education of children with disabilities in Rwanda. The report highlighted the inaccessible toilets, inaccessible classrooms and a general lack of adapted instructional materials in inclusive schools. UNICEF (2014) revealed that inaccessible toilet and water facilities were major contributing factors for school dropout among children with disabilities, especially girls. There was no scientific study however, that was conducted to attempt to associate instructional materials/ facilities and academic achievements of learners with Physical Disabilities in inclusive primary schools.

## **2.4 Instructional methods and academic achievement for learners with Physical Disabilities in inclusive primary schools**

Teaching strategies are a broad plan of action for teaching and learning activities to achieve aims in the desired course content that entail setting goals and developing plans to achieve these goals. These aims and plans also need to be evaluated to accommodate learners with Physical Disabilities learning styles (Landsberg, Kruger and Nel, 2005). Teaching strategies contain methods teachers use to help learners with PD access information by determining achievable goals. It is therefore, important to use a variety of teaching strategies, methods and teaching styles within the education system to accommodate the diverse learning needs that can originate from the aforementioned. Appropriate planning for a teaching strategy can help identify the different teaching methods to enable teachers to develop or adapt activities in order to ensure all learners understand the content (Richler, 2004). Differentiation in all aspects of teaching should be considered to accommodate all learners. This should be incorporated when planning lessons, developing assessment and for designing a variety of classroom activities. Group work and peer teaching are also considered effective teaching strategies (Richler, 2004).

The best way of reducing barriers emanating from the curriculum is to make sure the process of learning and teaching is flexible enough to involve different learning needs and styles (Male and Wodon, 2017). Informally, the public and the media have attributed the challenges encountered by children with SEN in accessing basic education to teachers using the same criteria for teaching all learners in the class, despite their diverse needs. For all learners, teacher quality is without doubt the greatest in-school influence on outcomes. The most effective teachers are

recognizable by their capacity to use a range of teaching strategies appropriate to individual learners with Disabilities, their knowledge of assessment and how to use it to remediate and extend them and their ability to build positive relationships with them and manage the classroom environment (Richler, 2004). Effective teachers also set high expectations for all students to succeed, collaborate with colleagues and engage in continuing professional development.

In the international literature on inclusion, emphasis is placed on strategies that ensure individual access and participation. This access is frequently obtained through creating accommodations and adaptations to teaching, learning and assessment. Male and Wodon, (2017) observed that the Individualised Education Programme is an essential component of inclusion. Differentiated instruction needs teachers to change their practices from a programme-based pedagogy to a learner-based pedagogy. Teachers endeavour to adapt pedagogical interventions to the needs of each learner, admitting that each learner varies in interests, learning profile and level of functioning. Differentiated instruction may facilitate high levels of both learner engagement and curricular achievement (Karthan, 2011).

UNESCO (2015) stated that specialist teachers are the norm internationally. They are capable of teaching a wide variety of skills and of using a range of teaching methods and strategies, so that every learner is encouraged to participate enthusiastically in teaching activities. Learners with special needs are heterogeneous group and they have varied learning characteristics and patterns. To meet such a wide variety of needs there is need for teachers to use different teaching methods which facilitated learning for learners with PD (Richler, 2004). Karthana (2011) concluded that often academic performance of students is linked to teaching

methods and teachers' professional competence and skills applied to impart knowledge to learners.

#### **2.4.1. Use of cooperative method and academic achievements of learners with Physical Disabilities in inclusive primary schools.**

Cooperative learning entails a team effort where individuals work in cooperative learning groups to reach a common goal (Hollar, 2012). This requires positive interdependence within the group to achieve a mutual outcome, where tasks are divided among group members and roles are specifically assigned (Landsberg, et al 2005). According to Lamport, Grave and Ward (2012), cooperation involves social skills that include trust, communication, support and conflict resolution as education advancement takes place through group members' encouragement and acceptance of each other's efforts.

In a cooperative learning activity, the task of the teacher is to explain the group assignment so that it is fully understood by all members of the group. This also serves to foster mutual respect at all times among learners as well as between teachers and learners (Nel and Grosser, 2016). According to Nel and Grosser (2016), cognitive conflict occurs in group discussions which enhance intellectual development, while emotional development is also nurtured through group support in the process of learning to work with and respect diversity. Since the group is accountable for achieving tasks each learner is to be held responsible, necessitating active involvement of all members (Hollar, 2012). Reflection on the success of individual members as well as the group's contributions is also regarded as a vital constituent of cooperative learning. Cooperative learning can be a key element in

multi-level teaching where lessons should be planned to accommodate all levels of learning in the mainstreamed classroom situation (Nel and Grosser, 2016).

In a mainstream classroom where diversity is accommodated the value of trust and a disposition to communicate within a cooperative group should be taught and encouraged by the teacher. In a group where there is trust, despite differences, conflict is easier to control. This necessitates that the teacher is aware of the various potential skills of the learners and the contributions they can make, and discretely encourages this in the group setting (Estebanez, 2016). Further to this, reflection is essential at the end of a group task as learners with PD should evaluate their contribution towards the outcome of the activity. This can be done by asking open-ended questions with less emphasis on correct answers but rather ensuring participation by all learners. It is important that groups are heterogeneous and often rotated to stimulate cognitive conflict and active engagement, promote social development, and encourage respect for gender and diversity (Lamport, et al 2012). The teacher should always promote constructive social interaction through support and praise for the individual as well as the efforts of the group as a whole. This helps to highlight the importance of each member's contributions while removing any feelings of inadequacy by certain learners especially, learners with Disabilities (Estebanez, 2016).

Engelbrecht and Van Deventer (2015) noted that the advantages of co-operative learning apart from involvement include increasing self-esteem and self-worth, cooperative problem-solving, a more positive attitude to learning, social interaction and peer acceptance. A disadvantage of this form of learning is that more confident

learners can dominate the group, resulting in a learner with PD opting for a submissive role.

Molly, Wamocho and Otube (2018) conducted a study on 'Teachers use of cooperative learning strategy for enhancing academic performance of students with Cerebral Palsy in special secondary schools for the physically handicapped in Kenya'. Findings revealed that cooperative learning enhances academic performance of students with Cerebral Palsy. They further established that cooperative learning helps students to improve academically, especially in science and technical subjects which need a lot of explanation.

In Rwanda, Suubi and Mattingly (2016) noted that teachers were using traditional methods of teaching which were not favouring students with disabilities. Mutezigaju (2015) observed that teachers in inclusive schools were not effectively trained on the use appropriate teaching methodologies. Bots (2015) however, noted that teachers in inclusive schools had a deep knowledge on teaching methods. This study was conducted in inclusive schools supported by Humanity and Inclusive which may distinguish them from the rest of the schools in Rwanda. There is no study that was conducted in Rwanda to establish the use of cooperative learning in schools and its effect on academic achievement of students with Physical Disabilities.

#### **2.4.2 Use of task analysis method and academic achievements of learners with Physical Disabilities in inclusive primary schools**

Task Analysis is a process of breaking a skill into smaller, more manageable steps in order to teach skills. Other practices, such as reinforcement, video modelling, or time delay, should be used to facilitate learning of the smaller steps. As the smaller steps are mastered, the learner becomes more and more independent in his/ her

ability to perform the larger skill (Gray, 2009). We often expect learners to be able to figure out the steps involved in completing a task. But with a special needs population, where you might have children with Physical Disabilities, it is necessary to take the time to express the different parts of a task until the students has mastered each one. Like any other undertaking, Task Analysis can also be deconstructed into steps: Determine what task you want the students to perform, figure out what steps will be required to complete the task, teach the student one step until the student displays mastery of it, and decide what order to teach the steps in. You might have the student master the last step, the second to last and so on until the entire task can be done independently. Or vice versa, you can work from the first step to the last. This is known as chaining. As each part of the process is learned, add it to the chain until the task can be completed independently (Browder and Trela, 2007). Task Analysis can be an invaluable tool for a special educator trying to help students gain independence. Research has shown that students with disabilities including those with Physical disabilities benefit a lot from this process (Heller, et al 2009).

#### **2.4.3 Use of special grouping method and academic achievements of learners with Physical Disabilities in inclusive primary schools**

Peer tutoring involves students learning from each other in ways which are mutually beneficial and involve sharing knowledge, ideas and experience between participants. The emphasis is on the learning process including the emotional support that learners offer each other as much as learning itself (Boud, Cohen, and Samson, 2005). Children without disabilities serve as tutors for their counterparts in special education programmes. Samantha (2017) assert that class-wide peer tutoring can be an additional means to allow all students opportunities for interactions and feedback from one another. According to these authorities, for peer tutoring to be

successful, the teacher must remain actively involved. Studies by Isherwood and Barger (2008) indicate that teachers must plan structured lessons for the tutors to follow, train tutors to use interpersonal behaviours that will facilitate learning and monitor the performance of both tutors and tutees. It is also relatively easy for teachers to implement and is a practical way of providing support for learners with Disabilities.

Both the tutor and tutee benefit from the peer tutoring experience, for the tutee; there are gains in academic achievements. The child can learn more effectively from a classmate whose thinking process is closer to that of the child than that of the teacher. There are academic gains because the best way to learn something is to teach it to someone else. The tutor also serves as a model of appropriate academic and non-academic behavior. The relationship between the two children also provides opportunities for establishing additional social relationships within the classroom. Peer tutoring has repeatedly been found to be an effective method of teaching reading to students with disabilities. While one meta-analysis, Swanson, Hoskyn and Lee (1999) found that students with disabilities made greater gains in reading when they served as tutors. Moody, Vaughn and Schumm (1997) found no difference between whether the students with disabilities served as tutor or tutee. Furthermore, research has shown that students with disabilities can perform effectively either as tutors or tutees, as well as in a reciprocal tutoring role. Reciprocal-role tutoring may offer an additional benefit of boosting students' self-esteem through the teaching role. Use of this technique requires an understanding of the process, organizational planning, training of tutors, and careful monitoring (Boud, et al 2005).

Small group instruction has been shown by many research studies to be more effective than whole-class instruction. Breaking the class into teacher-led groups of 3 to 10 students helps students learn significantly more than when they are taught using whole-class instruction. Smaller groups appear to be better groups of 3 to 4 students are usually more efficient than larger groups of 5 to 7 students in terms of teacher and student time, lower cost, increased instructional time, increased peer interaction, and improved generalization of skills (Moody, Vaughn and Schumm, 1997). This practice requires teachers to plan and organize groups and to adapt instruction, methods, and materials for small group use. Benefits are greater when the materials are tailored to the needs of different students. Students with disabilities may require different materials and more direct instruction than students without disabilities (Swanson, Hoskyn, and Lee, 1999).

#### **2.4.4 Use of IEP and academic achievements of learners with Physical Disabilities in inclusive primary schools**

According to Salvador and Bertelli (2007), Individualized Education Programme (IEP) is a written plan of action that specifies an individual's progress towards specific educational goals, developed and implemented by a team of experts. In the USA, IEP has been the basis of special needs education since the inception and enactment of the Education for All Handicapped Children Act in 1975. This remains a core component of special education requirements and practices. For instance, the Individualized Disability Education Act (IDEA) requires that certain types of information must be included in every learner's IEP. The IEP is developed to meet a child's needs (Children and Chambers, 2005). All IEPs, contain the following information regarding the child with disability: present levels of educational

performance, measurable annual goals, special education and related services, participation levels with other children without disabilities, plan for delivering services and modifications, measuring and reporting progress as well as a degree of access to general curriculum including the amount of time spent participating in general education (Candace, 2005).

Teachers who work with students with disabilities use these plans to guide them in accommodating and modifying the design of lessons and instruction in the classroom. When planning classroom activities and conducting evaluations, teachers keep IEP goals and outcomes in mind. Teachers must also keep the IEP in mind as they determine how they will collect and evaluate student progress toward educational goals. Evaluation helps teachers to assess whether their teaching approaches are effective and to change or tune their practices accordingly. A well-researched and fully collaborative IEP will help students with disabilities to develop their capacities and to experience academic accomplishment while benefiting the class by modelling and cultivating a more inclusive and differentiated educational experience for all students (Sandt and Karriker, 2010).

Appropriate instructional methods help learners with Physical disabilities to participate actively in a class and inappropriate methods lead to repetitive failure which is the main cause of poor academic achievement of learners with Physical Disabilities (Sagahutu, 2008). As observed by Swanson (2001), teachers teaching in regular classrooms should have at their disposal a variety special teaching method to motivate learners with Physical Disabilities to learn and improve their academic achievement. However, several studies established that teachers in inclusive schools use inadequate teaching methods and do not take care of the diverse needs of

learners with Physical Disabilities which adversely affect their academic performance.

In USA, Martha and Cathryn (2008) carried out a study on 'Prevalence of Physical Disability and accommodation needs among students in physical therapy education program'. The researchers used a descriptive survey design and targeted lectures and students with physical disability. Their findings revealed that a student with Physical Disability to whom adapted teaching has not been implemented was 41.6% less likely to perform better in academics compared to a student whom adapted teaching methods has been implemented. This study has been conducted in USA in Higher Learning Institutions; the present study was conducted in primary schools in Rwanda.

In South Africa, Mosia and Phasha (2017) conducted a study on 'access to curriculum for students with disabilities at higher education institutions: How does the National University of Lesotho fare?', the researchers used a single case study design and targeted students with various types of disabilities, academic and non-academic member of staff. Findings revealed that lectures at the institution were offered mainly face-to-face. Students were expected to take notes of the lecturer's verbal or written presentation on the board. Researchers further asserted that the method was not accommodative of the learning styles and pace of students with disabilities who may experience challenges when taking notes of the materials presented. This study, however, did not mention whether the use of inappropriate methodology has had an influence on academic achievement of students with disabilities. The present study looked at it and in primary schools and for a specific type of Physical Disability.

In Nigeria, Michal, Obidiya and Ema (2012) carried out a study on: ‘educating people with Special Needs in Nigeria: Present and Future perspectives. The study was a desk-based research and 52 articles on inclusive education in Nigeria were reviewed. The study revealed that there were still not enough qualified teachers to meet the diverse needs of learners with special Educational Needs and Disabilities. The study further noted that most teachers who worked with learners with disabilities were not qualified to teach, hence using inappropriate teaching methodologies. The researcher concluded that the use of inappropriate teaching methodologies has been the cause of repeated failure and drop out among learners with disabilities in Nigerian schools.

In Tanzania, Muyungu (2015) carried out a study on” Towards Inclusive Education in Tanzania: A study of pre services students’ teachers training and perceived needs to practice inclusive education’. The study was qualitative and used a descriptive survey design. He targeted primary teachers and used interview guide and observations. During an interview with teachers to investigate the methods they use in teaching learners with disabilities. From their responses, majority of teachers used special grouping as a methods of teaching learners with disabilities, other methods used by teachers were cooperative learning, task analysis and positive reinforcement. The researcher, however, did not make any attempt to establish a relationship between the methods used by teachers and academic achievement of learners with Physical disabilities.

Ojoro (2017) conducted a study on’ implementation of Individualized Education Programme for effective teaching of learners with Cerebral Palsy in two special primary schools in Kenya’. He used a descriptive survey design and targeted teachers, head teachers and learners with Cerebral Palsy. Findings established that

teachers were fairly effective in the implementation of Individualized Education Program. He further noted that majority of teachers used task analysis and guided practices as strategies to help learners with Cerebral Palsy. This study, however, was limited to one type of physical Disability and did not mention any relationship between teaching strategies and academic achievement. The present study examined the relationship between instructional strategies and academic achievement of all categories of physical disabilities.

Obinga, Konchung and Otube (2011) conducted a study on “Strategies used by Learners with Cerebral Palsy to Acquire Literacy Skills in schools for the Physically Handicapped in Kenya”. Researchers concluded that lack of relevant instructional strategies in special schools may have great influence in performance and progression to higher levels of education for learners with Cerebral Palsy.

Kuyini and Chigerom (2014) carried out a study on “Effectiveness in adapting instruction to the needs of pupils with Learning Disabilities in regular primary schools in Ghana”. The results of the study show that regular teachers have limited to moderate competence in adaptive instruction. The researchers noted that in Ghana, students with disabilities often drop out of schools, fail in national examinations because teachers neither adapt instruction to pupil’s needs nor pay attention to them during instruction. They concluded that teachers need to have adequate competence in adaptive instruction to be able to address the growing needs of children with Learning Disabilities in the regular classroom setting. They noted that an adaptive instruction is an important competence domain for any effective inclusion of pupils with Learning Disabilities in the regular classroom. This study

was done in Ghana and was focusing on learners with Learning Disabilities. The present study was focusing on learners with Physical Disabilities in Rwanda.

In Rwanda, Suubi and Mattingly (2016) carried out a study on ‘education of children with disabilities and their right to education’. They used a descriptive survey design and targeted teachers and education officials. Findings revealed that teachers in primary schools visited were using traditional methods and focused on completing the syllabus, irrespective of the students’ learning levels. They did not however point out whether the use of inappropriate teaching strategies has had an influence on academic achievement for learners with disabilities, especially for learners with Physical disabilities.

Mutezigaju (2015) carried out a study on ‘implementation of strategies for reducing dropout rates of learners with Mild Intellectual Disabilities in inclusive primary schools in Rwanda. She used a descriptive design and targeted teachers, head teachers and learners with Mild Intellectual Disabilities. Findings revealed that teachers were not using special methods recommended to teach learners with Special Needs. The researcher further established that teachers were not aware of what an Individualized Education Programme was and how to develop it. These studies did not intend to establish any relationship between teaching strategies and academic achievement. A scientific study was therefore yet to be conducted in Rwanda to examine the relationship between flexible teaching methods and academic achievement of learners with Physical Disabilities in inclusive schools.

## **2.5 Assessment accommodations and their implications on academic achievement of learners with Physical Disabilities in inclusive primary schools.**

Accommodations are tools and procedures that provide equal access to instruction and assessment for students with disabilities. They are provided to ‘level the playing field’ (Larson, Goldstone, Thurlaw and Lazarus, 2019). Without accommodations, students with disabilities may not be able to access grade level instruction and participate fully on assessments (Li, 2014). Accommodations do not reduce grade level standards but rather help provide access to the course content. They do not alter the amount or complexity of the information taught to the student. Accommodations are changes in the program from a way thing are typically done so that a student with a disability can have equal opportunity to participate and allow the student to be successful. The purpose of accommodations is to decrease or to eliminate interference from the disability (Carmel, 2016).

Making determinations about the appropriate accommodations that students with disabilities need in order to fully and equally participate in large scale testing is a critical component of developing a student's Individualized Education Program (IEP) or Section 504 Plan. IEP/504 team members, including parents, must engage in a thoughtful process that determines the necessary accommodations to facilitate the student's access to grade level instruction and full participation in District/national assessments (Lewis and Nolan, 2013). According to Lewis and Nolan, accommodations should not lead to inappropriate testing practices such as: coaching students during testing, editing student work, allowing a student to answer fewer questions, giving clues to test answers in any way, reducing the number of responses

required and changing the content by paraphrasing or offering additional information. Lovett and Leja (2013) proposed that accommodations can be categorized into four categories: presentation accommodations, timing accommodations, response accommodations and scheduling accommodations. Miller, Lewandowski, and Antshel (2013) suggested that students with disabilities who receive appropriate accommodations during instruction and assessment are more likely to perform better than those who have left to struggle themselves during instruction and assessment.

### **2.5.1 Presentation accommodations and academic achievements of learners with Physical Disabilities in inclusive primary schools**

Presentation accommodations make it possible for students to gain access to information for instruction and assessments that is presented in text, graphic, or spoken formats. Students with disabilities may require text and graphical information provided in alternate formats if they are unable to use or read standard print. Students with disabilities may need presentation supports that enhance or facilitate their ability to read, observe, and listen in the classroom. Presentation accommodations present the content in forms that students with disabilities can understand (Luke and Schwartz, 2007).

These alternate modes of access include visual, tactile, auditory, and a combination of visual and auditory. Students with visual, hearing, and learning disabilities are much more able to engage in the content when it is presented in a form they can understand. Some examples of accommodations in presentation include: Oral reading (either by an adult or on audiotape), large print, magnification devices, Sign Language, Braille, etc... (Nees and Berry, 2013).

Odoh (2016) carried out a study on “the impact of braille reading and writing on the academic performance of students with Visual Impairment”. He found that the inability to read and write braille affects the academic performance of students with Visual Impairment, and the availability of braille materials play a significant role in the performance of students with visual impairment in academic subjects. Elizabeth and Hone (2018) concluded that students with disabilities must have access to and participate in the general education curriculum and in courses that will prepare them to take and pass the required examinations. They must be provided with appropriate accommodations for them to fully participate and make progress in the general education curriculum.

Lyman (2013) found that learners with Physical Disabilities continue to perform dismally compared to their peers without disabilities. He maintained that the lack of proper accommodations during testing is the main cause of poor academic achievements of learners with Physical Disabilities.

### **2.5.2 Response accommodations and academic achievements of learners with Physical Disabilities in inclusive primary schools.**

Response accommodations offer different ways for students to respond to assessment questions. They help students with visual and hearing impairments, physical disabilities, and organizational problems to structure, monitor, or directly put words to paper (Nees and Berry (2013). Students with disabilities who are unable to respond in standard ways to instructional tasks may need an alternate response mode. Students who have difficulty with expressive communication due to sensory or language impairments, as well as students who are unable to use

handwriting due to motor impairments, may need assistive technology devices (Luke and Schwartz, 2007).

Examples of these accommodations include: using a computer/typewriter or a scribe to record answers, using an augmentative communication device or other assistive technology (AT), using a braille, responding directly in the test booklet rather than on an answer sheet (Nees and Berry ,2013).

A study by Mukwanjiru (2012) on “Adequacy and effectiveness of assistive devices used to instruct learners with PD in Kenya” indicated that generally the devices were inadequate and ineffective. It was therefore hard for learners with physical disabilities to achieve their full potential in instruction without adequate and effective assistive devices. Lovett and Leja (2013) concluded that for some students with Physical Disabilities, assistive technology is what they need to full participate in instruction and assessment. When students have mobility issues due to a physical disability and teachers do not have adequate preparation for how to accommodate students with physical disabilities, students may be prevented from opportunities to participate in school activities and this may eventually lead to poor academic achievements (Samantha, 2017).

Typically, students with physical disabilities face difficulties that prevent them from accessing and participating in regular education programs. However, assistive technology allows them to be included in the regular classroom (Riemer and Wacker, 2000). Regarding the impact of using assistive technology on students’ academic performance, Judge (2000) observed that when students with mild disabilities cannot accomplish their academic tasks, teachers must find a strategy to help them. Professionals should understand that at some point, technological tools

can be helpful, and assistive technology can help students with disabilities to complete their tasks successfully and independently.

In England, Brumfield (2014) carried out a study on ‘the effectiveness of reading accommodations for high school students with reading disabilities’. His research design was descriptive and target population were students with reading difficulties and teachers. Findings established that there were benefits for students with learning disabilities when receiving scribes in comparison to students without disabilities.

Joakim (2015) carried out a study on ‘help me fail: A study on testing accommodations for students with disabilities in writing assessments’ in South Korea. The researcher used a descriptive survey design and targeted students. In the findings, students with disabilities believed they scored better when using modified answer sheets than when they did not. The study was conducted in South Korea and not in Rwanda and for students in high schools. The present study targeted primary school learners.

### **2.5.3 Setting accommodations and academic achievements of learners with Physical Disabilities in inclusive primary schools**

Setting accommodations involve changes in the location or conditions of the educational environment. Accommodations can address accessibility issues, behavior and attention, and organization of space and materials. Students who use accommodations that distract other students, such as a reader or scribe, may also need setting accommodations. Example include: Preferential seating, special lighting, accessible workstation etc... (Lin and Lin, 2013).

Lin and Lin (2013) carried out a study on setting accommodations, they found that there was no significant evidence indicating a benefit of separate, low distraction

setting for exceptional students with disabilities and English learners on large scale assessments. Lin and Lin (2014) reported that English learners (ELs) with learning disabilities, and students with learning disabilities who were not ELs, did not score differently on math assessments than all students with learning disabilities. Lin and Lin (2014), examining a separate data set, found that there were no significant benefits for students with learning disabilities using separate settings during either reading or math assessments.

Mosia and Phasha (2017) explained that access and timely travel are the major concerns of students who use wheelchairs, crutches, canes, walkers, braces, or other mobility aids. These students must learn the routes across campus that do not present barriers (stairs, curbs, narrow walkways, heavy doors, and balky elevators). The researchers further commented that students with mobility limitations may prefer to sit near the classroom entrance to avoid additional walking. Students who use wheelchairs will need adequate floor space in the front, on the side, or in the rear of the room so that they can park without blocking the flow of traffic. Some students who walk short distances and prefer to get out of their wheelchairs may require special desks or tables that comfortably accommodate them.

Ojoro (2017) conducted a study on “Implementation of IEP for effective teaching of learners with Cerebral Palsy in Kenya” commented that one of the best ways you can support learners with PD is by changing the classroom environment to increase learners’ participation in activities. Offering alternative seating arrangements is a great way to support learners with PD. Cabot (2010) proposed that depending on the needs of the individual learner, you can have them sit near you, in a quiet area of the classroom, or provide an alternative seating option that will help them focus in

class or exams. He further established that adapting furniture by lowering chairs or securing desks and creating slant boards throughout the classroom for writing support can help learners with physical disability and lead to the improved academic achievements.

#### **2.5.4. Scheduling Accommodations and academic achievements of learners with Physical Disabilities in inclusive primary schools**

Scheduling accommodations involve changes in how time is allocated, scheduled and managed. Students may need scheduling accommodations to address issues related to effort, rate of performance, attention, and their own ability to monitor and manage time. Examples include extended time, breaks, etc... (Miller, Lewandowski, and Antshel (2013).

According to Sankar and Mundkur (2005), students with Physical Disabilities are often physically unable to hold a pen and write for extended periods of time or may experience challenges with input, output, and information processing when working on assignments, tests, and/or exams. They may also find it difficult finishing assignments and/or tests in allotted time. According to the researcher, providing extra time will help students with Physical Disabilities complete the work and successfully participate in assessment. Berry and Domene (2015) illustrated that with reasonable classroom and assessment accommodations and individualized learning strategies, students can generally learn to compensate for these problems and manage their academic expectations competently.

Two studies (Lewandowski et al., 2013; Miller et al., 2013) examined comparisons between employing 150% time and 200% time, that is, one and a half times to twice as much time as was used in the non-accommodated condition. One of these

(Lewandowski et al., 2013) found that students with learning disabilities scored significantly better in the longer extended-time condition than in the shorter time frame, and the other (Miller et al., 2013) found that there was no difference, on average, for students with Attention Deficit and Hyperactivity Disorders in number of items correct based on the time spans allowed.

Accommodations are an important part of effective educational programs for students with disabilities. Many students with disabilities need only small changes in the way they are instructed and tested to participate successfully in general education classes. Accommodations involve the use of different strategies, assistive technology, changes in the schedule or environment, or support from a person to increase, maintain, or improve the performance of a student with disabilities (Marty, 2010).

Marty (2010) concluded that accommodations play an important role in meeting the needs of students with disabilities. Teachers are responsible for providing the accommodations to students with disabilities, and students are responsible for using the accommodations and making their best effort in instruction and assessment activities.

In Africa, there has been much discussions about the impact assessment accommodations have on test results. Although this remains a valid concern, there is little empirical information available that directly addresses this concern. Several reports in Uganda, Kenya, and Rwanda highlighted the issue of examinations procedures that do not favor learners with Disabilities. The issues touched on grading, time allocation and mode of presentation of examination papers (Kimondiu, 2012; Moyo, 2012; VSO, 2015).

Moyo (2012) conducted a study in Uganda on 'access to education for children with disabilities: Implication for Education for All'. He used a survey design and targeted children with disabilities, and parents. His findings established that during exams, the timetable did not take care of CWDs. The researcher further ascertained that children with disability were subjected to the same examination as regular children with no accommodation to exams materials. This study, however, did not mention any relationship with the inappropriate examination procedures and academic achievement of learners with Physical Disabilities.

Kimondiu, (2012) carried out a study on 'factors affecting performance of pupils in Kenya Certificate of Primary Education in special schools for learners with Physical Disabilities in Kenya'. He used a descriptive survey design and targeted head teachers, teachers and class eight pupils with Physical Disabilities. Findings revealed that unfair assessments that do not take care of special needs of learners with Physical Disabilities have led to poor academic achievement of learners with physical disabilities. The researcher further pointed out that lack of adapted examination equipment and insufficient time allocated during examination were among the causes of poor academic performance among learners with Cerebral Palsy, amputees and Muscular Dystrophy.

In Rwanda, Beth (2015) conducted a study on 'Academic impediments students with Visual Impairments encounter in the colleges of University of Rwanda. She used a descriptive survey design and targeted deans of faculties, resource room managers, lectures, students with Visual Impairments and without Visual Impairments. Findings revealed that students with Visual Impairments were given extra time during examination but still have poor performance because questions were not

adapted to suit their needs. Her study was descriptive and was conducted at the university targeting students with Visual Impairments. VSO report (2015) illustrated that students with disabilities had so far received any special consideration during the national examinations and this could lead to poor academic achievements of students with Disabilities. The report suggested that the clear assessment guidelines be developed that should contain entitlement to support for students with disabilities during examinations.

## **2.6 Literature Review Summary**

Review of related literature has identified the following gaps that the present study filled:

First, the literature reviewed on instruction accommodations (adapted curriculum, adapted instructional materials/ facilities and recommended teaching methodologies) revealed that many studies were limited on availability and use of instructional accommodations, limited studies have attempted to investigate the relationship between instructional accommodations and academic achievement of learners with Physical Disabilities. This study investigated the relationship between instructional accommodations and academic achievement of learners with Physical Disabilities in Rwanda.

Secondary, many studies on assessment accommodations (use of extended time, special venue, rest break, modified answer sheet, scribes) were conducted in United States of America. Limited studies done in Africa were too general and not focused on a specific type of disability. The present study focused on Physical Disabilities.

Finally, most of the studies done in Rwanda emphasized on access to education of learners with special needs, factors that hindering access to education for learners with Physical Disabilities were documented by many researchers in Rwanda. However, limited were done on quality learning by determining relationship between instruction and assessment accommodations and academic achievement of learners with Physical Disabilities.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.0 Introduction**

This chapter presents and discusses the following sections: the research design, variables, location of the study, target population, sampling techniques and sample size, research instruments, pilot study, validity and reliability, data collection techniques, data analysis and logistical and ethical considerations.

#### **3.1 Research Design**

This study adopted a correlation research design. Kosomo (2015) states that correlation design determines relationships between variables in order to make meaningful predictions. Therefore, a correlation research design was suitable for this study because the major purpose of this study was to determine the degree to which instruction and assessment accommodations predict academic achievement of learners with Physical Disabilities in Southern Province and Kigali City, Rwanda.

#### **3.2 Variables**

The study had two variables. Independent and dependent variables.

##### **3.2.1 Independent Variables**

The study considered the following as independent variables: instruction accommodations including: Curriculum content and activities, instructional materials/ facilities, instructional methods and assessment accommodations including extra time, rest break, special venue, scribe and others.

##### **3.2.2 Dependent Variable**

The dependent variable in this study was academic achievement indicated by Primary Leaving National Examinations scores. There was no manipulation to

variable since the researcher intended to collect information from teachers, head teachers, learners with Physical Disabilities and other education officials regarding academic achievement of learners with PD in examinable subjects (Mathematics, Science & Technology, English, Kinyarwanda and Social studies).

### **3.3 Location of the study**

This study was conducted in four selected Districts. Nyanza and Kamonyi Districts in Southern Province and Gasabo and Nyarugenge in Kigali City, Rwanda. Nyanza and Kamonyi Districts were chosen because they had boarding inclusive primary schools with many learners with Physical Disabilities. Gasabo and Nyarugenge Districts were chosen because they had a baseline data on learners with disabilities included in regular schools and had many learners with Physical Disabilities accommodated in regular schools (Humanity and Inclusion database, 2016).

### **3.4 Target population**

The target population for this study was all head teachers of the 36 inclusive primary schools, 437 primary school teachers, 109 learners with Physical Disabilities and two National heads of departments at Rwanda Education Board. (National Head of Curriculum, Teaching & Learning Resources department and National Head of Examinations, Selection and Assessments department). The target population was therefore all 36 head teachers from all public inclusive schools, all 437 primary teachers, all 109 learners with Physical Disabilities and two National heads of departments at Rwanda Education Board. The total population was 584 respondents.

### **3.5 Sampling Techniques and Sample Size**

#### **3.5.1 Sampling Techniques**

To get the sample of the study, first, Nyanza and Kamonyi Districts were purposively selected because they host two large inclusive boarding schools accommodating many learners with Physical Disabilities. Gasabo and Nyarugenge Districts were purposively selected because they had data on children with disabilities, majority being learners with Physical Disabilities. Schools were purposively selected because they had 109 learners with Physical Disabilities. Head teachers were purposively selected because their schools have been chosen to be part of the study. National Head of Curriculum, Teaching & Learning Resources Department was purposively selected because of his position in rendering quality education (either by developing adapted curriculum or producing adapted materials). National Head of Examinations, Selection and Assessments Department was purposively selected because of the role he plays in administering and scoring examination and other large-scale assessments.

Stratified sampling technique was used to select teachers. In this study, stratification was applied on the basis of training in Special Needs Education. The teachers were stratified into two strata: trained teachers in special Needs and non-trained teachers in Special Needs. Finally, simple random technique was adopted to select teachers' respondents from each school and stratum who responded to the questionnaire. Simple random sampling was used to select class five learners with Physical Disabilities who participated in Focus Group Discussions. The researcher randomly selected class five learners with PD from their respective classes. This is because class five learners are mature enough to respond to research questions during the

Focus Group Discussions and have been in the education system for five years. Besides, class five learners have only one year left to sit for national examination the following year. The researcher however took care of the representation of all categories of Physical Disabilities (Learners with Cerebral Palsy, Muscular Dystrophy, Spina Bifida and learners with Orthopaedic Impairments).

### **3.5.2 Sample Size**

According to Kosomo (2015), for a correlation study, 30% of the population is enough to draw a sample. Therefore, 11 schools were purposively selected to be part of the sample. Those were two boarding primary schools in Kamonyi and Nyanza Districts, two inclusive model schools in Nyarugenge District and seven plain inclusive schools in Gasabo District. Two National Heads of Departments at Rwanda Education Board were also purposively selected to be part of the sample. Six teachers per school (a teacher teaching English, Kinyarwanda, Mathematics, science, technology and social studies) were selected. This made 66 primary teachers. 55 class five learners with Physical Disabilities were randomly selected to participate in the Focus Group Discussions the total sample size was therefore 134 respondents.

**Table 3.1: Sample of the study**

<i>Target Population</i>										
<i>Province</i>	<i>District</i>	<i>Schools</i>	<i>Head teachers</i>		<i>Teachers</i>		<i>Learners with PD</i>		<i>Heads of Department</i>	
			<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>
<i>Southern</i>									1	1
	Nyanza	5	3	2	29	46	26	17		
	Kamonyi	7	5	2	38	60	17	9		
<i>Kigali City</i>										
	Gasabo	14	9	5	61	81	14	9		
	Nyarugenge	10	6	4	53	69	11	6		
<i>Total</i>		<b>36</b>	<b>23</b>	<b>13</b>	<b>181</b>	<b>256</b>	<b>68</b>	<b>41</b>	<b>1</b>	<b>1</b>
<b>Sample size</b>										
<i>Southern</i>									1	1
	Nyanza	HVP Gatagara	1		3	3	5	5		
	Kamonyi	GS Rosa Mystica		1	3	3	5	5		
<i>Kigali City</i>										
	Gasabo	Remera Catholique		1	3	3	1	2		
		EP Kimihurura	1		3	3	1	2		
		EP Kinyinya		1	3	3	2	2		
		EP Gasanze		1	3	3	2	1		
		GS Rubingo	1		3	3	2	1		
		GS Gisozi	1		3	3	1	2		
		GS Jabana	1		3	3	2	1		
	Nyarugenge	GS Bugema		1	3	3	5	5		
		GS Kanyinya	1		3	3	2	1		
<i>Total</i>			<b>6</b>	<b>5</b>	<b>33</b>	<b>33</b>	<b>28</b>	<b>27</b>	<b>1</b>	<b>1</b>

**Source:** Rwanda Education Board, 2018

### **3.6 Research Instruments**

To achieve the objectives, the research developed tools which were used to collect data. These tools were: Questionnaire, Lesson Observation Checklist, Interview Guide, Focus Group Discussions and Document Analysis Guide.

#### **3.6.1 Questionnaires for Head teachers and Teachers**

The questionnaire for Head teachers and teachers was made of different types of questions which was unstructured (Open- ended) and structured (closed- ended) questions. The questionnaire had two parts, A and B. Section A consisted of personal details and general information, while section B consisted of questions to provide information related to research objectives. Questionnaire for head teachers consisted of 23 items while questionnaire for teachers had 20 items. Questionnaires were developed by the researcher.

#### **3.6.2 Interviews**

In this study, interview was conducted with the heads of two departments at Rwanda Education Board. Head of Curriculum, Teaching & Learning Resources department was interviewed to solicit information on curriculum adaptations and on teaching and learning resources for learners with Physical Disabilities. Interview had 8 items. Head of Examinations, Selection and Assessments was interviewed to solicit information on accommodations given to learners during large scale assessments and examinations. The interview consisted of 7 items.

#### **3.6.3 Lesson Observation Schedule**

A lesson observation guide was constructed to guide the researcher to observe and collect information on how the teachers developed an Individualized Education Programme, the use of recommended teaching approaches, the teaching resources

and adaptation made to them, specialized equipment and other facilities available, classroom organization, the curriculum used, and the physical environment of the schools serving learners with Physical disabilities. Four lessons, Mathematics, English, Science and Technology were observed to analyse how learners with PD were being catered for and the limitations they had in learning as a result of PD. These four lessons are very important in the sense that they are examinable during the Primary Leaving National Examinations.

#### **3.6.4 Document Analysis Guide**

Document Analysis Guide was used to collect data on learners' performance in primary six national examinations. It also helped to get information on adaptations made to the curriculum content and activities. Analysis of the four curricula (English curriculum, Kinyarwanda curriculum, Mathematic curriculum, Social studies curricula and Science and Technology curriculum) were analysed together with the teachers' guides.

#### **3.6.5 Focus Group Discussions**

Primary five learners participated in Focus Group Discussions. The Focus Group Discussion Guide which was developed for them had two parts. The first part had questions which served as a rapport creator, which was intended to make the learners feel at ease and create a conducive atmosphere for answering the rest of the questions on the Focus Group Discussion guide. The second part of the Focus Group Discussion Guide contained questions and probes, which addressed the study's objectives.

The follow up by Focused Group Discussion targeting different respondents in this case, learners with PD, provided more in-depth accounts from their perspective vis-

à-vis head teachers and teachers self-reports on instructional and assessment accommodations. Learners with PD narrated many issues pertaining to instructional and assessment accommodations. They shared their experiences in terms of learning and examinations. FGD was considered an important data triangulation method. As such it enhanced credibility of data collected through corroboration. Findings from FGD guides were used to cross validate self-reports of teachers and Head teachers. The pilot study revealed that several questions and probes in the interview guide for Heads of Departments contained language with technical terms which was difficult for them to understand. All these questions were subsequently rephrased in simpler language.

### **3.7 Pilot study**

Prior to the actual data collection, questionnaires for head teachers and teachers which were the main tools for this study were subjected to a test on their validity and reliability through a pilot study. Piloting enabled the researcher to check for ambiguity and appropriateness of sentence structure of the question items in order to get similar responses from all respondents (Creswell, 2008). The responses from the pilot study were analysed and items with ambiguities were addressed appropriately. Piloting also enabled the researcher to detect any flaws in the administration of the research instruments. To carry out piloting, the researcher chose four inclusive primary schools (one per district) GS Kimironko in Gasabo District, GS Gihogwe in Nyarugenge District, GS Kamonyi in Kamonyi District and EP Kagunga in Nyanza District. One head teacher and two teachers per school participated in the piloting study. The aim of the pilot study was to determine the validity and reliability of the research instruments in order to improve the research tools for actual research.

Suggested amendments were incorporated into the research tools and the pilot results did not form part of the results. Some the amendments included were the translation of FGD in Kinyarwanda.

### **3.7.1 Validity**

Creswell (2008) defines validity as the appropriateness of the instrument in measuring whatever it is intended to measure. According to Huck (2000) validity refers to the degree to which the explanations of the phenomena match the realities of the world. Denzin, (2006) states that validity is used to judge whether the research accurately describes the phenomenon that it is intended to describe. Thus, if a research is unreliable, then it must also lack validity.

Common types of validity that are relevant to this research include descriptive validity, interpretive validity, theoretical validity, internal validity and external validity are described briefly below, followed by other relevant matters on reliability

**Interpretive validity:** According to Altrichler (2008), interpretive validity refers to the extent to which the research participants view-points, thoughts, feelings, intentions and experiences are grasped accurately by the researcher and portrayed in the research. To attain this type of validity, the researcher constructed research items in a language that was easily understandable by the respondents, and where possible simplified any technical terms into common terms.

**Theoretical validity:** Theoretical validity refers to the extent to which a theoretical explanation developed from the research study fits the data and is therefore credible and defensible (Altrichler, (2008)). The study employed triangulation to increase theoretical validity.

**Internal validity:** Internal validity relates to the degree to which research findings accurately represent the phenomenon under study (Huck, 2000). This type of validity relies on the logical analysis of the results as the researcher develops the description of the phenomenon being studied. In this study, the risk of respondent bias was minimised by respondent validation where the results and conclusions were verified by two or more sources (triangulation).

**External validity:** External validity refers to the extent to which the results can be generalised to the wider population, cases or situation (Kosomo, 2015). Briggs and Coleman (2007) add that external validity relates to the extent that findings may be generalised to the wider population that the sample represents or to other similar settings. The researcher ensured that clear and relevant questions were formulated for the questionnaires to obtain valid data that is free from errors due to ambiguity. Lastly the researcher employed triangulation method of data collection to enhance validity. O'Donoghue and Punch (2003) explain that 'triangulation is a method of cross-checking data from multiple sources to search for regularities in the research data', while Denzin (2006) contend that triangulation 'gives a more detailed and balanced picture of the situation.' The use of head teachers, teachers, REB officials and learners with PD was a type of data triangulation which involved persons.

### **3.7.2 Reliability**

According to Mugenda (2008), reliability is a measure of the degree to which an instrument gives similar results over several repeated trials. Huck (2000) defines reliability as the degree to which a measuring instrument gives consistent results.

### **Internal Consistency**

Internal consistency gives an estimate of the equivalence of sets of items from the same test (Kimberlin and Winterstein, 2008). The coefficient of internal consistency provides an estimate of the reliability of measurement and assumes that items measuring the same construct should correlate. The researcher estimated internal consistency reliability of the research instruments using Cronbach's alpha.

According to Kimberlin and Winterstein (2008), Cronbach's alpha is a function of the average inter-correlations of items and the number of items in the scale. All things being equal, the greater the number of items in a summated scale, the higher Cronbach's alpha tends to be, with the major gains being in additional items up to approximately when the increase in reliability for each additional item levels off. This is one reason why the use of a single item to measure a construct is not optimal.

Having multiple items to measure a construct aids in the determination of the reliability of measurement and, in general, improves the reliability or precision of the measurement. The researcher got a reliability of 0.82 for the teachers' questionnaires as indicated in table 3.2 and 0.825 Head teachers' questionnaires as indicated in table 3.3. The instruments were therefore considered reliable. According to Orodho (2009), research instruments are considered reliable on attaining a final reliability of at least 0.7.

**Table 3.2: Reliability statistics for teachers' questionnaires**

**Reliability Statistics: Teachers' questionnaires**

Cronbach's Alpha	N of Items
.827	44

**Table 3.3: Reliability statistics for Head teachers' questionnaires**

<b>Reliability Statistics : Head teachers' questionnaires</b>	
Cronbach's Alpha	N of Items
.825	32

**3.8 Data Collection Techniques**

Preliminary contacts were made with the head teachers of the schools and rapports were created. The process of data collection started from Gasabo and Nyarugenge Districts where 9 schools were visited spending four days in each and every school. Due to the nature of the research instruments, the researcher collected data without the help of research assistant.

The first day was for head teachers' questionnaires administration. The researcher met with head teachers whom she contacted before, discussed with them on the purpose and objectives of the study. After explaining what the research entailed and how the head teachers will help, then questionnaires were administered in the office of Head teachers. Questionnaires were collected immediately after they were duly filled.

The second day involved teachers' questionnaires administration. Head teachers were requested to convene teachers. The latter were briefed by the researcher on the questionnaire and be requested to go in their respective classes to fill in the

questionnaire during break time. After three hours, the researcher visited every teacher in the class to collect the questionnaire.

The third day involved lesson observation. Four lessons were observed by the researcher (English, Mathematics, Kinyarwanda and Science and Technology (ICT). According to the timetable, the researcher visited any teacher in upper classes who was teaching any of those four subjects. Notebook was used for recoding observations. Facilities and other equipment available were also being checked. The facilities checked include classroom, chalkboards, desks and tables, toilets, open ways and playground etc. This same day learners were given consent form to take to their parents for signature and return.

The four-day involved Focus Group Discussions with Learners with Physical Disabilities. Learners who have returned the consent form (signed positive) were randomly selected to participate in the FGD. The researcher chose learners from their respective classes. All Focus Group Discussions were conducted by the researcher. Kinyarwanda was used in all Focus Group Discussions. All the Focus Group Discussions were tape recorded.

The same process was used in Nyanza District and Kamonyi Districts at HVP Gatagara and GS Rosa Mystica. This process took a total of 44 working days.

Finally, the researcher visited two National heads of departments (Curriculum, Teaching and Learning Resources department and Examination, Selection and Assessment department) at Rwanda Education Board Head Office, Kigali to conduct an interview with each one of them. The researcher used a tape recorder to record

discussions with National heads of departments. The interview took two days. The whole process of data collection took therefore 46 working days.

### **3.9 Data Analysis**

Descriptive statistics were used to analyze quantitative data for this study. Specifically, frequencies and percentages were used to describe accommodation services provided in inclusive primary schools in Nyanza, Kamonyi, Gasabo and Nyarugenge Districts. Furthermore, Pearson Product Moment Correlation Coefficient( $r$ ) was used to show the relationship between accommodations services and academic achievement of learners with Physical Disabilities. Regression analysis was used to determine the quality of prediction of each of the accommodation services on academic achievement. ANOVA was used to test whether there was a difference between types of schools and academic achievement of learners with Physical Disabilities. The Quantitative data were entered into the Statistical Package for Social Science (SPSS) for analysis. Thematic analysis approach was used to analyse qualitative data which were collected through interviews, observations and Focus Group Discussions. This means that responses given by the National Heads of Departments and learners with Physical Disabilities and observations made to the schools were put into relevant themes. Verbatim reporting was used for qualitative data.

### **3.10 Logistical and Ethical Considerations**

#### **3.10.1 Logistical considerations**

Before collecting data from the respondents of this study, the researcher ensured that all instruments for this were valid and reliable. Furthermore, the researcher sought clearance from Graduate school of Kenyatta University. After getting this clearance,

the researcher sought affiliation to University of Rwanda-College of Education as an academic institution to work with during the research. The researcher proceeded to the National Council of Science and Technology, Rwanda to get the research permit. After the issuance of researcher permit, the researcher then started the data collection.

### **3.10.2 Ethical Considerations**

The researcher sought for informed consent from learners with Physical Disabilities thorough their parents. The principal of anonymity was respected by asking respondents not to write their names on the questionnaire. Furthermore, during and after data collection, the researcher ensured strict confidentiality of the information gathered from the respondents by keeping it in a safe place. Finally, during this research, the researcher avoided plagiarism by acknowledging authors she quoted in this study.

## CHAPTER FOUR

### FINDINGS, INTERPRETATION AND DISCUSSIONS

#### 4.1 Introduction

The purpose of this study was to determine the degree to which instruction and assessment accommodations predict academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.

This chapter presents the findings of the study by focusing on the objectives of the study which sought to:

- i. Establish the level of academic achievement of learners with Physical Disabilities in inclusive schools in Southern province and Kigali City, Rwanda.
- ii. Investigate the extent to which the use of adapted curricula affects academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern province and Kigali City, Rwanda
- iii. Find out the relationship between the use of adapted instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern province and Kigali City, Rwanda
- iv. Examine the extent to which the use of recommended instructional methods influences academic achievement of learners with Physical Disabilities in inclusive primary schools in in Southern province and Kigali City, Rwanda
- v. Find out the relationship between assessment accommodations and academic achievement of learners with Physical Disabilities in inclusive primary schools in in Southern province and Kigali City, Rwanda

## 4.2 Instruments Return Rate

Instruments return rate was the proportion of the research instruments that were returned after they had been administered to the respondents. According to Wilson Pollack and Rooney (2003), a response rate of 50 was considered reasonable. In this case, questionnaires were administered to the school Head teachers and teachers as the main respondents. The return rate is presented in Table 4.1

**Table 4.1: Questionnaire Return Rate**

Types of respondents	Questionnaires administered	Questionnaires Returned	Return Rates (%)
Head teachers	11	11	100%
Teachers	66	66	100%
Total	77	77	100%

**Source:** Primary Data

As shown in Table 4.1, the questionnaire return rate for the teachers was 100 % while that of the school Head Teachers was also 100%. Various scholars have suggested a reasonable instrument return rate to allow data analysis. For instance, Saunders, Lewis and Thornbill (2000) recommended an average response rate of 30% to 40 % as reasonable while Mugenda (2008) observed that a 50 % response rate was adequate, 60 % was good and above 70 % rated very good. According to Wilson Pollack and Rooney (2003), a response rate of 50 was also considered reasonable. Based on the above recommended return rates by various scholars, the response rate of 100% from the school Head teachers and teachers was considered excellent for data analysis.

## 4.3 Demographic Information of Head Teachers and Subject Teachers

The study sought to investigate the demographic characteristics of the respondents. The demographic information comprised of age, gender, level of education, working experience, training in Special Needs and duration of the training. The study

involved a sample of 11 primary inclusive schools comprising of 2 inclusive boarding schools, 2 inclusive model school and 7 regular schools that accommodate learners with Physical Disabilities. Table 4.2 depicts demographic information for the Head teachers and teachers.

**Table 4.2: Distribution of respondents by age, gender, level of education, working experience, training in Special Needs Education and duration of the training**

Demographic Characteristics		Head teachers	Teachers
Age	30 years and below	0(0.0%)	22(33.3%)
	31- 40 years	8(72.7%)	39(59.1%)
	41 – 50 years	2(18.2%)	3(4.5%)
	51-60 years	1(9.1%)	2(4.1%)
	60 years and above	0(0.0%)	0(0.0%)
Gender	Male	7(63.7%)	27(40.9%)
	Female	4(36.3%)	39(59.1%)
Level of Education	A 2 Certificate	1(9.1%)	40(60.6%)
	Diploma	0(0%)	12(18.2%)
	B.Ed.	8(72.7%)	14(21.2%)
	Master’s Degree	2(18.2%)	0(0%)
Working Experience	2-5 Years	0(0%)	15(22.7%)
	6-10 Years	2(18.2%)	25(37.9%)
	11-15 Years	6(54.5%)	15(22.7%)
	16-20 Years	2(18.2%)	4(6.1%)
	Over 20	1(9.1%)	7(10.6%)
	Training in SNE	Yes	5(45.5%)
No		6(54.5%)	44(66.7%)
Duration of Training	Below 2 months	11(100%)	14(21.2%)
	3-5 months	0(0.0%)	19(28.8%)
	6-11 months	0(0.0%)	8(12.1%)
	Over one year	0(0.0%)	3(4.5%)

**Source:** Primary Data

The study attempted to establish the age of respondents. Table 4.2 showed that majority, 8(72.7) of headteachers were aged between 31- 40 years. Few, 2(18.2%) were aged between 41- 50 years and very few, 1(9.1%) was aged between 51- 60 years. For Teachers, majority 39(59.1%) were aged between 31-40 years, slightly majority, 22(33.3%) were below 30 years, few, 3(4.5%), 2(4.1%) were aged

between 41- 50 years and 51-60 years respectively. The respondents mainly fall between 30 and 50 years (97.3%) and therefore could be assumed to give valid judgment and responses on the research items.

The study sought to establish whether there was gender balance in the teaching staff in the area of study. Table 4.2 showed that more than half 7(63.7%) of the school Head Teachers were male compared to 4(36.3%) female Head Teachers. Females are therefore encouraged to compete for school leadership positions. It was also evident that there were more 39(59.1%) female teachers compared to 27(40.9%) male teachers.

The study sought to establish the level of education of Head Teachers and Teachers. Results in Table 4.2 showed that majority 8(72.7%) of Head Teachers had Bachelor of Education Degree, a small proportion, 2(18.2%) had master's Degrees, while only one (9%) had A2 Certificate. Majority of Teachers, 40(60.2%) had A2 Certificate in teaching, a small proportion, 14(21.2%) and few, 12(18.2%) had Diploma in teaching and (B.Ed. degree qualification respectively. The findings revealed that teachers were all qualified to teach in primary education.

The study sought to establish the working experience of Head Teachers and Teachers. Findings revealed that majority of Head Teachers, 6(54.5%) had a working experience of between 11-15 years. 2, (18.2%) had a working experience of between 6-10 years, 2, (18.2%) had a working experience of between 16-20 years and only 1(9.1) had a working experience of more than 20 years. This is a clear indication that Head Teachers in Southern Province and Kigali City have a long experience in administration. For teachers, findings revealed that slightly half of teachers, 25(37.9%) served in their schools for a period between 6`10 years,

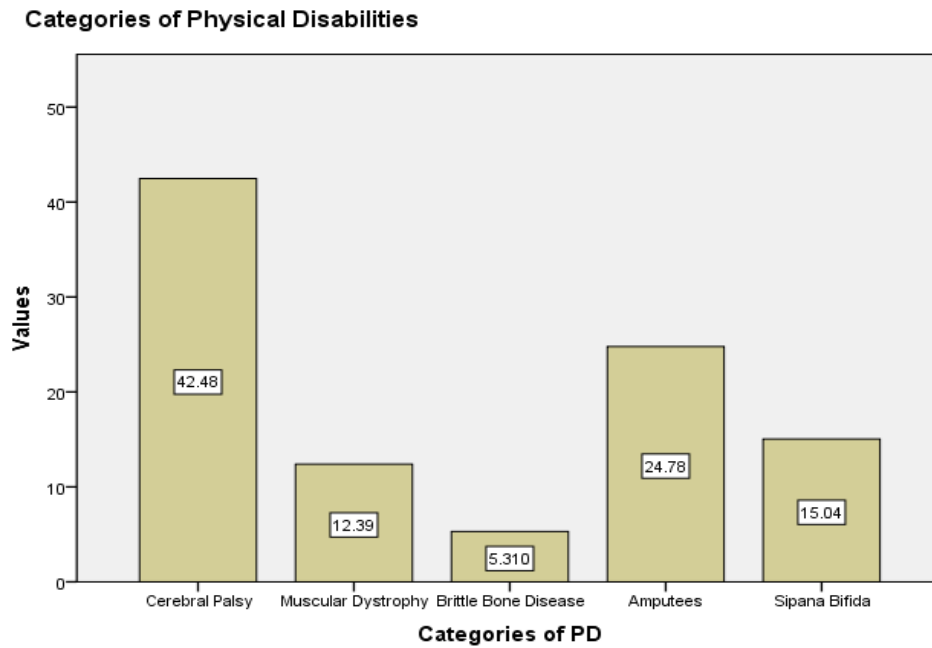
15(22.7%) served for a period between 2-5 years, few teachers, 4(6.1%) served for a period of 16-20 years and 7(10.6%) served for a period of over 20 years. This implies that teachers were more experienced.

In the same vein, the study sought to investigate whether Head Teachers and Teachers have been trained in Special Needs Education. Findings revealed that majority of Head Teachers, 6(54.5%) had no training in SNE, while 5(45.5%) had some knowledge in SNE. In as far as training of teachers is concerned, majority of teachers, 44(66.75) had no training in SNE and only 22(33.3%) have got training in SNE. This is a clear indication that both Head teachers and Teachers lack knowledge in Special Needs Education.

The researcher went further to investigate the duration of the training and of all the Head Teachers trained in SNE, 11(100%), the training was below 2 months' period. For teachers, the study established that 14(21.2%) were trained for a period of less than 2 months, 19(28.8%), the training was between 3 to 5 months, 8(12.1%), the training was between 6-11 months and only 3(4.5%) the training was over one year. This is an indication of low level of SEN training among both Head Teachers and Teachers in Southern Province and Kigali City. Results concur with Bots (2015) which ascertained that primary school teachers had no solid knowledge of Special Needs Education which affected the way they taught children with disabilities.

#### **4.4 Categories of Physical Disabilities in inclusive primary schools**

The researcher sought to find out the categories of Physical Disabilities found in inclusive primary schools. Teachers were asked to indicate categories of Physical Disabilities that they had in their schools. Figure 4.1 indicates the results:



**Figure 4.1: Categories of Physical Disabilities**

From the figure 4.1, it is apparent that Cerebral Palsy was the most frequent type of Physical Disabilities in an inclusive primary school representing 42.4%, followed by amputees (24.7%), Spine Bifida which represented 15%, Muscular Dystrophy which represented 12.3% and finally Brittle Bone which represented 5.3%. According to Heller, et al (2009) Cerebral palsy is the most common type of Physical Disabilities affecting the school going children. Male and Wodon, (2017) observed that teachers should be aware of the different types of Physical Disabilities and the educational limitations that come with the Physical Disabilities. This would help them design appropriate methods and approaches which minimize the educational limitations faced by learners with Physical Disabilities.

#### **4.5 Academic Achievements of Learners with Physical Disabilities in Inclusive Primary Schools**

The first objective was to establish the level of academic achievement of learners with Physical Disabilities in eleven primary schools in Southern Province and Kigali

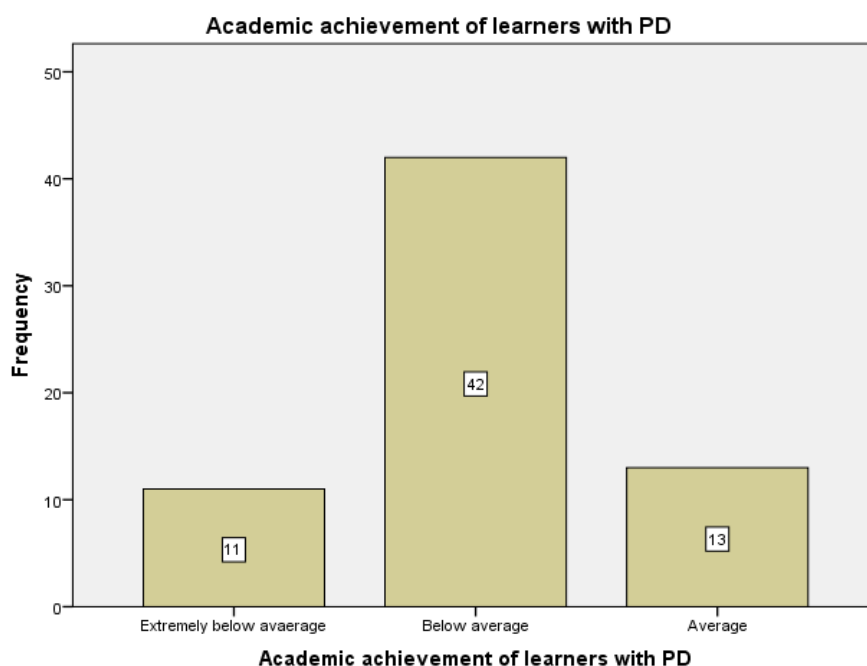
City. The National Exams results from 2016 to 2018 of the eleven schools were analysed and Table 4.3 depicts the findings.

**Table 4.3: Academic Achievements of learners with Physical Disabilities in National Exams from 2016 to 2018**

Categories	Year 2016		Year 2017		Year 2018	
	Freq	%	Freq	%	Freq	%
Division I	5	1.45%	9	2.72%	17	4.52%
Division II	29	8.43%	28	8.46	35	9.31%
Division III	76	22%	68	20.5%	107	28.4%
Division IV	105	30.5%	95	28.7%	99	26.3%
Division V	129	37.5	131	39.5%	118	31.3%
Total	344	100%	331	100%	376	100%

Table 4.3 shows that the majority of learners with Physical Disabilities in the schools under investigation performed poorly in Primary Leaving National Examination. The details in the table showed that majority, 234 (68. %) in 2016, 226(68.2%) in 2017 and 217(57.6%) in 2018 of learners with Physical Disabilities fell under division four and five. This means that they were not qualified to be admitted into boarding schools which in most cases were better equipped with appropriate educational resources and facilities. They were to attend nearest day secondary schools which in most cases were not accessible for learners with Physical Disabilities. This finding support Wanjiku (2000) who established that learners with Physical Disabilities continue to perform dismally in Kenya Certificate of Primary Education. Egilson and Traustadottir (2009) observed that students with Physical Disabilities may perform poorly in academic when their needs are not taken care of both in classroom and in examinations. The findings from Table 4.3 further showed that 76 (22.9%) in 2016, 68(20.5%) in 2017 and 107(28.4%) in 2018 fell

under division three and were also not qualified to be admitted into boarding schools. Only 34(9.8%) in 2016, 37(11.18%) in 2017 and 52(13.83%) in 2018 fell in division one and two, therefore qualified to be admitted in boarding schools. This assertion became live based on the report from teachers who were asked to rate the academic achievement of learners with PD. Their answers are shown in the figure 4.2.



**Figure 4.2: Academic Achievements of learners with PD**

The figure above showed that of all the 66 teachers sampled, 42(63.7%) teachers rated the academic achievement of learners with PD as below average, 13(19.6%) and 11(16.6%) teachers rated the academic achievement of learners with PD as average and extremely below average respectively. This finding supports Kimondiu (2012) in Kenya who ascertained that majority of teachers in four selected special school for Physically Handicapped reported that the academic achievement of pupils with PD in Kenya Certificate of Primary Education was average and a not negligible number of teachers reported to be below average. Poor academic achievements of

learners with Physical Disabilities were also reported by learners. During a Focus Group Discussions, one pupil with PD had this to say:

*“Most of our colleagues who sat for the National Exams did not get pass mark. They were all in the last two divisions. Even some whom we considered bright, they failed”*. FGD at EP Gasanze.

A boy with Cerebral Palsy at GS HVP Gatagara in FGD narrated:

*“I think Rwanda Education Board should have special consideration as they are marking our exams papers. Our physical condition affects our handwritings. I have a very bright friend, but he failed, and it was really surprising”*.

These findings concur with previous studies done in this field. Huggins and Elbaum (2013) in USA reported that students with Disabilities lag behind academically. She further established that students with Physical Disabilities present unique problems which adversely affect academic performance, which include level of intellectual functioning, as well as performance in reading, math, and writing. Uwezo report (2015) in Tanzania revealed that the academic achievement of learners with Disabilities was well below that of learners without disabilities. Adewumi et al (2017) established that learners with Physical Disabilities had a high dropout rate and had poor academic performance in schools. Woltz, Alberto and Meagher, (2010) observed that learners with Physical Disabilities may underachieve in the school setting when their unique needs are not met. They concluded that educators must understand not only the physical impairment itself, but the several factors that may affect performance. Once these factors are identified for specific learners, their negative effects on performance may be decreased through provision of accommodations and adaptations.

The researcher went further to seek to find out whether there was a difference in academic achievement of learners with Physical Disabilities based on the type of the

schools they attended. Types of the schools included: Boarding schools, inclusive model schools and regular inclusive schools. The One-Way ANOVA was computed, and the results are indicated in table 4.4.

**Table 4.4: Academic achievement of learners with PD based on the type of the schools**

ANOVA					
Academic achievement of learners with PD					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.429	2	4.714	11.846	.000
Within Groups	25.071	63	.398		
Total	34.500	65			

#### Multiple Comparisons

Dependent Variable: Academic achievement of learners with PD Tukey HSD

(I) Types of schools	(J) Types of schools	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Boarding inclusive school	Inclusive	.00000	.25754	1.000	-.6182	.6182
	Model school					
	Regular	-.78571*	.20649	.001	-1.2814	-.2901
Inclusive Model school	Boarding	.00000	.25754	1.000	-.6182	.6182
	inclusive school					
	Regular	-.78571*	.20649	.001	-1.2814	-.2901
Regular	Boarding	.78571*	.20649	.001	.2901	1.2814
	inclusive school					
	Inclusive Model school	.78571*	.20649	.001	.2901	1.2814

\*. The mean difference is significant at the 0.05 level.

The one-way ANOVA was conducted to evaluate whether there was a difference in academic achievements of learners with PD based on the types of the school they

attend. The independent variables, types of the schools included three groups: boarding inclusive schools, inclusive model schools and plain inclusive schools. The ANOVA was significant,  $F(2,63) = 11.8, p = 0.001$ ). There was therefore a significant difference in academic achievements of learners with Physical Disabilities based on the types of the school they attended. Multiple comparisons result further revealed that there was no significant difference between the two groups (boarding inclusive schools and inclusive model schools), that means that the academic achievement of learners who attended inclusive boarding schools did not significantly differ from the academic achievement of learners who attended inclusive model schools ( $p = 1$ ). During the observation, the researcher established that in the two types of the schools (Boarding and model inclusive schools), environment was friendly, adapted materials were quite available and all teachers have been trained in SNE and Inclusive Education. This agreed with Bots (2015) who reported that inclusive boarding schools and inclusive model schools were getting additional support from Non-Governmental Organizations and performed better than other inclusive schools in Rwanda. Bots (2015) established that teachers in those schools have been trained in SNE, infrastructures were disability friendly and materials were adapted to meet the needs of learners with Disabilities. Suubi and Mattingly (2016) noted that inclusive schools that were supported by Humanity and Inclusion had better performance compared to other schools that were only waiting support from the Government. UNESCO (2015) insisted that appropriate learning environment is what students with Disabilities need to perform academically and fulfil their potentials.

#### **4.6 The use of adapted curricula and its effects on academic achievement of learners with Physical Disabilities**

Objective two sought to investigate the extent to which the use of adapted curricula affects academic achievement of learners with Physical Disabilities. Teachers were asked to indicate whether they were able to adapt the curriculum content and curriculum activities to suit the needs of learners with Physical Disabilities. Table 4.5 shows their responses:

**Table 4.5: Capability of teachers to adapt curriculum content and activities.**

Are you able to adapt curriculum content and activities to meet the needs of learners with PD?

	Frequency	Percent	Valid Percent
Able	14	21.2	21.2
Not able	52	78.8	78.8
Total	66	100.0	100.0

From the Table 4.5, it is apparent that majority of teachers, 52(78.8%) were not able to adapt the curriculum content and activities to meet the needs of learners with PD. Only 14 (21.2%) teachers were able to adapt the curriculum content and activities to meet the needs of learners with Physical Disabilities. This was a clear indication that learners with Physical Disabilities were not fully participating in all lessons as their peers without disabilities. This finding supports Adewumi et al (2017) who established that learners with Physical Disabilities are not meeting the minimum requirements in reading, writing and Mathematics mainly due to the inappropriate curricula that hinder full participation of students with special needs. The observations made by the researcher confirmed the same situation where learners

with PD were not fully participating in mathematics lessons in primary five at EP Kinyinya and GS Rosa Mystica.

At EP Kinyinya;

*“A boy in primary five, without arms but able to write with toes couldn't participate in a lesson where all his peers were doing an activity on bisection of angles using folding. This was an interesting activity to the rest of the class, and it involved: Drawing lines, folding papers, measuring angles, cutting out angles and presentation of findings to the rest of the class. Pupils were busy doing the activity and the boy was there just watching others as he waited for them to come and present their findings.”*

(Observation made by the researcher).

At GS Rose Mystica;

*“A girl with Cerebral Palsy (Unable to coordinate her hands' movements) was not participating fully though she was in a small group of pupils doing an activity on bisecting angles using a pair of compasses and rules”. She was just watching others as they perform their assignments. She wasn't given any alternative activity”*

These findings were in agreement with Jimenez (2013) who established that many students with disabilities literally found themselves sitting in classrooms without being able to follow the curriculum. The researcher concluded that this leads to failing performance and declining confidence, which only reinforced the effects of existing discrimination.

During the interview with the Head of Curriculum, Teaching and Learning Materials at REB, she had this to say when asked whether they took into consideration learners with Physical Disabilities in the design of the curriculum content and activities.

*“We don't have separate activities in the curriculum solely for learners with Physical Disabilities. In the Teachers' Guide, we guided how teachers should take care of learners with Special Needs in general”.*

The teachers' Guide provides unclear guidance on how teachers should take care of learners with Special Needs. All subjects (English, mathematics, Science, Technology and Social Studies) Teachers Guides have this statement

*“Learners with Special Needs should work with the rest of the learners to enhance cooperation and inclusive education”.*

This statement is not clear enough to guide teachers on how to adapt some content and activities to meet the needs of learners with Physical Disabilities. This finding concurs with Nyende (2012) who observed that teachers in primary schools in Uganda were struggling to effectively include learners with disabilities with rigid and inflexible curriculum. He noted that curricula at primary level had become irrelevant to the skills that children with disabilities needs to thrive in life.

To establish the extent to which the use of adapted curricula affects academic achievement of learners with Physical Disabilities, Pearson product moment correlation coefficient was computed. Table 4.5 gives the summary of the correlation coefficient between the use of adapted curricula and academic achievement.

**Table 4.6: Relationship between the use of adapted curricula and academic achievement of learners with PD**

<b>Correlations</b>			
		Use of adapted curriculum	Academic achievement of learners with PD
Use of adapted curriculum	Pearson Correlation	1	.475**
	Sig. (2-tailed)		.000
	N	66	66
Academic achievement of learners with PD	Pearson Correlation	.475**	1
	Sig. (2-tailed)	.000	
	N	66	66

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The results presented in Table 4.6 revealed that there was a significant positive relationship between the use of adapted curricula and academic achievements of

learners with PD in inclusive primary schools in Southern province and Kigali City,  $r(64) = .47, p = .001$ . These results imply that the more teachers used adapted curricula, the better the performance of learners with PD. This finding supports Motala (2011) who maintained that academic success of students with disabilities largely depends on the use of appropriate and relevant curricula. UNESCO (2017) observed that rigid, demanding and inflexible curriculum has long been recognized as a major hindrance to learning for learners with disabilities.

To examine the extent to which the use of adapted curriculum predicts the academic achievements of learners with Physical Disability, regression analysis was computed. Table 4.7 shows the results

**Table 4.7: The use of adapted curricula as predictor of academic achievement of learners with Physical Disabilities**

<b>Model Summary</b>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.475 <sup>a</sup>	.226	.214	.72492		
a. Predictors: (Constant), Use of adapted curriculum						
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.878	.294		2.982	.004
	Use of adapted curriculum	.777	.180	.475	4.323	.000
a. Dependent Variable: Academic achievement of learners with PD						

The coefficient of determination ( $R^2 = .226$ ) indicated that 22.6% of the academic achievement of learners with Physical Disabilities was explained by the use of adapted curriculum. This implies that if teachers use adapted curricula, we can account for 22% of the variance in academic achievement of learners with Physical Disabilities. The unstandardized coefficient results above indicated how much academic achievements of learners with PD was affected by the use of adapted curriculum if other variables were kept constant. Results established that as teachers used adapted curriculum, academic achievement of learners with PD increased by 0.77 units. The use of adapted curricula was therefore a good predictor of academic achievement of learners with Physical Disabilities. To this end, the Null Hypothesis which stated that “There is no significant relationship between the use of adapted curricula and academic achievement of learners with Physical Disabilities in numeracy and literacy in inclusive primary schools in Southern Province and Kigali City, Rwanda” was rejected. Instead, the alternative hypothesis: “There is significant relationship between the use of adapted curricula and academic achievement of learners with Physical Disabilities in numeracy and literacy in inclusive primary schools in Southern Province and Kigali City, Rwanda.” was adopted. This means that the use of adapted curriculum promotes academic achievements of learners with Physical Disabilities.

These findings are in agreement with that of Nyaga (2012) who established that differentiated curriculum would help learners with disabilities to capture information as well as instructions more accurately which positively affect their academic achievement. Heller et al (2000) observed that in order to meet the needs of learners with Physical Disabilities it is important that appropriate adaptations are identified, and this begins by adapting the curriculum. Swanson (2001) concluded that an

appropriate curriculum is vital for education to be meaningful for learners with special needs. Rigaud (2017) maintained that even when children with disabilities are enrolled in school, they are often excluded from learning as the curriculum has not been adapted to their needs or teachers do not have the time or capacity to provide individualized support and learning assistance.

#### **4.7 The availability and use of adapted instructional materials and academic achievements of learners with Physical Disabilities**

The third objective sought to find out the relationship between the availability and use of adapted instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools. Head Teachers were asked to indicate available instructional materials/ facilities at their schools. The results are indicated in the Table 4.8

**Table 4.8: Availability of adapted instructional materials and facilities**

<b>Materials/ Facilities</b>	<b>Available</b>		<b>Not Available</b>	
	<b>Freq</b>	<b>%</b>	<b>Freq</b>	<b>%</b>
<b>Adapted Chairs</b>	3	27.2%	8	72.73%
<b>Adapted Tables</b>	2	18.18%	9	81.8%
<b>Adapted Toilets</b>	4	36.6%	7	63.64%
<b>Adjusted Black Boards</b>	4	36.6%	7	63.64%
<b>Adapted Pens</b>	0	0.0%	11	100%
<b>Adapted Computers</b>	0	0.0%	11	100%
<b>Adapted Exercise Books</b>	0	0.0%	11	100%
<b>Large Doors</b>	4	36.6%	7	63.64%
<b>Transportation Facilities</b>	0	0.0%	11	100%
<b>Mobility Aids</b>	2	18.18%	9	81.82%

Table 4.8 indicates that majority, 8(72.2%), 9(81.82%), of schools had no adapted chairs and adapted tables for learners with PD respectively. Majority of the schools, 7(63.6%) had not lowered the black board to facilitate education of learners with

Physical Disabilities. None of the schools, 11(100%) had neither adapted computers, adapted pens nor adapted exercises books. A conflicting finding by Bots (2015) found that schools had adapted materials and lowered black boards to facilitate education of students with disabilities. This may be attributed to the fact that his research was mainly conducted in primary schools that were supported by Humanity and Inclusion, under the project of Inclusive Futures in schools.

Table 4.8 also reveals that majority of the schools, 7(63.6%) had no large doors to facilitate movement of learners with Physical Disabilities. Majority of schools, 9(81.8%) indicated that there were no mobility aids to help learners who may need them to move around the school. Rigaud (2017) noted that lack of materials that promote learning is another barrier preventing learners with Disabilities from participating in school. This can lead to decreased motivation to learn and, eventually, to dropping out of school.

Table 4.8 indicates that only 4(36.6%) had adapted toilets for learners with Physical Disabilities. These schools were the two boarding schools which were ran by missionaries and the two schools which were supported by Humanity and Inclusion. From table 4.8, it is also apparent that all the schools, 11(100%) had no transportation facilities available designed to help learners with disabilities go to and from school. Two boarding schools had no transportation facilities even at the beginning of the term or by the end of the term. This concur with Jimenez (2013) who found that inclusive schools in China do not provide transport facilities to learners with disabilities and that there was a high rate of absenteeism among students with mobility problems. These findings also support the CRPD report of 2015 which stated that generally, all public schools in Rwanda had inadequate

infrastructures and were inadequately resourced. Cabot (2010) established that lack of transport facilities affected negatively education of students with Physical Disabilities. The researcher pointed out the inaccessible roads and pathways as main cause of high absenteeism rate among students with PD. In an attempt to find out more on how learners with Physical Disabilities came to and from schools, teachers' responses are shown in Table 4.9

**Table 4.9: Means of transport for learners with Physical Disabilities**

<b>Means of transportation to and from school</b>			
	Frequency	Percent	Valid Percent
Parents carry their children to and from schools	30	45.5	45.5
Peers bring learners with PD	22	33.3	33.3
Themselves	14	21.2	21.2
<b>Total</b>	<b>66</b>	<b>100.0</b>	<b>100.0</b>

Table 4.9 shows that majority of teachers, 30(45.5%) reported that learners with Physical Disabilities were brought by their parents, 22(33.3%) reported that learners with PD were assisted by their peers and 14(21.2%) noted that learners with PD came to schools and went back home on their own. This finding support Bots (2015) who reported that learners with PD struggled a lot to reach schools. A learner using a wheelchair who participated in FGD put this into perspective:

*“I have to wake up very early so that my friend finds me ready. If I delay a little bit my friend will have no choice but to leave me.”*

This finding concurs with Bots (2015) who observed that learners without disabilities were helping a lot in terms of mobility and transport. He pointed out that

learners with disabilities were getting a great support from their peers without disabilities.

A learner in the FGD commented:

*I don't like the afternoon classes. I am always tired in the afternoons and I can't brave the distance that is between my home and school. At least when it is morning classes, I wake up early and delay only one hour.* FGD at GS Gisozi

Another learner in the FGD reported:

*"I don't use toilet when I am at school If I feel I am not able to control my toilets needs, I don't come to school. We share toilets with other students and those toilets are always dirty, small and I cannot get into them with my wheelchair."* FGD at GS Jabana.

These statements indicated the issues of absenteeism among learners with Physical Disabilities especially those with mobility problems. This is in agreement with Corman (2014) who noted that the poor academic achievement of students with Physical Disabilities is caused by the long absence from schools. He explained that inaccessible roads and schools' infrastructures hinder access to education for students with Physical Disabilities.

During the observation by the researcher, it was apparent that majority of the schools lack adapted materials and facilities to facilitate education of students with Physical Disabilities. The researcher noted that some learners had to leave their wheelchairs outside the classroom because the doors were very small for a wheelchair to go in. The researcher also noted that blackboard was too high for learners with short limbs and wheelchair users. The researcher also noted a learner with Cerebral palsy (Athetoid) struggling in ICT lesson using an XO laptop. The laptop was so small with very small keyboard which made it hard for a learner with Cerebral Palsy to type a simple word. Three cases of children struggling to write with normal pens within normal exercises books were also noted by the researcher

who took an initiative to show teachers how they can adapt pens using available materials.

In some other schools, pathways to the toilets and toilets themselves were not accessible. They located far away from the classrooms which made it almost impossible for learners with Physical Disabilities to access them.

In an attempt to find out whether Rwanda Education Board provided financial and materials resources to support inclusive schools in the quest to effectively include learners with disabilities, the Head of Curriculum, Teaching and Learning Resources at REB had this to say:

*“We have budget for Special Need Education and that budget is used mainly to provide specialized teaching and learning materials. We put emphasis however on special schools and we will progressively move toward inclusive schools. In the meantime, school Head Teachers should use capitation grant to buy some adapted materials, I know some are not even expensive”.*

This finding support Jimenez (2013) who reported that in China, limited funding went to ensure that inclusive schools were adequately resourced to educate students with disabilities. The researcher further noted that many parents were forced to take their children to special schools which in most cases were better funded than inclusive schools. Sagahutu (2008) also noted that in Rwanda, parents with children with disabilities preferred special schools than inclusive schools. Parents reported that special schools were more equipped with trained teachers and specialized equipment than inclusive schools and therefore believed that their children will get quality education from special schools. Suubi and Mattingly (2016) noted that special schools in Rwanda were very few and cannot accommodate all learners with disabilities. They observed that Inclusive Education was the best option to give a chance every learn to access education. In line with this finding, Moyo (2012) found

that in Ugandan schools, lack of access and adapted teaching and learning materials were the main cause of poor academic achievement of learners with Disabilities. UNESCO (2018) called upon governments to give the highest policy and budgetary priority to improve their education system to enable them to include all children with disabilities regardless of individual differences.

To find out the relationship between the availability and use of adapted instructional materials and academic achievement of learners with Physical Disabilities in inclusive primary schools, Pearson product moment correlation coefficient was computed. Table 4.10 gives the summary of the correlation coefficient between the use of adapted instructional materials and academic achievement.

**Table 4.10: Relationship between the use of adapted instructional materials and academic achievement of learners with PD**

<b>Correlations</b>			
		Availability and use of adapted materials and facilities	Academic achievement of learners with PD
Availability and use of adapted materials and facilities	Pearson Correlation	1	.843**
	Sig. (2-tailed)		.000
	N	66	66
Academic achievement of learners with PD	Pearson Correlation	.843**	1
	Sig. (2-tailed)	.000	
	N	66	66

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The results presented in Table 4.10 revealed that there was a significant positive relationship between the availability/ use of adapted instructional materials and academic achievements of learners with PD in inclusive primary schools in Southern province and Kigali City,  $r(64) = .84, p=.001$ . These results imply that the more teachers used adapted instructional materials, the better the performance of learners with PD. This finding supports Marth and Cathryn (2008) who established that a student whose instructional materials were adapted is 88.7% more likely to perform better in academics compared to a student who was in a classroom where materials have been adapted.

To examine the extent to which the availability and use of adapted instructional materials predicts the academic achievements of learners with Physical Disability, regression analysis was computed. Table 4.11 shows the results

**Table 4.11: The availability and use of instructional materials as predictor of academic achievement of learners with Physical Disabilities**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.843 <sup>a</sup>	.711	.707	.43583		
a. Predictors: (Constant), Availability and use of adapted materials and facilities						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.608	.233		-2.607	.011
	Availability and use of adapted materials and facilities	1.608	.128	.843	12.560	.000
a. Dependent Variable: Academic achievement of learners with PD						

The coefficient of determination ( $R^2 = .711$ ) indicates that 71.1% of the academic achievement of learners with Physical Disabilities was explained by the availability and use of adapted instructional materials and facilities. This implies that if schools had adapted instructional materials / facilities and used them, we could account for 71.1% of the variance in academic achievement of learners with Physical Disabilities. The unstandardized coefficient results above indicated how much academic achievements of learners with PD was affected by the availability and use of adapted instructional materials/ facilities if other variables were kept constant. Results established that as school had and used adapted instructional materials/ facilities, academic achievement of learners with PD increased by 1.6 units. The availability and use of adapted instructional materials/ facilities was therefore a good predictor of academic achievement of learners with Physical Disabilities. Thus, the Null Hypothesis which stated that “There is no significant relationship between the availability and use of adapted instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda was rejected. This is a proof that when the quantity of the instructional materials increases then the child academic achievement is improved. These results validate positions shared by Nyaga (2012), Bots (2015), and Matonya (2016).

Nyaga (2012) established that there was positive correlation between academic achievement and instructional resources with an  $r = 0.474$ ,  $p = 0.000$ . In his study, the respondents agreed that this factor increased performance score and reduced errors by effectively distinguishing students with different learning abilities thus

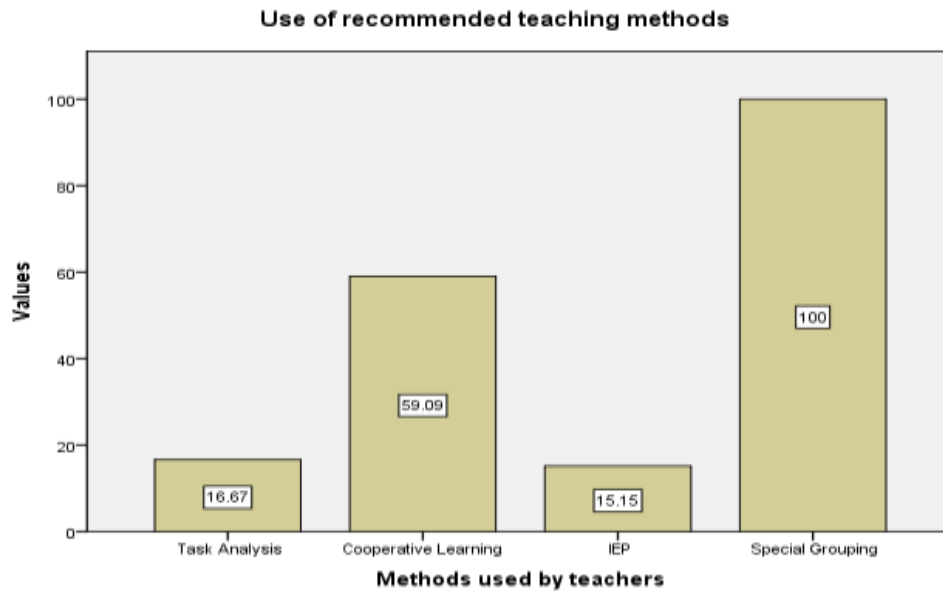
increasing personalized attention, by providing resources according to the learner's level and ability.

Bots (2015) agreed with this and reported that the inaccessibility of schools in Rwanda was the main cause of poor academic achievement of learners with Physical Disabilities who in most cases missed classes due to the long distance between home and schools. The Ministry of Education Statistical Year Booklet 2018 also confirmed this and ascertained that only 24% of the schools had adapted instructional materials and facilities. Matonya (2016) established that many Tanzanian schools experienced inadequate teaching and learning materials and this affected academic achievement of learners with disabilities. In agreement with this, UNICEF (2014) has noted the dearth of adequate and appropriate learning devices and infrastructure for children with disabilities. Most public primary schools lack accessible furniture and facilities, including transportation and this has jeopardized academic achievement of CWDs. UNESCO (2015) stated that children with disabilities should receive whatever extra support they may require to ensure their effective education.

#### **4.8 The use of recommended instructional methods and academic achievements of learners with Physical Disabilities in inclusive primary schools**

Objective four sought to examine the extent to which the use of recommended instructional methods influences academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda. Teachers were asked to indicate the methods they used to teach learners with Physical Disabilities. A list of recommended instructional methods was given

to them and they were asked to indicate whether they used them or not. The results are indicated in figure 4.3



**Figure 4.3: Use of recommended teaching methods**

The figure 4.3 indicates that all teachers, 66(100%) used Special Grouping method. This could be attributed to the fact that all teachers have been trained on Competence Based Curriculum which emphasized on the special grouping as a method of teaching. A moderate number of teachers, 39(59%) indicated that they used cooperative learning. From the figure 4.3 it is also clear that very few teachers, 11(16.6%) used task analysis while only 10(15.1%) used Individualized Education Plan. This was not surprising given the fact that majority of teachers had no training on inclusive teaching methodologies. According the ministry of education statistical year booklet 2018, only 4102 primary teachers out of 42073 primary teachers were trained in Special Needs and Inclusive Education. Education Sector Strategic Plan (ESSP) 2018/2019-2023/2024 affirms that;

*“Insufficient teacher competencies in pedagogy threaten to jeopardize Inclusive Education and ultimately impact on student with disabilities and learning outcomes”.*

This finding supports Tungaraza (2015) who found that in Tanzania, many teachers were never taught how to teach children with disabilities, or generally how to teach in a child-friendly, active way. Molly et al (2018) established that performance in Kenya Certificate of Secondary Examination amongst learners with cerebral palsy in special secondary schools for the physically disabled in Kenya has remained poor compared to those in regular secondary schools. The researchers noted that the major reason was the teaching approaches adopted by teachers which were dominated by teacher-centered approach. Chata and Wodon (2017) argue that the lack of teacher capacity to address the learning needs of all students can lead to demotivation, and eventually to dropping out of school.

To examine the extent to which the use of instructional methods influences academic achievement of learners with Physical Disabilities, Pearson product moment correlation coefficient was computed. Table 4.12 gives the summary of the correlation coefficient between the use of instructional methods and academic achievement.

**Table 4.12: Relationship between the use of teaching methods and academic achievement of learners with PD**

Correlations		Academic achievement of learners with PD	Use of recommended instructional methods
Academic achievement of learners with PD	Pearson Correlation	1	.589**
	Sig. (2-tailed)		.000
	N	66	66
Use of recommended instructional methods	Pearson Correlation	.589**	1
	Sig. (2-tailed)	.000	
	N	66	66

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The results of the Pearson product moment correlation coefficient calculated indicated that the use of recommended instructional methods correlated with the learners' academic achievement in inclusive primary schools,  $R(64) = .589, p = .001$ . This therefore means that the use instructional methods had a significant relationship with the academic achievement of learners with Physical Disabilities. In line with this Michal et al (2012) associated teaching methods with good academic achievement of learners with Physical Disabilities. According to the researchers well-prepared teacher using appropriate teaching method had more influence on a child's learning than any other factor under school control. The observation made by the researcher revealed that thought learners with PD were in groups with their peers, teachers seemed to move with the bright learners. It was also noted that the groups were too large to the extent that learners with PD, especially those using wheelchair were left far away from the rest of the group. This is attributed mainly to the large number of learners where the researcher established that the class has more than 65 learners. At GS Kinyinya, a boy with PD using a wheelchair in primary five was not participating in a group work because the classroom was full, and he could not move into the classroom to join the group. Many learners in the classroom posed a serious challenge to the education of learners with Special Needs Education in an inclusive setting. This is in agreement with Corman (2014) who found that in most African countries, the large class sizes made it impossible for teachers to effectively include learners with Special Educational Needs and Disabilities.

Marty (2010) observed that large class sizes reduce enthusiasm for teaching and in some cases, this leads to labeling children as 'slow learners' and offering no encouragement to learn at their own pace. At worst it may lead to teachers

physically punishing children for what is perceived to be ‘poor performance’. Marty concluded that such attitudes can lead to further marginalization of children with disabilities at school.

UNESCO (2015) established that a high pupil-teacher ratio suggests that each teacher must be responsible for many pupils. In other words, the higher the pupil/teacher ratio, the lower the relative access of pupils to teachers. It is generally assumed that a low pupil-teacher ratio signifies smaller classes, which enables the teacher to pay more attention to individual students, which may in the long run result in a better performance of the pupils.

To examine the extent to which the use of recommended instructional methods predicts academic achievements of learners with Physical Disability, regression analysis was computed. Table 4.13 shows the results

**Table 4.13: Use of recommended teaching methods as predictor of academic achievement of learners with Physical Disabilities**

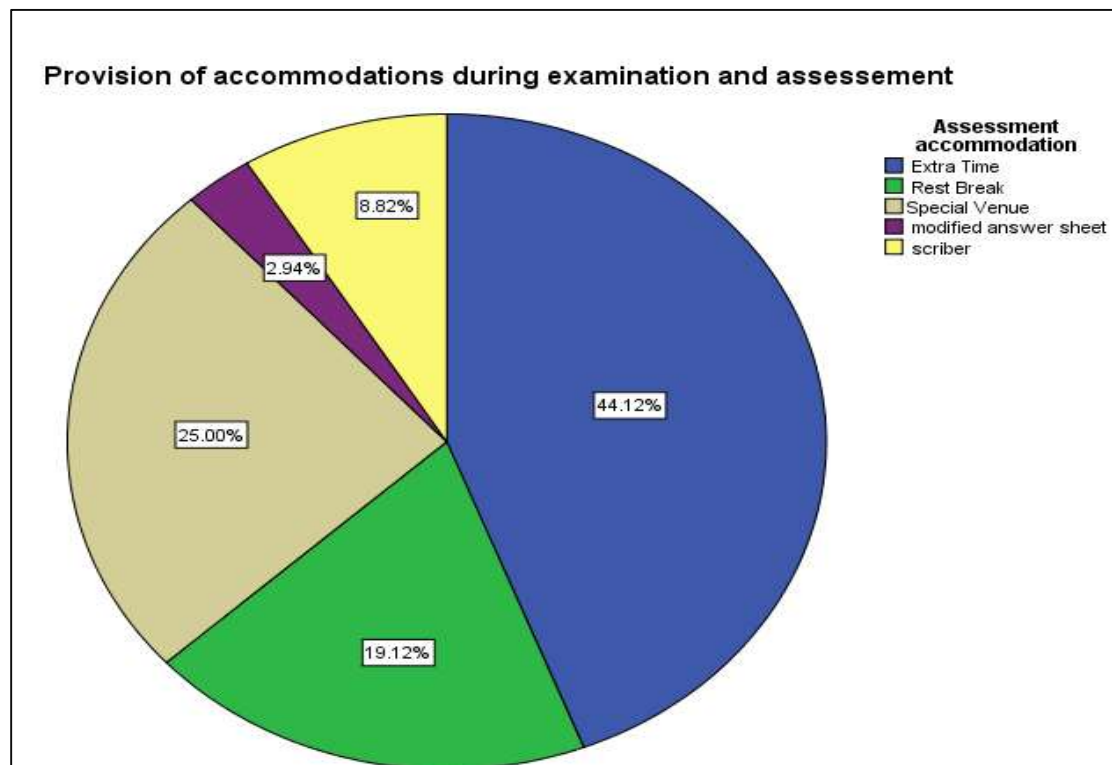
Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.589 <sup>a</sup>	.347	.336	.66284		
a. Predictors: (Constant), Use of recommended instructional methods						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.774	.245		3.155	.002
	Use of recommended instructional methods	.988	.170	.589	5.826	.000
a. Dependent Variable: Academic achievement of learners with PD						

From the Table 4.13, the coefficient of determination ( $R^2=.347$ ) indicates that the use of recommended instructional methods accounted for 34.7%% of the variations in the academic achievement of learners with Physical Disabilities in inclusive primary schools. The unstandardized coefficient results above indicated how much academic achievements of learners with PD was affected by the use of instructional methods if other variables are kept constant. Results established that as a teacher used recommended instructional methods to teach a learner with PD, his or her academic achievement increased by 0.9% units. The use of recommended instructional methods was therefore a good predictor of academic achievement of learners with Physical Disabilities. Thus, the Null Hypothesis which stated that there is no significant relationship between the use of instructional methods and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda was rejected.

Obidiya and Ema (2012) observed that teachers should be trained enough on pedagogy if we are to improve academic achievement of learners with Disabilities. UNESCO (2010) maintained that poor academic achievement of learners with Physical Disabilities has been consistently attributed to teachers using the same methods of teaching without considering the diverse needs of learners with Physical Disabilities. Lupanga, (2013) showed that well-trained teachers are an important influence on student success and that strong teacher education programs pave the way for quality education.

#### 4.9 Assessment accommodations and academic achievement of learners with Physical Disabilities in inclusive primary schools

Objective five sought to find out the relationship between assessment accommodations and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda. The assessment accommodation included the provision of extra time, the provision of rest break, the provision of special venue and the provision of scribes. Teachers were asked to indicate whether they provide all those accommodation during their classroom exams. Their responses are shown in the figure 4.4



**Figure 4.4: Provision of accommodations during examination and assessment**

From the figure 4.4, the provision of extra time was the most given accommodation during exams and assessments by teachers, 30(44%), followed by the provision of special venue which was given by 17(25%) teachers. Rest break was reported to be provided by only 13(19.1%) teachers, while modified answer sheet and provision of

scribes were the least provided accommodations by 2(2.9%) and 6(8.8%) of teachers respectively. These finding seems to indicate that teachers were not giving accommodations to learners with Physical Disabilities during classroom examinations and assessments. This finding supports Marty (2010) who found that students with disabilities were not given appropriate accommodations during assessments. Muyungu (2015) established that learners with disabilities in Tanzania were not catered for by their teachers during classroom exams and assignments. The researcher pointed out that there was no special consideration given to them to support their unique needs in examinations. Jimenez (2013) observed that the Chinese government does not have a clear policy on “reasonable accommodation” in mainstream schools. The researcher noted that some mainstream schools excluded students with disabilities from the examination system, they did not get graded and their progress was not otherwise evaluated.

In an attempt to find out what Rwanda Education Board was doing in terms of providing assessment accommodations in national examinations, the Head of Examination and Assessments had this to say when he was asked whether they provided some accommodations during the national exams and other large scale assessment:

*“We do our best to provide some accommodations if we know in advance what kind of accommodation a learner may need. For example, last time we heard a case of learner with Physical Disability who could not write, and we gave him oral exams.”*

He went further to say:

*“We can provide all accommodations to learners according to their needs, however, the only problem we have is that we learn the case of learners who need accommodations when it is too late. In most cases, we learn the situation when exams are already being done. In such condition, we can’t do anything.”*

Asked whether they gave special considerations to learners with PD who might have bad to read handwriting due to uncoordinated hands movement, especially when they are marking exams papers. He replied:

*“To be honest, we are not even aware of such situation. We used to get those kinds of papers, but we thought they were just for the very worse learners, those who are below average”.*

Asked whether he think that the lack of accommodation affect academic achievement of learners with Physical Disabilities, he had this to say:

*“Obviously yes. If a child with Physical Disability who is slow in writing is not given an extra time for example, he/ she will not be able to finish the whole items, and this will evenly affect his/ her academic achievement.”*

From these statements, it was apparent that the Ministry of Education through Rwanda Education Board was ready to provide necessary and reasonable accommodations during the National Examinations. However, the challenge remained the lack of proper mechanism and guidelines on how to provide accommodations to learners with Physical Disabilities. VSO report (2015) noted that Rwanda Education Board should develop guidelines for exam concessions for Children with Disabilities. The report recommended that schools should be aware of what accommodations are available for all categories of disabilities. According to the report, such accommodations include the provision of scribes for learners who are unable to use their arms or hands; or providing extra time for students with learning difficulties. UNESCO (2017) observed that learners with disabilities were not included in assessment process mainly because government had no clear guidelines on assessment accommodations. In an inquiry to find out more about assessment accommodations, a learner with Cerebral Palsy during the FGD at GS Rose Mystica commented:

*“Only my teachers and those who have time can read my handwriting. I know I will fail if not given special considerations during exams papers marking.”*

This might be true given the fact that those who mark exams were always rushing because of the limited time they had and because their payments were in accordance to the number of copies marked. This situation put to disadvantage learners with Cerebral palsy who had bad to read handwriting and yet smart enough and able to excel if given time and considerations. This is in agreement with Molly et al (2018) who reported that students usually score low grades mostly witnessed during national exams because of their poor handwriting. The same researchers pointed out that usually teachers took time in guiding the students in class and in marking of scripts but those contracted to mark national examinations were not trained and were not keen in marking. They concluded that poor handwriting may lead to low academic performance among learners with Cerebral Palsy if not given proper accommodations during assessment and examinations.

Another learner with amputation, but able to write with toes stated:

*“I believe that we fail in most of exams because some items in the questionnaires are not appropriate. You will find that the whole section in National exam is about Geometry or composition. I can’t do drawings and measurements. Writing a composition of two pages is impossible, unless, I am given the whole day. I wonder whether those who set exams are aware of our existence and needs.”*

Another learner with Muscular Dystrophy who participated in the FGD put this into perspective:

*“There is nothing like special we are given in exams. We are considered as the rest of the students.” I cannot sit for more than thirty minutes without break and yet in national exams, I will be asked to sit for three hours? This is not fair.*

These statements indicated that learners with Physical Disabilities had no hope in getting proper accommodations during national examinations. It was also clear that the whole examination process, starting from exams preparations and administrations was not taking into considerations individual needs of students with Physical Disabilities. This finding supports Wanjira (2012) who reported that poor academic achievement of students with Physical Disabilities were triggered by irrelevant examinations items, unfair examination marking, and inappropriate time given to learners with Physical Disabilities during examinations. Marty (2010) maintained that assessment accommodations are what students with Physical Disabilities need to excel academically.

To find out the relationship between assessment accommodation and academic achievement of learners with Physical Disabilities Pearson product moment correlation coefficient was computed. Table 4.14 gives the summary of the correlation coefficient between assessment accommodation and academic achievement of learners with Physical Disabilities.

**Table 4.14: Relationship between assessment accommodations and academic achievement of learners with Physical Disabilities**

Correlations		Academic achievement of learners with PD	Provision of extra time	Provision of Rest Break	Provision of Special Venue	Provision of scribes
Academic achievement of learners with PD	Pearson Correlation	1	.707**	.246*	.481**	.731**
	Sig. (2-tailed)		.000	.047	.000	.000
	N	66	66	66	66	66
Provision of extra time	Pearson Correlation	.707**	1	.236	.410**	.684**
	Sig. (2-tailed)	.000		.057	.001	.000
	N	66	66	66	66	66
Provision of Rest Break	Pearson Correlation	.246*	.236	1	.129	.214
	Sig. (2-tailed)	.047	.057		.302	.085
	N	66	66	66	66	66
Provision of Special Venue	Pearson Correlation	.481**	.410**	.129	1	.422**
	Sig. (2-tailed)	.000	.001	.302		.000
	N	66	66	66	66	66
Provision of scribe	Pearson Correlation	.731**	.684**	.214	.422**	1
	Sig. (2-tailed)	.000	.000	.085	.000	
	N	66	66	66	66	66

\*\* . Correlation is significant at the 0.01 level (2-tailed).  
\* . Correlation is significant at the 0.05 level (2-tailed).

It can be seen on Table 4.14 that there was a greater relationship between the provision of extra time and academic achievement of learners with Physical Disabilities,  $r(64) = 0.707$ ,  $p = 0.001$ . This implies that the more students with Physical Disabilities were given extra time to finish their work, their academic achievements increase. Wanjiku (2014) was in agreement with this finding and reported that 57% of teachers who gave extra time to learners with Physical Disabilities to finish their work reported to witness an improvement in the academic achievement of learners with Physical Disabilities. Lewandowski et al (2013) concur with the findings and established that students with learning disabilities scored significantly better in the longer extended time condition than in the shorter frame. Lovet and Leja (2013) also found a positive relationship between amount of extended time and score gain; that is, the more extended time given to students with Disabilities, the greater their score improvement.

A look at the Table 4.14 also indicated that there was positive but weak relationship between the provision of rest break and academic achievement of learners with Physical Disabilities,  $r(64) = 0.246$ ,  $p = 0.046$ . This implies that learners with Physical Disabilities who experience weakness of the muscles will improve their academic achievements when provided with the rest break during the examination. This finding supports Thompson, Blount, and Thurlow (2002) who indicated that students with Physical Disabilities improved their academic scores when provided with rest break during state assessments.

From the Table 4.14 it was apparent that there was a high positive relationship between the provision of scribes and academic achievement of learners with Physical Disabilities,  $r(64) = 0.731$ ,  $p = 0.001$ . This implies that learners with

Physical Disabilities who are unable to write due to different conditions will improve their academic achievement if provided with the scribes who will help them in writing down their answers. If these learners are left to struggle themselves, they might not complete the work or write with a very bad handwriting which will eventually affect their academic achievements. Brumfield (2014) was in agreement with these findings that there are benefits for students with learning disabilities when receiving scribe in comparison to students without disabilities.

It can also be seen from the Table 4.14 that there was a high and positive relationship between the provision of special venue and academic achievement of learners with Physical Disabilities,  $r(64) = 0.481$ ,  $p = 0.001$ . These imply that learners with Physical Disabilities who were not comfortable in a particular place due to many reasons might be given special venue and this had a positive impact on their academic achievement. This is however in contradiction with Lin and Lin (2013) who revealed that there was no significant evidence indicating a benefit of separate venue setting for learners with disabilities on a large-scale assessment.

Wu and Thurlow (2018) observed that assessment accommodations help students with disabilities display their skills accurately on examinations. They concluded that without accommodations, students with disabilities may not be able to access grade level instruction and participate fully on assessments.

UNESCO (2018) noted that making determinations about the appropriate accommodations that students with disabilities need in order to fully and equally participate in large scale testing should be at the heart of every educator.

To establish the extent to which assessment accommodations predict the academic achievement of learners with Physical Disabilities, Multiple Regression analysis was computed. Table 4.15 indicates the results:

**Table 4.15: Assessment accommodations as predictor of academic achievements of learners with Physical Disabilities**

Model Summary						
Model	R	R Square		Adjusted R Square	Std. Error of the Estimate	
1	.798 <sup>a</sup>	.637		.613	.46347	
a. Predictors: (Constant), Provision of scribe, Provision of Rest Break, Provision of Special Venue, Provision of extra time						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.363	.436		-.834	.408
	Provision of extra time	.508	.160	.343	3.170	.002
	Provision of Rest Break	.133	.191	.055	.696	.489
	Provision of Special Venue	.324	.179	.157	1.813	.075
	Provision of scribes	.629	.163	.418	3.855	.000
a. Dependent Variable: Academic achievement of learners with PD						

From the Table 4.15, the coefficient of determination ( $R^2=.637$ ) indicated that the provision of assessment accommodations accounted for 63.7% of the variations in the academic achievement of learners with Physical Disabilities in inclusive primary schools. The unstandardized coefficient results above indicated how much academic achievements of learners with PD were affected by the provision of assessment accommodations if other variables were kept constant. Results established that the

provision of an extra time increased the academic achievements of learners with Physical disabilities by 0.9% units. The provision of rest break increased the academic achievement of learners with Physical Disabilities by 0.1% units, the provision of special venue increased the academic achievement of learners with Physical Disabilities by 0.3% units and finally, the provision of scribes increased the academic achievements of learners with Physical Disabilities by 0.6 % units. The multiple regression results also indicated that three assessment accommodations (provision of extra time, provision of special venue and provision of scribes) each had unique contribution to academic achievements of learners with Physical Disabilities ( $p=0.002$ ,  $p=0.075$ ,  $p=0.001$  respectively). The provision of rest breaks however had no unique contribution to academic achievement of learners with Physical Disability with  $p=0.48$ . The provision of assessment accommodation was therefore a good predictor of academic achievement of learners with Physical Disabilities. To this end, the Null Hypothesis which stated that “There is no significant relationship between the provision of assessment and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda was rejected. The Ministry of Education report of 2018 argued that it was unfair to standardize and generalize testing procedures for learners with Special Educational Needs because they have diverse needs. Kenya Task Force report of 2005 noted that learners with PD were not considered during examinations and one way to consider them was by adapting examination questions to suit the individual learner’s needs and using alternative ways of measuring the learner's competence such as oral work.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the study findings on instruction and assessment accommodation as predictors of academic achievement of learners with Physical Disabilities in inclusive primary schools in Rwanda. It covers the summary of the key findings and conclusions drawn from the study. Recommendations and suggestions for further research are also included.

#### 5.2 Summary of the Main Findings

The study was conducted to determine the extent to which instruction and assessment accommodations predict academic achievements of learners with Physical Disabilities. This was after the reported consistent poor academic achievement of learners with Physical Disabilities in Rwanda. The study statistically tested the following five hypotheses:

- i. There is no difference in academic achievement of learners with Physical Disabilities enrolled in inclusive boarding schools, inclusive model schools and plain inclusive schools in Southern Province and Kigali City, Rwanda.
- ii. There is no significant relationship between the use of adapted curricula and academic achievement of learners with Physical Disabilities in inclusive primary schools in in Southern Province and Kigali City, Rwanda.
- iii. There is no significant relationship between the availability and use of adapted instructional materials and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.

- iv. There is no significant relationship between the use of recommended instructional methods and academic achievement of learners with Physical Disabilities in inclusive primary schools in in Southern Province and Kigali City, Rwanda.
- v. There is no significant relationship between assessment accommodations (extended time, separate venue and scribes) and academic achievement of learners with Physical Disabilities in inclusive primary schools in in Southern Province and Kigali City, Rwanda.

The study applied correlation research design, it targeted Head Teachers, teachers, learners with Physical Disabilities and government officials working with Rwanda Education Board. Data was collected using five main research instruments: Questionnaires for Head Teachers and teachers, Interview Guide for officials from Rwanda Education Board, Focus Group Discussion with learners with Physical Disabilities, Observation checklist and Document Analysis Guide. Both probability and non-probability sampling techniques were adopted in identification of study site and respondents. From a population of 584 respondents, a sample of 134 respondents (11 Head teachers, 66 teachers, 55 learners with Physical Disabilities and 2 REB officials) was drawn. Both primary and secondary sources of data were consulted. Qualitative data was transcribed, categorized and reported according to emergent themes, and presented using simple descriptive statistics and backed up by narratives and excerpts. Quantitative data was analysed using descriptive and inferential statistics. From the analysis, the following findings were made:

### **5.2.1 Academic achievements of learners with Physical Disabilities in inclusive primary schools**

The study revealed that majority of learners with Physical Disabilities in the schools under investigation performed poorly in Primary Leaving National Examination. The analysis of the results from 2016 to 2018 established that 68. % in 2016, 68.2% in 2017 and 57.6% in 2018 of learners with Physical Disabilities fell under division four and five. These are the last two divisions which are mainly for those whose academic achievement is poor. The inquiry from the teachers to rate the academic achievement of learners with Physical Disabilities also confirmed the finding. Of all the teachers sampled majority of them (63.6%) rated the academic achievement of learners with PD as below average, 13(19.6%) indicated that the academic achievement of learners with Physical Disabilities was at average level and 11(16.7%) reported that the academic achievement of learners with Physical disabilities was at extremely below average level. The one-way ANOVA was conducted to evaluate whether there was a difference in academic achievements of learners with PD based on the types of the school they attend. The independent variables, types of the schools included three groups: boarding inclusive schools, inclusive model schools and plain inclusive schools. The ANOVA was significant,  $F(2,63) = 11.8, p= 0.001$ ). There was therefore a significant difference in academic achievements of learners with Physical Disabilities based on the types of the school they attended. Multiple comparisons result further revealed that there was no significant difference between the two groups (boarding inclusive schools and inclusive model schools), that means that the academic achievement of learners who attended inclusive boarding schools did not significantly differ from the academic achievement of learners who attended inclusive model schools ( $p= 1$ ). Therefore, the

null hypothesis which stated that there is no difference in academic achievement of learners with Physical Disabilities enrolled in inclusive boarding schools, inclusive model schools and plain inclusive schools in Southern Province and Kigali City, Rwanda was rejected.

### **5.2.2 The use of adapted curricula as predictor of academic achievement of learners with Physical Disabilities in inclusive primary schools**

The findings indicated that majority of teachers, 52(78.8%) were not able to adapt the curriculum content and activities to meet the needs of learners with PD. Only 14 teachers who represented 21.2% were able to adapt the curricula content and activities to meet the needs of learners with Physical Disabilities. It was also clear from the observations of the researcher that learners with physical Disabilities were not participating fully in some lessons especially those that involved manipulations. From the interview, it was also clear that Rwanda Education Board had not developed the adapted curricula for learners with Physical Disabilities. Teachers whom majority of them were not trained in Special Needs Education, were left to guess on how to adapt some curricula activities and content to meet the needs of learners with Physical Disabilities.

Data from the correlation analysis and regression analysis confirmed that the use of adapted curriculum was a good predictor of academic achievement of learners with Physical Disabilities. ( $r(64) = .47$ ,  $p = .001$ ,  $R^2 = .226$ ,  $B = .777$ ). The  $p < .005$  indicated a strong positive relationship between the use of adapted curriculum and academic achievement of learners with physical disabilities. The coefficient of determination ( $R^2 = .226$ ) indicated that 22.6% of the academic achievement of learners with Physical Disabilities was explained by the use of adapted curriculum.

This implies that if teachers used adapted curricula, we can account for 22% of the variance in academic achievement of learners with Physical Disabilities. The unstandardized coefficient ( $B = .777$ ) indicated how much academic achievements of learners with PD was affected by the use of adapted curriculum if other variables were kept constant. Results established that as teachers used adapted curriculum, academic achievement of learners with PD increased by 0.7 units. Therefore, the null hypothesis which stated that there is no significant relationship between the use of adapted curricula and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda was rejected.

### **5.2.3 The availability and use of adapted instructional materials/ facilities as predictor academic achievement of learners with Physical Disabilities in primary schools**

It was found that majority of schools under investigation 8(72.2%), 9(81.82%) had no adapted chairs and adapted tables for learners with PD respectively. Majority of the schools, 7(63.6%) have not lowered black boards to facilitate education of learners with Physical Disabilities. None of the schools, 11(100%) had neither adapted computers, adapted pens nor adapted exercises books. It was also found that majority of the schools, 7(63.6%) had no large doors to facilitate movement of learners with Physical Disabilities. Majority of schools 9(81.8%) indicated that there had no mobility aids to help learners who may need them to move around the school. An interview with the Head of curriculum, Teaching and Learning Materials at REB revealed that so far REB has provided specialized and adapted teaching materials in special schools only and not in inclusive schools.

It was also clear from the findings that only 4(36.6%) of schools had adapted toilets for learners with Physical Disabilities. These schools were the two boarding schools which are run by missionaries and the two schools that are supported by Humanity and Inclusion. The study also established that all schools, 11(100%) had no transportation facilities available to help learners with PD get to or from schools. An inquiry to know how learners with PD get to schools and home revealed that majority of learners with PD were carried by their peers to and from schools.

From the FGD with learners with PD it was apparent that the issue of lack of transport affected negatively the education of learners with PD. Majority of them affirmed that they missed many classes due to the lack of transportation facilities.

Data from the correlation analysis and regression analysis confirmed that the availability and use of adapted instructional materials/ facilities was a good predictor of academic achievement of learners with Physical Disabilities. ( $r(64) = .84$ ,  $p = .001$ ,  $R^2 = .711$ ,  $B = 1.68$ ).

The coefficient of determination ( $R^2 = .711$ ) indicated that 71.1% of the academic achievement of learners with Physical Disabilities was explained by the availability and use of adapted instructional materials and facilities. This implies that if schools had adapted instructional materials/ facilities and use them, we can account for 71.1% of the variance in academic achievement of learners with Physical Disabilities. The unstandardized coefficient results above indicated how much academic achievements of learners with PD were affected by the availability and use of adapted instructional materials/ facilities if other variables were kept constant. Results established that as school had and use adapted instructional materials/

facilities, academic achievement of learners with PD increased by 1.6 units. The availability and use of adapted instructional materials/ facilities was therefore a good predictor of academic achievement of learners with Physical Disabilities. Thus, the Null Hypothesis which stated that “There is no significant relationship between the availability and use of adapted instructional materials/ facilities and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda was rejected.

#### **5.2.4 The use of instructional methods as predictor of academic achievement of learners with Physical Disabilities in Inclusive schools**

The study indicated that all teachers, 66(100%) used Special Grouping method. This could be attributed to the fact that all teachers have been trained on Competence Based Curriculum which emphasized on the special grouping as a method of teaching. A moderate number of teachers, 39(59%) indicated that they used cooperative learning method. It was also found that very few teachers, 11(16.6%) use task analysis while only 10(15.1%) use Individualized Education Plan. The observation made by the researcher revealed that thought learners with PD were in groups with their peers, teachers seemed to move with the bright learners. It was also noted that groups were too large to the fact that learners with PD, especially those using wheelchair were left far away from the rest of the group and therefore not able to participate equally as their peers.

Data from the correlation analysis and regression analysis confirmed that the use of recommended instructional methods was a good predictor of academic achievement of learners with Physical Disabilities. ( $r(64) = .589$ ,  $p = .001$ ,  $R^2 = .347$ ,  $B = .988$ ).

The coefficient of determination ( $R^2=.347$ ) indicated that the use of recommended instructional methods accounted for 34.7%% of the variations in the academic achievement of learners with Physical Disabilities in inclusive primary schools. The unstandardized coefficient results indicated how much academic achievement of learners with PD was affected by the use of instructional methods if other variables were kept constant. Results established that as a teacher used recommended instructional methods to teach a learner with PD, his or her academic achievement increased by 0.9% units. The use of recommended instructional methods was therefore a good predictor of academic achievement of learners with Physical Disabilities. Thus, the Null Hypothesis which stated that “There is no significant relationship between the use of instructional methods and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda was rejected.

#### **5.2.5 Assessment accommodations as predictors of academic achievements of learners with Physical Disabilities in inclusive primary schools**

It was found that majority of teachers were not providing accommodations to learners with PD during testing. Provision of extra time was the most given accommodation during exams and assessments by teachers, 30(44%), followed by the provision of special venue which was given by 17(25%) teachers. Rest break was reported to be provided by only 13(19.1%) teachers, while modified answer sheet and provision of scribes were the least provided accommodations by 2(2.9%) and 6(8.8%) of teachers respectively. From the interview with the Head of examination and assessment at Rwanda Education Board, it was clear that learners with Physical Disabilities were not given special accommodations during testing

simply because there was no guideline on how to provide assessment accommodations. It was clear from the interview that Rwanda Education Board had no clear mechanism to gather information from schools about who need accommodation during the national exams. From the FGD, it was also apparent that learners with PD were not being taken care of during examinations and assessments. They mentioned issues of inappropriate items in exams questionnaires, inadequate time given and unfriendly exams environment.

Data from the correlation analysis and regression analysis confirmed that the provision of assessment accommodation was a good predictor of academic achievement of learners with PD at varying levels. The strongest positive predictors were the provision of scribes, the provision of extra time and the provision of Special Venue at  $p= 0.001$ . The provision of rest break was a weak positive predictor with  $p= 0.45$ . It meant that the provision of assessment accommodations was highly likely to predict the increase of academic achievement of learners with Physical Disabilities. For that matter the null hypothesis which stated that there is no relationship between the provision of assessment accommodations and academic achievements of learners with Physical Disabilities in inclusive primary schools was rejected.

### **5.3 Conclusion**

Based on findings of the present study, the researcher reached the following conclusions:

- i. The academic achievement of learners with Physical Disabilities was consistently poor compared to their counterparts without disabilities. This was reported by teachers in the study and confirmed by the analysis of the

national examination results from 2016 to 2018. However, there was difference in academic achievement of learners with Physical Disabilities based on whether they enrolled in inclusive boarding schools, inclusive model schools and plain inclusive schools.

- ii. There were no adapted curricula (content and activities) for learners with Physical Disabilities. Teachers were not able to adapt some curriculum content and activities to meet the needs of learners with PD because there was no training on curriculum adaptations that was organized for them. Learners with Physical Disabilities were not participating in all aspects of lessons. Lessons that involve manipulations, drawing and composition were not adequate for them and there was no alternative being made to help them participate equally as their peers. This affected significantly the academic achievements of learners with Physical Disabilities in inclusive primary schools.
- iii. The issue of inclusive schools missing the adapted instructional materials/facilities was real. Adapted materials like chairs, table, pens, doors and toilets were missing in most of the schools visited. Furthermore, facilities like transportation facilities were not available for learners with Physical Disabilities. For this reason, the absenteeism rate was very high among learners with Physical Disabilities. There was therefore a strong positive relationship between availability and use of adapted instructional materials/facilities and academic achievements of learners with Physical Disabilities in inclusive primary schools.
- iv. Teaching methods that maximize educational output of learners with Physical Disabilities like: Task Analysis, Individualized Education Plan,

Cooperative Learning and Special Grouping were not used by teachers in inclusive primary schools. It was noted that teachers lacked knowledge to address the diverse educational needs of learners with Physical Disabilities. The issue of high pupil ratio in inclusive schools also made it almost impossible for teachers to take care of individual needs of learners with Physical Disabilities. This affected to the high extent the academic achievement of learners with Physical Disabilities. There was therefore a strong positive relationship between the use of recommended teaching methods and academic achievement of learners with Physical Disabilities in inclusive primary schools.

- v. There is a strong positive significant relationship between assessment accommodations and academic achievement of learners with Physical Disabilities. The absence of assessment accommodations guidelines in Rwanda leave many learners with Physical Disabilities unsupported. Some missed exams and others failed completely not because they were not bright enough but because their needs were not taken care of during examinations and assessments.
- vi. Finally, the researcher concluded that this study succeeded in achieving its purpose and objectives. The high return rate of teachers and Head teachers' questionnaires, learners with PD and officials from REB willingness to participate in the study provided enough information to test the four hypotheses formulated for the study. Issues pertaining to poor academic achievement of learners with Physical Disabilities should be approached from four perspectives: Adaptation of curriculum, availability and use of

adapted instructional materials/ facilities, training of teachers on inclusive methodologies and provision of accommodations during examinations.

#### **5.4 Recommendations**

Based on the findings of the study, the following recommendations were made, with a view to improving academic achievement of learners with Physical Disabilities.

##### **5.4.1 Policy recommendations**

- i. Based on objective two, the study recommended that the Ministry of Education through Rwanda Education Board should organize training on curriculum adaptations for teachers teaching in inclusive schools. The study also recommended that teachers, especially those that teach learners with Physical Disabilities should be involved in the process of curriculum development. These teachers may provide information on some activities and content in the curriculum that are inadequate for learners with Physical Disabilities and therefore help in developing alternative content and activities.
- ii. Based on objective three, the study recommended that Ministry of Education should make a deliberate effort to increase budget allotted to the purchase of adapted teaching/ learning materials. To address the issue of transportation, the study recommended that the Ministry of Education through Rwanda Education Board should establish a way in which teachers' houses could accommodate also learners with Physical Disabilities, especially those using wheelchairs.

- iii. Based on the objective three, the study recommended that the Ministry of Education through Rwanda Education Board should organize in service trainings for teachers in inclusive schools and the trainings should focus on curriculum adaptations, teaching methodologies and different types of disabilities and educational limitations that are associated with disabilities.
- iv. Based on the objective five, the study recommended that the Ministry of Education through Rwanda Education Board should re-examine testing procedures for learners with Physical Disabilities and make the necessary adaptations to cater for their needs. Assessment accommodations guidelines should be developed and shared with all educational stakeholders.

#### **5.4.2 Recommendations for further research**

- i. The present study focused on determining the extent to which instruction and assessment accommodations predict academic achievement of learners with Physical Disabilities in inclusive primary schools. There is need to extend the study from primary schools to secondary schools. A need to extent this study to learners with Visual Impairments and Hearing Impairments is also recommended.
- ii. There is a need to investigate the attitude of learners towards the academic achievement of learners with Physical Disabilities.
- iii. A study is required to determine family factors influencing academic achievement of learners with Physical Disabilities.

- iv. A study on the influence of support services (financial and medical support) on academic achievements of learners with Physical Disabilities is also recommended.
  
- v. Finally, this study was a correlation study, where the interest was only to find a relationship between variables. An experimental study is therefore recommended to show a possible cause effect between these variables.

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## APPENDICES

### APPENDIX I: QUESTIONNAIRE FOR HEADTEACHERS

#### Section one: Demographic information

##### I. General information on the schools

1. Type of the school:

- a) Inclusive school
- b) Centre
- c) Special School
- d) Boarding school
- e) Day school

2. Location of your school:

- a) Urban
- b) Rural

##### II. Information on head teachers

3. Please check the appropriate response.

Age

- 30 or under
- 31-40
- 41-50
- 51- 60
- 60 and above

Gender

- Male
- Female

Experience

2-5 years

6-10 years

11-15 years

16-20 years

Over 20

Level of Education

a) Diploma

b) Bachelor's Degree

c) Master's degree

d) Any other.....

Training in Special Needs Education

a) Have you been trained in Special Needs Education?

Yes

No

b) If yes, in which areas?

Learning Disabilities and Intellectual Disabilities

Physical Disabilities

Communication Disorders

Emotional and Behaviour Disorders

Inclusive Education

Other, Please specify

.....  
.....

**III. Information on staff and learners**

4. What is the number of your staff by gender?

a) Teaching staff

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>
Total	<input type="checkbox"/>

b) Administrative staff

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>
Total	<input type="checkbox"/>

c) Support staff

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>
Total	<input type="checkbox"/>

5. Do you have the following support staff?

Physiotherapist	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Occupational therapist	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
School counsellor	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Nurse	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

6. What is the number of your teaching staff with the following qualification?

S6 certificate	<input type="checkbox"/>
Diploma	<input type="checkbox"/>
Bachelor's degree	<input type="checkbox"/>
Master's degree	<input type="checkbox"/>

7. What is the number of your teaching staff with degree in Special Needs Education?

Diploma in SNE

Bachelor's degree in SNE

Master's degree in SNE

Any other, please specify .....

8. How many of your teaching staff has undergone a short course training in SNE?

9. What is the number of learners according to their gender?

Male

Female

Total

10. How many of your learners have Physical Disabilities?

Male

Female

Total

11. How many have the following types of Physical Disabilities do have?

Cerebral palsy

Loss of limb

Spina Bifida

Muscular Dystrophy

Brittle bones

Any other, please specify .....

12. What is the number of learners with Physical Disabilities according to the year of study?

- Primary one
- Primary two
- Primary three
- Primary four
- Primary five
- Primary six

**Section B: Questions related to research objectives**

**A. Information on curriculum content adaptations**

13. Do learners with Physical Disabilities in you school follow the regular curriculum?

Yes

No

If no, what kind of curriculum do you use?

Special curriculum

Regular curriculum with adaptations

Any other, specify .....

14. Do the following available in your schools?

Yes

No

Adapted activities for learners with Physical Disabilities



Adapted syllabus for learners with Physical Disabilities



Teachers' guides for learners with Special Needs



15. Are teachers able to adapt the curriculum to meet the needs of learners with

Physical Disabilities?

Yes

No

If yes, what kind of adaptations do they make to the regular curriculum content?

**B. Information on instructional materials and facilities available**

16. What available teaching resources do you have for learners with Physical Disability?

- Mobility aids
- Page turners
- Head pointers
- Book holders
- Pencils grips
- Adapted Computers
- Assistive technologies

Others

.....

17. Does the school have enough facilities and equipment to facilitate accommodation of learners with Physical Disabilities?

- Yes
- No

If no, does lack of facilities and equipment affect learning of learners with Physical Disabilities?

Please explain how?

.....  
.....

18. Do the school has transportation facilities to help learners with disabilities come to and from or move around the school?

- Yes
- No

If not, how do you facilitate movement of learners with Physical Disabilities?

.....  
.....

**Information on assessment accommodation**

19. Do learners with Physical Disabilities need special accommodations during examination?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

20. If yes, what kind of accommodations do you provide to learners with Physical Disabilities during examination and assessment?

We provide extra time	<input type="checkbox"/>
We provide rest break	<input type="checkbox"/>
We provide special room	<input type="checkbox"/>
We modify exams materials	<input type="checkbox"/>
Any others, specify	

.....  
.....

**Information on academic achievement of learners with Physical Disabilities**

21. Kindly provide the mean score in primary examination results for learners with Physical Disabilities in examinable subjects in the year 2018.

Subjects	Mean scores for learners with Disabilities	Mean scores for learners without disabilities
Mathematics		
Kinyarwanda		
English		
Social Science		
Science and Technology		

22. Views of respondents on classroom and assessment accommodations and their impact on academic achievement

The following are statements about accommodation services for learners with physical disabilities and how they affect learning outcomes in literacy and numeracy of these learners in primary schools. Please tick (√) the appropriate response to show your level of agreement about the statement. There is no correct or wrong answer. The best answer is the one that honestly reflects your views.

Key: SA=Strongly Agree A=Agree UD= Undecided D= Disagree SD=S strongly Disagree

	SA	A	UD	D	SD
Academic achievements of learners with Physical disabilities have been influenced by the accommodation services they receive both in classroom and in assessment.					
Learners with Physical Disabilities have been performing poorly due to inappropriate classroom					

and assessment accommodations they receive in our schools.					
Unadapted curriculum syllabus and activities affected negatively academic achievement of learners with Physical Disabilities					
Untrained teachers using inflexible teaching methodologies have led to poor academic achievement of learners with physical disabilities					
Lack of adapted instructional materials and appropriate facilities/ equipment affect academic achievement of learners PD					
Receiving extra time during examination influence academic achievement of learners with PD					
Receiving rest break during examination and assessment affect academic achievement of learners with PD					
Receiving special venue during examination and assessment affect academic achievement of learners with PD					
Receiving modified exams materials affect academic achievement of learners with PD					

23. Rwanda is working towards the achievement of Sustainable Development Goals number 4 which is about providing quality education for all including learners with Physical Disabilities, what would you suggest to improve academic achievement of learners with Physical Disabilities?

.....

.....

.....

## APPENDX II: QUESTIONNAIRE FOR TEACHERS

### A. General information

Put a tick (v) in the appropriate box

Fill in the provided space with needed information.

Name of school .....

Class.....

1. What is your gender?

Male

Female

2. Your teaching experience is:

2-5 years

6- 10 years

11- 15years

16- 20 years

Over 20 years

3. What is your qualification?

O level certificate

A Level certificate

Diploma in SNE

Others: Specify

.....

4. Have you been trained in Special Needs Education?

Yes

No

Currently being trained

If yes, in which area?

Learning Disabilities and Intellectual disability

Emotional and Behaviour Disorder

Physical Disabilities

Communication Disorder

Inclusive education

5. The training was for how long?

Below 2 months

3 – 5 months

6 – 11 months

Over 1 year

6. What was the focus of the training?

Types of disabilities

Inclusion

Teaching methodologies

Any other, specify.....

**Questions related to objectives of study**

**Information on curriculum content adaptations**

7. Do learners with Physical Disabilities follow the regular curriculum?

Yes  No

8. Do you think adaptations to the regular curriculum content are necessary to help learners physical disabilities participate?

Yes  No

If yes, in which areas do you think you should make adaptations to the regular curriculum to facilitate participation learners with Physical Disabilities?



If no, does lack of facilities and equipment affect learning of learners with Physical Disabilities?

Yes  No

Please explain

.....  
.....

13. Are the facilities/ equipment available appropriately adapted to meet the needs of learners with Physical Disabilities?

Yes  No

14. Please list some kind of facilities/ equipment which are very important but missing in the school?

.....  
.....

**Information on academic achievement of learners with Physical Disabilities**

15. List the conditions of Physical Disabilities learners have in your class?

.....  
.....

16. What limitations do these conditions impose on the learners learning abilities?

.....  
.....

17. How would you rate the academic achievement of learners with Physical disabilities in these three subjects with reference to the results of LARS 2016 and National Examination?

- Extremely below average
- Below average
- Average
- High average
- Extremely high average

18. The following are statements about accommodation services for learners with physical disabilities and how they affect academic achievement in literacy and numeracy of these learners in primary schools. Please tick (√) the appropriate response to show your level of agreement about the statement. There is no correct or wrong answer. The best answer is the one that honestly reflects your views.

Key: SA=Strongly Agree A=Agree UD= Undecided D= Disagree SD=Strongly Disagree

	A	A	UD	D	SD
Learners with Physical Disabilities are performing poorly compare to their count part without disabilities.					
Poor academic achievement of learners with Physical disabilities is still a problem in our schools.					
Inadequate curriculum syllabus is the main cause of poor academic achievement of learners with Physical Disabilities.					
Facilities and equipment are not effectively adapted to meet the needs of learners with Physical Disabilities and this has led to poor academic achievement of learners with Physical Disabilities.					
Receiving extra time during examination influence positively academic achievement of learners with PD					
Receiving rest break during examination and					

assessment affect positively academic achievement of learners with PD					
Receiving special venue during examination and assessment affect positively academic achievement of learners with PD					
Receiving modified exams materials affect positively academic achievement of learners with PD					

19. How do you rate the effect of instructional and assessment accommodations for different types of disabilities? Which are the most affected by the lack of instructional and assessment accommodations?

Types of Physical Disabilities	Most affected	Less affected	Not affected
Learners with mild cerebral Palsy			
Loss of limbs			
Learners with Spine Bifida			
Learners with Muscular Dystrophy			
Learners with Brittle Bones diseases			
Others			

20. As a key player in education of learners with physical disabilities, what would you suggest to give these learners a quality education that they deserve?

**APPENDIX III: INTERVIEW GUIDE FOR NATIONAL HEAD OF  
CURRICULUM, TEACHING AND LEARNING RESOURCES  
DEPARTMENT AT REB**

1. Your department is in charge of purchasing or produce learning materials, do you also purchase/purchase learning materials for learners with Physical Disabilities?

Yes                          No   

2. What types of materials do you provide to inclusive and to special schools for learners with Physical Disabilities?

.....  
.....

3. What other materials have you been purchased specifically for learners with Physical Disabilities?

.....  
.....

4. Some materials for learners with Disabilities must be adapted to meet their needs, like adapted chairs, adapted balls, adapted pens, etc... Are these materials available in schools?

Yes                          No   

5. When designing the curriculum, do you take care of learners with Physical Disabilities?

Yes                          No   

Please explain?

.....  
.....

6. Some activities in the regular curriculum need to be modified to meet the need of learners with Physical disabilities. Do you design modified activities/ exercise for learners with Physical Disabilities?

Yes  No

If not, do you think teachers are able to modify activities/exercise for learners with Physical Disabilities?

Yes  No

7. Do you provide training for teachers as far as modifications of some activities and exercises are concerned?

Yes  No

8. It is documented that academic achievement of learners with disabilities is much lower than that of learners without disabilities. Do you agree with this? If yes, what do you think should be done to help learners with Physical Disabilities?

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

**APPENDIX IV: INTERVIEW GUIDE FOR NATIONAL HEAD OF  
EXAMINATION, SELECTION AND ASSESSMENTS DEPARTMENT AT  
REB**

1. Your department is in charge of preparation, administration and scoring of national examinations and other large scale assessment. When preparing examination and assessment how do you consider learners with Physical Disabilities?

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

2. Is there any examination accommodations policy/ regulations specially designed to help learners with Special needs?

Yes  No

3. How do you know which assessment accommodations are needed for a particular student or group of students?

.....  
.....

4. Learners with Physical Disabilities may need special accommodations during assessments and examinations. Do you provide the following accommodations?

	Yes	No
Providing extra time	<input type="checkbox"/>	<input type="checkbox"/>
Provide scribes	<input type="checkbox"/>	<input type="checkbox"/>
Providing special venues	<input type="checkbox"/>	<input type="checkbox"/>
Allowing them to use computers	<input type="checkbox"/>	<input type="checkbox"/>
Modification of exams materials	<input type="checkbox"/>	<input type="checkbox"/>
Any other, please specify		

.....

.....

5. Some of the learners with Physical Disabilities have a very bad handwriting, that if you are not familiar with it, you cannot be able to read it. When scoring, do you consider this? How do you deal with this?

.....

.....

.....

.....

6. Do you agree that the academic achievement of learners with Physical Disabilities are affected by the accommodation services they receive during assessments and examinations?

Yes  No

7. If yes, what would you suggest to improve academic achievement of learners with Physical Disabilities?

.....

.....

.....

.....

## APPENDIX V: LESSON OBSERVATION CHECKLIST

Items	Specific items	Condition	Comments
Identification of teacher:	Qualification Training Lesson proceeding		
Instructional methodologies in use	Individualized Education Plan Task analysis Grouping learners in small group or whole class Attention given to learners with PD( given scribes)		
Instructional materials	Page turners, paper grips, assistive devices, manual signs, adapted pens, adapted pencils, modified exercises books among others		
Curriculum	Modified activities and modified content		
Classroom	Adapted desk, large doors, sitting arrangement		
Mobility devices and specialized equipment	Braces, splints, walking frame, wheelchairs Adapted computers, electric wheel chairs among others		
Limitations in learning as a result of PD	Writing, concentration, coordination movement, mobility		

**APPENDIX VI: FOCUS GROUP DISCUSSIONS WITH LEARNERS WITH  
PHYSICAL DISABILITIES**

**IKIGANIRO HAGATI Y'UMUSHAKASHATSI N' ABANYESHURI BAFITE  
UBUMUGA BW' INGINGO**

**Time for FGD:** \_\_\_\_\_

**Date:** \_\_\_\_\_ **Place:** \_\_\_\_\_

**Number of participants:** \_\_\_\_\_

Dear learners,

Thank you for taking your time to meet with me. I am a student at Kenyatta University taking a Degree in Early Childhood and Special Needs Education Studies and carrying out a study in which your assistance is very vital. My goal here today is to gather information regarding your experiences in learning and examinations. Your teachers, Heartaches and parents know that we are going to have this discussion. Kindly assist by providing relevant information. Your responses will be tape recorded and will be handled with utmost confidentiality and privacy and will only be used for the above study for statistical analysis, planning and reporting of aggregated information. Feel free as you respond to questions.

Abanyeshuri,

Ndabashimiye kuba muje kuganira nanjye. Ndi umunyeshuri, niga muri Kaminuza ya Kenya, yitwa Kenyatta Univeristy. Ndi gukora ubushakashatsi bugamije kureba ibibazo muhura nabyo mu myigire yanyu ndetse n' ibyo muhura nabyo mugihe kibizamini. Abarimu, umuyobozi w' ikigo ndetse n' ababyeyi banyu bazi ko turimo tugirana iki kiganiro. Ndabasabye mumpe amakuru ahagije. Ntihagire icyo mutinya. Ndibufate amajwi ikiganiro tugirana kandi ndabizeza ko ibyo turi buganire

bizakoreshwa gusa ku inyungu z' ubu bushakashatsi. Ntamuntu uzamenya amazina yanyu, nzayagira ibanga. Mwumve ntakibazo nakimwe, musubize mutuje.

### **Section I. Teaching and Learning materials and other facilities**

1. Do you have enough and appropriate materials that help you learn well?

*Mufite ibikoresho byabugenewe kandi bihagije bibafasha kwiga neza?*

#### **Probes**

Do you have assistive devices like computers? Adapted pens? Do you use pointers? Page turners? Adapted exercise book? Do you have appropriate wheelchair, crutches?

*Mwifashisha mudasobwa mu kwiga?, ese mufite ibikoresho bibasha kwandika neza, nk' amakaramu yabugenewe? amakaye yabugenewe? Ese mufite utugare tuzima? imbago nzima?*

### **Section II. Teaching methodologies and other facilitations**

1. Do teachers help you participate in every activity?

*Abarimu babafasha bate mu myigire yanyu?*

#### **Probes**

How? Do they use appropriate methodologies? Do they change sitting for you? Do they put you in group together with brilliant learners to help you? When doing some exercise, do they give you extra time to finish the work? Do they allow you to take some break? Do sometimes teachers give you different questions from that of other students? Do teachers give you someone to read for you? Or to write for you?

Ese bajya babahindurira ibyicarwo mu ishuri? Ese bajya babashyira mu matsinda hamwe n' abana babahanga? Bajya babaha se umwanya urenze uwandi kugirango

murangize umukoro? Ese baja babaha ubafasha kwandika? Ese baja babaha ibibazo bitandukanye n' ibyabandi? Ese baja babemerera kuruhuka igihe kitari kimwe n icyabandi?

### **Section III. Accommodations in examinations**

1. During the National examinations, learners with Physical Disabilities performed poorly compared to other learners without disabilities. Why?

*Mu kizamini cy' isuzuma mwagize amanota macye cyane ugereranije n' abandi. Ni iyihe mpamvu?*

#### **Probes**

Do you think it has to do with the lack of adapted materials? Teachers who are not helping you enough? Examinations procedures are not favouring you? Tell me more?

*Ese mwaba mukeka ko aruko mudafite ibikoresho byihariye? Abarimu cyangwa ntibabafasha kuburyo bushimishije? Cyangwa mu bizamini babakosora nabi? Babaha ibibazo mutabasha gukora kubera uko muteye? Mwambwira n' ibindi?*

**APPENDIX VII: PARENT CONSENT LETTER**

**Kenyatta University**  
**P.O. Box 40486**  
**Nairobi, KE.**

**To the Parent of .....**  
**Through:**  
Director of ..... Primary school  
Southern Province/ Kigali City  
Rwanda

Dear Parent

**RE: REQUESTS FOR YOUR SON/ DAUGHTER TO TAKE PART IN THE STUDY**

I am a Doctor of Philosophy student at Kenyatta University I wish to conduct a study in which your son /daughter’s will participate and asked to share her/ his experience in learning and assessment. The discussion will take 10-15 minutes. Please note that you can withdraw your son or daughter from participation in this study if you feel uncomfortable.

I have read and understood the intention and purpose of this study. Please (tick)

I agree  I Disagree

That my son / daughter will participate in this study

**Signature.....**

**Parent’s Name.....**

**Contact..... Email.....**

**For more information, contact me on 0788999687**

**UMUGEREKA WA VII: IBARUWA IGARAGAZA UBWUMVIKANE  
HAGATI Y' UMUBYEYI N' UMUSHAKASHATSI**

**Kenyatta University**

**Nairobi- Kenya**

**Binyujijwe:**

**Umuyobozi w' ikigo**

**Intara y amajyepfo/ Umujyi wa Kigali**

Mubyeyi,

**Impamvu: Gusabira umuhungu / umukobwa wawe uburenganzira bwo  
gutanga amakuru ku umushashatsi**

Ndi umunyeshuri, ndi gukora ubushashatsi ku ibibazo abanyeshuri bafite ubumuga  
bw ingingo bahura nabyo mu myigire no mubizamini, ndifuza kugirana ikiganiro  
n'umuhungu/ umukobwa wawe. Niba mubyemera mwashyira umukono kuri iyi  
baruwa umwana wanyu akazayigarura ku ishuri.

Ndabyemeye  Sibyemeye

Umukono:.....

Izina ry' umubyeyi:.....

Telephone:.....

Mukeneye amakuru ahagije mwambona kuri tel: 0788999687

Murakoze.

**MUTEZIGAJU Flora**

Umushakashatsi

## APPENDIX VIII: APPROVAL OF RESEARCH PROPOSAL

  
**KENYATTA UNIVERSITY  
GRADUATE SCHOOL**

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke) P.O. Box 43844, 00100  
NAIROBI, KENYA  
Website: [www.ku.ac.ke](http://www.ku.ac.ke) Tel. 810901 Ext. 57530

Internal Memo

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**FROM:** Dean, Graduate School **DATE:** 1<sup>st</sup> April, 2019

**TO:** Ms. Flora Mutezigaju **REF:** E83EA/S3643/15  
C/o Early Childhood & Special Needs Educ. Dept.  
Kenyatta University

**SUBJECT:** APPROVAL OF RESEARCH PROPOSAL

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This is to inform you that Graduate School Board at its meeting of 27<sup>th</sup> March, 2019 approved your Research Proposal for the Ph.D. Degree, entitled "Instructional and Assessment Accommodations as Predictors of Academic Achievement of Learners with Physical Disabilities in Nyanza and Gasabo Districts, Rwanda".

You may now proceed with your Data collection, subject to clearance with the Director General, National commission for Science & Technology.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking Forms per semester. The form has been developed to replace the progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

By copy of this letter, the Registrar (Academic) is hereby requested to grant you substantive registration for your Ph.D. studies.

Thank you.

  
**REUBEN MURIUKI**  
**FOR: DEAN, GRADUATE SCHOOL**

c.c. Registrar (Academic) Att. Ms. Lucy Njengi  
Chairman, Department of Early Childhood & Special Needs Education

Supervisors:

1. Dr. Franciseah Wamocho  
C/o Early Childhood & Spe. Needs Educ Dept.  
KENYATTA UNIVERSITY
2. Dr. Beatrice Awori  
C/o Early Childhood & Spe. Needs Educ Dept.  
KENYATTA UNIVERSITY

RM/cao

## APPENDIX IX: RESEARCH AUTHORIZATION LETTER



KENYATTA UNIVERSITY  
GRADUATE SCHOOL

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

**OUR REF: E83EA/33643/15**

P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 8710901 Ext. 57530

Date: 1<sup>st</sup> April, 2019

The Director, General,  
National Commission for Science & Technology  
P.O. Box 30623-00100,  
**NAIROBI**

Dear Sir/Madam,

**RE: RESEARCH AUTHORIZATION FOR MS. FLORA MUTEZIGAJU REG. NO. E83EA/33643/15**

I write to introduce **Ms. Mutezigaju** who is a Postgraduate Student of this University. She is registered for Ph.D. Degree programme in the Department of Early Childhood & Special Needs Education in the School of Education.

Ms. Mutezigaju intends to conduct research for a Ph.D. thesis entitled, "Instructional and Assessment Accommodations as Predictors of Academic Achievement of Learners with Physical Disabilities in Nyanza and Gasabo Districts, Rwanda".

Any assistance given will be highly appreciated.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'E. Kimani', written over a blue circular stamp.

**PROF. ELISHIBA KIMANI**  
**DEAN, GRADUATE SCHOOL**

RM/cao

## APPENDIX X: RESEARCH PERMIT



NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY (NCST)  
Grand Pension Plaza, 13th Floor, KN 2 Roundabout, Kigali  
PO Box: 2285 Kigali – Rwanda  
E-MAIL: info@ncst.gov.rw ,WEBSITE: www.ncst.gov.rw

### PERMISSION TO CONDUCT RESEARCH IN RWANDA

N° NCST/482/ 129 /2019

I, the undersigned, hereby grant the researcher (s) in Section I permission to conduct research in Rwanda. This permission only covers research activities related to the provided research title, during the specified period and at specified location (s) in Section II of this form.

#### Section I: Personal Information

1. Family Name: **Mutezigaju** Other Names: **Flora**
2. Academic Qualification (Highest degree): **MS, MA**
3. Home Institution: **Kenyatta University** Occupation: **PhD Candidate**
4. Phone Number (in Rwanda): **0788999687**
5. Email: **dmutezigaju@gmail.com**
6. Primary Research Supervisor:
  - a. Names: **Dr. Franciscah I. Wamocho**
  - b. Institution: **Kenyatta University** Occupation: **Senior Lecturer**
  - c. Phone Number: **+25713844459**
  - d. Email: **wamocho.franciscah@ku.ac.ke**



#### 7. Research Collaborators:

Names	Institution
1	
2	
3	
4	

## Section II: Research Information

1. Research Area: Education
2. Research Title: **Instructional and assesment accomodations as predictors of academic achievements of learners with physical disabilities in Nyanza and Gasabo districts of Rwanda.**
3. Affiliating Rwandan Institution: **University of Rwanda College of Education**
4. Rwandan Supervisor:
  - a. Names: **Dr. Gonzague Habinshuti**
  - b. Occupation: **Lecturer**
  - c. Phone Number: **0788809234**
  - d. Email: **ghabinshuti@gmail.com**
5. Fieldwork Location:  
**Huye, Kamonyi, Nyarugenge and Gasabo districts**
  
6. Research Period:
  - a. From: **April 1, 2019**
  - b. To: **June 30, 2020**

## Section III: Other Important Notes

The researcher, with the help of the affiliating institution, will request permission from potential participants before conducting research activities.

## Section IV: Signature

This permission to conduct research in Rwanda is issued in accordance with Ministerial Instructions 003/2010 of 09/12/2010 regulating research activities in Rwanda.

Kigali, on

  
KALISA M. Felly

Ag. Executive Secretary



NCST Ref: ..../NCST.2019

## APPENDIX XI: MAP OF RWANDA

