PREPAREDNESS FOR INCLUSION OF PUPILS WITH PHYSICAL CHALLENGES FOR LEARNING ACTIVITIES IN INCLUSIVE PUBLIC PRIMARY SCHOOLS FOR THE PUPILS WITH PHYSICAL CHALLENGES IN BUNGOMA COUNTY, KENYA

BY

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DECLARATION

DECLARATION BY THE CANDIDATE

This thesis is my original work and has not been submitted anywhere else for the purpose of examination. No part of this research should be reproduced without prior permission from the author and/or Moi University.

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DEDICATION

This research work is dedicated

To

All Pupils with physical challenges in inclusive schools

Who were born weak

And need strength

Who are helpless

And need aid.

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ABSTRACT

There is global and national push for pupils, regardless of their challenges, to be provided with appropriate education within regular schools. The main purpose of the study was to assess the existing adaptations for inclusion of pupils with physical challenges in inclusive public primary schools within Bungoma County. The objectives of this study were to assess classroom physical adaptations, classroom curricular adaptations and outdoor adaptations in public primary inclusive schools for the pupils with physical challenges in Bungoma County. The study was guided by Maslow Hierarchy of Needs theory. The study targeted 354 pupils, 68 teachers and 4 head teachers from 4 inclusive schools. The sample size for pupils was 138 pupils. This study adopted a mix of descriptive survey and phenomenology research designs. It was a mixed method approach research. Questionnaires, an interview guide and observation checklists were used to collect data. Piloting of the questionnaires was done in one of the inclusive public primary school for the pupils with physical challenges in a neighboring County which gave a reliability index of 0.85 for the pupils' questionnaire and 0.87 for the teachers' questionnaire. Data analysis was done using quantitative and qualitative methods. Among the research findings were that there were inadequate classroom physical adaptations. Another finding was that there were adequate classroom curricular adaptations. Among the recommendations that the study made were that: There is need for the school administrations to construct more store boxes for safe keeping of personal items of pupils with physical challenges and the existing ones made accessible. In addition, school administrations and educators should ensure that assistive devices for all pupils with physical challenges in need be provided in all inclusive schools. It is hoped that the results of this study will help the administrators of inclusive schools for the pupils with physical challenges and educators to establish how well the inclusive public primary schools are ready to accommodate pupils with physical challenges and therefore enforce improvement where necessary which will in turn aid in promoting learning among pupils with physical challenges.

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ABBREVIATIONS AND ACRONYMS

APA   American Psychology Association

CRC   Convention on the Rights of the Child

E.U   European Union

EFA   Education for All

IEP   Individualized Education Program

KNCHR   Kenya National Commission of Human Right

MDGs   Millennium Development Goals

MOE   Ministry of Education

MOEST   Ministry of Education, Science and Technology

NCERT   National Council of Education Research and Training (India)

NCWD   National Collaborative on Workforce and Challenges for Youth

NSNEPF   National Special Needs Education Policy Framework

SNE   Special Needs Education

UK   United Kingdom

UN   United Nations

UNCRPWD   United Nations Convention on the Rights of Persons with Challenges

UNESCO   United Nations Education and Scientific Cultural Organization

UNICEF   United Nations International children Education Fund

USA   United States of America

1.0 CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

The idea that there are special schools for the pupils with special needs such as visual impairment, hearing impairment and physical challenges has led to serious repercussions whereby it makes the pupils suffering from the challenges feel unwanted. Since education is an indicator to development, the government is placing more emphasis on inclusive education through regular schools for learners with special needs as opposed to the practice of using special schools and special units attached to regular schools (National Special Needs Education Policy Framework, 2009).

According to (NSNEPF, 2009), as much as there is need for inclusion, modifications both in the physical environment and in curriculum development ought to be implemented to accommodate pupils with special needs. Therefore, in other words the policy advocates that schools should note that all pupils are equal and facilities such as the toilets, desks, games and so on should be modified in order to accommodate pupils with challenges in the school. Therefore, on this basis, the study aimed at describing the various adaptations that exist in various inclusive public primary schools for the pupils with physical challenges in Bungoma County. The study further focused on the classroom physical adaptation, classroom curricular adaptations and the outdoor adaptations in place.

In this introductory chapter are introduction to the problem of study in which the background of the study and the statement of the problem are discussed. This is followed by aims and objectives and research questions. There is also justification for the study and its significance. Assumptions of the study, its scope, limitations and theoretical framework are also discussed. At the end of the chapter, operational definitions of terms used in this study are given.

1.2 Background of the Study

Several major initiatives have been taken internationally to support inclusive education. The UNESCO Salamanca statement (1994) calls on the international community to endorse the approach of inclusive schools by implementing practical and strategic changes. This would ensure persons with disabilities are included in educational systems. According to Peters (2004), a challenge is a measurable impairment or limitation that interferes with a person's ability to see, walk, lift, hear or learn. Other researchers such as Brousse, Murphy, Makarem, and Marji (2000), have defined physical challenge as a condition that substantially limits one from more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying. Physical challenge has been defined differently by different researchers as broad range of challenges which include orthopedic, neuromuscular, cardiovascular and pulmonary disorders (Wehbi, 2006). In this study, the term physical challenge was taken in the context of World Health Organization (2001) as any form of orthopaedic, neuromuscular or cardiovascular

disorder which affects the ability of a student to effectively undertake some activities such as walking, lifting or learning.

Inclusion of pupils with physical challenges has been a major challenge around the globe. In a discussion of global rights legislation, Manderson (2004) highlighted the marginalization experienced by people with disabilities in areas such as work and education. She noted that 80% of people with special needs live in resource-poor societies where they are typically marginalized because they are deemed incapable of contributing to society. Her assertions have further been confirmed by Conway (2005) who emphasized that people with special needs have an on-going fight for the right to be educated and to have the full range of opportunities for employment and daily living that are available to the majority of the population. Looking at a case study in America, Scotch & Schriner (1997) maintained that it is marginalization and exclusion from schooling that has greatly contributed to disadvantages experienced by pupils with special needs. In Lebanon, the situation is more or less similar in that people with disabilities have historically been prevented from participation in mainstream society and notably in the mainstream educational system; this situation has further contributed to their marginalization (Wehbi, 2006).

Pupils with physical challenges often must rely upon assistive devices such as wheelchairs, crutches, canes, and prosthetic limbs to obtain mobility. The school administration therefore needs to come up with friendlier environment for instance in terms of structural adjustments to facilitate inclusion. According to Lakkis and Thomas

(2003), a physical challenge is not a synonym for challenges handicap. Rather handicap is a disadvantage that occurs as a result of impairment. It refers to the external circumstances, which place pupils with physical challenges at a disadvantage in relation to their peers and the norms of society. Handicaps include physical barriers such as inaccessible entrances to buildings, barriers to education such as the kind of desks in use and special needs unfriendly toilets in school and negative public attitudes. The degree of disadvantage or the extent of the handicap is often dependent on the adaptations made by both the individual and society, (UNESCO, 2005).

Therefore, the extent to which a special need handicaps an individual varies greatly based on the nature of the special need. Studies have shown that a handicap is a function of the relationship between the individual and the social and physical environment (Peters, 2004). Commonly used assistive devices include mobility aids such as crutches, wheelchairs, walkers and walking sticks. There are approximately 150 million children all over the world with special needs and a percentage of them remain deprived of learning opportunities (UNESCO, 2005). A greater percentage of these children have physical challenges. Children, no matter their state, need education to be able to fit in this competitive world. Despite advances in education, in developing countries especially in Africa, less than five percent of children with special needs are enrolled in schools and most children with special needs are 'invisible' members of many communities and are thus often at risk of neglect and thus missing out on education (UNESCO, 2010).

More recently, Waldron, Cole & Majd (2001) investigated the effects of inclusive programs for students with high incidence challenges and their typical peers. This two-year study found that 41.7% of students with learning challenges made progress in math in general education classes compared to 34% in traditional special education settings, without the presence of their peers without challenges. Gains in reading were comparable in both settings. When comparing progress with their typical peers, 43.3% of students with disabilities made comparable or greater progress in math in inclusive settings versus 35.9% in traditional settings. Similar academic gains were reported in a study examining the use of class-wide peer tutoring on the achievement of students with high incidence challenges in inclusive classrooms. Significant increases in spelling, social studies and other academic indicators were observed (Pomerantz, Windell & Smith, 1994).

Johnstone (2001) says that all children learn from watching people move, and the child in a wheelchair, like the others, needs some opportunity to observe the movements of other people and also participate in those movements. Therefore, having pupils with physical challenges in one class with the 'normal' pupils and providing them with the necessary classroom physical and classroom curricular helps them a lot in terms of socializing and learning new ideas hence enhancing learning activities.

In Kenya, all children have the right to access education to promote healthy growth and development regardless of where they start in terms of knowledge, skills and abilities and special needs. Most pupils with physical challenges are able to learn in inclusive schools but in order to fully accommodate their educational needs fully, there is obvious need for

various adaptations to be put in place in the inclusive schools. It is for this reason that this study endeavored to assess the various adaptations that have been put in place in the inclusive public primary schools for the pupils with physical challenges in Bungoma County.

1.3 Statement of the Problem

As schools are increasingly challenged to serve a diverse population of pupils, much of the concern now is no longer whether to provide inclusive education, but how to implement inclusive education in ways that are both feasible and effective in ensuring schooling success for all children. The fact that pupils with physical challenges have the right to access education, inclusive schools need to be modified to enable them learn with comfortability. The Persons with Challenges Act (2003) provides that in cases of inclusion, there should be adaptation of infrastructural, socio-economic and environmental facilities to ensure a conducive environment for pupils with special needs and disabilities. According to NSNEPF (2009), the government has committed itself towards inclusive education and has set out to re-examine the provision of education for all through review of the existing physical facilities, curriculum and instruction material.

This concludes that the current trend internationally and nationally is inclusion. Therefore, schools need to embrace inclusion. Several studies have been done on inclusion of pupils with physical challenges. These studies include, among others, Mbura (2007), a study on attitude of preschool teachers towards inclusion and Chomba (2008) on opinions of primary school teachers towards inclusive education in central Kenya.

According to Kochung report of (2003), the environment where learners with special needs operate should be accessible and or be challenges friendly. However, there is seemingly no known study that has been done to examine what effective inclusion requires and effective ways for preparation for inclusion The researcher therefore realized this knowledge gap and sought to contribute towards filling it by seeking to find out how inclusion for the pupils with physical challenges is being implemented in inclusive public primary schools in Bungoma County in Kenya. The study therefore focused on pupils with physical challenges regardless of the cause, because the pupils normally experience interrelated handicaps irrespective of the cause of challenge.

1.4 Purpose of the Study

The main purpose of the study was to assess the existing adaptations for inclusion of pupils with physical challenges in Kenyan public primary schools within Bungoma County. In order to achieve this, the study examined classroom physical, classroom curricular and outdoor adaptations in place.

1.5 Specific Objectives

The study was guided by the following objectives:

a) To assess classroom physical adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County.

b) To establish classroom curricular adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County.

c) To examine outdoor adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County.

1.6 Research Questions

This study sought to answer the following research questions:

a) Are there classroom physical adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County?

b) Have classroom curricular adaptations been put in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County?

c) What outdoor adaptations are in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County?

1.7 Justification of the Study

According to the Gender policy in education of 2007, the enrolment of learners with special needs in educational institutions is still very low. According to this policy, the low enrolment is attributed to few learning institutions where the learners can be placed and

catered for. In relation to this, one of the objectives of the Ministry of Education is to put in place measures to ensure appropriate modification of learning institutions to respond to the needs of learners with special needs (NSNEPF, 2009). Therefore, it is expected that public inclusive primary schools for the pupils with physical challenges in Kenya, being some of the learning institutions for pupils with physical challenges, are able to interpret the necessary adaptations that should be put in place and therefore be on the forefront to implement placement of the required adaptations. In addition, being government institutions, they are expected to spearhead the implementation of education related Acts formulated by the government. It is for these reasons that public inclusive primary schools for the pupils with physical challenges in Bungoma County in Kenya were selected in this study.

As already stated, some of the studies related to inclusion that have been done include among others; Mbura (2007), a study on attitude of preschool teachers towards inclusion and Chomba (2008) on opinions of primary school teachers towards inclusive education in central Kenya. Therefore, there is seemingly no study that has been done on describing the various adaptations that that have been put in place to accommodate pupils with physical challenges in inclusive public primary schools for the pupils with physical challenges. It is against this that this study sought to assess the preparedness of inclusive schools for the pupils with physical challenges in Bungoma County in Kenya towards inclusion.

1.8 Significance of the Study

This study can help the policy makers to establish how well the inclusive public primary schools are ready to accommodate pupils with physical challenges and therefore enforce improvement where necessary. This study can also help architects and designers of facilities such as furniture, infrastructure, playgrounds and toilets to develop facilities suitable for schools offering inclusion to enhance adaptation. In addition, through this study, the school administration can be able to know the various adaptations to put in place in order to accommodate the specific needs of pupils with physical challenges.

1.9 Assumption of the study

The study was based on the following assumption for the sake of generalization: that all pupils with physical challenges in all the inclusive public primary schools selected required almost similar adaptations to be put in place for them to undertake learning activities comfortably in school. Further, it's assumed that all this will go a long way to provide pupils with physical challenges with the opportunity to acquire maximum knowledge and fit fully in this competitive world.

1.10 Scope of the Study

The scope for this study was considered in three areas; that is geographical location of the study, parameters of the study and methodology. In relation to the location of the study, the research was conducted between January and April 2013 in four inclusive public primary schools for the pupils with physical challenges in Bungoma County in Kenya.

The area is relatively flat and has well connected transport system. However, the schools that provide inclusive education are unevenly scattered and the researcher therefore did enlist a reliable means of transport during data collection.

Concerning the parameters, since the research was more inclined to qualitative nature, variables were not used but rather, the study used themes. These themes were: classroom physical adaptations, classroom curricular adaptations and outdoor adaptations. Classroom physical adaptations focused on were: desks, space for mobility, store boxes and nature of chalkboards. Classroom curricular adaptations focused on were: accessibility to academic materials, extra time for teaching, extra time during exams and mode of instruction. Lastly, outdoor adaptations that were focused on were: toilets, assistive devices, ramps, walkways and games. Therefore, these three themes formed the scope of the study.

In addition, the study only dealt with inclusive public primary schools for the pupils with physical challenges. The researcher only concentrated on physical conditions that are very severe and noticeable and affect physical movement and function of one or more limbs or the entire body of the pupil. Concerning methodology, the researcher made use of the following tools: Questionnaires, an interview guide and observation guides. The collection of data for this study was restricted only to what the research tools used could capture.

1.11 Limitation of the Study

The study findings may not be applied to provide a true picture in all inclusive schools in Kenya because the study was only touching on physical challenges and may not be used to draw generalizations on other inclusive public primary schools offering inclusion of pupils with other challenges such as hearing or visual impairments. However, the research findings can be applied to other public primary schools offering inclusion of pupils with physical challenges in other regions in Kenya because these pupils need almost similar adaptations to enhance learning activities.

1.12 Theoretical Framework

Since the study was interested in describing specific adaptations that have been put in place in inclusive schools for the pupils with physical challenges, the study used Abraham Maslow Hierarchy of needs theory. According to Maslow, human behavior is related to his needs. It is adjusted as per the nature of needs to be satisfied (Maslow, 1943). Therefore, in relation to the study, the inclusive schools for the pupils with physical challenges should modify facilities basing on the specific needs of the pupils in order to accommodate them fully and enhance learning activities. Such modifications may include among others, adapting toilets, constructing ramps and walkways and making of special desks. In Hierarchy of Needs theory, Maslow identified five types/sets of human need arranged in a hierarchy of their importance and priority. He concluded that when one set of needs is satisfied, it ceases to be a motivating factor (Kenrick, Griskevicius, Neuberg, and Schaller 2010). Thereafter, the next set of needs in the hierarchy order takes its place.

According to Maslow, these needs in hierarchy can be compared to a pyramid. At the lowest level, there will be first set of needs which can be described as basic needs and are universal in character. This will be followed by other sets of needs. Conversely, if the things that satisfy our lower order needs are swept away, we are no longer concerned about the maintenance of our higher order needs (Maslow, 1943). In relation to the study, if the classroom physical, classroom curricular and outdoor adaptations are not provided accordingly, then it may retard the complete general growth academically of the pupils with physical challenges in an inclusive setting.

The study utilized Maslow's original Hierarchy of Needs model which was developed between 1943-1954 but was first widely published in Motivation and Personality in 1954 (Tay and Diener, 2011). At this time the Hierarchy of Needs model comprised five needs. Maslow used the terms Physiological, Safety, Belongingness and Love, Esteem and Self-Actualization needs to describe the pattern that human motivations generally move through.

Maslow's hierarchy of needs is often portrayed in the shape of a pyramid with the largest, most fundamental levels of needs at the bottom and the need for self-actualization at the top. The most fundamental and basic four layers of the pyramid contain what Maslow called deficiency needs or d-needs: esteem, friendship and love, security, and physical needs (Tay and Diener, 2011). If these deficiency needs are not met – with the exception of the most fundamental (physiological) need – there may not be a physical indication, but the individual will feel anxious and tense.

Maslow's theory suggests that the most basic level of needs must be met before the individual will strongly desire (or focus motivation upon) the secondary or higher level needs. Therefore, the basic facilities such as access to academic materials, adapted desks, construction of ramps and walkways, extra teaching time and giving extra time during exams should be provided to the pupils with physical challenges so that they can desire to learn and feel comfortable while learning in class.

According to Maslow, Physiological needs are the physical requirements for human survival. If these requirements are not met, the human body cannot function properly, and will ultimately fail (Maslow, 1943). Physiological needs are thought to be the most important; they should be met first. Air, water, and food are metabolic requirements for survival in all animals, including humans. Clothing and shelter provide necessary protection from the elements. In regard to this study, the school administration should try to meet the physiological needs by constructing ramps and walkways to ease mobility hence accessibility of pupils with physical disabilities to important facilities like eating areas, water points and toilets.

With their physical needs relatively satisfied, the individual's safety needs take precedence and dominate behavior. In the absence of physical safety – due to war, natural disaster, family violence, childhood abuse, and so on people may (re-)experience post-traumatic stress disorder or trans-generational trauma. This level is more likely to be found in pupils with physical challenges because they generally have a greater need to feel safe. Safety of these pupils can be enhanced through the inclusive schools

maintaining an accident free environment. This can be done through construction of ramps for accident free movement, removal of obstacles in the pathways which the pupils access and creation of space for movement inside the classrooms ensuring that the pupils using equipments like walking sticks, wheelchairs and walkers do not trample and fall. Further, provision of assistive devices helps the pupils with physical challenges to move safely. Inclusive schools should also provide adequate curricular adaptations to accommodate pupils with physical challenges.

After physiological and safety needs are fulfilled, the third level of human needs is interpersonal and involves feelings of belongingness. This need is especially strong in childhood and can override the need for safety as witnessed in children who cling to abusive parents (Maslow, 1943). According to Maslow, humans need to feel a sense of belonging and acceptance among their social groups, regardless if these groups are large or small. For example, some large social groups in an inclusive school situation may include the peers or the entire school population. Some examples of small social connections include friends and confidants. Pupils with physical challenges may become susceptible to loneliness, social anxiety and clinical depression in the absence of the love or belonging element. The fact that they are able to be part and parcel of a school setting interacting with their peers without physical challenges gives pupils with physical challenges a sense of belonging and the feeling that they have also got potential just like their peers and that they are 'wanted'. Also, enhancing adaptations to accommodate them makes them feel loved.

All humans have a need to feel respected; this includes the need to have self-esteem and self-respect. To Maslow, esteem presents the typical human desire to be accepted and valued by others. Activities such as hobbies give a person a sense of contribution or value. Low self-esteem or an inferiority complex may result from imbalances during this level in the hierarchy (Cianci & Gambrel, 2003). Psychological imbalances such as depression can hinder the person from obtaining a higher level of self-esteem or self-respect. Therefore, when pupils with physical challenges are accommodated in regular schools, they should participate in classroom activities like group discussions and outdoor activities like adapted games to give them a sense of contribution or value.

Pupils with physical challenges, just like other 'normal' pupils, have a need for stable self-respect and self-esteem. Maslow, (1943) noted two versions of esteem needs: a lower version and a higher version. The lower version of esteem is the need for respect from others. This may include a need for status, recognition and attention. The fact that the classrooms and the outside environment at large should be adapted to enable the pupils with physical challenges to fit in the schools and be comfortable, it makes them feel recognized and given attention. The higher version manifests itself as the need for self-respect. For example, the person may have a need for strength, competence, mastery, self-confidence, independence, and freedom. Pupils with physical challenges in an inclusive environment can develop mastery, competence and independence because the facilities that they use are adapted like for instance wheelchairs, adjusted or lower level chalkboards because with such facilities they don't need to depend on their peers or teachers in carrying out their day to day activities. Also, adapting the curricular part

greatly enhances the mastery of content. This higher version takes precedence over the lower version because it relies on an inner competence established through experience. Deprivation of these needs may lead to an inferiority complex, weakness, and helplessness (Maslow, 1943). The school administration can also satisfy this need (ego) by giving recognition of any small achievement or progress made by the pupils with physical challenges, for instance in academics, sports or even when they learn to use the assistive devices or learn a new skill offered to them.

According to Maslow, the fifth set is self-actualization. This level of need refers to what a person's full potential is and the realization of that potential. Maslow describes this level as the desire to accomplish everything that one can, to become the most that one can be. Individuals may perceive or focus on this need very specifically. For example, a pupil with a physical challenge may have the strong desire expressed athletically. For others, it may be expressed in paintings, pictures, or inventions. Behavior in this case is not driven or motivated by deficiencies but rather one's desire for personal growth and the need to become all the things that a person is capable of becoming (Maslow, 1970) as cited by McLeod, (2007). The school administration through the teachers should identify the various interests of the pupils with physical challenges and try to develop them in order for the pupils to achieve their dreams. Such interests can be drawing, painting, racing and so on. In addition, complete adaptations in terms of the curriculum can play a big role in enhancing future self actualization.

An interpretation of Maslow's hierarchy of needs, represented as a pyramid is clearly illustrated in figure 1.1.
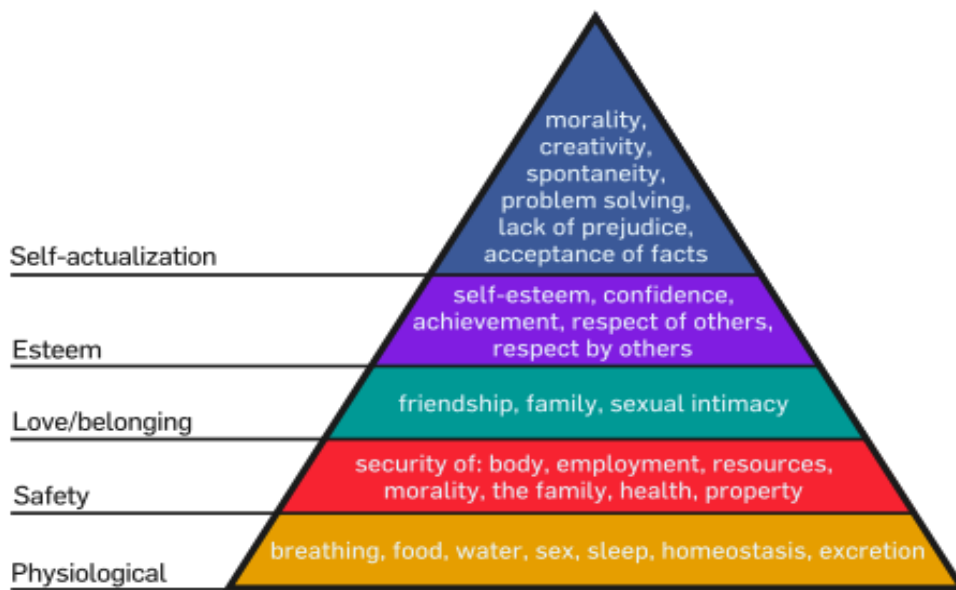
Figure 1.1: Maslow's Hierarchy of Needs pyramid

(Source: Cronburg, 2010)

1.13 Operational Definition of Terms

Adaptation: This is the process of modifying facilities in the regular public primary schools so that the schools can accommodate pupils with physical challenges. The factor of whether the school is well adapted for inclusion or poorly adapted was measured by the pupils with physical disabilities together with the teachers in these schools. The perception of the researcher was also majorly used. In this study, adaptation was looked at only in terms of classroom physical adaptation, classroom curricular adaptations and outdoor adaptations.

Appropriate education for the pupils with challenges: This means that learning institutions should take into account the special needs of the pupils with physical challenges with respect to curriculum, auxiliary services in classrooms and outdoor, use of school facilities, games and other similar considerations.

Assistive Devices: These are equipment aimed at reducing effects of disabilities resulting from impairments. They enhance functional abilities of persons with special needs. Examples are wheelchairs, crutches, walkers and walking sticks.

Classroom physical adaptations: This study used the term classroom physical adaptations as the actual physical supports that are provided in class to provide pupils with physical challenges with equal access to instruction. To this study, classroom adaptations considered included: availability of adapted desks, ample space for mobility in the classrooms, presence of store boxes and chalkboards.

Classroom curricular adaptations: In this study, curricular adaptations were looked at in the context of organized classroom experiences that schools provide to help children learn and develop. They included access to academic materials, extra time for teaching, giving extra time to pupils with physical challenges to finish exams and mode of instruction.

Inclusion: This is a philosophy which focuses on the process of adjusting the school so that all the pupils with physical challenges can have the opportunity to interact, play, learn, work and experience the feeling of belonging and experiment to develop in accordance with their potentials and difficulties. With inclusion, schools ought to put measures in place to adapt to the needs of the pupils.

Inclusive Education: This is an approach in which learners with physical disabilities are provided with appropriate education within regular schools.

Learning activities: In this study, learning activities were taken in the context of activities that pupils engage in school that facilitate learning in class and out of class.

Lower class pupils: According to this study, these are the pupils in inclusive public primary schools from class one to three.

Outdoor adaptations: These are the modifications put in place outside the classroom but in the school compound to help pupils with physical disabilities access all areas and participate fully in the school activities. In relation to this, the study majorly focused on

the following as outdoor adaptations: toilets, assistive devices, ramps and walkways and playing fields.

Pupils with physical challenges: These are pupils with problems performing one or more motor activities such as movement, walking, writing speed among other physical activities and therefore require assistive devices such as among others wheelchairs, adapted desks, walkers, page turners and special chairs with tables. More specific, the study used physical disabilities that are noticeably and affect physical movement and function of one or more limbs or the entire body.

Regular Schools: These are institutions referred to as mainstream schools and are normally designed for pupils without physical challenges.

Special Needs Education: This is education which provides appropriate modification in curriculum delivery methods, educational resources, medium of communication or the learning environment in order to cater for pupils with physical challenges.

Special Units/Special Classes: These are classes set aside either in regular or special schools to cater for needs of learners with physical challenges.

Upper class pupils: According to this study, these are the pupils in public primary schools from class four to eight.

1.14 Chapter Summary

The focus of inclusive education is to remove barriers within the education system that bars pupils with challenges from accessing education in regular schools just like pupils without challenges. However, as much as there is a move toward inclusion of pupils with physical challenges in regular schools, the question is whether inclusive schools' adaptations are theoretical or practicable for a pupil with physical challenges to feel accommodated. The specific needs of pupils with physical challenges bring into focus the need of modifying the school facilities to enhance learning activities and counteract challenges brought about due to the challenges. Since the study focused on the describing the adaptations in place for inclusion (which form the specific needs of the pupils with physical disabilities) in inclusive public primary schools and the effects of the adaptations on learning activities, Abraham Maslow's Theory of Hierarchy of needs was used.

2.0 CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

For pupils with physical challenges to be fully accommodated in inclusive schools, there is obvious need for adaptations to be put in place. The adaptations should ideally help pupils with disabilities to have equitable learning opportunities just as their peers without challenges. This chapter presents review of related literature concerning the concepts of challenges, physical challenges, adaptation and inclusion for Inclusion of pupils with physical challenges. In addition, policy issues on education of persons with physical challenges, classroom physical adaptations, classroom curricular adaptations and outdoor adaptations for inclusion of pupils with physical challenges have also been discussed.

2.2 Concept of Challenges

Challenges is defined as difficulty or dependency in carrying out activities essential to independent living, including essential roles, tasks needed for self-care and living independently in a home, and desired activities important to one's quality of life (Rieser, 2001). While a challenge is, in some contexts, defined as a social phenomenon one's ability to carry out one's roles in life, it is also a medical entity. Physical challenge is mostly diagnosed by self-report of difficulty in specific tasks, but objective, performance-based tests of function also exist. It is recommended by several organizations that clinicians screen for challenges in self-care tasks (Activities of Daily Living, ADL) and

tasks of household management (Instrumental Activities of Daily Living) (Armstrong and Barton, 2007). According to Mullen & Jones (2008), the terminology and criteria of challenges in administrative use reflect the objectives of the defining organizations and their social context. Individuals with the same degree of impairment or limitation of functional capacity are not necessarily comparably classified as disabled under different programs, nor would an individual meeting one set of challenges criteria necessarily qualify under another evaluation procedure. Organizations with rehabilitation objectives tend to focus on vocational potential and the marketability of the client.

Rehabilitation agency definitions also tend to be impairment-oriented but from the viewpoint of adjustment or prevention. The criteria for challenges may be more flexible in order to identify populations with greater potential as, for example, those with chronic diseases or impairments, regardless of the extent of capacity limitation. The origins of challenges may be identified with the onset of physical disease process or trauma, involving anatomical or functional abnormalities in bodily and behavioral processes (Ainscow, 1999).

Therefore, in relation to challenges, pupils with challenges in education are those whose presence of a physical, psychological, cognitive, communication disorders or social factors make it difficult for the realization of their full potential and make it necessary to alter educational program to meet their needs (Albrecht, 2005). They include the visually impaired, the hearing impaired, the speech and language disordered the physically impaired, the mentally retarded, the emotionally disordered, and those with health related

problems although this study only dealt with pupils with physical challenges. These pupils need adapted environments in order for them to realize their full potential. But this study purely focused on the category of those pupils with physical challenges.

It is a fact that even people with physical challenges need support to succeed in life and be independent as this is important in reducing poverty levels and improving economy of every country. This therefore calls for active participation of pupils with physical challenges in academic as well as extracurricular activities in an environment which makes them feel comfortable and at the same time acceptable to both pupils with special needs and those without.

2.3 The Concept of Physical challenges

A physical challenge is any challenges which limits the physical function of one or more limbs (Medical Reference, 2010). According to the Centre for the Disease Control (CDC), more than 50 million Americans have challenges. According to the WHO, more than 600 million people in the world have special needs of which a greater percentage of the people suffering from challenges suffer from physical challenges. Garden (2010) says that physical challenges affect how a person controls movement of the body. Some people have severe physical challenges that do not allow them to move part of their body completely. Others have less severe physical challenges that limit their movement and control of movement. Garden further notes that, sometimes, physical problems are a result of other diseases for example diabetes or epilepsy, because such diseases can limit activities that an individual can take part in.

Funnel, Rita and Gabby & Karen (2008) identify that physical challenges can be majorly put into three categories. One of the types is mobility impairment. This type includes people with varying types of physical challenges. It includes upper limb challenges, manual dexterity and challenges in coordination with different organs of the body. It can be either a congenital or acquired with age problem or consequences of some disease.

According to a medical reference from the University of Maryland (2008), people with physical challenges may experience the following:

1. Coordination problems- This may be caused by weak muscles or nervous system. Problems with coordination may have effect on gross motor and fine motor skills. Lack of gross motor coordination means that they may lose balance and could fall easily, because large body muscles are having problems. Also, they may lack coordination in walking, running, engaging on activities which use eye-hand coordination like playing sports or writing. Fine motor skills are those which we use to write, type or draw, they often involve fingers and hand muscles.

2. Muscle weakness- It happens when a person is not able to use their muscle with strength the same way as his or her peers. It can be due to the nerves in nervous system not sending messages to the muscles as needed. It can also be due to lack of nutrients that supply the body with energy. People with muscle weakness cannot carry weight including their body as their peers can. Muscle weakness can also be caused by atrophy. Atrophy is when a muscle is not used as often as needed hence gets smaller and can do less work.

3. Lack of muscle control- Muscles that help us move are mostly skeletal muscles hence are connected to our skeleton. Problems with muscle control can happen because of muscle problems, skeleton problem or nervous system can't tell the muscles to move.
4. Limited activity- may limit the activities that a person can participate in. Therefore, in such scenarios, people with physical challenges may need to have their medication handy or have assistive devices.
5. Loss of muscle function- this is also called paralysis. It's caused by damage to the brain and nervous system especially the spinal cord. Paralysis can happen in a small part of the body or large parts of the body, for example, waist down. Paralysis cannot be cured and a person has to adapt to life without muscle function. Often this is done with use of adaptive devices like wheelchairs and walkers.

In summary, pupils with physical challenges may have multiple challenges that require a variety of accommodations, or they may need only an accessible classroom location. Many pupils who appear quite disabled may have complete use of arms and hands and be able to take notes and write exams, while others who do not appear disabled may have nerve damage, which prevents them from taking notes or writing exams. If a child has no learning problems, accommodation in regular classes mainly involves adapting the physical environment (Garden, 2010). Wider doorways, ramps, handrails, and nonskid floor surfaces should be provided in appropriate locations throughout the school building. The classroom should have a flexible room arrangement in order that wheelchairs, which take up more space, can be easily accommodated. Therefore, the concern of the study was

to find out if the provision of the requirements for inclusion is just theoretical or there is practicability for pupils with physical challenges to feel accommodated. This study focused on assessing various adaptations put in place for pupils with physical challenges regardless of the cause, because the pupils normally experience interrelated handicaps irrespective of the cause of challenge.

2.4 Policy Issues on Education of Persons with Physical challenges

The drive to achieve Education for All (EFA) by 2015 has led to a focus on the barriers to participation in basic education for marginalized groups (UNESCO, 2010). In particular, there has been significant criticism that challenges were not mentioned in the United Nations Millennium Development Goals (MDGs) (Albert, 2004). To Albert, as the world strives to achieve the MDGs it is important that challenges is not treated as a left over. According to UNICEF (1998), throughout the world, children with disabilities and many others who experience difficulties in learning are often marginalized within or, indeed, even sometimes excluded from school systems. Given this broad range of children, all of whom may be seen as having special needs, it is essential to consider policies and practices in relation to overall educational arrangements within any given context.

The UN (United Nations) Convention on the Rights of Persons with Disabilities came into force in May 2008 and signatories (142 states by September 2009) are charged in article 24 with ensuring an inclusive education system at all levels (UN, 2006). The Convention recognizes that:

> Educational provision varies around the world, and so requires states to
> provide an inclusive, quality and free primary education and secondary

education on an equal basis with others in the communities in which they live. In order to achieve this, states should ensure that reasonable accommodation of the individual's requirements is provided (United Nations, 2006 pg17).

According to Kenya National Commission of Human Right (KNCHR) (2007), there is no policy framework in Kenya to adequately address the unique and diverse needs of children with physical challenges in schools. The commission urges that the current Education Act is outdated and has failed to facilitate education of the persons with physical challenges. The ministry of education acknowledges that provision of education and training for all Kenyans is a fundamental government strategy towards a better workforce (MOEST, 2003). To this, the Sessional Paper of 2005 which is meant to provide guidelines to education for the next twenty years identifies a challenge. It therefore recommends that a special policy consideration should be made to address schooling needs of the children with disabilities since majority of them only go to school at the age of 8 years and therefore end up becoming adults before they complete primary school.

The ministry of Education in 2009 came up with a policy document to address the education plight of people living with disabilities. It recognizes the fact that The Sessional Paper No. 1 of 2005 underscored the importance of Special Needs Education as human capital development that empowers those most likely to be marginalized to participate in mainstream education sector. The United Nations Convention on the rights

of persons with challenges (UNCRPWD, 2006) further affirms the right to education in an inclusive setting for all children. The focus here is to enable children with special needs to enroll in schools of their choice within their localities. Therefore, there is need to remove barriers within the education system that bars them from inclusiveness and equity (MOE, 2009).

In striving to achieve this goal, the Kenyan government has ratified and domesticated various global policy frameworks in education. The government signed Article 26 of the Universal Declaration of Human Rights (1948), consequently recognizing and committing itself to the right of every child to access education. The Article recognizes the intrinsic human value of education, underpinned by strong moral and legal foundations. Other international policy frameworks ratified and signed by the government include, (but are not limited to) the 1989 United Nations Convention on the Rights of the Child (CRC), the 1990 African Charter on the Rights and Welfare of the Child, Salamanca Statement (1994), the Framework for Action on Special Needs Education (1999), the Millennium Development Goals (MDGs) and Education For All (EFA) by 2015.

In addition, the Kenyan government has developed a number of policy guidelines for special needs education dating back to 1964. These include: Committee on Care and Rehabilitation of the Disabled chaired by Ngala Mwendwa (1964), Kenya Education Commission chaired by Ominde (1964), National Education Commission on Education Objectives and Policies (Gachathi Report, 1976). Other commissions that have given

policy guidelines on special needs education include: The Presidential Working Committee on Education and Training for the next Decade and Beyond (Kamunge Report, 1988); Commission of Enquiry into Education Systems (Koech Report, 1999) and the Task Force on Special Needs Education (Kochung Report, 2003).

The work of the Committee on Care and Rehabilitation of the Disabled (Hon. Ngala Mwendwa, 1964) resulted in the formulation of Sessional Paper No. 5 of 1968. The Ominde report (Kenya Education Commission, 1964) recommended that children with mild handicaps be integrated to learn in regular schools. The National Education Commission (The Gachathi Report, 1976) recommended several measures to address SNE. These included coordination of early intervention and assessment of children with special needs, creation of public awareness on causes of disabilities to promote prevention, research to determine the nature and extend of handicaps for provision of SNE, establishment of ECDE programs as part of special schools and development of policy for integrating learners with special needs. The Education Act - Cap 211 (Revised edition – 1980) states in part that No pupil shall be refused admission to, or excluded from the school on any grounds of sex, race or color or on any other than reasonable grounds (admission and removal of pupils). This in essence affirms the principle of inclusive education in Kenyan learning institutions.

The Presidential Working Committee on Education And Training For This Decade And Beyond, (The Kamunge Report, 1988), emphasized deployment of SNE inspectors at district level and The Totally Integrated Quality Education And Training Taskforce (The

Koech report, 1999) recommended the establishment of a national special education advisory board and noted that there was no comprehensive SNE policy or legal framework on SNE despite existence of various policy guidelines. The Persons with Disabilities Act (2003) further provides a comprehensive legal framework which outlaws all forms of discriminative treatment of persons with special needs and disabilities. This includes, among others, access to education and training. It provides for adaptation of infrastructural, socio-economic and environmental facilities to ensure a conducive environment for persons with special needs and disabilities.

The Children's Act (2001) harmonizes all existing laws and policies on children into one document and aims at improving the well-being of all children irrespective of whether they have challenges or not. The Sessional Paper No. 1 of 2005 states in part the overall government policy direction on learners with special needs and disabilities. It sets out clear policy guidelines for all education sub-sectors, including SNE and further underscores the government's commitment to ensuring that learners with special needs and disabilities have equal access to quality and relevant education. It provides the overall policy framework for the education sector and references the necessary legal context within which education and training, including SNE, shall be designed, developed and implemented in Kenya.

Recently, in the year 2010, another constitution was formulated in Kenya which advocated strongly in Chapter Article 54 (1) for a place in the education system for the persons with challenges. According to the constitution, a person with challenges is

entitled to access educational institutions' and facilities and further entitled to access materials and devices to overcome constraints arising from the person's challenges. The Gender Policy in education (2007) singles out education for learners with special needs and disabilities as an area of specific focus. This policy states in part that to increase participation, retention and completion for learners with special needs and disabilities, the government should provide an enabling (legal and policy) environment. This should be done through flexing curriculum, providing trained personnel, equipment and facilities and ensuring accommodative physical infrastructure for learners with special needs and disabilities. There is also need to create public awareness on causes of special needs and disabilities especially in rural areas. Coordination of early intervention and assessment of children with special needs and disabilities should be reinforced.

All these policies formulated internationally and nationally point out to the need for inclusion in schools to do away with discrimination. The fact that there is push for inclusion, then adaptations must be put in place in order to accommodate pupils with challenges. This study therefore identified this quite recent phenomenon of inclusion and aimed at establishing adaptations that are in place in public inclusive primary schools in Bungoma County in order to find out if these schools are ready to foster inclusion of pupils with physical challenges.

2.5 The Concept of Inclusion

A new way of thinking about specialized education has led to the policy of inclusion. The rhetoric of inclusion emerges from the European Union. The first recorded use of the

term was by Rene Lenoir (1974) as cited by Charlesworth (2000) in *Les Exclus: Un Francais Sur Dix* in which the term was used to refer to people dislocated from the mainstream of society in France. Inclusion has been called many things from being called the least restrictive environment to mainstreaming, to integration and now inclusion.

Inclusion is used to refer to the commitment to educate each child, to the maximum extent appropriate, in the school and classroom he or she would otherwise attend (Charlesworth, 2000). According to Atkinson, Tony and Cantillon, Marlier and Nolan (2002), inclusion must consider that all pupils are full members of the school and they are entitled to the opportunities and responsibilities that are available to all the pupils in the school. Learners with disabilities can and should participate along with or side by side with their peers with no challenges in all activities which include extracurricular, academic, and any other school related activity. Will (2001) says inclusion must consider that all learners are full members of the school and they are entitled to the opportunities and responsibilities that are available to all the learners in the school.

Gabel (2002) suggests that challenges might differ from other attributes of marginalized and oppressed groups of individuals, whom critical pedagogy addresses. This is because the notion of challenges necessitates transformative institutional and curriculum arrangements to accommodate needs of learners who are disabled.

Nevertheless, whilst the concern over students' needs should be at the core of inclusive educational debates (Norwich 2009), issues of power, domination and oppression should be prioritized (Johnson 2008; Knoll 2009) and disabled children's needs should be seen

not only against their personal ability attributes and the institutional accommodations these might entail, but also in terms of other sources of disadvantage that might collude towards the emergence and proliferation of these needs. Critical pedagogy's concern with issues of oppression and marginalization on the basis of socioeconomic background for instance, has much to offer in re-conceptualizing challenges as a multifaceted form of social oppression that transcends arbitrations of innate ability. That said, practical interventions for meeting needs for children with challenges should not be constricted to the pedagogical discourse of schools and classrooms, but they should be directed to the wider social and economic context within which schools are embedded (Dyson, 2001; Mittler, 1999).

According to Bailey (1998) inclusion means being in a regular school with other learners, learning the same curriculum at the same time in the same classroom with full acceptance by all and in a way which makes the learners feel no different from other learners. It has been further explained that inclusion is a process of addressing the diversity of learners' legitimate needs within regular education provision using all available resources efficiently to create a diversity of opportunities to learn in preparing children for active economic and social life in a culturally diverse and rapidly changing world (UNESCO, 2005). Thomas, Walker and Webb (1998) assert that inclusion is about a philosophy of acceptance; it is about providing a framework within which all learners – regardless of ability, gender, language, ethnic or cultural origin – can be valued equally, treated with respect and provided with equal opportunities at school.

In conclusion, it's important to indicate that inclusion is in fact not mainstreaming or integration in new attire. Inclusion is aimed at overcoming barriers in the educational institutions that prevent them from meeting the full range of the learner's needs. Inclusion majorly is all about the school putting in place measures in accordance to the needs of the pupil. In this case, there should be provision of; classroom physical adaptations, classroom curricular adaptations and outdoor adaptations. These are issues that this study sought to investigate to find out whether the selected inclusive public primary schools practicing inclusion have put in place the above mentioned adaptations according to the advantage pupils with physical challenges.

2.6 Adaptation and Inclusion of Pupils with Physical challenges

According to Johnson (2008), learners with disabilities demonstrate a broad range of learning, cognitive, communication, physical, sensory, and social/emotional differences that may necessitate adaptations to the general education program. Each pupil manifests his learning abilities, learning style, and learning preferences in a unique way. Consequently, the type of adaptations needed and the program in which the adaptations will be implemented are determined individually within the Individualized Education Program (IEP). According to Mullen and Jones (2008), adapted Physical Education classes are designed for pupils with physical challenges who can benefit from individualized exercise programs. Pupils are encouraged to maximize their physical potential within the limitations of their disabilities.

Educational inclusion currently constitutes an international policy imperative that promotes the rights of children with disabilities to be educated alongside their peers in mainstream classrooms (Armstrong and Barton 2007) and is increasingly becoming a significant policy agenda in developing as well as in developed countries. According to Kenworthy and Whittaker (2000) and Rioux (2002), inclusive education is an agenda that is being advanced in particular by international agencies such as the United Nations and UNESCO, the World Bank and the United Kingdoms' Department for International Development. Even though inclusive education is a relatively recent policy phenomenon, it embodies ideas and arguments that have long been discussed and debated (UNESCO, 2005). Inclusive education reflects values and principles and is concerned with challenging the ways in which educational systems reproduce and perpetuate social inequalities with regard to marginalized and excluded groups of students across a range of abilities, characteristics, developmental trajectories, and socioeconomic circumstances (Armstrong and Barton, 2007). Inclusion therefore is inexorably linked with the principles of equality and social justice in both educational and social domains (Ainscow, 1999).

In Kenya, the government attaches a lot of importance to education and its role both in the present and future development of the country and as a result, the general school enrollment, and particularly the enrollment of children with disabilities and others with special needs, has increased considerably. Forums such as inclusive education and child to child days have brought community and other stake holders together with each group using performing arts to create awareness on challenges issues. The challenges resource

center strategy has been used to enable community members and schools to access reading materials, such as books about dealing with various kinds of disabilities and magazines.

According to KNCHR (2007), Children with disabilities have immense difficulties exercising the right to education. This situation exists despite the fact that Government policy documents have over time emphasized the centrality of education as a mechanism for poverty eradication and development. Education is an important facilitator for development, personal growth and poverty eradication, regardless of barriers of any kind, including challenges. Access to education is the most fundamental aspect of the right to education. It is not enough to say that everyone has the right to education without putting in place mechanisms to ensure and facilitate access (Baker & Donelly, 2001).

It is in line with this that the government of Kenya has made efforts to promote the education of learners with handicapping conditions in Kenya. Educational programs have been implemented to take into account the wide diversity of learners with special needs. The government now wishes to include the learners rather than integrate them within 'normal' classrooms. This policy needs to be supported and encouraged through placement of adaptations so as to achieve the aim of providing universal education for all. Over the years, gradual but profound changes in the way learners with physical challenges are treated have evolved.

Some of the adaptations can be those to do with mobility. Longmore (2009) mentions that for children lacking mobility, understanding spatial relations are a major goal of

movement activities. Small children confined to litters or wheelchairs should be taken out and carried for locomotor activities such as walking or marching, and physically manipulated for activities like swinging and rocking. Even the child whose body must be moved by someone else will learn through experiencing movement. Obviously a heavier child must have some degree of muscle tone to support body weight. The size of the child and the support help available may also determine when it is unwise to remove a non-ambulatory child from a chair (Longmore, 2009).

With all these adaptations in place both in the classroom and outside the classroom, the pupils will be in a position to undertake academic activities with comfortability. There are seemingly no studies done that have focused on assessing adaptations in place and their consequences on learning activities of pupils with physical challenges. The researcher therefore realized there was need to document classroom physical, classroom curricular and outdoor adaptations that are in place in inclusive public primary schools in Bungoma County and how they affect learning activities.

2.7 Classroom Physical Adaptations for Inclusion of Pupils with Physical challenges

Classroom physical adaptations should ensure that pupils with physical challenges are able to comfortably learn within their classrooms. According to Gaber (1996), since 1994, learners with challenges seemingly have more rights. Politically, the constitution of the country protects the rights of all, and provides access to courts if the rights of learners with disabilities are infringed.

Historically, special education within the public school system developed as a specialized program separate from general education and was embodied in the categorical special class (MacMillan & Reschly, 1998; Safford & Safford, 1998). The special class was seen as the best means for avoiding conflicts while providing universal education (Gerber, 1996). The special class was viewed as possessing the following advantages: low teacher-pupil ratios, a specially trained teacher, greater individualization of instruction in a homogeneous classroom, an increased curricular emphasis on social and vocational goals, and greater expenditure per pupil. Although Geber's discussion about alternative placement could be found prior to the 1960s (Shattuck, 1946), it was Dunn's (1968) famous article questioning whether separate special classes were justifiable that brought the legitimacy of special class placement to the forefront (Gerber, 1996).

Facilitating access to education for persons with disabilities entails the putting in place policy, legislative and administrative in line with various international human rights instruments providing for or advising equal access to education for persons with disabilities. This process reinforced the dominance of the medical model in the education system by requiring children and young people to be labeled with one of the recognized categories of challenges before educational provision in the form of resources, additional support and instructional differentiation could become available (Zoniou-Sideri, Deropoulou-Derou, Karagianni and Spandagou, 2006). In practice, inclusive classes have continued in most cases to perform their role as withdrawn rooms where pupils spend significant periods of their school time. This model regulates the management of a part of the school population and avoids contaminating the mainstream educational praxis with

'special education intervention or differentiation (Zoniou-Sideri, Deropoulou-Derou, Karagianni and Spandagou, 2006).

Classroom environment significantly influences learning activities. Therefore, identifying and analyzing classroom requirements allows teachers to anticipate or explain problems a given pupil with physical challenges might experience (Farman & Muthukrishna, 1998). Then, by modifying the classroom physical environment, teachers can solve or reduce the impact of these learning problems. Common classroom physical demands relate to classroom organization like providing ample space for movement, providing adapted desks, wheelchairs and special chairs with writing tables, provision of store boxes and adapting chalkboards. Classroom physical organization therefore includes ways in which a teacher or the administration establishes and maintains order in a classroom in terms of providing the necessary physical requirements.

Paying careful attention to the ways in which classrooms are organized can assist all pupils, including those with physical challenges, to participate in learning activities safely and with less adult direction and supervision (Ogot, 2004). According to Ogot, Simple organizational strategies such as making sure that furniture is stable will prevent falls when a child with a physical challenges is trying to pull up to a standing position. Further, he asserts that adapting the set-up of a room is a first step in accommodating the needs of children with disabilities. The right type of classroom equipment as well as specific equipment for children with physical disabilities can help accommodate a pupil's challenges.

According to Inter-Agency Network for Education in Emergencies (2002), other children may require the use of more than one type of equipment. Pupils with physical disabilities will require well supported seating and positioning in order to obtain optimal functioning and improper seating and positioning may actually cause functional limitations (National Collaborative on Workforce and Challenges for Youth, 2005). The optimal seated posture is one where the trunk is supported in an upright, centered position with head in midline, with as much freedom of movement as possible to encourage interaction with and visual regard for the environment. For example, a child with a severe motor challenges might require a wheelchair and thus, space for movement in class must be provided for easy mobility. Physical adaptation Plans enable teachers and other staff to plan adaptations necessary for specific children or for particular routines and activities (UNESCO, 2004). Many classrooms for young children are organized into both permanent and temporary learning centers. Teachers may have permanent book corners and can as well provide pupils with physical challenges with store boxes for keeping their belongings. Some children can participate in one or more activities they like in class with the use of an aid.

According to Kochung report of (2003), the physical environment where learners with special needs and disabilities operate should be accessible and or be challenges friendly. This in other words means that facilities such as the store boxes should be easily accessible by pupils with physical challenges. According to Gerber (1996), there is apparently a shortage of auxiliary equipment for the inclusion of special-needs children in a large portion of the schools. This means that educational institutions should put certain classroom physical adaptations in place to help pupils with physical disabilities have the

same educational opportunities with pupils without physical disabilities. This study realized this gap and hence the study sought to establish classroom physical adaptations in relation to access to adapted desks, ample space for mobility, adapted chalkboards and provision of store boxes where pupils with physical challenges can keep their personal items. Such advances ensure that learners in the classrooms remain under challenges friendly classroom physical environment hence enhancing learning activities.

2.8 Classroom Curricular Adaptation for Inclusion of Pupils with Physical challenges

According to Farrell & Ainscow (2002), to make inclusive education possible, and to better accommodate students with different learning abilities, the present education system, educational structure, and educational practices need to be made more flexible, more inclusive, and more collaborative. According to study by Iyanar (2001), various curricular issues and concerns emerged within the study as a result of in-depth discussion and analysis of the existing scenario. Some of these concerns included making all options of education, such as, open schools, regular schools, special schools, non-formal and alternative education systems, available to all children including children with physical disabilities. Curricular adaption should further include developing strategies for meeting the educational needs of learners with disabilities in large classrooms, developing national support systems, understanding the significance of early identification and intervention and emphasizing good teaching–learning practices (Jain, 2004).

According to Jayaram (2004), the purpose of inclusive education for pupils with physical challenges is not the same as for a pupil without physical challenges since it is meant to bring pupils with physical challenges up to the level of, or maintain their grades at the same level as pupils without physical challenges. In addition, Applebee (1998) asserts that inclusive education is meant to meet the individualized goals of pupils with physical challenges, within the context of general educational settings and activities. In doing this, the stakeholders need to know whether a pupil with physical challenges can participate in the classroom just like his/her classmates who do not have physical challenges, and whether they can cope with the environmental adaptation and instructional adaptations.

Effective curriculum adaption is more effective when there is an early identification of children with physical challenges at an early age to help them cope with challenges in later life. According to NSSO (2003), in India for example, there is sensitization, orientation, and training of parents, caretakers, and other stakeholders becomes imperative. He adds that provision of resources and the involvement of the community in identification and intervention needs emphasis and focus. The benefits of existing knowledge and skills in conjunction with technology can be made to reach the needy through the involvement of local bodies.

Developing inclusive schools that cater for a wide range of pupils with physical challenges in both urban and rural areas requires: the articulation of a clear and forceful policy on inclusion together with adequate financial provision, an effective public information effort to combat prejudice and create informed and positive attitudes, an

extensive program of orientation and staff training and the provision of necessary support services (Baquer & Sharma, 1997). According to [UNESCO, 1994: (The Salamanca Statement and Framework for Action on Special Needs Education)] all the following aspects of schooling, as well as many others, are necessary to contribute to the success of inclusive schools: curriculum, buildings, school organization, pedagogy, assessment, staffing, school ethos, and extracurricular activities. An inclusive curriculum means one curriculum for all pupils rather than a separate curriculum for pupils without physical challenges and another for students with physical challenges.

According to Quinn & Ryba (2000) an inclusive curriculum is recognition that under the principle of social justice, participation in education should not involve discrimination on the basis of gender, ethnicity, indigenous group, socio-economic status, and ability or challenges. An inclusive curriculum recognizes the need that schools be organized, with the individual differences of pupils in mind and allow for scope and flexibility to enable all students to achieve their goals. Through the National Curriculum Framework for School Education (NCFSE) (2000), (NCERT, 2000) does mention the education of learners with physical challenges under the sections 'Curriculum Concerns' and 'Managing the System', though it does not address the physical challenges of learners under various other sections, such as, "Organization of Curriculum at Elementary and Secondary Stages", "Organization of Curriculum at Higher Secondary Stage", "Evaluation" and so on.

As stated by Loreman and Deppeler (2001), educators are misinformed and confused about inclusion, that inclusion by its very nature cannot exist in environments where some children are educated separately or substantively differently to their peers. Inclusion means full inclusion of children with diverse abilities in all aspects of schooling that other children are able to access and enjoy. It involves regular schools and classrooms genuinely adapting and changing to meet the needs of all children, as well as celebrating and valuing differences. This definition of inclusion does not imply that children with diverse abilities will not receive specialized assistance or teaching outside of the classroom when required, but rather that this is just one of many options that are available to, and in fact required of all children. Booth (2000) has pointed out that access of pupils with physical challenges into a classroom in regular schools is only the first stage in overcoming the exclusion of persons with physical disabilities from the mainstream. To Booth, more challenging is the task of bringing about a shift in public perspective and values, so that diversity is cherished.

According to the NSNEPF (2009), the curriculum and support materials for learners with challenges come later when their counterparts in regular set ups with the curriculum contents and requirements hence delays make learners lag behind in syllabus implementation. Therefore to counter this disadvantage, there is need for adaptations on how the curriculum is implemented. Such adaptations may include: accessibility to academic materials, extra time for teaching, giving extra time during exams and specialized mode of instruction. Therefore, this study aimed to describe how the above

mentioned curricular adaptations have been implemented in inclusive schools for the pupils with physical challenges in Bungoma County in Kenya.

2.9 Outdoor Adaptations for Inclusion of Pupils with Physical challenges

According to Barton (2001), in the past, pupils with physical disabilities had limited opportunities to be with other children in physical activities and sport. However, now many pupils with physical challenges are included with those without disabilities in the same learning environment to enjoy regular physical education classes, as teachers enhance their curriculums with activities that can be enjoyed by all pupils, these activities serve to reinforce learned skills and at the same time add new and exciting challenges. These skills are learned where we have provisions like adapted games in order to accommodate pupils with physical challenges. Activities that foster team spirit help to eliminate feelings of isolation and exclusion and plant the spirit of belongingness. Emphasis is placed upon abilities and similarities as opposed to disabilities and differences (Zoniou-Sideri*et al*, 2006).

Outdoor adaptation is mostly meant to accommodate the learners with physical challenges within the school environment by facilitating their movement to different locations and undertake activities outside the classrooms with ease. These facilitations can be in terms of constructing ramps and walkways and provision of assistive devices for easy and safe movements. In addition, some children with physical disabilities such as Spina Bifida may be able to be fully accommodated in activities and routines with only a walker or some other mobility aid. Pupils with physical disabilities who may access

multi-storied facilities should make use of stair lifts. A stair lift is a type of lifting device used to carry a person up and down a staircase. There are a few different kinds of lifts available, but most require the installation of a track system directly into the staircase. The lift itself is usually in the form of a chair that moves up and down the track (Gerber, 1996).

According to Hayword (2006), toilets and bathrooms are often the first rooms to be adapted for a pupil with physical challenges, with the installation of grab bars around the toilet and bathtub. These grab bars are usually between 1 ¼ and 1 ½ inches in diameter, ½ inch away from the wall and steady enough to withstand 250 pounds of pressure. To add on that, a toilet frame with seat or a raised seat which fits to the toilet pan could be helpful in inclusive schools for the pupils with physical challenges as it will raise the height of the toilet pan. If a raised toilet seat is supplied, then handrails may also be required on the walls of the toilet cubicle, provided that these are well within reach (Hayword, 2006).

According to Deanna, Kozleski and French (2000), learning is constructed through interaction of the individual with the environment, cognitive, affective communication and physical needs interact both within the individual and with the environment to create a unique set of skills and understanding that, in turn, support continued learning. According to KNCHR (2007), evaluation of the needs and abilities of these pupils remains necessary in order to identify the services they should receive and to establish their individualized education plan. It is arguable therefore that if various outdoor

adaptations are put in place, then challenges related to comfortability of pupils with physical challenges can be minimized. It is for this reason that one of the objectives of the study was to describe the outdoor adaptations in place for inclusion of pupils with physical challenges to ascertain how well prepared inclusive schools are to accommodate pupils with physical challenges in relation to modifying outdoor facilities.

2.10 Summary

The practice of special education in Kenya began from an inclusion education premise and the 2009 National Policy on Education makes inclusive education the norm rather than the exemption. Consequently, pupils with physical disabilities in inclusive schools need various adaptations to be put in place in order to minimize the challenges they may go through in their education. Thus, the literature review realized this gap in inclusive public primary schools for the pupils with physical challenges that should filled in order to make inclusion of pupils with physical challenges practical and fully implemented. These gaps could be filled by understanding adaptations that have been put in place in order to determine if they can enhance full inclusion of pupils with physical challenges. The provisions of these adaptations should ideally aid in lessening challenges that pupils with physical challenges may encounter in regular primary schools and impact positively on learning activities.

With this realization, the study sought to focus on only three categories of adaptations: classroom physical adaptations, classroom curricular adaptations and outdoor adaptations and how the various adaptations existing affect learning activities.

3.0 CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

As earlier stated, the specific objectives of this study were: to assess classroom physical adaptations, classroom curricular adaptations and outdoor adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County. In relation to the above objectives, this chapter outlines and describes the methodological procedures that were used in data collection, analysis and reporting. It describes in detail the research design, the research themes, location and population of the study, sample and sampling procedures, data collection procedures, reliability and validity, data analysis procedures and data presentation procedures.

3.2 Location of the Study

The study was carried out in Bungoma County in Western Kenya whose geographical coordinates are 00° 34' 00" North 34° 34' 00" East. The county measures approximately 3000 square kilometers and has a population of 1.375 million people with ratio of men to women standing at 48:52 percent. Bungoma County is predominantly an agricultural area. Bungoma borders Uganda to the West, Busia County to the south, Kakamega to the south East, Uasin Gishu to the East, Trans-Nzoia to the North East and West Pokot to the North. (See appendix G and H). Some of the primary schools in the county have embraced inclusive education where pupils with special needs are taught in the same

classroom with those pupils without special needs and is among the counties with the highest number of inclusive schools after Nairobi.

3.3 Research Design

According to Creswell (2009), research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. According to Oso & Onen (2005), it explains the pattern the research intends to follow when conducting a particular scientific study. It constitutes all the arrangements of conditions for data collection and analysis of data so as to systematically solve the research problem (Kothari, 2004).

In view of the above objectives, this study employed mixed method approach which combines both qualitative and quantitative approaches. According to Kombo and Tromp (2006), qualitative and quantitative approaches to research are complementary and where appropriate, they should be combined to maximize the strengths and minimize the limitations of each. Although this study was a mixed design study, it leaned more on the qualitative design rather than quantitative in the continuum. The research was concerned with assessment of adaptations that are in place to accommodate pupils with physical disabilities in their learning context. Therefore, as a qualitative research, the researcher attempted to give a detailed description as possible in order to bring out the true picture of the adaptations that have been put in place by the selected inclusive primary schools.

This study adopted the descriptive survey research design which provides the opportunity for full, rich and deep descriptions. Descriptive research involves description of data and characteristics about the [population](#) or phenomenon being studied (Shields, Patricia &Hassan, 2006). Therefore, the researcher was able to assess adaptations in place for inclusion in relation to pupils with physical challenges. Inclusion in this study was taken as a phenomenon. This design was also relevant for the study because the researcher observed, described and recorded information that was present in the population, but did not manipulate the variables and its qualitative nature enabled a naturalistic interpretive research approach to be adopted.

The study further utilized the phenomenological design. Phenomenological approaches are particularly concerned with understanding behavior from the participants' own subjective frames of reference (Smith, Flowers & Larkin, 2009). Research methods are chosen therefore, to try and describe, translate and explain and interpret events from the perspectives of the people who are the subject of the research. The researcher adopted this approach because inclusion is a recent phenomenon as in the past integration is what was majorly practiced. Policies such as the Salamanca statement advocated that regular schools with inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system. As the government of Kenya is trying to implement this practice, an inclusive school for the pupils with physical challenges obviously needs

adaptations. Therefore the researcher intended to describe the classroom physical adaptations, classroom curricular adaptations and outdoor adaptations in place for inclusion of pupils with physical challenges with teachers and pupils as the participants who gave some of the information about the adaptations in place from their own perspectives.

3.4 Research Themes

Since the study leaned more on qualitative research design than quantitative in the research design continuum, the study used research themes rather than the use of dependent and independent variables. The themes were selected basing on the objectives of the study hence the themes were: classroom physical adaptations, classroom curricular adaptations and outdoor adaptations. Therefore, in total, the study had three themes which were in line with the research questions stated in chapter one.

3.5 Study Population

According to Cozby (2001), population of the study is the sum total of the group in which the researcher has an interest. It involves persons, objects, or items from which samples are taken for measurement like for example a population of presidents or professors, books or students. According to the county records in Bungoma County, there are only four (4) registered inclusive primary schools offering inclusion for the pupils with physical disabilities. All (354) pupils with physical challenges from class one to eight formed the population of the study. Further, all (68) teachers in the inclusive schools formed the study population. The number of teachers in the inclusive schools selected

was low owing to the low teacher to pupil ratio experienced in public schools. Also, all the four (4) head teachers formed the study population. The researcher only focused the study on pupils with physical challenges. This was because other categories of disabilities like mentally retarded or learning disabilities may need specialized assessment and knowledge to identify them or may have needed identification by special education specialists and/or medical practitioners.

Table 3.1: Study Population

Stratum	Study population
Teachers	68
Head teachers	4
Pupils	**354**
Total	**426**

3.6 Sample Size and Sampling Procedures

According to Best & Kahn (2006), sampling may be defined as the selection of some part of an aggregate or totality on the basis of which a judgment or inference about the aggregate or totality is made. Sampling is important as the researcher can draw precise inferences on all the units based on a relatively small number of units. The researcher purposively selected inclusive schools catering for pupil with physical challenges which

were a total of four (4). Although the schools were the main unit of analysis, the opinions of the pupils and teachers were used by the researcher to build on the data collected through observations made.

In selection of the sample of the pupils with physical challenges, the researcher made use of purposive sampling technique. Here, the researcher selected the upper class pupils, that is, from class four to eight because at least they could be able to comprehend most of the items asked in the questionnaire more than the lower class pupils hence were in a better position of answering the questionnaire items with very minimal assistance and much accuracy. In that regard, 138 pupils were selected for the study. Owing to the low number of teachers, all the 68 teachers were selected using the census method to participate in the study. Also, the 68 teachers were selected because at one point or another they get to interact with all the pupils with physical challenges from class four to eight. Further, the four head teachers in the respective inclusive primary schools were selected using census method for the study because their number is small and manageable and it was meant to also increase the level of accuracy. These samples are illustrated in tables 3.2, 3.3 and table 3.4.

For the instruction part, the researcher used simple random sampling in selecting one class in each of the inclusive schools where learning was taking place. selection of the classes to observe during exams was also done through simple random sampling.

Table 3.2: Totals for the teachers per school

School	Number of teachers
School A	21
School B	17
School C	14
Total	**68**

Table 3.3: Sampling Grid for the Pupils

School	Number of pupils with physical challenges
School A	70
School B	40
School C	18
Total	**138**

Table 3.4: Sample Size

Stratum	Study population	Sample size
Teachers	68	68
Head teachers	4	4
Total	**426**	**210**

3.7 Data Collection Instruments

Data gathering was done using mixed method. In employing mixed methods, the study was skewed towards methods that generated qualitative data as opposed to quantitative data. Quantitative data was gathered using questionnaires while qualitative data was gathered using an interview guide and observation guides. The researcher used the three methods (observations, interview and questionnaires) to facilitate achievement of source of data triangulation to add strength to the study and increase the validity. The researcher took into account the fact that the questionnaire items used in data collection were in simple English which could be understood by pupils from class six to eight. But for classes five and four, the researcher orally administered the questions to the pupils and fill in responses as the majority of them may not have understood the contents asked in the questionnaire. This was done to enhance accuracy.

3.7.1 Questionnaires

This is one of the major instruments of data collection that was put into use. Questionnaires enabled the researcher to collect data within a shorter time since most of the information was easily described in writing. Questionnaire techniques have the ability to source information associated with the intensive inquiry nature of the research (Best & Kahn, 2006). The questionnaires composed of close ended and open ended questions administered. The close ended questions restricted the respondents not to include information that was not relevant for the study and also save time for data collection.

The close ended questionnaires were administered to pupils (See appendix D) and the researcher administered the questionnaires with the help of a research assistant with knowledge in special needs as some of the participants required clarification and simplification of the questions. Open ended questionnaires (see appendix E) were administered to the teachers in order to exhaust information from them because teachers are in a better position to express themselves clearer than the pupils. The questionnaires were composed of three major sections that is: section on classroom physical adaptations, classroom curricular adaptations and a section on outdoor adaptations.

For the questionnaire for the pupils, the section on classroom physical adaptations included two items, the section on classroom curricular adaptations included three items and the section on outdoor adaptations had two items. For the teachers' questionnaire, the section on classroom physical adaptations contained two items, section on classroom curricular adaptations contained two items and the section on outdoor adaptations

contained three items. The respondents were supposed to respond by ticking an already provided option.

3.7.2 Observation Schedules

According to Chava and Nachmias (2006), observation involves sorting information by way of investigators own direct observation without asking from the respondent. This method was relevant because the researcher was able to observe and record aspects such as among others nature of desks, space for mobility, presence and absence of assistive devices, accessibility to major school facilities and buildings and barriers to mobility within classrooms and school compound. Generally the researcher was able to observe outdoor adaptations and the classroom physical adaptations. For the instruction part, the researcher used simple random sampling in selecting one class in each of the inclusive schools where learning was taking place. The researcher then observed two classes in each school during periods when exams were going on. Choosing of the classes to observe during exams was also done through simple random sampling.

Majorly, observation was used to establish the truthfulness of some of the responses given. These observations was recorded on camera and/ or recorded in the researcher's journal and research diary. The researcher made use of three observation checklists basing on; classroom physical adaptations, classroom curricular adaptations and outdoor adaptations. (See appendix A, B and C for the observation guides). To check on the reliability of the observation schedules, the inter-observer reliability was used. The

researcher carried out observation at different times with the research assistant in a pilot study in a neighbouring County and the conclusions were compared.

3.7.3 Interview Guides

This method was used in getting information from the head teachers. This enabled the researcher to obtain in-depth information of which some could not be clearly brought out in the questionnaires. In most cases, the interviews took the form of informal conversations. Interview schedule also enabled the researcher to seek clarification. The interview guide, just like the questionnaires, had three sections basing on the three objectives. (See appendix F).

3.8 Validity of the Instruments

According to Best & Kahn (2006), validity of an instrument is the extent to which an instrument measures what it purports to measure. According to Bishop (1985) as cited by Nasibi (2003), it implies that there should be an agreement between what the test measures and the function it is intended to measure.

Content validity is a subjective measure where we ask whether the content of a measure covers the full domain of the content (Silverman, 2000). This is considered a subjective form of measurement because it still relies on people's perception for measuring constructs that would otherwise be difficult to measure. Content validation of the instrument was determined through expert judgment which involved discussing the items in the instruments with the supervisors and colleagues. The judges scrutinized the

definition, read over the items, and placed a check mark in front of each item that they felt did not measure with the definition and the objectives of the study. They also placed a check mark in front of each aspect (on the objectives of the study sheet) that they felt had not been assessed by any of the items. In addition, the judges evaluated the appropriateness of the instrument format. The researcher then rewrote the instrument incorporating the correction indicated by the judges. This process continued till the judges approved all the items in the instruments.

Criterion-Related or instrumental Validity is demonstrated by comparing a measure with another measure that has been demonstrated to be valid (Cozby, 2009). According to Cozby, it involves the correlation between the test and a criterion variable (or variables) taken as representative of the construct. Therefore, in general, in criterion related validity, there is comparison between test with other measures or outcomes.

To determine criterion-related validity, this study first used questionnaires for pupils with physical challenges together with the teachers involved in teaching them. Then, an interview schedule with each of the head teachers was used. Further, observation schedules were used to confirm some of the information obtained from the pupils and the teachers. Thus triangulation was used to enhance criterion-related validity.

Construct validity is the extent to which measurements justify or support the existence of psychological traits, abilities or attributes or is the degree to which an instrument measures the trait or theoretical construct that it is intended to measure (Nasibi, 2003). In this case, inclusion is a construct that represents a trait which manifests itself in behaviors

such as through modification of the classrooms and the outdoor environment. According to Mugenda & Mugenda (2003), the existence of a construct is manifested by observing the collection of related indicators. Taking inclusion as a construct and meanings of terms as captured in the operational definition of terms and having them in mind, the researcher used them in constructing the tools. Questionnaires were developed by the researcher, however, before administration; the questionnaires were discussed with two lecturers and supervisors of this research project from the department of educational psychology to determine construct validity. Their judgments were used to correct the questionnaires in order to enhance accuracy.

3.9 Reliability of the Questionnaire

An instrument is considered reliable when it is able to elicit the same responses each time it is administered. By definition, reliability describes the extent to which measurements can be depended to provide consistent unambiguous information (Nunnally & Bernstaein, 1994). Any random influence that tends to make the measurement different from occasion to occasion is a source of error unless the differences are such that they maximize systematic variance. Reliability is concerned with precision and accuracy. For research to be reliable it must demonstrate that if it were to be carried out on a similar group of respondents in a similar context (however defined), then similar results would be found (Rukwaru, 2007).

Reliability of the questionnaire was determined by computing the inter rater reliability through scores obtained by the researcher and his assistant. Here, two raters are required

to make judgments about an instrument (Cozby, 2001). To check if the instrument was reliable, their scores were computed using the correlation coefficient. According to Mugenda & Mugenda (2003), a coefficient of 0.80 or more will imply that there is a high degree of reliability of the data. A pilot study was conducted in a section of the respondents from one of the inclusive public primary schools in a neighboring county (Kakamega County) to obtain data for assessing the reliability coefficient of the research instruments. After piloting, the questionnaires for the pupils and teachers used in the study obtained a correlation coefficient value of 0.85 and 0.87 respectively. These reliability indexes were compared against the ideal values recommended by Mugenda & Mugenda (2003) and they were found within the acceptable range and therefore the questionnaires were confirmed to be reliable.

3.10 Coding of the Questionnaire

The questionnaire having been the only quantitative instruments was coded for easy analysis. Each item in the questionnaire for pupils had two choices of which the responded was to choose only one choice. These choices were; Yes and No. 'Yes' was scored as '1' meaning that the respondents perceived that there was adaptation of the mentioned item. 'No' was scored as '2' which indicated that the said item was perceived not to have been adapted in the school. The total score for the items existing adaptations were averaged to get the average score, which was translated to whole numbers. The scores therefore ranged between one and two. This was translated to either '1' (adaptations were in place) and '2' (there were no adaptations in place).

3.11 Administration of the Research Instruments

Before the researcher embarked on the collection of data, permission to carry out the study was sought from the School of education, Department of Educational Psychology of Moi University. After that, a research permit (see appendix J) was obtained from the National Council of Science and Technology and the permit was presented to the county director of education of Bungoma County. Through the County director of Education, the head teachers of the schools in which research was carried out were informed of the presence of the researcher in the county. Dates for the researcher to collect the data were be booked by the researcher. The head teachers introduced the researcher to the teachers and the pupils prior to collection of data. The participants filled the questionnaires at a time that was convenient so as not to disrupt the school routine. During the session of filling the questionnaires, the researcher and the research assistant assisted the participants who had any problems in understanding the statements or filling in the responses.

3.12 Ethical Consideration

Before the onset of data collection in each of the selected inclusive schools, as earlier stated, the researcher got permission to carry out the study from the National Council of Science and technology. During the actual study, the researcher and his assistant explained to the respondents the nature and the objectives of the study and what was expected of the respondents. Thereafter, consent was sought from respondents. The researcher respected the individuals' rights and also safeguarded their personal integrity.

In the course of this study, the respondents were assured of anonymity and confidentiality. They were also assured of the possibility to withdraw from the study at any time if they wished to do so.

There were no school names to be reflected on the questionnaires except the numbering for identification of data during data editing. In addition, as stated by the American Psychologists Association (APA, 2010), it was more correct for the researcher to refer to the respondents as "Pupils with physical challenges" or "Pupils who are differently-able" than to call the respondents "Handicapped", "Crippled" or even "Disabled." This helped in doing away with discrimination. During the study, the researcher used a camera in taking photographs of some of the observations made. Before taking of photographs, the researcher talked to the respondents and informed them that he will consider covering their faces for anonymity. In addition, the four inclusive schools selected were coded A, B, C, D.

3.13 Data Analysis and Presentation

Data was first organized where the questionnaires, observation schedules and the interview schedules were organized according to the schools the data was from. The questionnaires, interview schedules and observation schedules were then coded for easy analysis. Data was analyzed by the use of quantitative methods using descriptive statistics method and qualitative methods such as coding and narrative analysis. The data was presented in narrative form, frequency distribution, percentages, graphs and pie charts. The methods were useful in explaining variable distributions, summarizing and

organizing data to make meaning and observe trends. This presentation is made in Chapter Four of the thesis.

4.0 CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The purpose of this study was to assess the adaptations in place for inclusion of pupils with physical disabilities in inclusive public primary schools. The specific objectives of the study were: To assess classroom physical adaptations in place for inclusion pupils of with physical challenges in inclusive public primary schools in Bungoma County, to establish classroom curricular adaptations in place for inclusion pupils of with physical challenges in inclusive public primary schools in Bungoma County and to examine outdoor adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County.

This chapter presents analysis of the data collected in this study, presentation of the data, and interpretation of findings of the study. The presentation of the results of the study are arranged according the specific themes and research questions that the research set out to find out on adaptations in place for inclusion of pupils with physical challenges in selected inclusive schools. At the end of this chapter, a summary of the findings has been given.

4.2 Demographic Information of Respondents

The study involved four schools in Bungoma County namely A, B, C and D. In the four inclusive public primary schools, 138 pupils, 68 teachers and 4 head teachers participated in the study. Table 4.1 shows demographic information for pupils by school and class attended while table 4.2 shows the demographic information for teachers by school and gender.

Table 4.1: Distribution of pupils with physical challenges by school and class attended

School	Number of pupils with physical challenges by school and class attended					
	Class 4	Class 5	Class 6	Class 7	Class 8	Total
A	15	12	15	22	6	70
B	7	10	8	11	4	40
C	2	6	3	4	3	18
Total	**26**	**29**	**27**	**40**	**16**	**138**

As discussed earlier in Chapter Three, only pupils with physical challenges were selected for the study. The pupils selected were from class four to eight in each of the inclusive schools. As indicated in table 4.1, the total number of the pupils sampled was 138 of which class four pupils totaled to 26, class 5 pupils totaled 29, class 6 pupils totaled 40,

class 7 pupils totaled 16 and class eight pupils totaled 16. In school A, a total of 70 pupils were selected, 40 pupils were selected in school B, 18 pupils were selected in school C and 10 pupils were selected in school D. On the other hand, all teachers in the selected inclusive schools participated in the study as indicated in table 4.2. It was noted that class eight pupils in all the schools had the least of pupils who are physically challenged.

The findings were in line with Jha (2002) who states that there was need for early identification, assessment and placement for learners with special needs to reduce the school dropout rates and repeating of classes. It was important that the learners with physical challenges complete the primary education at the right time with the appropriate age. This was supported by Butod (2009) who observed that for successful inclusion for learners with disabilities, the classroom and the school environment should be age appropriate. Therefore, it is likely that the numbers were low due to dropouts incurred in the schools.

Table 4.2: Distribution of teachers by school and gender

	Gender		
School	**Female frequency**	**Male frequency**	**Total frequency**
A	12	10	22
B	10	8	18
C	9	6	15
Total	**39**	**33**	**72**

As illustrated in table 4.2, a total of 72 teachers were selected for the study of which the number includes four head teachers. In school A, 22 teachers were selected, 18 teachers were selected in school B, 15 teachers were selected in school C and 21 teachers were selected in school D. Out of the 72 teachers, 39 were female while 33 were male. Research conducted by Brodin (1997), Reay and Dennison (1990) have established that schools' preference for female educators may be explained by, inter alia, the following: a) A female educator represents a motherly figure and most insist on being posted to schools where they afford home proximity. b) Female educators have more patience with, and show more empathy for learners with special needs in education.

In addition, statistics show that there are more females than males in the teaching profession (Perumal, 2006). Therefore, in this case females may view teaching as an occupation that affords them time in the afternoons to attend to their household chores and spend time with their children, and assist them with their homework.

4.3 Classroom Physical Adaptations for Inclusion of Pupils with Physical Challenges

The first objective of the study was to assess classroom physical adaptations in place for inclusion of pupils with physical challenges in Bungoma County. To achieve this objective, the following research question was posed; Are there classroom physical adaptations in place for inclusion of pupils with physical challenges in inclusive public primary schools in Bungoma County? To answer this question, an observation guide was utilized to collect information. Also, questionnaires were administered to selected pupils and teachers and head teachers interviewed. Teachers and pupils were required to respond to items under the subtitle 'classroom physical adaptations' in the questionnaire. The responses of the participants were coded and scored.

Under classroom physical adaptations, the following items were investigated: the kind of desks available, ample space for movement within the classroom, availability of store boxes and the nature of chalkboards used.

4.3.1 Adapted Desks

To get more information about the kind of desks available, an interview schedule for the head teachers was conducted and questionnaires for teachers were administered. Further, an observation guide was utilized. When teachers were asked to describe the kind of desks that are used by the pupils with physical challenges, their responses were analyzed as shown in percentages in figure 4.1.
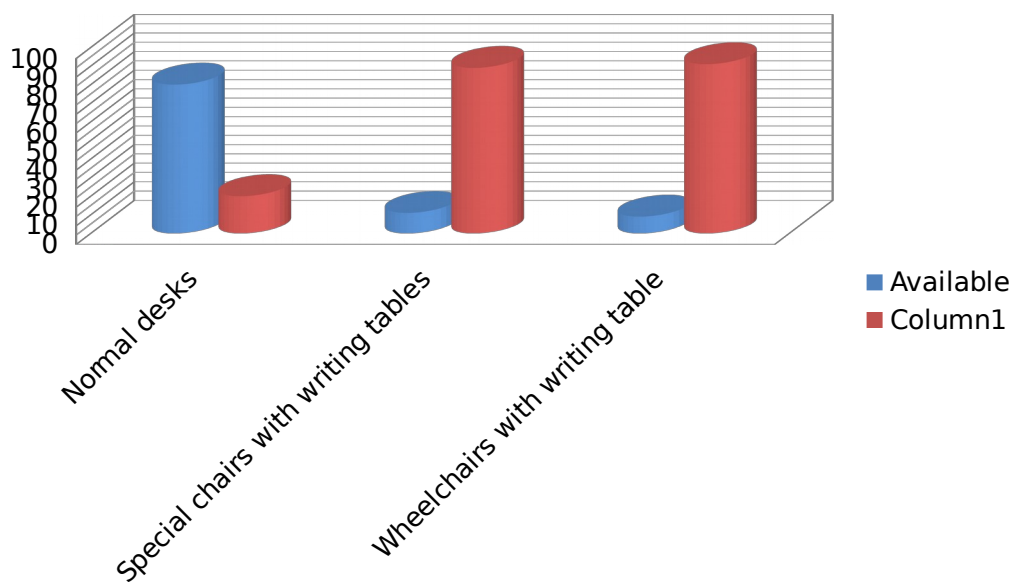
Figure 4.1: Kinds of desks available

On the kind of desks available to allow comfortable use of books, papers and classroom supplies, Figure 4.1 indicates that 80% of the teachers said that pupils with physical challenges are provided with 'normal' desks, 11% of the teachers said that some of the pupils are given special chairs with writing tables while 9% said that some pupils are given wheelchairs with writing table. This means that in the selected schools, teachers admit that pupils with physical challenges are not provided with adapted desks in the

classroom. Such pupils have to make do with desks which are used by their peers without physical challenges. According to these responses, it also means that there are some pupils with severe physical challenges who are provided with either special chairs with writing tables or wheelchairs with writing board fixed on them in order for them to be comfortable.

The findings of this study are in tandem with the study carried out by Ocloo and Subbey (2008). They found that Ghanaian teachers were well aware of the concept of inclusive education, but inadequate adapted infrastructure like furniture used by pupils with physical challenges impeded the implementation of inclusive education. Lacking such facilities can lead to stress on the part of the learner hence hampering the learning activities that they take place in.

The responses of the teachers were at par with some of the observations made by the researcher on desks. In school A, the responses given by the teachers tallied with what was observed by the researcher. Here, desks that were available were not adapted. Such desks do not allow comfortable use of books, papers and classroom supplies. Pupils with physical challenges like the one in the Plate 4.1 are provided with un-adapted desks which do not suit their nature of challenges. However, the researcher observed that although there are no adapted desks for use, some of the pupils with severe physical challenges are given special chairs with writing tables and those on wheelchairs are given wheelchairs with a writing board fitted. This information is illustrated in Plates 4.2.

Plate 4.1: A physically challenged pupil Using unadapted desk

As can be seen in Plate 4.1, school A does not provide adapted desks for the pupils with physical challenges. The pupil sitting at the left foreground in the Plate has physical challenges where the hands are shorter than expected. However, the pupil sitting at the background in the photo has no physical challenges. Such a pupil with physical challenges needs to be given a desk which is raised a little because the limbs are shorter in order to avoid strain. Although this kind of adaptation is required, the pupil is using an un-adapted desk just like her peers. The desks are of the same sizes and heights which cannot accommodate special needs of the pupils. In Plate 4.2, a pupil at the left

foreground is using a wheelchair which has a writing table fitted on it. This greatly eases the learning activities as the child can write with comfort.

Plate 4.2: A pupil with physical challenges using a wheelchair with writing table

Through an interview carried out with the head teacher of school A, it was found out that the school did not have any provision for adapted desks. The head teacher attributed this to the high expenses which would have been incurred in cases where each pupil had to be given a special desk because the pupils experience different kind of physical disabilities which require different types of desks. However, he reported that those pupils with severe

physical challenges are provided with special chairs and wheelchairs which have writing boards fixed.

In school B, it was noted through the head teacher that the school does not provide adapted desks which suit specific pupils with physical challenges. Unlike school A which provides an option of wheelchairs with writing tables fixed or special chairs with writing boards fixed on them, school B provides wheelchairs for the pupils with physical challenges which are also used in classrooms but they have no writing tables on them. This makes it difficult for the pupils to write in books because they have to use their laps. This situation has been exemplified in Plate 4.3.

The information given by the head teacher of school B indicated that funding received cannot cater for provision of special desks for the pupils with physical challenges who need them. This clearly corroborates with the responses given by the teachers that adapted desks are absent. The head teacher reported that;

> *"Mmmh…(poses a bit) what we do is that we provide wider desks or lockers which can be used by all pupils but we do not go into the details of providing the specifics."*

This means that the specific needs of pupils with physical challenges are not put into consideration when it comes to making desks. It also means that desks that are made are wider than normal to cater for the pupils with physical challenges. However, this information disagreed with what was observed. As illustrated in Plate 4.3, the desks on the left foreground have no wider surfaces. Furthermore, in the left background of the

Plate, lockers can be clearly seen in use but are not adapted in any way. He further reported that there are only few wheelchairs which are used for mobility purposes and are not fixed with writing tables.

Plate 4.3: A pupil with physical challenges using a wheelchair with no writing table

In Plate 4.3 above, both the pupil in the middle foreground and the pupil in the right foreground are using wheel chairs without writing tables fixed on them.

In school C, just like in schools A and B, it was observed that there are no adapted desks that are used by the pupils with physical challenges. In addition, there was no evidence of alternative special chairs for use. There was only one pupil who had access to a wheel

chair but it was not fixed with a writing table. When asked about this, the head teacher reported that

> *"..we are still growing, (pauses a bit and then changes the facial expression and then continues) we haven't reached that level of specialized attention."*

This means that provision for the adapted chairs and wheelchairs for the pupils was a major challenge. It also means that the school being an inclusive setting, it has not put in place requirements of adapting the desks nor having special chairs and wheelchairs.

In school D, it was observed that the pupils with physical challenges are not provided with neither special chairs, adapted desks nor adapted wheel chairs. In fact there is only one wheelchair in the school. The wheelchair is not fitted with a writing table and it is normally left at the doorstep by the pupil using it because the doors are unadapted hence the wheelchair cannot pass through. Therefore, the pupil using this wheel chair has to crawl to class and struggle to accommodate him on an un-adapted desk that is used by other pupils. This wheel chair is shown in Plate 4.4.

The head teacher admitted through an interview that there has been little attention on provision of adapted desks and adapted wheel chairs for the pupils who need them because the resources are few. The head teacher reported that;

> *"…it becomes so hard to access equipments such as wheel chairs because they are very expensive unless the ministry comes in fully or we get donors."*

This findings tally with a study done by Ogot (2008) where it came out clearly that the irregularity of the funds disbursements has been reported to be causing anxiety in the inclusive schools. There is lack of research on cost-effectiveness of funds sent to schools to promote inclusion. Policy initiatives such as the aforementioned contradict the efforts towards achieving Education for All.

This evidently means that pupils with physical challenges who need adapted desks and wheel chairs have to make do with the available ones which are not adapted in any way.

Plate 4.4: A wheel chair with no writing table

Generally, it's evident that all of the inclusive schools do not give special attention to pupils with physical challenges when it comes to provision of adapted desks and some pupils with physical challenges still have to make do with the existing conditions thereby limiting their participation in learning activities. This means the psychomotor domain has been ignored in this school.

4.3.2 Provision of ample space ease in use of mobility devices

The study established that some of the selected schools in the study had adequate space provided to facilitate free and safe movement of pupils with physical challenges and therefore users of wheelchairs and other assistive devices like crutches and walkers can easily move into groups during discussions or in and out of the classrooms with ease.

Many (90%) of the pupils selected for the study reported that there is adequate space for their movement within the classroom. However, these findings differed with what the researcher found out through observation whereby some schools showed a different picture from what the pupils reported.

In school A, it was observed that pupils in some classrooms were seated so close together such that those pupils using wheel chairs and other assistive devices like crutches have difficulty in mobility. This was attributed to the large number of pupils accommodated in each of the classrooms. This situation is clearly exemplified in Plate 4.5. In this Plate, the two pupils' seated at the middle background and left background have physical challenges. The pupil in the middle background uses a wheel chair for mobility. However,

in front of him, there are obstacles such as bags and desks. Further, there is a pupil seated on a desk in the right foreground of the photo with one of the legs outside the desk. Such obstacles close by are hindrances to free movement of the pupil like when moving into discussion groups or when the pupil wants to go outside the classroom.

This is in line with findings of a study done by Pivik and McComas (2002) where it was found out that along with the environmental barriers, there are physical barriers in classes, where the vast majority of classes used for learning are physically inaccessible to many learners. In relation to the findings, inaccessibility is largely because buildings are poorly constructed or the population of the pupils in the classes is high. To foster inclusion therefore, there has to be enough space between desks for easy movements of the learners with physical challenges in class.

Plate 4.5: Pupils with physical challenges sitting at the back of the class with no ample space for free movement

In school B, the researcher noted that all the classes had ample space for easy and accident free movement of pupils with physical challenges especially those that are using assistive devices. This is illustrated in Plate 4.6.

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Plate 4.6: Ample space provided within the classroom for easy movement of pupils who

Are Physical challenged

Plate 4.6 illustrates the ample space for movement provided to facilitate mobility of pupils with physical challenges. The pupil in the foreground was coming from outside the classroom and he could easily move with his wheelchair within the classroom up to where he normally seats. Such kind of space is required in class to avoid accidents and enhance general classroom participation of the pupils with physical challenges. This enhances an assertion by Burugu (2005) stating that most schools that take in children

who have special education needs require some modifications to classrooms and the larger environment to make inclusion possible.

Just like in school B, school C had classrooms well arranged with ample space for movement. Pupils with physical challenges that used assistive devices had no problem in moving around the class for instance when moving to groups or when required to write on the chalkboard or even when moving out and in of the classrooms.

However, as much as school B and school C had classrooms with ample space for movement, school D did not have this characteristic. As illustrated in Plate 4.7, pupils are closely set together and the corridor (from the middle foreground to the middle background) between the two rows is not sufficient even for a pupil using a wheel chair to move through. In fact, there is a pupil who has sat within the corridor with both legs outside the desk. Also, there are bags placed on the floor of the corridor. Apart from that, the floor has 'potholes' which can cause accidents of pupils using assistive devices like wheelchairs. These are part of the obstacles that may hinder accident free movement. This shows that the school has not abided by the requirement of provision of ample space in classrooms for safe mobility of pupils with physical challenges.

Plate 4.7: Lack of ample space for free movement of pupils with physical challenges

4.3.3 Availability of Store Boxes

To find out more information on the availability of store boxes, pupils with physical challenges were asked if there are store boxes at arm's length or closer to the floor for storing their personal things. Most of the pupils (85%) responded by stating that there are no store boxes available in their classrooms. Further, this implicates that only 15% of the pupils admit that they have store boxes in their classrooms. These findings are illustrated in figure 4.1.
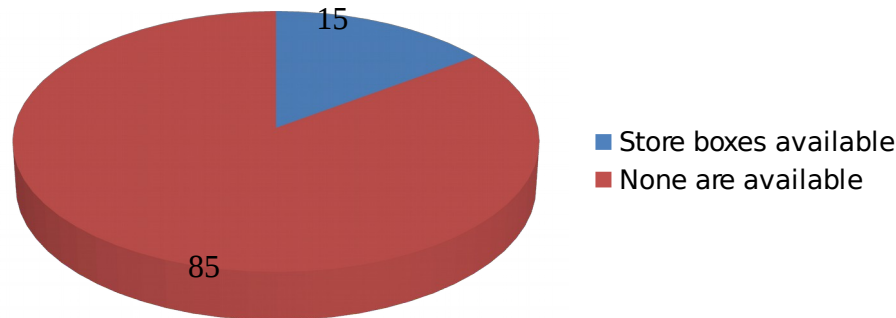
Figure 4.2: Availability of store boxes

The opinions of the pupils tallied with what was observed by the researcher during the study.

It was found out that store boxes were only in school A and D. The store boxes in school A are located at low level which can be easily accessed by the pupils with physical challenges. However, not all the classrooms in school A had store boxes. Only classes four and five have store boxes. As much as they are there, some of the store boxes are not easily accessible as can be seen in the Plate 4.8. Inaccessibility is due to presence of dangerous items such as iron sheets, broken pieces of wood which have been put closer to the store boxes which can end up injuring the pupils. This means that such a school has adhered to the fact that store boxes should be provided but has failed to make the accessibility of the store boxes to be easy and safe.

In a study done by Ngugi (2007), he recommended that classroom design and arrangement should be adequate and spacious for storage facilities for pupils with special needs. This was after the study established that physical barriers hinder inclusive education for learners with physical challenges in the four primary schools studied. These findings tallied with the observations made by the researcher. Although the store boxes were spacious, they were inadequate and not easily accessible

Plate 4.8: Presence of inaccessible Store Boxes within a classroom

In the Plate above, the background clearly shows that store boxes are present. However, on top of the store boxes and in front of them, pieces of wood, wires, old iron sheets and other metals have occupied the spaces. As can be seen, even one of the metal pipes has

extended to below a desk being used by the pupils in the right foreground. A pupil with physical challenges who may want to use these store boxes may get injuries.

In school B and school C, it was observed that there is no store box present in any of the classrooms. In school D, there is only one classroom with a store box. However, the store box is located far in the corner where it is not easily accessible especially to a pupil using a wheelchair to move around. Also, the doors are located at a raised level at which a pupil who may want to open may tend to struggle. This case may be very practical to pupils using wheelchairs. This scenario is clearly elaborated in Plate 4.9.

Plate 4.9: Location of a store box far at the corner with raised doors

Plate 4.9 illustrates a store box in the right background. Pupils have arranged desks so close to the box such that there is no space for even opening the doors without moving the desks. This makes the box inaccessible especially to those pupils using assistive devices.

4.3.4 Nature of Chalkboards

The study found out that all the schools selected have non-adjustable chalkboards. However, it was further established that chalkboards used in the classrooms are relatively low to encourage participation of pupils with physical challenges during class discussions where there is need to write on the board. This implies clearly that all the selected inclusive schools have conformed to the regulation that the chalkboards should be at lower levels or adjustable for easy access by the pupils especially those using wheelchairs to move around to enhance learning activities.

Findings on chalkboards during observations agreed with what the head teachers in the four inclusive schools echoed. All teachers said that there were no adjustable chalkboards but all those that were there were constructed at a comparatively lower level to accommodate pupils with physical challenges. This is exemplified in Plate 4.10. With such a lower level of chalkboards, it raises the esteem of pupils with physical challenges as they feel recognized. Further, their participation in classroom learning activities like writing on the board like in calculations enhances the learning process.

Plate 4.10: Chalkboard at a lower level than normal

Generally, Maslow's Hierarchy of Needs theory mentions security of the body and resources as part of safety needs in the pyramid. However, contrary to what the theory states, one of the schools has the store boxes which are unsafe to access. Desks, ample space for movement and chalkboards also form part of what Maslow calls 'resources' under safety needs. They form part of the basic things that pupils with physical challenges need. The fact that the desks are not adapted and the lack of space in some of the schools selected means that the resources are inadequate hence do not match the specific needs of the pupils making them unsafe. This situation also has a negative impact on the esteem of the pupils with physical challenges. These inadequacies disagree with the provisions of this theory on the grounds of esteem needs, love and belonging and safety needs. However, the provision of chalkboards which can easily be used by pupils with physical challenges gives them a sense of love and belonging and safety as they feel accommodated.

4.4: Classroom curricular adaptations for inclusion of pupils with physical challenges

The second objective of this study was to examine the classroom curricular adaptations in place for inclusion of pupils with physical challenges. To achieve this objective, the following research question was posed; what classroom curriculum adaptations are in place for inclusion of pupils with physical challenges in Bungoma County? Under this objective, the following items were examined: accessibility to academic material, extra time for teaching, extra time during exams and mode of instruction.

4.4.1 Accessibility of academic material

The study established that in all the inclusive schools, pupils with physical challenges are provided with academic materials which include items like pens, pencils, rubber, books and rulers in the classrooms.

In school A, it was revealed through an interview with the head teacher that academic materials are majorly supplied by class teachers in respective classes. During the distribution of these materials, the pupils with physical challenges are given priority. This arrangement is available so that the pupils with physical challenges do not have to strain going into the main offices in order to access the materials. In some classes it was noted that the class teachers are responsible in keeping the materials for the pupils with physical challenges in order to avoid loss. The store boxes located at the back of the classrooms are at times used by the pupils to store the materials to avoid lose in classrooms where they are present.

In school B, it was pointed out that although pupils with physical challenges are supplied with the academic materials, the class teachers are not responsible for keeping the materials after use. The pupils with physical challenges have to keep for themselves or at times their peers keep for them. However, the head teacher echoed that during times when the government delays to supply the materials, the guardians or parents of the pupils with physical challenges are normally involved in buying the materials for their children.

However, through the interviews carried out with the head teachers in school C and school D, it was established that the pupils with physical challenges are not supplied directly with stationery kits through their class teachers. Pupils have to strain going to the main offices to be supplied with the stationery equipment. Also, the pupils have to keep the materials for themselves. This can greatly lead to loses.

According to the questionnaires administered to the pupils with physical challenges, all the pupils (100%) responded that they are normally supplied with academic materials. This agreed with what the respective head teachers had echoed. However, it was noted by the researcher that in school B, C, and D where the keepers of the academic materials were the pupils, most of the pupils had lost some of the materials. As much as the government supplies the materials through the schools, it was noted that once the materials have been issued by the start of the year, they are not replaced until the following year. Therefore, many of the pupils who had lost some of the kits had to make

do with the ones they had or borrow from their peers. This interferes with learning activities as at some point the pupils may lack necessary equipments.

This agrees with a report by The Salamanca statement (UNESCO, 1994) which points out that most schools do not have the basic facilities such as access to academic materials, hence experiencing serious difficulties in the process of teaching and learning in an inclusive setting. According to Pijil and Dyson (1998), the growing feeling that learners with special needs could and should be educated alongside their peers in mainstream schools, raised the question of how to make the necessary additional resources/facilities available in those schools. The authors assert that the major barrier of inclusive education is serious shortage of resources and lack of learning materials.

4.4.2 Extra Time for Teaching

Through observation, the researcher found out that all the inclusive schools selected for the study have their teaching periods extended by five minutes on the timetable. Regular primary schools normally have their teaching periods running for thirty five minutes. However, it was observed that inclusive primary schools selected have their teaching periods running for forty minutes. When such extra time is provided, pupils in inclusive settings can be able to cover the same content that is covered by pupils without physical challenges in regular schools.

Many of the teachers in the four inclusive schools reported that they normally teach during extra hours like mornings before normal class times commence or evenings after normal class times. Most of the teachers also echoed that they utilize the extra time quite well to cover the content they did not finish during the normal lesson times because some of the pupils with physical challenges are slow in writing and general class room participation. Further, it was established that many of the teachers give individual attention to pupils with physical challenges to ensure that they move at the same pace with their peers in classroom activities. The fact that pupils with physical challenges in all the inclusive schools have been provided with boarding facilities is an added advantage. The researcher observed that dormitories were present in each of the schools. This enables the teachers to teach and offer extra tuition to pupils with physical challenges who may be slow in class to bring them at par with their peers.

The responses given by the pupils agreed with what was echoed by the teachers. 80% of the pupils responded that they are normally taught during extra hours while 20% said there is no extra time for teaching. This is illustrated in figure 4.3.
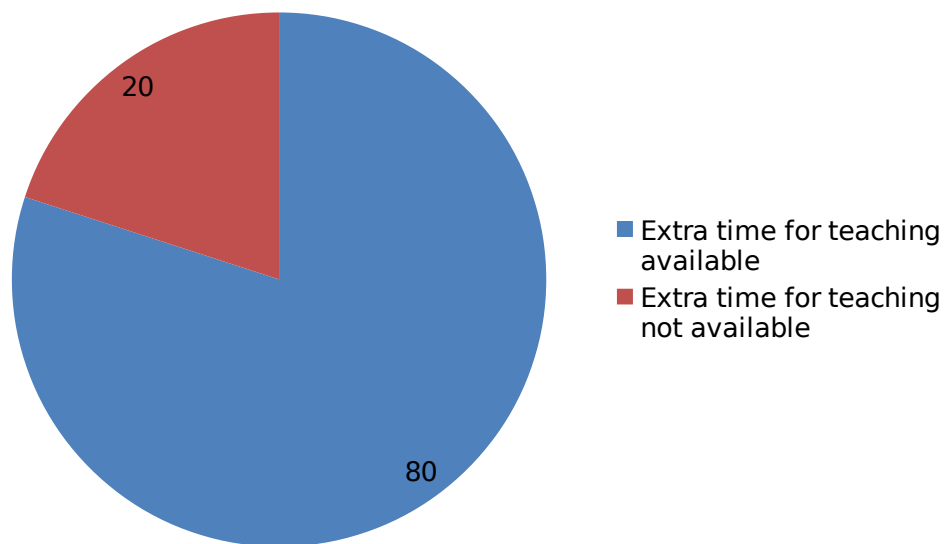
Figure 4.3: Availability of extra time for teaching

This means that as much as teachers feel that they teach during extra hours to bring all pupils to a balance, some of the pupils still feel that the extra time allocated is not enough for them. This means that there is need to increase the time frame for extra teaching in order to ensure pupils with physical challenges understand and cover content just like their peers.

In general, this finding was corroborated by studies carried out by researchers such as deBettencourt (1999), whose findings reflect that major obstacles to inclusive education at the primary school level often result from pragmatic factors such as limited time allocated to learners.

The findings were also constant with WHO (1992) who reported that learners with physical challenges require a specialist curriculum to support the implementation of

the regular curriculum. Jha (2002) observed that the curriculum in any education system is one of the major barriers or tools that facilitate the implementation or development of the inclusive system. Thus, it is important that pupils with physical challenges be allocated more extra time on the school timetable, so that the teachers can get enough time to teach the content.

4.4.3 Extra Time during Examinations

As stated earlier, the researcher observed the process of examination administration in two randomly selected classrooms in each school. It was found out that in all the inclusive primary schools selected, the pupils with physical challenges were given extra time to finish their exams. None of the pupils was observed to be complaining of the exam paper being taken away before she/he finished the exam. Across all the inclusive schools selected, all (100%) the pupils also admitted through the questionnaires administered to them that they are normally given more time when it comes to handing in exams and assignments. It was only in school C in one of the classrooms where the researcher heard pupils complaining at low tones that the papers were being collected when they had not finished the exams. Giving extra time enables the pupils with problems in writing to have enough time to finish their exams just like their peers because they may be slow in activities like writing.

In addition, the responses of the teachers tallied with the responses of the pupils and what was found out during the observations. Many of the teachers sampled for the study said that they normally give pupils with physical challenges priority to enable them to finish

their exams. The fact that pupils with physical challenges are given extra time to finish exams ensures that those for example who have problems with the upper limbs are able to write at their own pace without straining and finish exams just like their peers. This helps to do away with discrimination because they feel part of the 'family' in the respective inclusive schools.

4.4.4 Mode of Instruction

The researcher attended one lesson in one classroom which was randomly selected in each of the inclusive schools selected. In school A, it was revealed that the teachers gave special attention to pupils with physical challenges who had problems when it came to writing and classroom participation. It was observed that the teacher dictated notes slowly to enable the pupils with limb problem to write at their own pace. There was a special case in the class attended where a pupil was using the toes for writing. This case is exemplified in Plate 4.11.

Plate 4.11: A pupil with physical challenges using his toes to write

Such a pupil needs special mode of instruction as he cannot be able to write at the same pace with the peers. Sadly, the school does not have like a device called a page turner to help in turning the pages of the books that such a pupil uses. To counter this challenge, the teacher was observed at some point turning pages of the exercise book to enable the pupil to write on a new page. Further, the teacher did not discriminate when asking questions to the pupils. As much as the pupil cannot be able to write on the board, the pupil was given chances to contribute in some calculations where a colleague was calculating on the board. According to Maslow's theory of Hierarchy of needs, all humans have a need to feel respected which incorporates the need to have self-esteem.

The fact that such a pupil is given a chance to participate in the classroom activities gives him a sense of contribution or value hence raising the self esteem.

The findings of this study concur with what Wang (2009) explains. Wang asserts that certain dilemma and difficulties are encountered in designing common curriculum that will meet all the learners' needs. Wang gives examples that learners with disabilities may require special methods of instructions to compensate for challenges, or they may need special equipment or communication technology to enable them to learn from the unmodified curriculum. This therefore enhances learning activities in class.

In school B and C, it was also observed that all the pupils with physical challenges were given more attention to help them cover the same content as their peers. Also, just like in school A, these pupils were not left out during class discussions and other classroom activities like answering oral questions. In some instances they were involved actively in classroom activities like calculations on the chalkboard especially during mathematics lessons. This involvement in learning activities raises the esteem of the pupils with physical challenges and helps them feel part of their peers.

In school D, the situation was different from school A, B and C. Here, there was no special attention given to the pupils with physical challenges. The researcher was able to attend one of the lessons in class eight and it was found out that there was only one pupil with physical challenges in that class. The pupil could not write at a faster rate because of challenges that affected the right hand thus there was poor coordination of the fingers.

The teacher could be seen dictating very fast not putting into consideration the needs of the pupil. The pupil could be seen complaining at low tones to his friend who was sitting next to him. There was no particular time during the lesson where the teacher asked the pupil a question to know if the pupil was following what was being taught. Such a situation means that there is no special modes of instruction like special attention to the pupil with physical challenges that can enable him follow the class learning activities in a clearer manner.

Maslow's Hierarchy of needs theory asserts that humans need to feel a sense of belonging and acceptance among their social groups, regardless if these groups are large or small. The ability of most the schools selected to provide nearly 100% curricular adaptations make the pupils with physical challenges to feel loved and accepted together with their challenges. This in turn raises their self esteem and enhances the feeling of safety as they feel part of the school community. Because education is one of the building blocks to a person's full potential and realization of that potential, curricular adaptations that were noted can play a big role in promoting the ultimate self actualization of the pupils with physical challenges. Such advances in adaptations agree with the main tenets of this theory in relation to esteem, love and belongingness, safety needs and self actualization.

4.5 Outdoor Adaptations for inclusion of pupils with physical challenges

The third objective was to establish the outdoor adaptations in place for inclusion of pupils with physical challenges in Bungoma County. To achieve this objective, the following research question was posed; what outdoor adaptations are in place for

inclusion of pupils with physical challenges in Bungoma County? To answer this question, questionnaires were administered to selected pupils and teachers while head teachers were interviewed. Additionally, an observation guide was utilized. The responses were coded and analyzed using frequencies and percentages.

4.5.1 Adapted Toilets

To get information about the nature of the toilets in the inclusive schools selected for the study, observation was used. In school A, it was revealed that there are adapted toilets. As much as these toilets have wide doors and raised toilet seats, they do not have holding rails to enable pupils with physical challenges to hold and use them with ease. In addition, some of the toilets are sullied making it so hard for the pupils with physical challenges to use them as some of them need to sit on the raised seats when accessing them. This is a threat to the health of the pupils. This situation is shown in Plate 4.12.

Plate 4.12: A Sullied Adapted Toilet with no Holding Rails

In the Plate above, it can be clearly seen that the toilet has wide doors (as can be seen in the foreground) which can allow the users of assistive devices like wheelchairs to access them. However, at the middle ground where we have the raised toilet seat, the seat is grimy and the area surrounding the seat is also soiled. The toilet lacks holding rails which the pupils with physical challenges can hold onto when accessing the toilets. This means that even though the school has tried to adapt the toilets, it has failed to keep them clean and safe for use.

In addition, it was also noted that the some of the adapted toilets are located far away where pupils with physical challenges have difficulty accessing them. The use of the far

away toilet facilities therefore was a major challenge. As a result, some pupils opt to use the un-adapted toilets which are very hard to access. This is because there are no ramps leading to them nor holding bars and widened doors for easy accessibility by the wheelchairs and those using crutches. For example, the pupil in Plate 4.13 and Plate 4.14 is trying to access an un-adapted toilet thus has to leave the wheelchair outside the toilet and crawl to the toilet. This is a health hazard to the pupil.

Plate 4.13 and Plate 4.14: A Pupil with Physical Challenges trying to access an un-adapted Toilet

In Plate 4.13, the pupil has alighted from the wheelchair and is crawling towards one of the toilets seen in the background. In the subsequent Plate 4.14, the pupil has advanced up to the door of the toilet. The pupil cannot move with the wheelchair inside the toilet because the doors are narrow. It was evident that the school has located the adapted toilets a little far away and the other reason for use of the un-adapted toilets can be that the adapted toilets are dirty.

The finding of this study is consistent with the findings of studies conducted by Mukhopadhyay, Nenty & Okechukwu (2012). These researchers found that the majority of the schools lacked adapted facilities such as toilets which were inaccessible.

In school B, adapted toilets were present. These toilets are clean, raised and with holding bars which ensure easy access by the pupils with physical challenges as exemplified on Plate 4.15.

Plate 4.15: Presence of Adapted toilets with Holding Rails Used by Pupils with Physical Challenges

In the Plate 4.15, the walls of the toilet are fitted with holding rails for support, further, the toilet is well raised. Where the pupils may be young, they may use the green toileting kit at the background of the photograph and hold themselves on the rails. Therefore, this inclusive school has well adapted toilet facilities.

In school C, it was observed that there were no adapted toilets. Therefore, pupils with physical challenges have to make do with those toilets used by their peers which have narrow doors which cannot accommodate wheelchairs. In school D, there was only one adapted toilet. Although the toilet was fixed with holding bars and was raised, it was located far away with no ramps or walkways leading to it. There was no clear entrance to the toilet facility as the one existing has hanging wires which can cause harm to those pupils accessing it. Therefore the toilet looked like it was rarely used and just like the pupils with physical challenges in school C, the pupils had to majorly make do with toilets used by their peers. This is illustrated in Plate 4.16.

4.16: Unclear Entrance to an Adapted Toilet in School D

In Plate 4.16, it can be observed in the left foreground that there are hanging wires which are dangerous as they can cause harm to those passing by. In addition, there are neither walkways nor a ramp to help in easy access of the facility. The path in the middle ground leading to the toilet extends to the background of the Plate. It is evident therefore that the toilet is rarely used.

Issues of accessibility of the physical environment and safety to the pupils with physical challenges are paramount in an inclusive environment. The Salamanca Statement (UNESCO, 1994) expresses that when confronting the challenges of building an inclusive school, current consideration must be taken into account such as toilets.

4.4.2 Assistive Devices

The study established that the schools have assistive devices such as wheelchairs, walking sticks, walkers and crutches to help pupils with physical challenges to move around both in and outside the classroom. Most of the pupils (70%) in the selected inclusive schools responded that they have accesses to assistive devices especially those that have severe physical challenges. However, some of the findings through observation did not agree with the opinions of the pupils.

In school A, it was observed that most of the pupils in need of assistive devices were provided with. The devices are normally kept in the orthopedic dispensary. There were wheelchairs, crutches, walking sticks and walkers as illustrated in Plates 4.17 and 4.18.

Plate 4.17 and Plate 4.18: Examples of Assistive Devices Available in school A

In Plate 4.17 , there is evidence that there is even surplus of the assistive devices are

some remain unused and are therefore kept as reserves and used in replacing devices that

have broken down. In Plate 4.18, a pupil with physical challenges is helped to move by

her colleague who is pushing the wheelchair. This shows clearly that pupils are provided with assistive devices for enhancement of mobility.

However, it was established that even though assistive devices are provided, some of the pupils have outgrown some hence some of the devices require repair or there is need to buy special devices for such pupils. As shown in the Plate 4.19, the pupil with physical challenges is using a wheelchair which a part from being smaller, it is equally faulty as it doesn't have a place to rest the left leg. Such a pupil needs a wheelchair with extended pads for resting the legs. As much as the pupil is being fed, he is experiencing a kind of physical challenges whereby he cannot sit straight on the wheelchair so giving him such a wheelchair makes him very uncomfortable.

Plate 4.19: A Pupil with Physical challenges using a wheelchair which he has outgrown

In school B, as indicated in an earlier discussion in Plate 4.3 and Plate 4.6, pupils have access to assistive devices which help them in mobility. However, it was also observed that not all the pupils in need of these devices have access to them as illustrated in Plate 4.20.

Plate 4.20: A pupil with physical challenges 'propelling' himself to class

In Plate 4.20, the pupil has no wheelchair or any other device for use in mobility. The pupil is therefore 'propelling' himself to class with difficulty as he cannot walk.

In school C, it was observed that the inclusive school has only two devises: a walker and one wheelchair. Therefore it was clear there only two pupils with physical challenges who had access to the assistive devices. The walker which was present is illustrated in Plate 4.21.

Plate 4.21: A pupil with physical challenges using a walker

In school D, there was only one assistive device which was illustrated in an earlier discussion in Plate 4.4. The Plate shows a wheelchair which has been modified and fixed with hand pedals for helping in propelling. The wheelchair is used by only one pupil and from the way it has been modified; it needs a pupil with lots of energy to be able to propel himself or herself. If it's used by younger pupils who do not have such energy, then there must be a helper who should be helping in mobility by pushing from behind.

The task force report (2003 notes that learners with challenges need provision assistive functional devices such as wheelchairs for mobility. This means that if the devices are not provided, then the psychomotor development of the pupils will be interfered with.

Concerning the provision of the assistive devices so as to ensure that pupils with physical challenges access them, it was revealed that 47% of the teachers agreed that they are obtained from the sponsors, 24% responded that the devices are purchased by guardians or parents and 29% responded that assistive devices are provided by the Kenya Government. As illustrated in table 4.3, sponsors play the biggest role in provision of assistive devices such as wheelchairs to the learners with physical challenges.

Table 4.3: Provision of Assistive Devices

Providers of assistive devices	Frequency (out of 68 teachers)	Percentage (%)
Sponsorship	32	47
Parents/guardians	16	24
Government	20	29

From the above table, it is noted that sponsors of the assistive devices takes a greater percentage. This means that most of the inclusive schools depend majorly on sponsors to donate the devices. Further, other providers include the parents and the government. However, the parents and guardians were found out to be the least contributors when it came to provision of the devices.

Republic of Kenya (2009) notes that majority of parents cannot afford assistive and functional devices needed by learners with special needs. They are expensive and out of reach to many of them.

The responses of the head teachers through an interview agreed with what the teachers echoed. In school A, the head teacher echoed that as much as the government allocates funds for the purchase of the assistive devices, majorly the school depends on donors to provide them with the assistive devices. According to him, funds allocated are not enough for purchase of many devices as most of the devices are expensive. The donor in this case is majorly a Christian mission church. Also, parents who are able financially contribute towards the provision.

Just as in school A, in school B, it was pointed out through the head teacher that donors do play a bigger role in provision of the assistive devices. Individual well wishers also help in purchasing the devices. In school C and D, it was found out through the respective head teachers that the pupils with physical challenges wholly depended upon their parents or guardians to provide assistive devices in cases where there was need.

In school D, the head teacher lamented that the prices of some of the assistive devices are so high that the school could not afford such expenses. He reported that;

> *"…parents or guardians should be responsible for purchase of their child's assistive device because the school can't afford and we haven't found a willing donor to supply the same."*

According to this statement, it's clear that the head teacher is not so much concerned with fostering total inclusion of pupils with physical challenges by ensuring there are ways of making sure pupils with physical challenges access

assistive devices. Generally, the school administrations admitted that implementation of inclusive education was being hampered by lack of funds.

4.4.3 Ramps and Walkways

The study found out that some of the inclusive schools selected for the study have constructed ramps and walkways to aide free and safe movement of pupils with physical challenges. Ramps have been constructed for easy access to building facilities like classes, dining halls, dormitories, toilets and main offices. The observations that were made in relation to the ramps and walkways in each of the inclusive schools selected were as follows.

In school A, it was observed that the school has constructed ramps and walkways in the most accessed areas like the parade grounds, entrances to classrooms and main offices. An example of a walkway is illustrated in Plate 4.22. In this Plate, a pupil with physical challenges is able to move from one point to another with ease using a wheelchair to access a water point which is put closer to the classrooms. Therefore, this means that the school has adopted the requirement of provision of safe and accident free movements in the school by use of ramps and walkways.

Plate 4.22: A pupil with physical challenges using a walkway

In school B, the researcher observed that ramps and walkways were present. However, it was found out that some of the walkways present were damaged and thus could not facilitate free movement of pupils with physical challenges using wheel chairs for mobility. It also means that the walkways are neglected and not maintained as it is needed. This situation is shown clearly in Plate 4.23.

Plate 4.23: Presence of a Damaged Walkway

In the above Plate, it can be noticed in the foreground and middle ground that the walkway running from the foreground joining another one in the back ground is damaged. If such a walkway is used, then accidents are prone to happen because of the irregularity of the surface.

In school C, it was observed that there were no walkways present. The school has constructed ramps that lead to only two of the classrooms out of the several classrooms present. Such a situation limits pupils using assistive devices like wheelchairs to move safely and freely to facilities like toilets, classrooms, dormitories and the main offices of the school. Like in school C, there are no walkways in school D. There are only two ramps leading to two of the classrooms as indicated in Plate 4.24.

The finding of this study is consistent with the findings of studies conducted by Mukhopadhyay, Nenty & Okechukwu (2012). These researchers found that in majority of the schools, walkways were absent and ramps that were present were inaccessible to learners with physical challenges; for example, some of the ramps were too steep for students with physical disabilities to move up them independently. Such structural barriers tend to limit independent access to classroom and school activities, and impact negatively on participation and competence in the curricular and co-curricular activities.

The absence of walkways and ramps contradicts one of the items in the Task Force report (2003) which notes that learners with SNE need provision of materials and facilities in the regular schools and that the environmental adaption such as construction of ramps, adapted toilets and pavements are also essential.

Plate 4.24: Availability of ramps in school D

As shown in Plate 4.23, there are two ramps; one is visible in the foreground of the Plate while the second one is visible in the left back ground of the Plate. There are no walkways leading to the ramps. The surface leading to the ramps is quite muddy during the rainy seasons which can hinder free movement of pupils using assistive devices like wheelchairs because of muddy and slippery surface. Further, entrances to the other classes and other building facilities for a pupil using a wheelchair indicated in Plate 4.4 in an earlier discussion remains a big challenge.

In relation to how the schools ensure there is safe and free mobility of pupils with physical challenges, the teachers' responses were analyzed and represented in table 4.4 below.

Table 4.4: Strategies for Safe and Free Mobility

Strategies for easy mobility	Frequency (out of 68 teachers)	Percentage (%)
Making of pavements and leveling	53	78
Repairing of mobility materials	35	52
Removal of obstacles	68	100
Making of ramps/walkways	58	86
Wheeling by others	34	50

Table 4.4 reveals that 100% of the schools are involved in removing obstacles to assist the mobility of pupils with physical challenges, 86% said that there is making of ramps while 78% echoed that the grounds are levelized and pavements constructed for pupils with physical challenges. A further 52 % commented that repairs of the assistive devices used by the pupils with physical challenges are done in the event that they get spoiled while the remaining 50% echoed that other pupils are normally asked to wheel the pupils with physical challenges in the outdoor environment.

All the head teachers agreed that where there were no pavements, the grounds were levelized. However, according to what was observed, schools like C and D have levelized the surfaces but such surfaces are disadvantageous in times of rainy season as they turn out to be muddy. When it comes to repairing of the mobility devices, it was only the head teacher of school A who echoed that it is done on a regular basis. In addition, all the head teachers also agreed that obstacles to mobility are always removed. This is done through the everyday manual work that is carried out by the pupils before settling in classes in the mornings. Where a pupil with physical challenges has difficulty in wheeling himself or herself, all the head teachers said that they always encouraged other pupils to help them to move around. In fact, the head teacher of school A echoed that

> *"…..the administration has assigned guardians to all the pupils using assistive devices like wheelchairs to help them in case they need assistance in mobility."*

This means that pupils with physical disabilities using assistive devices are assigned one of their peers to take care of them. Although schools A and school B have ramps and walkways, the head teacher attributed lack of walkways and ramps to some of the facilities to limited resources available. He elaborated that the government sends very *"little"* amount of money as a provision for construction and maintenance of the ramps and walkways but because the school is still growing, the funds are pumped into other demands. This means that the school has failed to make the mobility of pupils with physical challenges safe and accident free as required at the expense of other demands.

According to the head teacher of school D, the ramps had not been constructed until about two months before the researcher visited the school. Either, as discussed earlier, there are no walkways. The head teacher owed this to the fact that there has been low enrollment of pupils with physical challenges and those enrolled did not have severe physical challenges that necessitated the need for assistive devices like wheelchairs. Therefore, according to him, there has been no need to construct ramps and walkways. This means that even as the government is trying to push for inclusion, the school is not up to the task to modify the school facilities so that they can adapt to the need of the pupils with physical challenges as much as it's what ought to be done.

4.4.4 Adapted Games

Through an observational schedule, it was revealed that one inclusive school (school A) out of the four inclusive schools selected for the study had adapted playing grounds and adapted playing equipments for pupils with physical challenges. The playing grounds in

the school were modified to suit the needs of the pupils with physical challenges. However, it was discovered that in all the schools, there was no evidence of modified rules on activities during games times.

In school A, there is an adapted netball field and an adapted football field. It was observed that the football field had smaller goal posts measuring height of 1.44 meters with a length of 3.66 meters compared to the standard goal posts which measure a height of 2.44 meters and a length of 7.32 meters. This is illustrated in Plate 4.25. However, the height and the length of the goal posts can are always adjusted depending on the severeness of the physical challenges of the pupils playing. It was further established that the adapted netball field was filled with broken bricks which were a hazard to the pupils using the field as illustrated in Plate 4.27. In addition, as much as the school had the adapted playing grounds and adapted playing equipment, there was no evidence of modified rules during games time to accommodate pupils with physical challenges. Also, when it comes to the adapted sports equipment, there was only one adapted wheelchair for racing but the adapted net ball and foot ball were worn out thus unused. In addition, school A had occasional sports program for pupils with physical challenges of which majorly they took place during the interschool competitions. In school B, C and D there were neither adapted fields nor adapted sports equipment like racing wheelchairs or adapted balls.

All the pupils with physical challenges (100%) noted that there were no modified rules or activities during games in order to accommodate them. It was observed that pupils with

physical challenges were left on their own without a teacher present during games times hence ending up being discriminated by their peers by not accommodating them in the games.

Plate 4.25: Facilities for adapted games (adapted football field with smaller goal posts)

The outdoor adaptations in place do not match completely the human needs speculated in Maslow's theory. The conditions of assistive devices, walkways and ramps disagree with what Maslow refers to as safety needs. This is because only two schools have walkways and the available ramps in all the schools are inadequate. Some of the available walkways are worn out which can be a hazard to pupils with physical challenges especially those using assistive devices like crutches. Some pupils missing assistive devices also exposes them to accidents thus remain unsafe. Further, some pupils lack assistive devices. In addition, excretion is one of the needs under physiological needs. Notably, the fact that

some pupils do not access adapted toilets and the fact that some adapted toilets are dirty makes the condition to disagree with Maslow's physiological needs. Lastly, the lack of adapted games in the schools visited denies pupils with physical challenges to become the most that one can be as some of the pupils may be talented in some sports like athletics. This also lowers the esteem of the pupils with physical challenges.

4.5 Summary

The study sought to describe adaptations existing for inclusion of pupils with physical disabilities in inclusive public primary schools in Bungoma County Kenya. Among the issues that were addressed include the classroom physical adaptations, classroom curricular adaptations and outdoor adaptations in place for inclusion in inclusive public primary school pupils with physical challenges. In addition, effects of the various adaptations on the learning activities of pupils with physical challenges in inclusive public primary schools in Bungoma County were discussed.

Whereas some of the schools that participated in the study have adapted classroom environments for inclusion of pupils with physical challenges in relation to curriculum, desks, space for movement and chalkboards, it was noted that some schools still lack such basic facilities thereby forcing such pupils with physical challenges to share the available facilities used by their peers. It was further noted that some adapted facilities such store boxes are available but some are not safely and easily accessible to the pupils with physical disabilities.

In inclusive schools where there were classroom physical adaptations, classroom curricular adaptations and outdoor adaptations, the pupils with physical challenges felt comfortable as they are able to participate in both instruction processes and games with their peers thereby raising their self esteem. Interaction with their peers gives them a sense of belonging and an environment free from discrimination based on their physical challenges. However, the absence of modified rules or adapted playing facilities lower their participation in and learning of games since they are unable to participate in playing with their peers.

In relation to outdoor adaptations, the study established that pupils with physical challenges in all the inclusive schools have access to ramps but only two inclusive schools have walkways which facilitates easy movement outside the classrooms. However, some of the schools had worn out walkways and assistive devices posing a serious challenge to mobility among pupils using wheelchairs. Few of the pupils with physical challenges have access to adapted toilets with raised seats, holding rails and wide doors which easily accommodate entrance of wheelchairs and crutches. Availability of assistive devices among at least part of the pupils with physical challenges in each inclusive school was also noted in targeted inclusive schools. The study further established that in schools where such toilets are absent, the pupils have difficulties in accessing the un-adapted toilets used by their peers which have narrow doors and some located far away.

5.0 CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter endears to discuss the findings of the study with an aim of giving recommendations of the study. The discussions in this section are conducted following the findings of the study presented in chapter four. This is done in relation to the four objectives of the study which were to; To describe classroom physical adaptations in place for inclusion of pupils with physical challenges in Bungoma County, to describe classroom curricular adaptations in place for inclusion of pupils with physical challenges in Bungoma County, to describe outdoor adaptations in place for inclusion of pupils with physical challenges in Bungoma County and to describe the effects of various adaptations for inclusion on the learning activities of pupils with physical challenges in Bungoma County.

5.2 Classroom Physical Adaptations for Inclusion of Pupils with Physical Challenges

The study looked at four areas under the category of classroom physical adaptations. The first area that the study endeared to look at was on the availability of adapted desks for the pupils with physical challenges. As discussed earlier in chapter four, generally, the study noted that there was no inclusive school which had adapted desks to accommodate pupils with physical challenges. In addition, there was only one school with adapted wheel

chairs with writing tables fixed on them. Furthermore, store boxes were found in only two of the schools of which pupils with physical challenges were denied to access some of the store boxes available due to keeping dangerous items close to the boxes that could harm pupils accessing them.

The third area under this category that this research endeared to find out was availability of ample space for mobility in class. Generally, it was noted that only two inclusive schools had adhered to the fact that ample space should be provided for easy movement especially for pupils using assistive devices. This was attributed to the high enrolment in the classrooms. Lastly in this category, the nature of blackboards was examined where it was noted that as much as all the schools do not have adjustable chalkboards, the chalkboards present have been constructed at lower levels at which pupils with physical challenges using assistive devices like wheelchairs can easily use them. Such chalkboards encourage participation of pupils with physical challenges in learning activities like writing on the chalkboard when there is need.

Studies conducted by NCWD (2005) indicated that most parents choose schools for the children with physical challenges based on proximity to home and not necessarily on availability of necessary classroom adaptations which facilitates easy learning for them. According to Gerber (1996), there is apparently a shortage of auxiliary equipment for the inclusion of special-needs children in a large portion of the schools. A high percentage (45%) of RSC directors reported that only a small portion of the schools had auxiliary equipment in classrooms. Without suitable equipment, the inclusion of special needs children cannot be

successful. These findings tallied with what was found out whereby the researcher concluded that the classroom physical adaptations were inadequate. Their inadequacy could be attributed to the fact that most parents and the school administration lack awareness of the specific classroom physical needs of pupils with physical challenges.

5.3 Classroom Curricular Adaptations for Inclusion of Pupils with Physical Challenges

The study established that the schools had adapted classroom curriculum adaptations which ensure that pupils with physical challenges get equal opportunity to learn just like pupils without physical challenges. One of the areas in classroom curricular adaptation which was available was the fact that teachers ensure allocation of extra time for academic work. The study established that pupils with challenges are given extra time for academic work in relation to extra time for teaching and extra time during exams in addition to accessibility to academic materials. However, as noted earlier, one of the pupils complained that exam time was inadequate. According to a study by Muyskens and Ysseldyke (1998), they found that active tasks increased the engaged behavior in terms of learning of students with disabilities. These findings were similar to what was noted because giving extra time during exams and the fact that the pupils with physical challenges are taught during extra times together with being provided with academic materials made them to participate actively in exam tasks and general instruction process in the classrooms.

In addition, teachers have also ensured a favorable learning environment through non-discrimination of pupils with disabilities against those without during the instruction process. Although all the pupils in the classes are taught the same way, pupils with physical challenges are given special attention to ensure that they are not left behind.

These adaptations are in line with the Persons With Disabilities Act (2003) which states that:

> Learning institutions shall take into account the special needs of persons with disabilities with respect to the entry requirements, pass marks, curriculum, examinations, auxiliary services, use of school facilities, class schedules, physical education requirements and other similar considerations (Part 3, 18 (2)).

5.4 Outdoor Adaptations for Inclusion of Pupils with Physical Challenges

The first item that was studied under outdoor adaptations was the availability of adapted toilets. Notably, three out of the four schools selected have adapted toilets. However, it was established that some of the adapted toilets are located at a far distance where they cannot be easily accessed by pupils with physical challenges. Some also had no holding rails even if they had raised seats. Also, it was noted that in one of the schools, they were dirty which makes them a health hazard. In a study by Woolley, Armitage, Bishop and Curtis (2003) in six inclusive primary schools in Yorkshire, they noted that physical barriers, such as provision of adapted toilets, had been addressed in most schools. The findings of the study by Woolley, Armitage, Bishop and Curtis (2003) seem to be somewhat dissimilar to the findings of this study since only one school had well maintained and accessible adapted toilets. This dissimilarity can be attributed to

inadequacy in allocation of funds and the lack of awareness on the importance of adapted toilets in enhancing learning activities in the school.

The second area in this category that the study sought to investigate was on the availability of assistive devices for pupils with physical challenges. As noted earlier in chapter four, generally, there was inadequate provision of these devices to pupils with physical challenges. The study found out that some schools had assistive devices like wheelchairs, walkers and walking sticks. However, it was only in one school where the devices were adequate and had even a surplus. Therefore, some of the pupils with physical challenges have difficulty getting from place to place quickly and with ease. This is contrary with the constitution of Kenya (Government of Kenya, 2010) that states that;

> A person with any challenges is entitled to access materials and devices to overcome constraints arising from the person's challenges (Chapter 4, 54 (1e)).

The third area under this category that the study endeavored was to examine the adaptations in place to ensure there is accessibility and safe mobility of pupils with physical challenges to school facilities like toilets and buildings. According to Gerber (1996), outdoor adaptation is mostly meant to accommodate the learners with physical challenges within the school environment by facilitating their movement to different locations and undertake activities outside the classrooms with ease. Some of the schools selected in the study had various adapted outdoor facilities including ramps, walkways and assistive devices enabling learning environment for pupils with physical challenges.

From the results of the study, accessibility and mobility was average as at least all the schools selected had ramps to promote easy accessibility. However, the provision of walkways was inadequate as only two of the schools had them. As much as some schools had the walkways, they were not constructed to lead to all important areas like toilet facilities. Also, the existing walkways in one of the schools were poorly maintained. In addition, the study found out that most classrooms and other areas in two of the schools were not easily accessible to pupils with physical challenges due to inadequate ramps and lack of walkways. Additionally, it was noted that at least all the schools are involved in promoting safe mobility through activities like among others leveling the surfaces, regular removal of obstacles and repairing of mobility devices.

The last area that this study looked at in regard to outdoor adaptations was the availability of adapted games. It was noted that the adapted games were inadequate for pupils with physical challenges. The study found out that only one of the inclusive schools had adapted playgrounds of which some are inaccessible and one adapted racing wheelchair. The study therefore concluded that there was inadequate provision of adapted games. Nevertheless, there was only one inclusive school which had occasional sports program for pupils with physical disabilities. There were no modified rules during games time in all the inclusive schools to accommodate pupils with physical challenges.

According to a research carried out by Woolley, Armitage, Bishop and Curtis (2003), some physical barriers existed to the inclusion of pupils with physical challenges in all six primary schools in Yorkshire where playgrounds were investigated. These related to

access to playgrounds and the fixed equipment within them, the design of the playground and the fixed equipment and details in the playing surfaces and access between them. This research tallied with what was found out in this study in relation to lack of and inaccessibility of adapted playing grounds. Therefore, there is need for more attention towards sports for students with disabilities to attract more of pupils with physical challenges into sports.

5.5 Conclusion

In regard to the objectives, the study therefore concluded that:

1. Classroom physical adaptations were inadequate. This is attributed to the fact that there were no adapted desks in all the inclusive schools selected and only one of the schools had wheelchairs with writing tables fixed. In addition, it was noted that as much as some inclusive schools facilitate classroom space for free movement and participation of pupils with physical challenges in classroom learning activities, some schools still have not adhered to this. This is because the pupils in the classrooms are squeezed together hence lack of ample space for movement. Also, only two schools had store boxes in the classrooms of which some of the available store boxes are inaccessible.

2. There were adequate classroom curricular adaptations. This is because all the pupils had access to academic materials. Also, there was creation of extra time for teaching pupils with physical challenges to bring them at par in terms of content coverage with pupils without challenges. Further, pupils with physical challenges

were given extra time to finish their exams and in most of the inclusive schools there was special mode of instruction in order to cater for the needs of the pupils with challenges.

3. Outdoor adaptations were inadequate. A number of schools sampled in the study have adapted outdoor facilities such as adapted toilets. However, most of those toilets lack holding rails and at the same time the schools don't observe the required standard of hygiene making them more of a health hazard to the pupils with physical challenges who access them. Some toilets are also located far away from the classroom and are not easily accessed by the pupils due to absence of walkways and ramps.

    Assistive devices such as wheelchairs and crutches have been provided to the pupils with physical disabilities in some schools although the number of such devices are few and cannot adequately serve the entire population of pupils with physical challenges who need them. Sponsors were noted to be the major providers of assistive devices available while the government participation was noted to be very minimal.

    Although some of the selected inclusive schools have undertaken outdoor adaptations to ensure free and accident free movement among pupils with physical challenges classroom removal of obstacles, repairs of mobility materials and making of ramps, walkways are only in only in two schools and some of the walkways are worn out.

In addition, there was only one school with adapted playgrounds. However, the play grounds are rarely used by pupils with physical challenges as a result of lack of modified rules or activities during games time and the fact that there is lack of adequate adapted sporting equipments like balls and adapted racing wheelchairs. Furthermore, it is because some of the playgrounds have barriers like pieces of bricks which can cause harm.

5.6 Recommendations

Based on the findings, the study recommends that;

1. The school administration and educators should ensure that learning activities are undertaken with ease by taking into account the special needs of each pupil with physical challenges disabilities with respect to providing adapted desks, special chairs with writing tables or wheelchairs with writing boards fixed on them to be used both for mobility within the school and also in class. Further, pupils with physical challenges should be accommodated in various adapted games in order to enhance their talents.

2. There is need for the school administration to construct more store boxes which are accessible for safe keeping of personal items of pupils with physical challenges. Also, the existing store boxes should also be made accessible by the pupils by removing obstacles such as broken chairs, pieces of wood and damaged wheelchairs.

3. The government, school administration and educators should ensure that assistive devices for all pupils with physical challenges in need be provided in all inclusive schools where they are accommodated. This would include adapted wheelchairs, crutches and walkers in order assist them in their mobility.

4. The school administration should ensure facilities like toilets and buildings like classrooms and offices are made accessible for pupils with physical challenges. This means barrier-free and challenges friendly environment for instance through making of adequate walkways and ramps together with regular repairing of the existing ones. This will promote their mobility such as of a pupil in wheel chairs and crutches.

5. The school administration should ensure that adapted playgrounds and games are made available for pupils with physical challenges. This means that inclusive schools should have equipment for playing such as adapted balls should be provided. Further, the existing adapted playgrounds should be cleared and made safe for use. Further, the school administration through the teachers should ensure there are modified adapted rules in order to ensure free participation of pupils with physical challenges in games with others without physical challenges. Not only will it we retain and develop talents, this can also complement the strategy of inclusion.

6. More adapted toilets should be constructed with raised toilet seats and widened doors to enable pupils with physical challenges especially those using wheelchairs

to accesses them with ease. Such facilities should also be cleaned regularly, constructed near classroom and walkways and ramps leading to the toilets be constructed to save the pupils from having to move long distance to relieve themselves.

7. Awareness of the various adaptations required in relation to inclusion as stipulated in various policies among others the National Special Needs Education Policy Framework (2009) be made to administrations of inclusive public primary schools for the pupils with physical challenges. This will help administrators to know how to make provisions for pupils with physical challenges to enhance their education. This could include having awareness seminars and workshops.

5.7 Suggestions for Further Research

The study has raised several possible avenues for future research both in terms of their limitations and their findings. Future studies on inclusion should examine a broader set of national contexts in different institutions, which are likely to enrich the understanding of the complexity of inclusion and learning. The study recommended that further research should be undertaken focusing on the following areas:

1. The motivational factors behind inclusion and how they affect relative performance of pupils with challenges both in private and public schools.

2. Adaptations in place for other challenges like among others hearing impaired and learning impairment.

3. The differences between adaptations in place for the pupils with physical challenges in public primary and private primary inclusive schools.

4. Adaptations existing for students with physical challenges in public secondary inclusive schools.

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APPENDICES

APPENDIX A: OBSERVATION CHECKLIST FOR CLASSROOM PHYSICAL

ADAPTATIONS

ITEM	PRESENT/ABSENT	DESCRIPTION
Desks		
Space for mobility		
Store boxes		
Chalkboards		

APPENDIX B: OBSERVATION CHECKLIST FOR CLASSROOM CURRICULAR   ADAPTATIONS

ITEM	PRESENT/ABSENT	DESCRIPTION
Access to academic materials		
Extra time for teaching		
Extra time during exams		
Mode of instruction		

APPENDIX C: OBSERVATION CHECKLIST FOR OUTDOOR ADAPTATION

ITEM	PRESENT/ABSENT	DESCRIPTION
Adapted toilets		
Assistive devices		
Ramps and walkways		
Adapted games/playground modifications		
Adapted rules during games		

APPENDIX D: QUESTIONNAIRE FOR THE PUPILS

Class   (   )

Instructions: Tick Yes or No in the boxes provided after the questions asked.

1. Classroom physical adaptations

    a) Are you normally given sufficient space for free and safe movement in class?

      YES [ ] NO [   ]

    b) Are there boxes built in classes for storing your personal things? YES [ ] NO [   ]

2. Classroom curricular adaptations

    a) Do you normally easily access academic materials by being supplied to you

      directly by the teachers or class teachers? YES [ ] NO [   ]

    b) Are you normally taught during extra hours apart from the normal class times?
      YES [ ] NO [   ]

    c) Are you normally given extra time in class to finish exams and assignments?

      YES [ ] NO [   ]

3. Outdoor adaptations

a) Are there assistive devices like crutches or wheelchairs to help pupils with physical challenges to move easily? YES [ ] NO [   ]

b) Are there modified rules or activities during physical games in order to accommodate pupils with physical challenges? YES [ ] NO [   ]

APPENDIX E: QUESTIONNAIRE FOR THE TEACHERS

Introduction

This questionnaire contains three sections. Please give responses to all the items in the sections. Note that all responses given are correct and there are no grades given.

Gender: Male (   )   Female (   )

1. Classroom physical adaptations

a) Describe the kind of desks given to pupils with physical challenges.
b) Describe the nature of chalkboards used in the classrooms in which pupils with physical challenges attend

2. Class curricular adaptations

What measures are in place to ensure pupils with physical challenges?

a) Learn and cover required content just like pupils without physical challenges?

b) Complete exam tasks?

3. Outdoor adaptations

a) Is there provision of assistive devices to pupils with physical disabilities in need of them?

YES [ ] NO [   ]

If yes in 3 (a) above, who supplies the assistive devices?

b) How do you facilitate easy and accident free movement of pupils with physical

challenges within the school compound?

- Making of pavements and leveling? YES [ ] NO [   ]

- Repairing of mobility materials?   YES [ ] NO [   ]

- Removal of obstacles?   YES [ ] NO [   ]

- Making of ramps?   YES [ ] NO [   ]

- Wheeling by others?   YES [ ] NO [ ]

APPENDIX F: INTERVIEW GUIDE FOR THE HEAD TEACHERS

Gender: Male ( )   Female ( )

1. **Classroom physical adaptations**

   a) Describe the kind of desks given to pupils with physical challenges.
   b) Describe the nature of chalkboards used in classes in which pupils who have

      physical challenges attend.

2. **Classroom curricular adaptations**

      a) Are there stationary kits that contain basic materials such as pencils,

         notebooks, tape, stapler and glue supplied to the pupils with physical

         challenges in class?

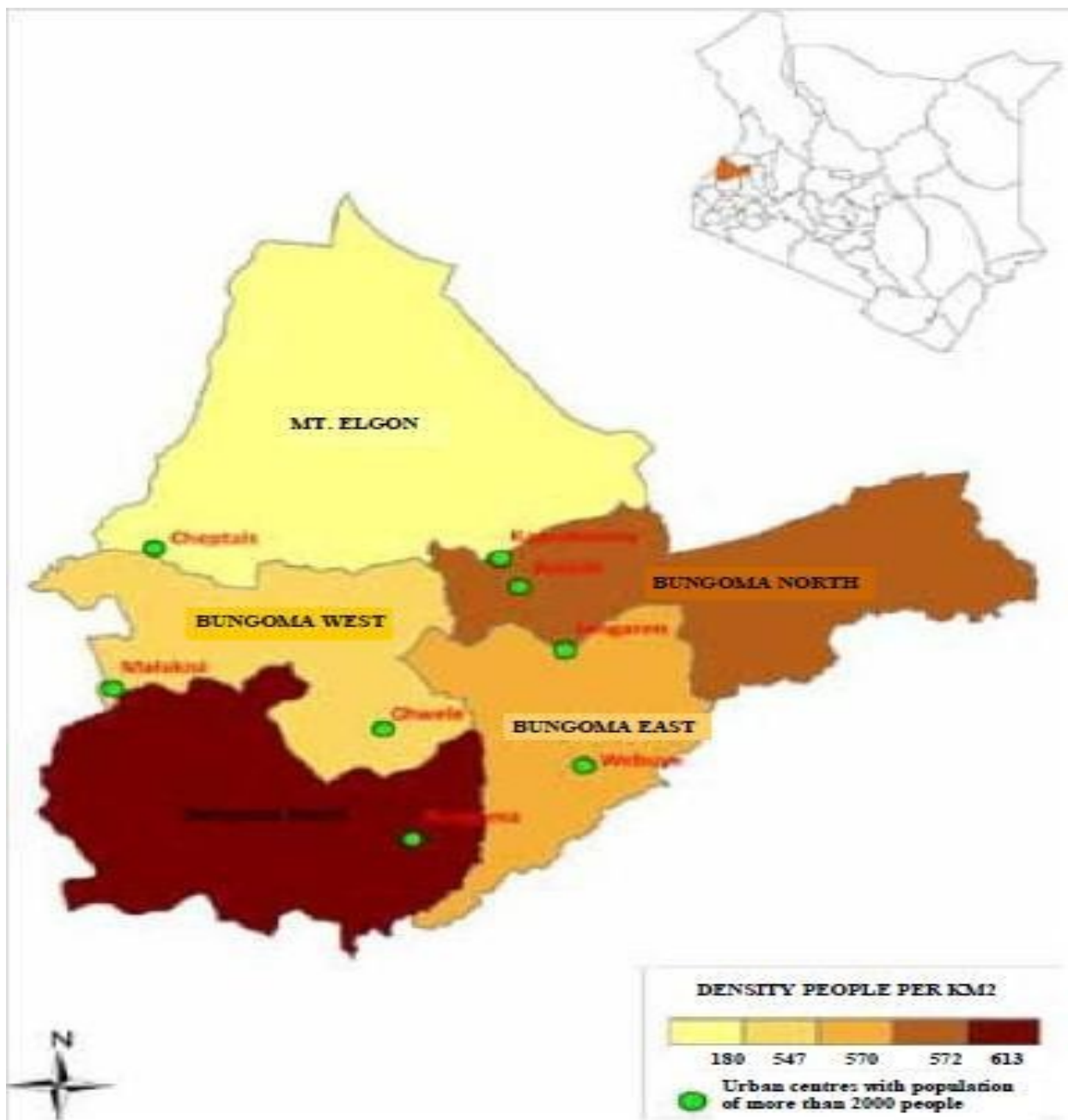   If yes, how do you normally supply the kits?

3. **Outdoor adaptation**

   a) How do you ensure pupils with physical disabilities in need of assistive devices

      access them?
      Who supplies the assistive devices?

   b) How do you facilitate movement of pupils with physical challenges in the school

      in relation to ramps and walkways

APPENDIX G: MAP OF KENYA SHOWING LOCATION OF BUNGOMA

   COUNTY

APPENDIX H: MAP OF BUNGOMA COUNTY

Map of Bungoma showing districts (MT. ELGON, BUNGOMA WEST, BUNGOMA NORTH, BUNGOMA EAST) with density people per KM2.

Legend: DENSITY PEOPLE PER KM2 — 180, 547, 570, 572, 613. Urban centres with population of more than 2000 people.

APPENDIX I: RESEARCH AUTHORIZATION LETTER

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349, 254-020-2673550
Mobile: 0713 788 787 , 0735 404 245
Fax: 254-020-2213215
When replying please quote
secretary@ncst.go.ke

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref:

NCST/RCD/14/013/305

Date:

26ᵗʰ March, 2013

Hesborn Mutoro Chonge
Moi University
P.O.Box 3900-30100
Eldoret.

RE: RESEARCH AUTHORIZATION

Following your application dated *20ᵗʰ March, 2013* for authority to carry out research on "*Adaptations for inclusion of pupils with physical disabilities in public primary schools in Bungoma County, Kenya,*" I am pleased to inform you that you have been authorized to undertake research in **Bungoma County** for a period ending **30ᵗʰ April, 2013.**

You are advised to report to **the District Commissioners and the District Education Officers, Bungoma County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR M.K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioners
The District Education Officers
Bungoma County.

"The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development".

APPENDIX J: RESEARCH PERMIT

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THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Hesborn Mutoro Chonge
of (Address) Moi University
P.O.Box 3900-30100, Eldoret.
has been permitted to conduct research in

Location
District
Bungoma   County

on the topic: Adaptations for inclusion of pupils
with physical disabilities in public primary
schools in Bungoma County, Kenya.

for a period ending: 30ᵗʰ April, 2013.

PAGE 3

Research Permit No. *NCST/RCD/14/013/305*
Date of issue   *26ᵗʰ March, 2013*
Fee received   *KSH. 1,000*

Applicant's
Signature

& Secretary
National Council for
Science & Technology