ADJUSTMENTS THAT ENHANCE ACADEMIC PERFORMANCE OF LEARNERS WITH PHYSICAL IMPAIRMENTS IN PUBLIC **PRIMARY** SPECIAL SCHOOLS IN NYANZA REGION, KENYA

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A THESIS SUBMITTED TO THE BOARD OF POST GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN SPECIAL NEEDS EDUCATION OF JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been submitted for a degree or any other award in any other university.

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APPROVAL BY SUPERVISORS

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DEDICATION

This thesis is dedicated to my dear son Ian and my daughter Ryanne.

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ABSRACT

Physical Impairment (PI) impacts on learning in that a pupil with PI may have difficulties with; managing the distance between different learning activities, carrying materials, note taking, practicals, and may also take longer to ask or answer questions. Without appropriate adjustments, these may negatively affect their academic performance. Pupils with PI in most public primary special schools in Nyanza Region have been performing dismally academically. The purpose of the study was to explore the adjustments that enhance academic performance of learners with PI in public primary special schools in Nyanza Region, Kenya. The research objectives were, to: determine the relationship between adaptation of physical facilities and academic performance of pupils; establish the relationship between access to counseling services and academic performance of learners; find out the relationship between access to physiotherapy (PT) services and academic performance of learners; and, to determine the relationship between access to occupational therapy (OT) services and academic performance of learners with PI. The research was guided by Social Model of Disability theory; it used mixed-methods approaches and concurrent triangulation design. The target population was 1433 participants, that is; 6 head teachers, 92 teachers, 6 school counselors, 6 PTs, 6 OTs, and 1317 pupils. Simple random sampling technique, saturation sampling, and purposive sampling technique were used to select; 396 pupils; 6 head teachers, 6 counselors, 6 PTs, and 6 OTs; and 48 teachers respectively, a total of 468 respondents. Data was collected using questionnaire for pupils, interview schedules, Focus Group Discussions, and an observation checklist. Content validity and Cronbach's alpha were used for validity and reliability respectively. Quantitative data was analyzed using descriptive and inferential statistics, and thematic analysis for qualitative data; from which conclusions were made. The research findings indicated that: there was inadequate adjustments that enhance academic performance of learners with PI in public primary special schools; there was; a statistically significant positive relationship (r= .370) between adaptation of physical facilities and academic performance,; a statistically significant positive relationship (r= .271) between access to counseling services and academic performance; a statistically significant positive relationship (r= .448) between access to PT services and academic performance; and a statistically significant positive relationship (r= .604) between access to OT services and academic performance. It was concluded that the 4 aspects of adjustments are inadequate, and their inadequacy contributes to poor academic performance of pupils in public primary special schools in Nyanza Region. The research findings recommended that there is need for the Ministry of Education and other stakeholders to facilitate; adequate provision of adapted physical facilities, access to counseling services, access to PT services, and access to OT services in public primary special schools for learners with physical impairments.

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ABBREVIATIONS

ASD	Autism Spectrum Disorder
CBL	Computer-Based Learning
CP	Cerebral Palsy
CPSK	Cerebral Palsy Society of Kenya
CWD	Children with Disability
DPO	Disabled Peoples Organization
EFA	Education for All
GC	Guidance and Counseling
IE	Inclusive Education
KCPE	Kenya Certificate of Primary Education
LWPH	Learners with Physical Handicaps
MoE	Ministry of Education
MSS	Mean Standard Score
NGO	Non-Governmental Organizations
OT	Occupational Therapist
PD	Physical Disabilities
PH	Physically Handicapped
PI	Physical Impairment
PT	Physiotherapist
PWD	People with Disabilities
REI	Regular Education Initiative
SDGs	Social Development Goals
SNE	Special Needs Education
US	United States
USA	United States of America
UN	United Nations
UNCR	United Nations Convention on the Rights of Child
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization

CHAPTER ONE
INTRODUCTION

1.0 Introduction

This chapter presents the background of the research which involves information on education of learners with physical impairments; definition and importance of adjustments in education; studies related to adaptations for learners with physical impairments in relation to academic performance; and problems associated with adjustments for learners with physical impairments. It also presents statement of the problem; purpose of the research; objectives of the research; research hypotheses; significance of the study; assumptions of the study; scope of the research; research limitations; theoretical frame work; conceptual framework; and operational definition of terms.

1.1 Background of the Study

Education is a key component which forms the basis of development in any economy (Theodore, 2013). Article 28 of the United Nations Convention on the Rights of the Child (UNCRC) (1989), states that all children and young people have a right to education no matter who they are, regardless of race, gender, or disability (Skujyte, 2011). Academic performance has been seen as the extent to which a learner, teacher, or an institution has attained their short-term or long-term educational goals, which is commonly measured through examinations or continuous assessment tests across various academic subjects (Abaidoo, 2018).

Academic achievement is vital for transition into adulthood and to achieve occupational and economic success (Regier, 2015), hence, every learner is expected to perform well regardless of his/her disability. However, Chishti (2014) observed that academic performance of most learners with disabilities is dismal; this may have implications in their unmet diversified educational needs. There are different categories of learners with disabilities such as learners with; physical impairments (PI), hearing impairments (HI), speech difficulties, visual impairments (VI), intellectual disabilities, and self-care among others; and each type of disability has its own special needs.

Motor skills limitations influence participation of learners with disabilities especially learners with PI in activities associated with the general education curriculum. These may affect their academic performance if there are no appropriate adjustments put in

place for them. They may also have difficulties with emotional adjustments, that is, attitudes, values and emotions that can facilitate or interfere with academic and social behaviours in a variety of settings (Haddad, 2020). These challenges require various adjustments for these learners to acquire their normal functioning so that they can participate well in learning activities that would promote their academic performance; and if these challenges are not addressed, then they may not have their normal functioning, which may negatively affect their academic performance.

A learner with Physical Impairment (PI) may have orthopedic impairment (adventitious or congenital or innate physical impairment); spina bifida; muscular dystrophy; arthritis, cerebral palsy; congenital anomalies; osteogenesis imperfecta; or arthrogryposis among others. Physical characteristics of pupils with PI may include any one or a combination of: paralysis; altered muscle tone; sensory disturbance; unsteady gait; non-ambulation requiring alternative means of mobility; loss of, or inability to use one or more limbs; and poor gross/fine and/or oral-motor control (Berg, 2020), and all these may affect their ability to undertake different tasks hence may contribute to poor academic performance in schools.

As opposed to other categories of disabilities, physical impairment impacts on learning in that; a learner with PI may have difficulties with; managing the distance between different learning activities, carrying materials, note taking, practicals, and may also take longer to ask or answer questions, and these may affect his/her academic performance if not well taken care of. They may also need a range of human support (Linda, 2010) which are useful in attaining their valued functioning. Hence it is vital to ensure that their needs are well taken care of. Physical impairment may have an impact on some or all activities to a greater or lesser extent. They may have challenges related to motor skills such as movement, posture (sitting, standing), grasping or manipulating objects, communication, eating, or perception among others. The initial barrier experienced by most of them is physically accessing the learning environment itself, and the inaccessibility of buildings and surrounding areas is also a challenge.

Pupils with PI may underachieve in the school setting when their unique needs are not met, hence, the key to success in the classroom lies in having adjustments based on their needs. Adjustments are actions taken to enable them to access and participate in education on the same basis as other pupils, and reflect the assessed individual needs

of the learner. Once the barriers to their normal functioning have been identified, their negative effects on performance may be decreased through provision of appropriate adjustments. Adjustments can be in the form of adaptations, accommodations, or modifications (Chen, Chiu, Johnston, Chang, and James. 2019).

A pupil with PI may require some adjustments such as adaptation of materials/equipment as well as modifications such as providing access to additional support from other professionals to modify and adapt the teaching/learning environment to meet his/her unique needs (Berg, 2020). This may help them to operate in the learning environment with ease such as their "normal" counterparts and is also vital for academic performance.

In Indonesia, a research conducted by Teesa, Karimah, and Tarigan (2015) on learning achievement of learners with PI in special schools for learners with physical impairment found that the scores for their academic courses improved by the end of the year. This implies that just like 'normal' learners, learners with PI also have the potential to perform well academically, hence, it is vital that they acquire their valued function.

According to Ismail, Mahmood and Abdelmaboud (2018), academic performance of learners may be determined by many factors including learners' individual differences, teachers' pedagogical skills, parental involvement, parent's financial situation, geographical location of educational institutions, staffing of teachers, attendance in class, family income, parents' education, presence of trained teachers in school, teaching methods, distance from school, and adjustments made for learners among others.

In the Equality Act 2010, there are three elements to reasonable adjustments duty for schools and education authorities that relate to: Provision criteria and practices; Auxiliary aids and services; and Physical features, for learners with PI. The physical features should address the access in relation to physical environment of the school such as adaptation of physical facilities; while auxiliary aids and services capture access to support from other paraprofessionals such as counselors, physiotherapists, and occupational therapists among others (Humphreys, 2010).

The problems associated with physical facilities for learners with PI are due to mobility and physical fitness which may cause degrees of weaknesses and incoordination of the limbs which may affect the mobility, posture, and manual dexterity, thereby causing difficulty to cope with ordinary school routine (Kabuta, 2014). Adaptations are made to meet pupils' needs as identified on an Individualized Education Plan. This allows them to access the general curriculum and other learning materials and activities to demonstrate what they have learnt. As they experience success in the classroom, motivation and learning increase, and their overall outcomes such as academic performance improve (Haddad, 2020).

Physical facilities in schools for pupils with PI which should be adapted include; infrastructure such as all school buildings including classrooms, libraries, laboratories, toilet facilities, offices, dormitories, water points, fire assemblies, pathways, ramps and canteens; assistive devices such as mobility aids (wheel chairs, scooters, walkers, crutches, prosthetic devices, orthotic devices); specialized equipment (assistive technology) such as any item, piece of equipment, or product system used to increase, maintain, or improve functional capabilities of pupils with PI; and instructional materials, that is, any tool a teacher uses in classroom to help foster learning (Bulat, Hayes, Macon, Ticha & Abery, 2017). These should help improve their functioning as they help compensate for their impairments.

Environmental preferences such as physical facilities are factors that affect learners in different ways and are directly related to individual learning styles. Research has proved that when environment is adjusted to learners' preferences, each learner performs better behaviorally and academically (Shalaway, 2013). Adjusting the environment to meet learner's needs is therefore necessary as it enables learners with PI to access or manipulate the learning environment with ease hence perform well academically.

Adjustments in terms of accommodations include access to extra services such as: school counseling services, PTs services, and OTs services among others. The counselors should provide counseling services that help ensure that today's learner becomes the productive well-adjusted adults of tomorrow (American School Counselor Association, 2020). The physiotherapy (PT) services, and occupational therapy (OT) services should be helpful in motor skill development and independent

living skills among others, therefore are also vital as far as academic performance of pupils with PI is concerned, and therefore should be provided. However, it is not well known whether there are appropriate adjustments in schools for pupils with PI (Brooke, 2017).

Pupils with PI need to be helped to develop and maintain their mobility skills, joint range of movement, muscle strength and motor skills; they need advice on activities to help improve their access to curriculum; and, learn to maximize their independence and mobility, as well as incorporating therapeutic exercises with play and recreational activities, hence the importance of PT services. This helps ensure that they feel at ease and have fun while they work through difficult physical challenges and is helpful in their physical well-being. Physical activity is a key concept in physical therapy which includes Physical Education, play, games, sports, recreation or planned exercises (Hagstromer, 2017). There is need to ensure that learners with PI in public primary special schools do access adequate PT services.

As far as pupils' outcome of school-based PT as measured by goal attainment scaling is concerned, Chiarello (2016) established that pupils make progress on academic goals. This therefore implies that PT services are vital for learners with PI as far as their academic achievement is concerned. Similarly, Archer and Garcia (2014) established that academic performance grade point average is indeed positively associated to how intensely pupils exercise, their well-being; self-regulation; and physical exercise holds real merit for engendering improved academic prowess. Hence the need to incorporate PT services in schools for learners with PI to help improve their mobility and academic performance.

Pupils need to be supported in academic achievement and social participation by: promoting occupation within all school routines including classrooms, recess and cafeteria time; helping children fulfil their roles as learners and preparing them for college, career, and community integration; utilize prevention, promotion, and intervention strategies for mental and physical health and well-being; they need help with fine motor skills and large motor skills; help in achieving their developmental milestones involving sensory integration; assistive technology, self-advocacy skills and self-determination skills, as well as adapted learning materials and working

surface of the classrooms among others; and these should be fulfilled by the help of an OT (American Occupational Therapy Association, 2020).

As pointed out by Nichole (2019), for learners with PI to achieve maximum ability, independence and academic participation, the services of OT are necessary, hence the need to have adequate OT services in schools. Occupational therapists' interventions enable individuals to engage in needed and valued occupations which can facilitate participation which represent the desired outcome of the OT intervention process and are consistent with the educational outcome expectations put forth by Individuals with Disabilities Education Act (IDEA) and No Child Left Behind (NCLB) (2002). The OT services are therefore vital to promote pupil's participation that would yield desired outcome as far as learners' academic achievement is concerned.

Pupils with PI need to be helped to ensure that they become the productive well-adjusted adults of tomorrow, and this is the duty of a school counselor (American School Counselor Association, 2020). A research by Meron (2017) found that counseling services are vital in helping learners to have a better reading speed, test preparation, test taking, writing skills and test anxiety management skills which are vital as far as academic performance is concerned. This brings into the mind whether learners with PI in public primary special schools for leaners with PI access adequate counseling services that help improve their academic performance.

A research by Waish, Dinning, Money, Money and Maher (2018) on supporting reasonable adjustments for learners with disabilities in England found that, the online resource was greeted positively by staff and not only supported the Physical Education teachers but also increased their awareness of different approaches to making reasonable adjustments; and, making reasonable adjustments and use of online development tool should be driven from the school senior leadership team if it is to have value for the whole school community. It is therefore vital to ensure that learners with PI in schools get appropriate adjustments, however it is not well known whether this is done.

According to Zubayer (2011) majority of the schools in Bangladesh are physically inaccessible to many learners due to lack of appropriate adaptations hence, poor buildings such as; ramps being too steep and doors too heavy to open. There were physical barriers to school buildings, playgrounds, library, and wash rooms among

others. If school physical facilities for learners with PI are not well adapted, they may not operate with ease within the learning or school environment and this may negatively influence their academic performance.

In Ethiopia, Tilahun (2014) did a research on current practice on the implementation of the educational rights of children with PI and found that wheelchair user pupils lag several years behind their age mates in accessing basic education; and had chronic challenges in accessing services and facilities such as classrooms, pipe water, toilet, separate toilet for learners with PI, library and laboratory due to lack of appropriate adjustments. This calls for appropriate adjustments in schools for learners with PI to compensate for their disabilities so as to be at bar with other "normal" learners.

A research in Uganda by Kiyuba and Tukur (2014) on challenges of providing special education to children with disabilities revealed that children with disabilities are still facing many challenges in accessing special education due to poor adjustments such as lack of good physical facilities including infrastructure, education materials, easy access to classrooms, other services, and corruption among officials within the system. Lack of such adjustments mostly affect learners with Physical Impairments due to mobility challenges.

A research in Kenya by Chonge (2016) on evaluation of classroom physical adjustments for pupils with physical impairments in public primary schools in Bungoma County, found that there are inadequate classroom physical adjustments for pupils with physical impairments. These learners may not be able to achieve their valued functioning if appropriate adjustments are not made for them.

A research carried out in Kenya by Wachianga, Omoke, and Ajowi (2015) on preparedness of schools offering Inclusive Education (IE) to children with physical disabilities in inclusive settings in Kenya revealed that most of the physically challenged individuals encounter difficulty in coming into terms with their challenges. This may affect their academic performance if not well taken care of and, this brings to the mind to find out what adjustments are made in public primary special schools for learners with PI to help them come to terms with their challenges. Nyanza Region is one of the regions in Kenya with the highest number of people with Physical Impairment as shown in table 1.

Table 1: *Category of People with Physical Impairments by Region*

REGION	NO. OF PEOPLE WITH PI
Western	4.8
Nyanza	9.2
Coast	4.2
Central	7.5
Eastern	9.6
Rift Valley	7.7
North Eastern	0.9
Nairobi	0.4

Source: Kenya Population and Housing Census (2019).

Table 1 shows that Nyanza Region is among the regions in Kenya with the highest (9.2%) prevalence of people with PI. Also, according to National Coordinating Agency for Population and Development (2017), Kenya National Survey for Persons with Disabilities conducted in 2007 indicated that Nyanza Region had the highest number of people with PI (Appendix Q) as compared to other regions in Kenya which implies that, majority of learners with PI in the region may be more disadvantaged if there are poor adjustments. It is expected that pupils with PI in this region have appropriate adjustments in their schools as far as their academic performance is concerned.

A case study carried out by Wachianga (2010) on provision of support services and their impact on socialization and academic participation for learners with physical disabilities in two selected schools in Kisumu East Sub-County, Kenya, revealed that there were problems associated with the provision of mobility services to learners, however, it facilitated academic participation of learners; there were no medical personnel employed in the selected schools; provision of medical services were inadequate however it facilitated learners' academic participation; the schools lacked professional counselors, and counseling services help learners with PI to overcome social and psychological challenges which are vital in their academic performance, hence the need for appropriate adjustment such as access to counseling services in their schools.

Studies have shown that adjustments for learners with PI play an important role as far as their academic performance is concerned. For instance; school physical facilities affect their health, behavior, engagement, learning and growth in achievement, and they also impact teaching and learning (Ndirangu, 2016). Counseling services are

vital in developing abilities of learners and also address the academic and developmental needs of learners (Mohammadyari, 2011). The services of PT are helpful in supporting learners' participation and progress in their education (Prat and Peterson, 2015).

The OT services are helpful in improving the academic performance of pupils and aiding their daily activities. It is also expected to boost their self-esteem and sense of accomplishment (Finlan, 2020). Article 18 (2) of the Persons with Disabilities Act 2003 (6) states that learning institutions shall take into account the special needs of persons with disabilities with respect to entry requirements, pass marks, curriculum, examinations, auxiliary services, use of school facilities, class schedules, Physical Education requirements and other similar considerations. Table 2 shows academic performance of pupils with PI in Nyanza Region from 2016 to 2020 in Kenya Certificate of Primary Education (KCPE).

Table 2: *KCPE Performance of Public Primary Special Schools for Learners with PI*

COUNTY	**SCHOOL**	**YEAR (MSS)**				
		2016	**2017**	**2018**	**2019**	**2020**
I	A	212.65	230.75	194.05	198.00	202.05
	B	235.45	237.65	249.04	246.74	240.56
II	C	171.35	179.98	201.70	190.27	188.73
	D	182.04	185.62	188.06	217.90	227.21
III	E	187.65	198.76	197.09	199.43	196.42
	F	239.86	238.98	240.78	241.66	244.79
IV	G	237.68	236.89	245.81	247.66	247.92
V	H	186.02	201.87	187.43	211.93	201.44
VI	I	183.56	199.39	192.08	218.76	202.06

Source: *Kisumu, Siaya, Homa-Bay, Migori, Nyamira, & Kisii County Offices (2021).*

Table 2 shows that academic performance of pupils with PI in most public primary special schools for learners with PI in Nyanza Region has been dismal in national examinations as compared to that of other pupils with PI in the same region. Pseudonyms have been used for counties and schools. The 6 counties in Nyanza Region are coded I, II, III, IV, V, and VI; Schools which have more dismal performance than others are coded A, C, D, E, H, and I, while schools which perform better are coded, B, F, and G (Nyanza Regional Education Office, 2021). Also, schools for pupils with PI are not even featuring among the top ten performing regular

public primary schools (Appendix R), they also score below average, and mostly fall within the bottom ten schools (Appendix S).

With all these in mind, one may wonder whether there are appropriate adjustments in public primary special schools for pupils with PI in Nyanza Region. From table 2, the poor scores (academic performance) in national examinations by pupils with PI could be accounted for by various adjustments which are crucial in enabling them to attain their valued functioning, hence be able to operate near normal as 'normal' learners as well as enhancing their academic performance, and which is a possibility that this research sought to investigate. It is against this background that the interest of this research was triggered.

1.2 Statement of the Problem

Article 18 (2) of the Persons with Disabilities Act 2003 (6) states that learning institutions shall take into account the special needs of persons with disabilities with respect to entry requirements, pass marks, curriculum, examinations, auxiliary services, use of school facilities, class schedules, Physical Education requirements and other similar considerations. Therefore, learners with PI are expected to operate in learning institutions with ease and also perform well academically.

According to policy guidelines and from the literature, adjustments are important for learners with PIs as far as their academic performance is concerned. Efforts have been made by the government and stakeholders to promote academic performance in schools, however, academic performance of pupils with PI in most public primary special schools for learners with PI in Nyanza Region has been declining over time despite having qualified teachers. This may have a negative reflection on the various programs put in place to enhance their academic performance in schools. Little information was available on the adjustments for pupils with PI and how they have been used to enhance their academic performance in Nyanza Region.

The main concern of the research was to find out what contributes to dismal academic performance of pupils with PI by exploring the adjustments (physical facilities, counseling services, PT services and OT services) and their relationship with academic performance of pupils with PI in public primary special schools for learners with PI in Nyanza Region, Kenya. This research therefore sought to provide some insights into these issues and facilitating better academic performance.

1.3 Purpose of the Study

The purpose of the study was to explore the adjustments that enhance academic performance of learners with PI and their relationship with academic performance of learners with PI in public primary special schools for learners with PI in Nyanza Region, Kenya.

1.4 Objectives of the Study

The objectives of the study were:

i) To determine the relationship between adaptations of physical facilities and academic performance of learners with PI in public primary special schools in Nyanza Region.

ii) To establish the relationship between access to counseling services and academic performance of learners with PI in public primary special schools in Nyanza Region.

iii) To find out the relationship between access to physiotherapy services and academic performance of learners with PI in public primary special schools in Nyanza Region.

iv) To determine the relationship between access to occupational therapy services and academic performance of learners with PI in public primary special schools in Nyanza Region.

1.5 Hypothesis of the Study

The hypotheses of the study were:

1.5.1 Null hypotheses

$H_{01:}$ There is no statistically significant relationship between adaptation of physical facilities and academic performance of learners with PI in public primary special schools in Nyanza Region.

$H_{02:}$ There is no statistically significant relationship between access to counseling services and academic performance of learners with PI in public primary special schools in Nyanza Region.

$H_{03:}$ There is no statistically significant relationship between access to physiotherapy services and academic performance of learners with PI in public primary special schools in Nyanza Region.

$H_{04:}$ There is no statistically significant relationship between access to occupational therapy services and academic performance of learners with PI in public primary special schools in Nyanza Region.

1.6 Significance of the Study

The research findings would benefit: children with PI by improving their academic performance, for instance by ensuring that they have appropriate adjustments such as well adapted physical facilities, access to; counseling services, PT services and OT services which help them to attain their valued functioning hence promote their academic performance. Teachers would find it easier to handle learners who have achieved their valued functioning for instance when learners participate actively in learning activities, teachers are able to achieve their lesson objectives with ease.

It would be beneficial to schools by improving educational service provision for instance when they have well adapted physical environment, adequate counseling services, PT services and OT services, the pupils with PI would be able to; achieve their valued function hence be more independent, manipulate the learning environment, and undertake different tasks, and this would improve academic performance of schools of learners with PI.

It would benefit education planners who identify, develop, and implement strategies designed to attain, efficiently and effectively, the educational needs and goals of pupils and society, by incorporating the needs of learners with PI in educational planning such as in resource provision. It would be useful for Ministry of Education in formulating policies that may improve educational service delivery in schools for pupils with PI hence promote their academic performance.

It would be vital in adapting the learning environment in schools for pupils with PI hence improving physical access to their learning. These include architectural designs such as standard measurements of classrooms, arrangements for wheelchairs, toilets, doors, dining halls, dormitories, and water points among others. Also, it would improve access to; counseling services, PT services and OT services in schools for learners with PI, for instance teachers would be supported in class through collaboration with counselors, PTs and OTs and given induction courses on the same. The research would be crucial in collaboration arrangement with ministries on

curriculum planning and implementation for PT and OT who may not have the education for those with PI.

Also, the outcome of this research would be a contribution of knowledge in special education in general, adjustments for learners with PI and in academic achievement of learners with PI. Finally, the findings would serve as a basis for further research for scholars in the area of education in general; adjustments for learners with PI and academic performance of learners with PI.

1.7 Assumptions of the Study

The research assumed that;

i) All public primary special schools for pupils with PI had adapted school physical facilities for learners with PI which promote their academic performance,

ii) All learners with PI in public primary special schools for pupils with PI access counseling services which promote their academic performance.

iii) All learners with PI in public primary special schools for pupils with PI access PT services which promote their academic achievement.

iv) All pupils with PI in public primary special schools for learners with PI access OT services which promote their academic achievement.

v) The respondents had a common understanding of the questions and were honest in providing the information.

1.8 Scope of the Study

The research explored the provision of adjustments that enhance academic performance of pupils with PI and their relationship with learners' academic performance in public primary special schools for learners with PI in Nyanza Region, Kenya. The investigation was conducted in public primary special schools for learners with PI in Nyanza Region. It used mixed-methods approaches and concurrent triangulation design within mixed-methods to collect and analyze data. The target population was 1433 participants which involved; 6 head teachers, 92 teachers, 6 counselors, 6 PTs, 6 OTs, and 1317 pupils with PI. The research was guided by Social Model of Disability (SMD) theory.

1.9 Limitations of the Study

Academic performance of pupils with PI in public primary special schools for learners with PI may be determined by many factors including individual differences, teachers' pedagogical skills, parental involvement, staffing of teachers, attendance in class, family income, parents' education, presence of trained teachers in school, distance from school, and adjustments among others. Hence it was not practically possible to isolate one factor and link it to the level of academic performance of learners with PI. The research therefore concentrated on adjustment areas that were of concern to academic performance of learners with PI only.

All public primary special schools in Kenya were expected to have appropriate adjustments hence an analysis of many public primary special schools for learners with PI in Kenya required a consideration, however, due to time constraints, it was not possible to cover all the schools in the country. The research was thus limited to a small sample since it only considered public primary special schools for learners with PI in Nyanza Region, hence the findings of this research were confined to the sampled schools and could not be generalized to all public primary special schools of learners with PI in the country.

Some pupils with PI such as learners in lower classes (grades 3 and below) were not in a position to fill the questionnaire due to their language level, they also lacked enough experience such as having stayed in school longer. Therefore, only pupils in grades 4, 5. 6, 7, and 8 were selected since they had stayed in school longer than their counterparts in lower classes, hence have more experience as far as information on how adjustments enhance their academic performance is concerned, and were also in a better position to fill the questionnaire.

All pupils were expected to participate in the research in order to get more of their views for reliability since they have diversified needs but was not possible due to time constraints, however, a representative of learners was used. Some respondents were not comfortable with the time scheduled for data collection which was mitigated by rescheduling the time with the respondents at their convenient time. Also, some respondents did not clearly understand the information required from them hence were guided and given clarifications.

1.10 Theoretical Framework

The research was guided by Social Model of Disability (SMD) theory by Oliver (1983) which is based on a distinction between the terms Impairment and Disability. The word impairment is used to refer to the actual attributes (or lack of attributes) that affect a person such as inability to walk or breath independently. The word disability is used to refer to restrictions caused by the society when it does not give equivalent attention and accommodations to the needs of individuals with impairments. It says that people are disabled by barriers in society, not by their impairments or difference.

The SMD identifies systemic barriers, derogatory attitudes and social exclusion (intentional or inadvertent) which make it difficult or impossible for individuals with impairments to attain their valued functioning. It considers all factors when identifying a child with special educational needs, and views the child in a more holistic manner, taking into account any emotional, behavioural, physical or social needs they may have. Hence, it focuses on changes required in the society which may be in terms of; resources; physical structures such as buildings and slope access and elevators; attitudes such as positive attitude or not underestimating potential quality of life of those with impairments among others (Oliver, 1983).

The SMD has been criticized for underplaying the role of impairments, for instance it portrays illness and impairments as being distinctly separate entities, and in doing so, neglects the social relational nature of impairment and illness, for instance, an individual may have an illness long before they receive a diagnosis that may then constitute impairment, and others may be impaired but receive a diagnosis of illness long afterwards (Charmaz, 2010: 16). Impairments may also become disability through the experience of structural oppression; cultural stereotypes, attitudes, bureaucratic hierarchies among others, all that is pertaining to how society is structured and organized (Thomas, 2010: 42-3). It has also been criticized for not promoting the normal differences between disabled people, who can have any age, gender, race, and sexual orientation, and instead presenting them as monolithic, insufficiently individuated block of people (Owens, 2014).

This theory had the justification that it addresses the attributes that affect pupils with PI and identifies barriers and social exclusion which makes it difficult for them to attain their valued functioning, and which when addressed, they may be able to attain

their valued functioning, and be able to operate well in the learning environment just as "normal" learners, hence achieve their full potential such as academic performance.

This theory informed the current research in a school setting of pupils with PI on the importance of the school to make appropriate adjustments to meet the diversified needs of pupils and not the vice versa, hence the importance of appropriate adjustments in schools for pupils with PI.

Since the school physical facilities affect pupils with PIs' health, behavior, engagement, learning and growth in achievement, and they also impact teaching and learning (Ndirangu, 2016), schools for pupils with PI should therefore have appropriate adjustments such as adaptations of learning environment depending on pupils' needs so as to address systemic barriers, social exclusion and derogative attitudes. The schools should adapt the physical facilities to meet learners' needs, which include; school infrastructure, specialized equipment, assistive devices, instructional materials, learning situations, and other materials that are used in schools for pupils with PI. Adaptation of these physical facilities help alleviate systemic barriers, derogative attitudes and social exclusion which make it difficult or impossible for learners with PI to attain their valued functioning, therefore, these learners will be able to have better academic performance.

Schools of pupils with PI should also have other adjustments such as appropriate accommodations depending on learners' needs. These include incorporating the services of; physiotherapists, counselors and occupational therapists among others so as to address systemic barriers, social exclusion and derogative attitudes. These are vital for pupils with PI as far as their valued functioning is concerned hence improved academic performance. For instance; the services of PT help support learners' participation and progress in their education (Prat and Peterson, 2015). The services of counselors are vital in developing abilities of learners, and also addresses the academic and developmental needs of learners (Mohammadyari, 2011). Also, the services of OTs are helpful in improving the academic performance of pupils and aids their daily activities, as well as boosting their self-esteem and sense of accomplishment (Finlan, 2020).

1.11 Conceptual Framework

A conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas, that is, to illustrate what is expected to be found through the research, including how the variables being considered might relate to each other (Swaen, 2015). The conceptual framework in this research was on adjustments that enhance academic performance of learners with PI in public primary special schools for learners with PI in Nyanza Region, Kenya. It captured the variables and their interrelationships as shown on figure 1.

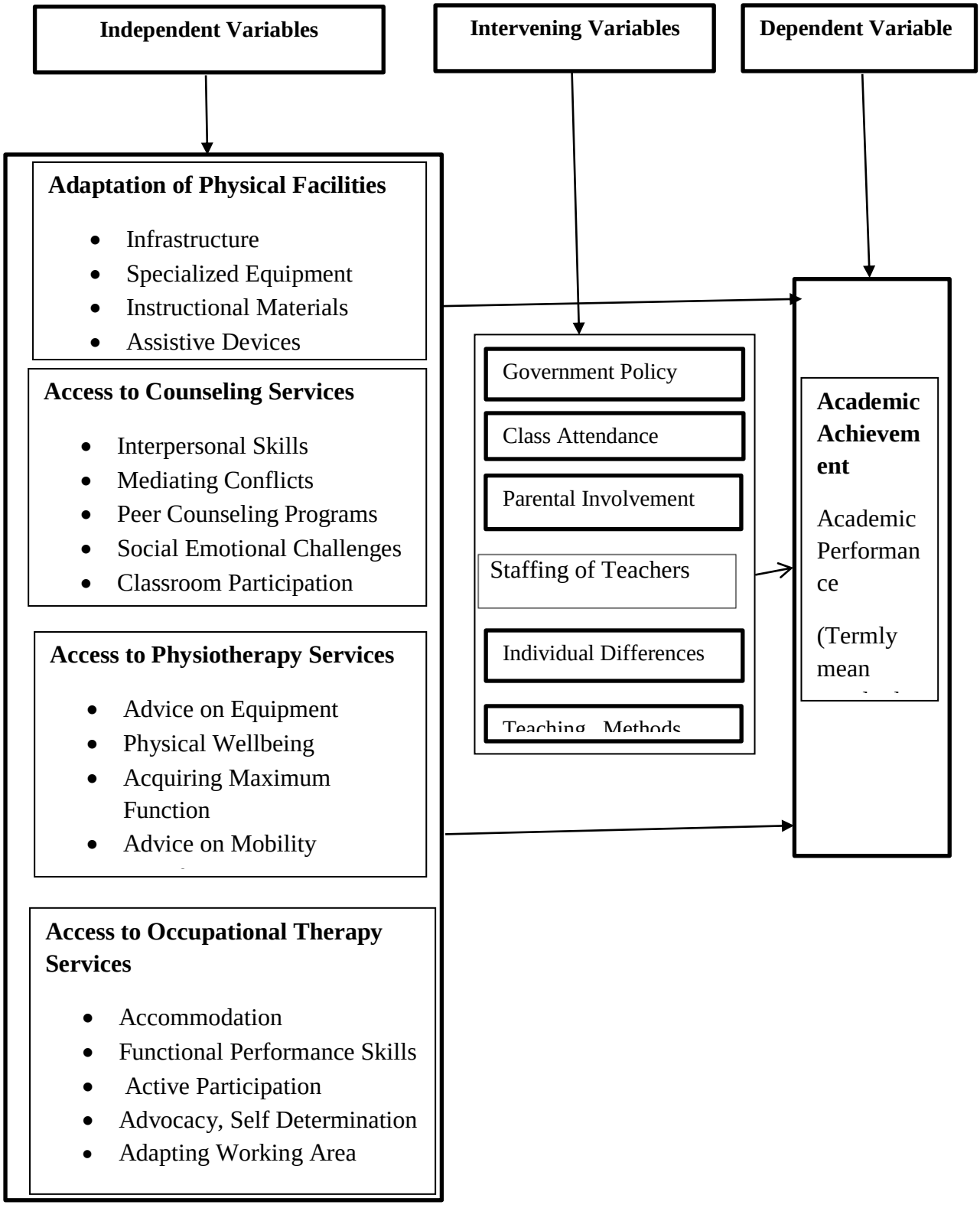

Figure 1: *Conceptual Framework*

The conceptual framework in this research conceptualized that, adjustments (physical facilities, counseling services, PT services, and OT services) enhance academic performance of learners with PI in schools. It shows that the independent variables

are; adaptation of physical facilities, access to; counseling services, PT services, and OT services, which refer to the conceptualized factors or variables that may influence the dependent variable (academic performance). Adaptation of Physical facilities are determined by their availability, accessibility and adequacy while access to; counseling services, PT services and OT services are determined by their availability, accessibility, adequacy and competency of the paraprofessionals in charge.

Academic Performance (dependent variable) is the problem that the researcher intends to address in the research through investigation of independent variables. Academic performance was characterized by academic performance of learners with PI such as their scores or grades in termly examinations. It was determined by adjustments such as adaptation of physical facilities, access to counseling services, access to PT services and access to OT services. Adapted, available, adequate and accessible physical facilities in schools enable learners with PI to achieve their valued functioning hence be able to access and maneuver the learning environment with ease, and this promotes their academic performance.

Counselors' availability, competency, adequacy, and accessibility are crucial in helping learners with PI improve their academic performance by assisting them at all levels by; listening to their concerns about their academic, emotional or social problems, helping them process their problems and planning goals and actions, as well as mediating conflict between learners and teachers. Available, adequate and accessible PT services enable learners with PI to have quality life by supporting their mobility skills, joint range of movement, muscular strength, and motor skills among others that enable them achieve their valued function hence ease their participation in class activities thereby boosting their academic performance.

Available, adequate and accessible OT services such as habilitation and rehabilitation services enable pupils with PI to enhance their ability to perform everyday activities and to participate in different environment for their health and well-being which may help them achieve their valued functioning hence boost their academic performance. A pupil with PI with appropriate adjustments is able to have better academic performance. The government policy, learner's class attendance, parental involvement, staffing of teachers, learners' individual differences, and teaching methods may also influence academic performance of pupils with PI but were not investigated in this research, hence were intervening variables.

1.12 Operational Definition of Terms

Academic Performance – refers to performance of learners with PI in terms of grades in examinations such as termly exams, yearly exams or summative evaluation such as performance in Kenya Certificate of Primary Education. It is used interchangeably with academic achievement.

Accessibility – refers to ability of learners with PI to operate freely in the learning environment due to adapted physical facilities, and to get adequate; counseling services, PT services, and OT services.

Accommodations – refer to access to counseling services, access to physiotherapy services, and access to occupational therapy services of learners with PI.

Adaptations - refer to changes made to physical facilities in schools for learners with PI based on learners' needs including their provision, adequacy and accessibility.

Adequate – available and accessible physical facilities, counseling services, PT services and OT services that address academic performance of all learners with PI.

Adjustments – refer to changes made in schools for learners with PI based on learners' needs. These are in form of adaptations of physical facilities; and accommodations such as access to counseling services, access to PT services and access to OT services.

Availability – refers to the presence of physical facilities, counseling services, PT services, and OT services in schools for learners with PI.

Community Involvement – refers to amount of assistance given to schools for learners with PI by community such as building school facilities, buying assistive devices, instructional materials or teaching/learning aids, hiring counselors, PTs or OTs.

Competency – refers to ability of counselors, PTs and OTs to effectively provide their professional services to learners with PI.

Counseling Services – refer to assistance given to learners with PI for their social and psychological needs in order to come to terms with their challenges in relation to their academic performance.

Infrastructure – refers to school buildings such as halls, laboratories, canteens, fire assemblies, and water points among others.

Occupational Therapy Services – refer to services provided to learners with PI by occupational therapists to help them achieve their developmental milestones involving sensory integration and in relation to their academic performance.

Physical facilities – refer to instructional materials, school infrastructure, specialized equipment, assistive devices, learning situations, and other materials that are used in schools for learners with PI.

Physical Impairment – refers to a physical condition of a learner with PI which affects the learner's gross or fine motor function hence affect their ability to learn, concentrate, or to undertake different tasks. It is used interchangeably with physical handicap (PH).

Physiotherapy Services – refer to services offered to learners with PI to promote physical activity, their gross motor and fine motor functions and to participate in physical activities. It is used interchangeably with physical therapy.

Provision – refers to making adapted physical facilities, counseling services, PT services, or OT services available, adequate and accessible to learners with PI.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter presents the literature on education of learners with physical impairments, history of their education, academic performance, and the overview of existing literature on adjustments that enhance their academic performance. These include: adaptation of physical facilities; access to counseling services; access to physiotherapy services; and access to occupational therapy services for learners with PI; and summary of literature review. The knowledge gaps have also been highlighted.

2.1 Education Policy and Legal Framework on Education of Learners with Disabilities

The Article 28 of the United Nations Convention on the Rights of the Child (UNCRC) (1989), states that all children and young people have a right to education no matter who they are, regardless of race, gender, or disability. Article 11 of the African Charter on the Rights of Children states that every child shall have the right to education (Skujyte, 2011). The Kenya Persons with Disabilities Act 2003 established the National Council for Persons with Disabilities which formulate and develop measures and policies designed to achieve equal opportunities for persons with disabilities by ensuring that they obtain education (Mudora, 2016).

Article 18 (2) of the Persons with Disabilities Act 2003 (6) states that learning institutions shall take into account the special needs of persons with disabilities with respect to entry requirements, pass marks, curriculum, examinations, auxiliary services, use of school facilities, class schedules, Physical Education requirements and other similar considerations (Wango, 2011).

The Children Act (2001), Kenyan Law requires the government to undertake all the necessary steps to make available free basic education to every child. Article 7 recognizes the right to education; It states that: Every child shall be entitled to education, the provision of which shall be the responsibility of the government and the parents; every child shall be entitled to free basic education which shall be compulsory in accordance with Article 28 of the UNCRC. Article 12 provides that: A child with disability shall have the right to be treated with dignity and to be accorded appropriate education and training free of charge or at a reduced cost whenever

possible (Wango, 2011). It is therefore vital to ensure that due to physical challenges that pupils with PI go through, they should get adjustments that make them operate near normal so as to learn comfortably in schools.

The Constitution of Kenya (2010) in Article 43 (1) (f) states that every person has the right to education. Article 54 (1) (b) provides that a person with any disability is entitled to access educational institutions and facilities for persons with disabilities that are integrated in the society to the extent compatible with the interest of the person (Wango, 2011). For many children with disabilities (CWDs), the kinds of disabilities they experience may require special approaches to education or other accommodations (Brault, 2011) in order to achieve their potential, hence the need for appropriate adjustments to help them attain their valued functioning and promote their academic achievement.

2.2 Historical Background of Education of Learners with PI

Before the 1960s, there was little focus on special education for children with severe sensory, motor, or cognitive problems. It was thought that children with special needs did not need to be educated and were seen as medical problems hence were neglected. This was followed by a period of segregation whereby children were segregated into homogenous groups. This still relegated them to the margins of society (Moody, 2012). This was followed by the principle of normalization and integration when the Education for All Handicapped Act was passed in 1975 (Public Law 94-142) which was enacted by the United States Congress, and which signaled a major paradigm shift in thinking about education for these children. Before the 1960s, children with physical handicap (PH) who could not fit in the architectural setting, withstand the daily routine, or learn the inflexible curriculum of ordinary schools were simply kept out of schools because there were no special provisions for them in Hong Kong.

There was then the establishment of the Special Education Section in the education department and the beginning of schools for the PH in 1960. In 1962, the first school for PH children was established by the Red Cross in Kwun Tong, Kowloon in Hong Kong accommodating 60 children in 3 primary classes. Ordinary curriculum and textbooks were used. Adaptations of teaching methods and curriculum were made for over-age learners rather than pupils' ability or other learning disabilities. In 1964, the school was subsidized by the education department and this was the first time the

government undertook the responsibility of financing schools for the PH. In the same year, the Spastic Association of Hong Kong started a school for the young CP children in the premises of the Boys and Girls Clubs Association of Hong Kong. In the middle of 1960's, CP children of primary or secondary school age were few (Moody 2012.

The school took in other types of PH children as well in the course of its development in later years. From this time to 1970's, the Hong Kong Red Cross and the Spastics Association each opened several schools for the PH in various parts of Hong Kong. The need for paramedical professionals such as physiotherapists (PT), occupational therapists (OT), speech therapists (ST) and school nurses was not adequately met by the government aids. Schools were trying to deploy their own resources to employ professional staff in these fields to carry out special educational services more completely (Moody, 2012).

According to Ametepee (2015), in 1936-1956, there were early special education efforts before Ghana's independence. In 1936, missionaries attempted at providing special education to children with disabilities in Ghana. In 1945, the Basel mission, a Christian Missionary Society established the first special school for children with orthopedic impairment. In 1975, the government of Ghana took the responsibility of educating children with disabilities. In late 1960s to 1970, the Ministry of Education took responsibility for the administration of special schools.

In Kenya, religious and humanitarian factors paved the way for establishment of the first educational centers for individuals with physical and other disabilities. These included religious and secular organizations such as Salvation Army, the Red Cross Society and the Round Tables International (Munyi, 2012). The Dagoreti Children's Center in Nairobi was established and operated by the British Red Cross Society. The late 1950s also saw the establishment of Association for the Physically Disabled in Kenya (APDK) (Mwangi, 2013).

Between the early 1960s and 1980s, the Salvation Army established two primary and one secondary school(s) such as Joytown primary and secondary school for learners with physical disabilities in Kenya. Depending on their abilities, pupils in these schools especially those with non-sensory disabilities in addition to physical disabilities were instructed in the same academic skills as their peers in the regular

education schools and classrooms. These pupils were also instructed in basic self-care skills, manual skills and rehabilitation and were provided with the necessary equipment for mobility. These early schools for physical disabilities were largely financially maintained by their founding organizations until the late 1970s when the government took over much of the financial burden (Joytown Students Association, 2020.

In 1974, Joyland was founded as a rehabilitation center and school by the Salvation Army in Kisumu. It has two schools. The primary school covers grades 1 to 8 and secondary school which opened in 1994. Joyland offers vocational courses as well as academics. The school serves a variety of conditions such as muscular dystrophy, cerebral palsy, mental illness, spina bifida, epilepsy, and those who have been injured. The pupils' need go beyond their visible physical disabilities. Most of them have suffered emotional and psychological disorder (Okuta, 2016). There are several environmental and psychological factors that may affect the academic achievement of learners with PI such as pain, fatigue, and absenteeism; and psychological factors such as motivation, self-concept and socio-emotional problems among others. These need to be identified so as to make necessary adjustments to minimize their effects.

2.3 Academic Performance

According to Theodore (2013), education is a key component which forms the basis of development in any economy. Academic performance has been seen as the extent to which a pupil, teacher, or an institution has attained their short-term or long-term educational goals. It is commonly measured through examinations or continuous assessment tests across various academic subjects (Abaidoo, 2018). A research in Pakistan by Chishti (2014) on academic performance of learners with special needs established that majority (58.34%) of them perform poorly academically.

However, there are different categories of pupils with special needs and each of them has his/her own unique needs. For instance, a research conducted by Teesa, Karimah, and Tarigan (2015) on learning achievement of learners with PI in special schools for learners with PI found that the scores for their academic courses improved by the end of the year. This implies that these pupils have the potential to perform well academically, hence it is important to find ways to promote their academic performance.

2.4 Adaptation of Physical Facilities and Academic Achievement

Physical facilities in school include infrastructure such as all school buildings including classrooms, libraries, laboratories, toilet facilities, offices, dormitories, water points, fire assemblies, pathways, ramps and canteens; assistive devices such as mobility aids (wheel chairs, scooters, walkers, crutches, prosthetic devices, orthotic devices); specialized equipment (assistive technology) such as any item, piece of equipment, or product system used to increase, maintain, or improve functional capabilities of learners with PI; and instructional materials, that is, any tool a teacher uses in classroom to help foster learning (Bulat, Hayes, Macon, Ticha & Abery, 2017). Physical facilities for pupils with PI need to be adapted to meet their needs to improve their function hence: be independent, be able to undertake different tasks, and participate well in learning activities among others.

A research was conducted in New York by Coulon (2015) on exploring the impact of assistive technology in the classroom for learners with disabilities. The purpose of the research was to explore the impact of assistive technology (AT) on academic achievement of learners with physical, intellectual and developmental disabilities through analytical review. Scholarly literature from 2010 to 2015 was examined in this analytical review. The findings revealed that when learners use AT such as iPad, software, speech generators, electronic notebooks, and computer assisted instruction, there was an increase in academic achievement such as spelling or writing among others. It recommended that teachers should consider individual and unique needs of learners when making decisions about AT.

The previous research only used analytical review to explore the impact of AT hence left out varied opinions from the respondents. The current research used mixed method approaches to fill in the gaps left out in the previous investigation as far as instrumentation is concerned. The previous research did not establish the adequacy of assistive devices in schools which the current one captured. Also, the previous one was conducted in a developed country while the current one was conducted in a middle-income economy country Kenya which would enable comparison of cross-cultural similarities and differences if any.

In Philippines, Figueroa, Lim and Lee (2016) carried out a research on investigating the relationship between school facilities and academic achievements through

geographically weighted regression. The findings revealed that schools with basic facilities have performed better than schools with poor facilities therefore basic facilities are important. It was recommended that school facilities should be based on unique needs of each school; and, a decentralized approach is beneficial for management of school facilities.

The previous research was general on physical facilities for learners in schools while the current one was carried out on adaptation of physical facilities on special category of learners, that is, pupils with PIs since they may have more diversified needs. Also, the previous research was conducted in a developed country while the current one was conducted in a middle-income economy country Kenya which would enable comparison of cross-cultural similarities and differences if any.

In Bangladesh, Zubayer (2011) carried out a research on problems, prospects and possibilities of IE for learners with PI. It was based on document review on available secondary information, and used qualitative data analysis. The findings revealed that majority of the schools are physically inaccessible to many learners due to poor buildings such as; ramps being too steep, doors too heavy to open. There were physical barriers to school buildings, playgrounds, library, and wash rooms among others. The recommendations included implementing IE, changes in architectural designs, proper ramps, removing unnecessary doors, flush toilets, and automatic door buttons.

The previous research was qualitative in nature hence did not capture the quantitative dimension which allows for a broader research, involving a greater number of subjects and enhancing the generalization of the results, while the current one adopted mixed method approaches to fill in gaps left in respect to instrumentation. The previous research did not capture the relationship between adaptation of physical facilities and academic achievement of pupils with PI which the current inquiry captured. The previous inquiry did not capture the availability of assistive devices and their relationship with academic performance that the current one captured. Also, the previous research was based on inclusion of learners with PI in the regular mainstream therefore, there is need to conduct an investigation for pupils with PI in special schools.

A research was conducted by Addo (2014) in Ghana on analysis of barriers to children with physical impairment in basic education in Accra, Ghana with a population of 33 pupils in 22 schools, 10 dropouts of CWDs, 50 facilities within 10 schools. It used interview guide and questionnaire. It also audited 50 facilities from within 10 schools from each sub-metro using international standards, building codes, regulations and guidelines as benchmarks for assessment. The findings revealed that most basic learners with mobility impairments have barriers such as discrimination, steps, narrow doorways and desk space, lack of seats for wheelchair users, open gutters, slippery floors, spaces for maneuvering, and ramps in most schools don't meet the international standards.

It recommended that the government should increase expenditure and budget allocation on IE, MoE to revise teachers training materials to reflect IE, need for extensive civic education for general population on disability, and at least one entrance per facility should be accessible to PWDs by school authorities. The previous investigation did not capture the use of computers, audio-visual aids and tape-recorders which are vital as far as academic performance of learners with PI is concerned, and this was captured by the current inquiry. It also used interview guide and questionnaire only while the current one used observation checklist and focus group discussions which aided more information as far as adaptation of physical facilities for pupils with PI is concerned.

Oluremi and Olubukola (2012) did a research on impact of facilities on academic performance of learners with special needs in mainstreamed public schools in southwestern Nigeria. The findings revealed that there were no handrails, instructional materials, adapted toilets; and the available few were in poor condition such as type writers, resource rooms, and wheelchairs. Also, there was a significant relationship between availability of facilities and academic performance of pupils with special needs; and, inadequate provision of facilities and materials to mainstream public schools would lead to poor academic performance of pupils with special needs. Therefore, availing adequate funding to overcome the problem of provision was recommended.

The previous investigation did not capture how learning materials are displayed in classrooms to avoid distraction of pupils during the lessons, and this was captured by

the current one. It was carried out in Nigeria while the current one was carried out in Kenya which would give the true picture of the current situation in the country by giving more information on adaptation of physical facilities for learners with PI. Also, the previous one looked at physical facilities while the current one looked at adaptation of physical facilities for pupils with PI which were vital in promoting their academic performance

An investigation conducted in Nigeria by Soyingbe, Ogundairo, and Adenuga (2013) on facilities for people with physical disabilities in public buildings in Nigeria, used 257 public buildings. It used observation checklist, and the findings indicated that major facilities required by people with disability are lacking in many public buildings; some facilities are in poor state of operation; and the absence of these facilities restrict the activities of people with physical disability.

The previous research relied only on observation checklist only while the current one also used questionnaire, interviews, and FGDs that would capture quality evidence that allows analysis to lead to the formulation of convincing and credible answers to the posed questions to gather information from learners with PI as the consumers of physical facilities; and also used interview schedules to collect data, therefor, the current one was expected to provide more in-depth data on the contribution of physical facilities on academic achievement of learners with PI.

A research was carried out in Botswana by Mechoopda (2013) to investigate teachers' perceptions on the impact of inclusion of learners with special needs and disabilities. Adequacy of environmental adaptation and adequacy of teaching/learning materials for learners with PI were among the independent variables. The research used multiple-case study approach. The target population was 165 governments funded primary schools in South Central region. It used interviews, focus group discussions which were triangulated with document analysis, classroom observations and access audit on school and classroom practices from 36 teachers from 6 primary schools.

The research findings revealed that; there was poor physical access to school facilities, for instance some schools had no ramps which could help children with physical impairments to access many places in school, while some schools had ramps but the ramps were too steep which still made movements difficult; teachers' primary

concerns were; lack of teaching/learning resources; inadequate infrastructure; inadequate training; and high pupil teacher ratio. It recommended that; initial training in Training Teachers College should intensify their training in area of IE; in-service, and workshops for teachers; and school system to encourage teachers to work cooperatively and collaborate with special educators, parents, and learners.

The previous research was qualitative in nature therefore did not capture quantitative data, hence, may not allow for generalizability of the results. The current one had both qualitative and quantitative dimension which would help give a better understanding of the research questions and give more complete evidence. Also, the previous research did not capture the relationship between adaptation of school physical facilities and academic performance that the current inquiry captured, hence the current one was expected to reveal more information on the same.

In Kiambu, an investigation was carried out by Karandu (2014) on school-based factors influencing participation of pupils with physical impairments in public primary schools, with a sample size of 20 head teachers, 100 teachers, and 43 learners with PI. It used questionnaires for head teachers, focus group discussions, and observation schedule. Descriptive survey design was used. The findings revealed that majority of pupils with PI lack relevant physical facilities such as leveled doorsteps, lowered door handles, ramps, staircase rails, and adapted toilets. They also lacked trained teachers and teaching/learning resources hence no involvement in the learning process.

The previous inquiry did not look at adequacy of assistive devices which are vital for pupils with PI's academic participation, hence was captured by the current one. It did not look at the relationship between physical facilities and academic achievement of learners with PI which the current one also captured. Therefore, the current inquiry was expected to fill that gap.

In Kenya, Njoroge (2015) conducted an investigation on institutional related factors affecting performance of pupils with special needs in Kamukunji public primary schools in Kenya. Descriptive research was used. Target population was 18 public primary schools with 18 head teachers, 420 teachers and 221 pupils with disabilities. The instruments used involved questionnaire and interview guide. The findings revealed that most of the respondents were in disagreement that pupils without

disabilities should learn together with those with disabilities in the same class; and most of the pupils indicated that the learning environment was supportive. It was concluded that most of the resources/facilities are available but not adequate.

It was recommended that the Ministry of Education should provide training for the teachers to improve their knowledge and skills in teaching pupils with special needs which could be provided through workshops and seminars on special needs education. It was also recommended that the schools management committee should have a strategic plan for continuous maintenance and increase of all the physical accessibilities to the facilities, transportation and accommodation; and that further research be conducted on specific type of disability.

The previous research was conducted in regular schools while the current one was conducted in special schools for learners with PI with a specific type of disability since children's needs are diversified. The previous inquiry looked at physical facilities in general while the current one looked at adaptation of physical facilities for pupils with PI which were vital in promoting their academic performance. The previous research also recommended that further research be conducted on specific type of disability hence there was need for the current investigation.

An investigation was carried out by Wachianga, Omoke, and Ajowi (2015) on preparedness of schools offering IE to children with physical disabilities in in Kenya. It was guided by constructivist theory. It used mixed method approaches and concurrent triangulation design. The target population was 337 participants. The instruments were questionnaires, FGDs, interview schedules and observation checklist. The findings revealed that preparation done in schools involved sensitization and awareness campaigns with all stakeholders, general adaptation of physical facilities, and training of teachers in the schools. Schools were faced with various challenges.

It concluded that all stakeholders were involved in the preparations, and recommended that all stakeholders should strive to remove barriers that prevent children with physical disabilities from benefiting from education which is a human right; there is need for adapting school facilities. Sensitization and awareness campaign should be ongoing in the community and public schools to enroll children with physical disabilities. Children with physical disabilities should be provided with

adequate specialized, relevant equipment and teaching/learning resources that are conducive to their needs. The previous inquiry did not capture the relationship between adaptation of physical facilities and academic performance of pupils with PI in special schools for learners with PI that the current one captured.

In Homa-Bay County, Orwa (2019) conducted an investigation on influence of school-based factors on academic performance of pupils with PI in primary schools. It was based on the latent trait theory of mental ability. It employed descriptive survey design. The target population was 6885 teachers from 874 primary schools. Multistage sampling technique was used. Questionnaires were used and data was analyzed through correlation and regression model. The findings revealed that school facilities had significant influence on academic performance of pupils with PI in primary schools. The previous investigation used questionnaire only while the current one also used interview, observation checklist, and FGDs which would yield more in-depth information that would help answer the why and how research questions.

2.5 Access to Counseling Services and Academic Performance

Adequate counseling is supposed to promote and enhance learning process for all pupils to support learners' success. This should be done by: offering guidance in areas such as academic achievement strategies, socio-emotional development, offering crucial support and advocacy to ensure that all pupils have the tools to achieve success and career goals. School counselors are vital members of education team and should enable pupils improve their academic performance by assisting them at all levels by; listening to their concerns about their academic, emotional or social problems, helping them process their problems and planning goals and action, as well as mediating conflict between them and teachers. They should provide counseling services that help pupils in the areas of academic performance, career, social emotional development, and ensuring that today's learner becomes the productive well-adjusted adults of tomorrow (American School Counselor Association, 2020).

A research was conducted by Thilakarathna (2020) in Srilanka on the impact of counseling services on academic achievement of primary school children used qualitative approach and descriptive research design. Simple random sampling technique was used and questionnaire and interviews were used as data collection tools. The findings indicated that most counselors are unqualified; there was low

academic achievements in studies; counselors do not pay attention to pupils' emotional and behavioural problems. It was recommended that teacher counselors should get more training. The previous investigation only used qualitative approach hence may not have had quantitative dimension which is useful for quantification of data and generalizing concepts more widely, and predicting future results which the current one used.

A research was carried in England by Leggiardro, (2021) on the impact of elementary school counseling programmes on learners' behavioural outcome in the first year of middle school in which academic success was involved. Pupils in grades 5 and 6 were used for the research. It was established that elementary school counseling contributes to pupils' academic success. It was recommended that more counseling was necessary for these pupils. The previous research was conducted in a developed country while the current one was carried out in a middle-income country Kenya which would enable comparison of cross-cultural similarities and differences if any.

In India, an investigation was carried out by Kapur (2018) on the significance of guidance and counseling on education to determine the role that a school counselor play on learners' academic success. The findings established that counselors and guides are professionally trained and qualified personnel and that their services have become an integral part of education system as they promote learners' academic success. The previous investigation did not capture peer counseling programmes in schools that the current inquiry captured. Also, the previous research was conducted in a developed country while the current one was carried out in a middle-income country Kenya which would enable comparison of cross-cultural similarities and differences if any.

In South Africa, Meron (2017) did an investigation on the effects of guidance and counseling services in enhancing academic performance of learners. Two independent random group study design was used. 60 learners were randomly selected (30 for experimental group and 30 for control group). The results of the investigation indicated that counseling services had positive effect on learners' academic achievements. They had a better reading speed, test preparation, test taking, writing skills and test anxiety management skills. The reviewed investigation used learners only hence did not capture varied opinions from respondents while the current one

used headteachers, teachers and counselors, which facilitated acquisition of rich data from varied experiences. The previous inquiry did not look at access to counseling services and role of a counselor in helping learners to apply interpersonal skills which the current one captured.

An investigation was conducted by Ocansey and Gyimah (2016) on counseling needs of learners with special educational needs and disabilities in the greater Accra Region of Ghana. Purposive and systematic sampling techniques were used to select 48 pupils and 3 staffs from 3 special schools. Questionnaire and interviews were used as research tools. The findings revealed that pupils had various academic needs and counseling needs. The previous investigation captured learners with special needs in general while the current one was specific on learners with PI since different disabilities have varied needs. The previous investigation was carried out in Ghana while the current one was carried out in Kenya with a different education policy. Also, the previous inquiry did not capture the relationship between access to counseling services and academic achievements of learners with PI in particular that the current one captured.

A case study in Zambia by Kaunda (2018) on effects of guidance and counseling on pupil discipline in primary schools in Kawamba District used qualitative approach with 50 headteachers, 50 guiding and counselors, 20 pupils and 4 education officers. Questionnaire was used as a data collection tool. The findings revealed that, other than behavior change, academic performance improved in schools where counseling is promoted. The previous investigation did not capture the role of counselors in mediating conflicts between teachers and pupils that the current one captured. Also, the previous research did not capture the roles of counselors in helping pupils to acquire interpersonal skills that the current one captured.

In Nigeria, Nkalo (2018) investigated the influence of educational counseling on the academic performance of pupils in River State. Descriptive survey design was used, and the target population was 500 primary school teachers. The findings established that counseling services had a positive impact on academic performance of learners. Therefore, it was recommended that the government should employ more counselors in primary schools to promote academic performance. The previous research used only teachers as respondents and this may have led to limited data while the current

investigation also collected data from learners as the consumers of counseling services, counselors as service providers, and headteachers as the administrators who implement the education policies in schools, therefore the current investigation was expected to yield more data on the same.

An investigation was done by Muola (2018) to determine factors affecting guidance and counseling programme in primary schools in Nairobi province, Kenya with a sample size of 234 teachers from a population of 10,000 teachers. Questionnaire was used as data collection tool. The findings revealed that majority of teachers do not regard counseling as crucial issue in development of pupils. Also, teachers' attitudes, lack of training in counseling, availability of time and facilities have negative impact on guiding and counseling programmes. It was recommended that training teachers in guiding and counseling to be given priority. The previous research used only teachers as respondents and this may have led to limited data while the current investigation collected data from learners as the consumers of counseling services, counselors as service providers, and headteachers as the administrators who implement the education policies in schools, therefore the current investigation was expected to yield more data on the same.

In Kenya, Adhiambo (2020) carried out an investigation on counseling services as predictors of academic achievement of pupils with physical impairment in public primary schools in Kisumu County. The target population was 552 participants which involved 503 pupils, 45 teachers, 2 headteachers and 2 counselors. The sample size was 150 pupils, 16 teachers, 2 headteachers and 2 counselors. The findings established that there was poor access to counseling services; and there was a statistically significant positive relationship between counseling services and academic performance of pupils with PI.

It was recommended that counseling services should be increased in the schools. The previous investigation covered only Kisumu County while the current one covered Nyanza Region, therefore, the findings would benefit a wider region. Also, the previous research did not capture the role of counselors in listening to pupils' emotional concern and problems which was captured by the current one.

A case study was carried out by Wachianga (2010) on provision of support services and their impact on socialization and academic participation for learners with PI in two selected schools in Kisumu East Sub-County, Kenya. Adequacy of professional counselors was among the independent variables. The research was guided by social cognitive theory, with target population of 34 teachers, 177 pupils and 4 professionals. The instruments were questionnaires, interview guide, focus group discussion and observation checklist, and the it used descriptive statistics.

The research findings revealed that the schools lacked professional counselors. There was a problem with provision of mobility services to pupils, although it facilitated socialization and academic participation of learners, no medical personnel employed in the selected schools, inadequate medical services, medical services promoted socialization, and academic participation although schools lacked professional counselors. Little collaboration between teachers and professionals, professionals had heavy workload, transport challenges, uncooperative parents and financial implications in provision of support services. The previous investigation covered only schools with learners with PI in Kisumu East Sub-County which may not be generalized to the whole Region while the current one captured the special schools of learners with PI in Nyanza Region hence covered a wider location.

2.6 Access to Physiotherapy Services and Academic Performance

Physiotherapy is aimed at helping children with PI to develop and maintain their mobility skills, joint range of movement, muscle strength and motor skills hence should be accessible. Physiotherapists give the advice on activities to help to improve learners' access to curriculum. They help children with a range of physical impairments and injuries to learn to maximize their independence and mobility by incorporating therapeutic exercises with play and recreational activities. This helps ensure that children feel at ease and have fun while they work through difficult physical challenges and is helpful in physical well-being. Physical activity is a key concept in physical therapy which includes Physical Education, play, games, sports, recreation or planned exercises (Hagstromer, 2017).

A research was conducted in US by Effgen (2016) on the relationship between fine motor skills and academic achievement of learners in elementary schools to 8^{th} grade. The findings established that a robust predictor of academic achievement is fine motor

skills; children who access PT services have greater motor abilities and also tend to have better academic achievement, they are able to navigate and manipulate their environment as well as gaining greater range of experiences earlier in life, all of which set the stage for greater academics, and there is also direct benefit in the classroom. The reviewed research was conducted in a developed country while the current one was conducted in a middle-income country, Kenya which would enable comparison of cross-cultural similarities and differences if any.

In U.S.A, Westcott (2018) carried out an investigation to explore the relationship between school-based physical therapy and standardized outcomes of pupils receiving physical therapy. It used a practice-based evidence research design, School Function Assessment (SFA) outcomes of 296 pupils with disabilities served by 109 PT. The findings revealed that engaging pupils in therapy activities and interventions improved their outcomes, and active mobility practice improved SFA participation, mobility recreation, and activities of daily living.

It recommended that emphasis should be put on active mobility practice by using motor learning interventions and engaging children within therapy sessions. The reviewed research was conducted in a developed country while the current one was conducted in a middle-income country Kenya which would enable comparison of cross-cultural similarities and differences if any.

An investigation was carried out by Chiarello (2016) in U.S on pupils' outcome of school-based physical therapy as measured by goal attainment scaling. The sample size consisted of 109 PTs and 296 pupils. Therapists translated learners Individualized Educational Programme goals into sub-goals using goal attainment scaling and determined pupils' gross motor functional classification system level at the beginning of school years. At the end of the year, therapists scored the goals. The findings revealed that children made progress on academic goals. The above reviewed research was conducted in a developed country while the current one was conducted in a middle-income economy Kenya which would enable comparison of cross-cultural similarities and differences if any.

A research was conducted by Rasberry, Lee, Robin, Lisa and Covile (2011) in Europe to synthesize the scientific literature that examined the association between school-based physical activity and academic performance. Fifty studies were synthesized,

and the findings revealed that there are associations between access to physical activity and academic performance representing measures of academic achievement. The reviewed investigation was conducted in a developed country, Europe while the current one was conducted in a middle-income economy country Kenya which would enable comparison of cross-cultural similarities and differences if any.

An investigation carried out by Archer and Garcia (2014) in Sweden on influence of physical exercise on academic performance and well-being in children and adolescence revealed that academic performance grade point average is indeed positively associated to how intensely pupils exercise, well-being and to self-regulation; also, physical exercise holds real merit for engendering improved academic prowess. The reviewed research was conducted in a developed country, that is, Sweden while the current one was conducted in a middle-income economy country, Kenya which would enable comparison of cross-cultural similarities and differences if any.

An investigation was conducted by Macdonald, Milne and Pope (2018) in Australia on the relationship between motor proficiency and academic performance in math and reading in school-aged children and adolescents. Systematic search of electronic database was done to identify relevant studies. 55 eligible articles were critically appraised and key data was extracted and synthesized. The findings revealed that there is association between several components of motor proficiency in primary settings and academic performance in math and reading. The reviewed research was conducted in a developed country, that is, Australia while the current one was conducted in a middle-income economy country Kenya which would enable comparison of cross-cultural similarities and differences if any.

In Washington DC United States (US), an investigation done on physical activity, fitness and Physical Education; effects on academic performance by Kohl (2013) revealed that physical exercises improve health; and facilitate academic performance. The previous inquiry was conducted in US which is a developed country with a different education system while the current one was conducted in Kenya which is a middle-income economy country and also has a different education system.

An inquiry conducted in Chile by Cid and Diaz (2017) on physical exercises and academic performance found that physical exercises are associated with improved cognitive function hence improved academic performance. The previous inquiry did not capture the role of PT on advising learners on the right equipment which was captured by the current one. The previous inquiry was conducted in Chile which is a developed country while the current one was conducted in a middle-income economy country Kenya which would enable comparison of cross-cultural similarities and differences if any.

In South Africa, Govindaswami (2010) conducted a qualitative research on the role of physiotherapy in inclusive education in Western Cape. The research used action research method which targeted 5 special schools and 9 physiotherapists. Focus group discussions and content analysis was used. Data was analyzed qualitatively. The findings indicated that many PTs are experiencing difficulties in making the shift from direct to indirect support, due to not having been provided with the necessary support, resources and training to facilitate the transition to IE practices.

It was recommended that PT require assistance in facilitation of a transition from providing mainly direct support in special schools to also providing indirect support in an IE setting. PTs require assistance of school management and department of education to provide necessary support, resources and training to facilitate transition to IE practices. The previous investigation was qualitative in nature hence lacked quantitative approach which is essential for generalization, the current one therefore adopted a mixed method approach to fill the gaps left out by the previous research as far as instrumentation is concerned. Also, the previous investigation did not capture the relationship between access to PT services and academic performance of learners with PI that the current one captured.

An investigation by Alebiosu and Adeyemi (2018) on the impact of physical education on academic performance of public primary school pupils in South West Nigeria used questionnaire on a sample of 1006 pupils from 6 states. The result and discussion revealed that effective physical education had significant relationship on academic performance of primary school pupils, however, less emphasis is paid on physical education in school. The previous investigation did not capture the role of

physiotherapists on advising learners on movement in classroom and within the school environment that the current research captured.

In Ethiopia, Teferi (2020) did an inquiry on the effect of physical activity on academic performance and mental health. Observational studies were used to examine the state of existing research pertaining to the relationship between physical activity and state of mental health. The findings revealed that healthy levels of physical activity generally correlate with mental health and academic achievement. Also, increased physical activity levels and fitness can improve bone and musculoskeletal function and help alleviate or relieve depression, anxiety and stress. The previous inquiry was conducted in Ethiopia which is outside Kenya while the current one was conducted in Kenya which would enable comparison of cross-cultural similarities and differences if any.

In Kenya, an investigation was carried by Kwach (2014) to establish the relationship between physical exercises on academic performance of pupils in Kadibo Division Kisumu County, Kenya. Descriptive approach with co-relational design in a cross-sectional research was used. The findings determined that the levels of physical exercise and play and academic performance was high at a general mean of 2.9. There was improved performance of pupils in the area of study reflected by a mean of 3.4. It was recommended that there is need to provide more play materials and ground for the young learners. The previous research was carried out in one Division while the current one covered a wider location hence would be beneficial to majority of learners in Nyanza Region. Also, the previous inquiry did not capture the role of PT in advising learners on the use of right equipment that was captured by the current one.

A research was carried out in Old Donholm estate by Mwendwa (2010) on performance of cerebral palsy society of Kenya (CPSK) in rehabilitation of children with physical impairments such as children with cerebral palsy (CP) in Kenya, in which physiotherapy services were among the independent variables. Descriptive case design was used, with a sample size of 103 subjects which included 100 CPSK members, 1 CPSK chairman, 1 PT and 1 OT. Questionnaire, interviews guide, document analysis, and observation checklist were used as research tools. The findings indicated that CPSK has not been able to provide many of the essential rehabilitation services to its members' and children with CP due to lack of human and

material resources hence cannot extend rehabilitation activities to other parts of Kenya.

It was recommended that more paramedics be employed to work for CPSK; government to increase funds; free or subsidized medical and educational services; formulating laws and policies to regulate provision of rehabilitation services in the country. The previous investigation did not capture the relationship between access to PT services and academic performance of learners with PI, that the current one captured.

A case study was carried out by Wachianga (2010) on provision of support services and their impact on socialization and academic participation for learners with PI in two selected schools in Kisumu East Sub-County, Kenya. Adequacy of PT was among the independent variables. It was guided by social cognitive theory, with target population of 34 teachers, 177 learners and 4 professionals. The instruments were questionnaires, interview guide, focus group discussion and observation checklist, and descriptive statistics was used.

The findings revealed that the schools lacked physiotherapists. There was a problem with provision of mobility services to learners, although it facilitated their socialization and academic participation, no medical personnel employed in the selected schools, inadequate medical services, medical services promoted socialization, and academic participation. Little collaboration between teachers and professionals, professionals had heavy workload, transport challenges, uncooperative parents and financial implications in provision of PT services. The previous investigation covered only schools with learners with PI in Kisumu East Sub-County which may not be generalized to the whole Region while the current one captured the special schools of learners with PI in Nyanza Region hence covered a wider location.

2.7 Access to Occupational Therapy Services and Academic Achievement

School-based occupational therapist practitioners support academic performance and social participation of pupils by promoting occupation within all school routines including classrooms, recess and cafeteria time. They help children fulfil their roles as learners and prepare them for college, career, and community integration. They utilize prevention, promotion, and intervention strategies for mental and physical health and well-being. They work with pupils on fine motor skills and large motor skills

(skipping, jumping and running). They help pupils achieve their developmental milestones involving sensory integration. They help pupils with assistive technology, self-advocacy skills and self-determination skills, adapting learning materials and working surface of the classrooms among others (American Occupational Therapy Association, 2020).

In U.S, Anderson (2016) conducted an inquiry on the impact of sensory-based movement activities on learners in general education. Mixed methods approaches were used, 6 classrooms were used whereby 3 classrooms were used as experimental group and 3 classes as control group. The findings revealed that use of sensory-based movement activities has the potential to influence academic outcomes. The previous inquiry was conducted in U.S which has different education policy from that of Kenya where the current investigation was carried out. The inquiry also captured relationship between access to occupational therapy services and academic achievement of learners with PI which the previous one did not capture.

In Pennyslavia, Nichole (2019) conducted a research on interventions used among school-based OT practitioners to promote learners' performance. It used qualitative approach. Five OTs were used as the sample, and the findings revealed that OT services improve pupils' academic participation; OTs help learners to achieve maximum ability and independence; and that the role of pupils in academic setup is to learn. The previous research was qualitative in nature hence lacked the quantitative dimension which would be useful for generalizability of the results, and which the current research captured.

An investigation was carried out by Smith, Weaver, and Holland (2014) on effects of a classroom embedded OT teacher handwriting programme for first grade pupils in United States of America. It used non-randomized comparison of write start programme and standard handwriting and writing instructions. Target population was 80 pupils and 59 instruction learners. The findings revealed that a co-taught write start programme may benefit first grade pupils at risk for handwriting and writing problems potentially promoting their writing development and success when demands increase in later grades.

The previous inquiry was carried out in USA while the current one was carried out in Kenya with a different education policy, hence the findings from the current inquiry were expected to be more comprehensive as far as relationship between access to OT services and academic performance of pupils with PI in Nyanza Region is concerned.

In Switzerland, Kaelin, Ray-Kaeser, Santinelli, Echsel, and Schulze (2019) conducted research on occupational therapy practice in mainstream schools. An exploratory and cross-sectional design which targeted 509 OTs was used. The sample size was 302 OTs. The findings revealed that nearly all (97%) participants collaborated with schools. It was recommended that there was need for change in federal health and education legislation as well as innovative solutions for service delivery in schools. The previous research did not capture the relationship between access to OT services and academic performance of pupils with PI, and did not include in the sample the pupils who are the consumers of OT services, therefore their feelings and expressions on how OT services are related to their academic achievement were not captured in the data, the current investigation therefore captured these to fill the gaps left out by the previous one.

In Slovenia, Suc, Bukovec and Karpljuk (2017) conducted a research on the role of inter-professional collaboration in developing IE; experiences of teachers and OT. The sample size comprised of 36 primary school teachers and 9 occupational therapists. The research instruments included focus groups discussions and interviews. The findings revealed that both teachers and OTs expressed frustration with organizational and systemic factors that often-prevented better exchange of knowledge and information. Occupational therapists had limited access to school environment due to organization of work and financial issues. It was recommended that the collaboration between different professionals working with children with special needs must strengthen.

The previous research was qualitative in nature hence lacked quantitative aspect of collecting and analyzing data which would be useful for generalizability, this was captured by the current investigation by use of questionnaire to fill the gaps in regards to instrumentation. Also, the previous investigation did not capture the relationship between access to OT services and academic performance of pupils with PI which the current one captured.

A research was conducted in South Africa by Stormbroek and Uchana (2016) on community service occupational therapists (CSOT) to find out the role played by CSOT in improving access to OT services. It used a descriptive cross-sectional research design. The target population included all OTs who were allocated community service (CS) placement for 2013 by national department of health. The sample size was 240, that is, only those OT who were allocated and took part. Questionnaire was used as research tools. The findings revealed that community service OT are playing an important role in improving access to services.

It was recommended that even though community service OT are playing an important role in improving access to services, it needs to be situated within a broader plan to extend and strengthen services in-line with government policy. The previous inquiry did not capture the relationship between access to OT services and academic achievement of learners which was captured by the current one. The previous investigation was quantitative in nature hence did not have the qualitative dimension which would have provided the participants a chance to express their feelings and experiences unlike the current one which used a mixed method approaches which filled in the gaps that had been left in respect to instrumentation.

A research by Twagirimana (2013) on strategies of early interventions on academic performance of pupils with disabilities in 2 selected districts in Rwanda used purposive sampling techniques, simple random sampling and stratified random sampling techniques. It used questionnaire, interview schedule, FGDs and observation checklist as data collection tools. The findings established that early interventions are poorly done due to lack of expertise such as occupational therapists. There was no collaboration of multidisciplinary team with teachers. The previous research did not capture the role of OT in helping learners acquire functional performance skills that the current one captured.

An inquiry by Hargreaves, Nakhooda, Mottay and Subramoney (2012) was done on the collaborative relationship between teachers and OTs in primary schools, and the findings determined that there was little knowledge about the role of OT; there was negative attitude towards OTs by teachers; and time was also a barrier towards collaborative relationships. The previous inquiry did not capture the role of OT in

helping learners by adapting the classrooms and working surface that was captured by the current one.

An investigation was carried out by Njeri (2011) on analysis of special needs educational support services on academic performance of learners with PI in Kiambu County, Kenya. It was guided by Social Cognitive Theory. The target population was 120 learners with PI, 400 teachers and 12 professionals such as occupational therapists, nurses, counselors and social workers. Stratified random sampling technique was used to select 36 learners and 120 teachers, while purposive sampling technique was used to select 4 professionals. The findings revealed that support services helped learners with PI to participate in class, socialize with others and improved learners' performance. There was collaboration of paraprofessionals with teachers however, they faced challenges with high work load. It was recommended that the school management should employ an occupational therapist.

The previous investigation covered only one county hence its results could not be applicable to other counties while the current one covered a wider region with more counties hence its findings would be applicable to a wider region. Also, the previous one did not capture the role of OT in helping learners with PI by modifying classroom working area that the current one captured.

A research was carried out in Old Donholm estate by Mwendwa (2010) on performance of cerebral palsy society of Kenya (CPSK) in rehabilitation of children with cerebral palsy (CP) in Kenya in which OT services was among the independent variables. Descriptive case design was used, with a population comprising of 300 registered members of CPSK, 2 PTs, 3 OTs, and chairman of the society. The sample size was 103 subjects which included 100 CPSK members, 1 CPSK chairman, 1 PT and 1 OT. The data collection tools used included questionnaire, interviews guide, document analysis and observation checklist.

The findings indicated that CPSK has not been able to provide many of the essential rehabilitation services such as OT services to its members' such as children with physical impairments due to lack of human and material resources hence cannot extend rehabilitation activities to other parts of Kenya. It was recommended that more paramedics be employed to work for CPSK; government to increase funds; free or subsidized medical and educational services; formulating laws and policies to regulate

provision of rehabilitation services in the country. The previous investigation did not capture access to OT services in relation to academic achievement of learners with PI which was captured by the current one to find out the relationship between access to OT services and academic performance of learners with PI.

An investigation was carried out on influence of habilitation on academic performance of pupils in Joytown special school for learners with physical impairments in Kiambu County, Kenya by Wairimu (2018). Target population was 45 participants, that is, 1 headteacher, 20 learners, 20 teachers, 2 teacher aides and 2 OTs. The sample size was1 headteacher, 20 learners, 10 teachers, 2 teacher aides and 2 OTs. Social cognitive theory was used, and questionnaire, interviews and observation checklist were used as data collection instruments. The findings indicated that habilitation done by OTs was vital in improving academic performance of pupils with PI. The previous study did not capture the role of OT in helping pupils acquire advocacy and self-determination skills which was captured by the current research.

A research done by Oliecha (2010) on environment and academic performance of pupils with PI in 30 primary schools in Rongo District, Kenya, used OT services as a method of supporting learners under medical intervention, and the findings revealed that occupational therapist services supported academic performance of pupils with PI. The previous investigation did not capture the role of OT in helping learners to actively participate in classroom activities and acquire advocacy and self-determination skills which the current one captured.

2.8 Summary of Literature Review and Gaps

This chapter reviewed related literature on adjustments that enhance academic performance of learners with PI in public primary special schools for learners with PI from international, regional and local perspectives. The independent variables included; adaptation of physical facilities, access to counseling services, access to PT services and access to OT services. The dependent variable was academic performance, and the findings of the research may be vital in promoting academic performance of pupils with PI in Kenya. The literature reviewed in this chapter was deemed appropriate and essential as it helped the researcher to better understand the gaps as far as adjustments that enhance academic performance of learners with PI are concerned.

For adaptation of physical facilities, it was noted that the literature reported studies including: barriers in accessing care services; experience of people with PI; barriers to children with mobility impairments; problems, prospects and possibilities of IE for children with PI; facilities for physically impaired; factors influencing participation of PI; preparedness of schools offering IE to PI; factors influencing academic performance; influence of school infrastructural environment on academic performance; impact of school facilities on pupil's academic achievement; impact of facilities on academic performance; and relationship between school facilities and academic performance.

Most of these studies used qualitative approaches only, such as Zubayer (2011) and Mukhopadhy (2013) among others hence did not capture quantitative dimension which is useful for generalization. Studies by Karandu (2014) and Njoroge (2015) among others were only quantitative in nature hence could not provide participants a chance to express feelings and expressions. The studies also left out the relationship between adaptation of physical facilities and academic performance of learners with PI in public primary special schools, which the current investigation captured.

In access to counseling services, the studies captured: teachers perceptions on role of counselors; counseling and carrier guidance; relevance of counseling on management of PI clients; role of school counselors in education; pupils' and teachers' perception on counseling services in schools; impact of counseling on pupils' social and emotional adjustments; role of counseling in enhancing learners' discipline; influence of guidance and counseling programme on academic performance; factors influencing provision of guidance and counseling services; and effectiveness of guidance and counseling in primary schools.

Some studies such as by; Brunk (2016) used only qualitative design; Mubanga (2014) used survey research design; Nyan (2011) used questionnaire only as a research tool. The studies left out adequacy of counseling services and competency of counselors. Also left out was the relationship between access to counseling services and academic performance of learners with PI in public primary special schools, and these were captured by the current research

For access to PT services, the studies captured: evidence based practice in primary care physiotherapy; perception of PT profession by PT; role of PT in IE; rationing as a reality in rural physiotherapy; impact of physical activity and fitness on academic performance and cognitive performance in children; physical activity, fitness, and physical education's effect on academic performance; and physical exercise and academic performance. Inquiries such as by Kandersamy (2012) used grounded theory and symbolic interactionism with qualitative methodology only, hence lacked quantitative dimension for generalizability.

Mwendwa (2010) used descriptive case design; and most studies did not capture the adequacy and competency of PTs and the relationship between access to PT services and academic performance of learners with PI in public primary special schools that the current inquiry captured. Also, in most investigations mixed method approaches and concurrent triangulation design were also not used and which were captured by the current study.

Finally, for the access to OT services, studies had been conducted in relation to; role played by community service OT in improving access to services; and performance of Cerebral Palsy Society of Kenya in rehabilitation of children with CP; experiences of teachers and OTs; OT practice in mainstream schools; advocating the role of occupational therapists; and occupational therapy, effective school-based practices within a policy context.

Studies such as by Stormbroek and Uchana (2016) used a descriptive cross-sectional research design and quantitative data only which lacked quantitative dimension for generalizability; Mwendwa (2010) used a smaller sample which was prone to statistical errors; Kithii (2016) used descriptive survey design. Also, some previous inquiries did not capture the relationship between access to OT services and academic performance of learners with PI in public primary special schools that the current one captured.

In a nutshell, studies reviewed in this section on the relationship between adaptation of physical facilities, access to counseling services, access to PT services and access to OT services and academic performance of pupils with PI and their findings showed that the research on adjustments that enhance academic performance of learners with PI in public primary special schools was limited and especially in Nyanza Region.

Most investigations did not use Social Model of Disability theory by Oliver (1983), mixed-methods approaches, or concurrent triangulation design. This therefore provided a substantial ground upon which the current research was established. Also, a research conducted by Njoroge (2015) on institutional related factors affecting performance of learners with special needs in Kamukunji public primary schools in Kenya recommended that further research be conducted on specific type of disability. This also gave out an account to conduct the current research which was specific on pupils with physical impairments. The current inquiry was therefore expected to fill the gaps which were left out by the previous studies.

Also, little attention has been received on adjustments that enhance academic performance of pupils with PI in public primary special schools for learners with PI. The current research therefore sought to investigate adjustments that enhance academic performance of learners with PI in public primary special schools for pupils with PI in Nyanza Region, Kenya to fill the gaps left out by previous investigations.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter presents the research methods which were used. These include; research approaches, research design, location of the study, target population, sampling techniques, sample size, instrumentation, validity and reliability of the research instruments, data collection procedures, data analysis methods, and ethical considerations.

3.1 Research Approach

The research used mixed method approaches which involve conducting research involving collecting, analyzing, merging qualitative and quantitative research, as well as integrating quantitative and qualitative data (Creswell, 2012). The choice was based on the fact that combination of approaches results in a more complete understanding of research problems. It complements the choice of a single design by overcoming the weaknesses of a single design, hence provides a broader spectrum of ways to understand complex research problems in different contexts than could be done through either quantitative or qualitative approaches alone. Also, closed-ended measures, open-ended, and observations were used, and this allowed collection of quantitative and qualitative data.

Quantitative approach was useful in quantification of data to allow generalization of the results from a sample to the whole region. While, qualitative approach was useful for gaining an in-depth understanding of underlying reasons and motivations as far as provisions of adjustments that enhance academic performance of pupils with PI in public primary special schools for learners with PI is concerned. Quantitative approach involved fixed response options, while qualitative approach involved unstructured response options and were text based.

3.2 Research Design

There are different types of designs within mixed methods, such as exploratory design, embedded design, explanatory design, and triangulation design. Exploratory design requires a lengthy amount of time for implementing the two phases. The researcher must also decide whether to use individuals from the same sample for both phases or to draw participants from the same population for the two phases. In

embedded design, the researchers must specify the purpose of collecting quantitative or qualitative data as part of a larger quantitative or qualitative study. It can also be difficult to integrate the results when two methods are used to answer different research questions. In explanatory design, it can be difficult to reach appropriate conclusions on the basis of causal research findings due to the impact of a wide range of factors and variables in the social environment (Creswell, 2014).

On the other hand, triangulation design involves using multiple datasets, methods, theories and/or investigators to address a research question. It is characterized by two or more methods used to confirm, cross-validate, or corroborate findings within a study. It involves a single investigation that contains quantitative and qualitative data collection simultaneously which is conducted and analyzed at the same time. It is used to validate the findings generated by each method through evidence produced by the other, and it also involves using both quantitative and qualitative data to more accurately define the relationships among variables of interest (Creswell, 2014).

Each type of data can be collected and analyzed separately and independently using the techniques traditionally associated with each data type. This lends itself to team research in which the team can include individuals in both quantitative and qualitative expertise. It uses both quantitative and qualitative data to more accurately define relationships among the variables of interest (Creswell, 2014). The research therefore used concurrent triangulation design as shown in figure 2.

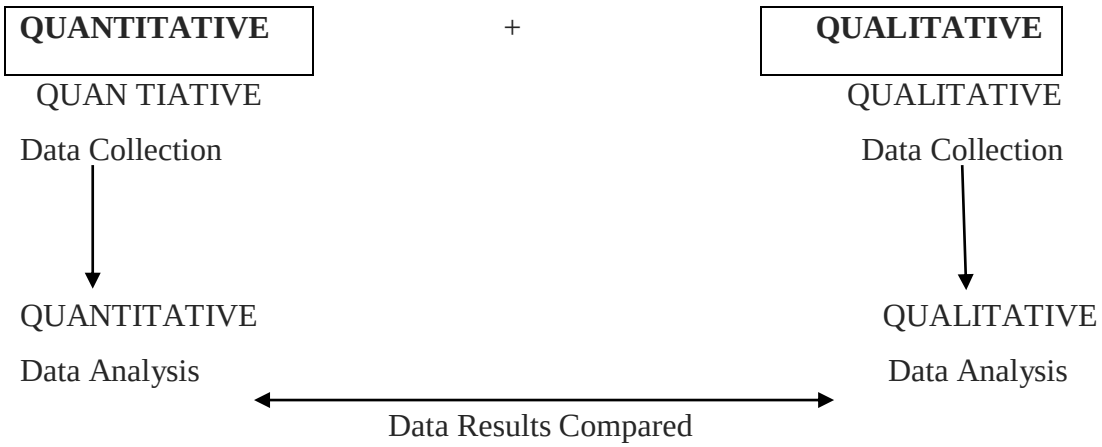

Figure 2: *Concurrent Triangulation Design (Source: Creswell and Clark. (2011).*

The design was more appropriate since both methods are used to overcome a weakness in using one method with the strengths of another (Cohen & Manion, 2011). Concurrent triangulation design was used because of its ability to find agreement and validation of results through a variety of research methods. If different research methods come to the same conclusion, the researcher can be more confident that the results are truly a reflection of what is actually happening and not a reflection of the method of testing used to gather the data hence, the data may be more reliable.

3.3 Location of the Study

The inquiry was carried out in Nyanza Region of Kenya which is located on the South Western part of Kenya, bordering Uganda with Kisumu city the third largest city in Kenya. It lies between longitude 34^0 30' 0 East and latitude -0^0 30' 0 South. The region has 6 Counties in total, namely; Siaya, Kisumu, Homa-Bay, Migori, Kisii and Nyamira. Its total population is 6269579 and its populations in other Counties are; Kisumu (1155,574), Siaya (993,183), Homa-Bay (1,131,950), Migori (1,116,436), Kisii (1,266,860), and Nyamira (605,576) (Kenya Population Housing Census, 2019). Nyanza Region is about 400 km from Nairobi County, the capital city of Kenya.

The region is predominantly inhabited by Luo, Gusii, Luhya, and Kuria communities and other minority groups such as Kikuyu, Somali, and Indian communities among others. The major economic activities of the residents are trade, agriculture, marine transport, fishing, industries, and scenic tourism spots (Kenya Population Housing Census, 2019).

Most learners with disabilities (58.34%) perform poorly academically (Chishti, 2014). Unlike other forms of disabilities, physical impairment impacts on a learning in that; a learner with PI may have difficulties with; managing the distance between different learning activities, carrying materials, note taking, practicals and may also take longer to ask or answer questions, and these may affect their academic achievement if appropriate adjustments are not made. Learners with PI may also need a range of human support (Linda, 2010).

Physical impairment is the highest prevalence type of disability (Kenya Population Housing Census, 2019), which implies that the category of people with disability which has majority of people who can be left out if there are no proper adjustments in education are learners with physical impairments, hence physical impairment was

chosen. Nyanza Region is among the regions in Kenya with the highest number of people with Physical Impairment (9.2%) as shown in table 1.

This implies that if there are inadequate adjustments in schools for learners with PI, then majority of learners with PI in regions with more people with PI such as Nyanza Region will have more learners being left out or affected academically since they have majority of learners with PI. Also, Nyanza Region has several special schools for learners with PI and there is poor performance of those learners. For these reasons, learners with PI in public primary special schools for learners with PI in Nyanza region which have been performing dismally academically were purposively selected for the study.

3.4 Target Population

The target population involved head teachers, teachers, school counselors, physiotherapists, occupational therapists and learners with PI as shown in table 3.

Table 3: *Target Population (n=1433)*

Category	Target Population
Head Teachers	6
Teachers	92
Counselors	6
Physiotherapists	6
Occupational Therapists	6
Learners with PI	1317
Total	**1433**

Source: *Kisumu County, Siaya County, Homa-Bay County, Migori County, Nyamira County and Kisii County Offices (2021).*

From table 3, the target population was made up of 1433 respondents, who comprised of 6 head teachers in the 6 schools, 92 teachers, 1317 learners with PI, 6 counselors, 6 physiotherapists and 6 occupational therapists (Nyanza Regional Office, 2021).

3.5 Sampling Techniques

Sampling is a process of selecting a number of individuals or objects from a population such that the selected groups contain elements representative of the characteristics found in the entire group (Shona, 2019). The investigation used purposive sampling technique to select public primary special schools for learners with PI whose performance had been more dismal in national examinations for consecutive years. This is whereby the researcher uses personal judgments to

determine cases that have required information (Guest, Namey & McKenna, 2017). Purposive sampling technique was used to focus on particular characteristics of a population that are of interest which would best enable the researcher to answer the research questions (Etikan, 2016). Personal judgments were therefore used to choose cases that help answer research questions. The 6 schools were therefore purposively selected due to their dismal academic performance in national examinations.

To select learners with PI, the research used simple random sampling method. This is a type of probability sampling in which the researcher randomly selects a subset of participants from a population, and each member of the population has an equal chance of being selected, hence it lacks bias (Thomas, 2020). The researcher gave learners with PI cards written "no" and only one card written "yes" to pick at different times, each time returning all the cards and repeating the process until the desired number of learners with PI was achieved. Only the learners with PI who picked "yes" were selected for the study.

Learners with PI in lower grades (3 and below) were exempted since; their level of language would not have allowed them to participate well in filling the questionnaire. Also, unlike their counterparts in upper classes, they had stayed in school for a shorter period hence did not have enough experience to provide information as far as adjustments that enhance academic performance is concerned. Therefore, the sample size consisted of 396 learners with PI in Nyanza Region as shown on table 4. The research used saturation sampling technique to select head teachers, counselors, PTs, and OTs. Saturation is data satisfaction, and it indicates that adequate data has been collected for detailed analysis (Walker, 2012). It was also convenient since it involved few head teachers, counselors, PTs, and OTs.

Purposive sampling technique was used to select teachers who were thought to have more required information pertaining to academic performance of learners with PI per class as well as various adjustments made to enhance academic performance of learners with PI per class. Class teachers; are in charge of various classes in school, organize a class, teach learners with PI, understand the challenges and individual needs of learners with PI in their classes, have information on learners' academic progress, and also, the schools' overall performance depends on performance per class that the class teachers master. They therefore have more required information on

adjustments that enhance academic performance of learners with PI in their classes. Class teachers were therefore purposively selected. In this case, class teachers from classes 1 to 8 were selected.

3.6 Sample Size

A sample is a small part of the large population which is thought to be representative of the larger population Shona (2019). The sample size for the inquiry was as shown in table 4.

Table 4: *Sample Frame (n=1433)*

Category	Target Population	Sample Size	Percentage
Head Teachers	6	6	100
Teachers	92	48	52
Counselors	6	6	100
Physiotherapists	6	6	100
Occupational Therapists	6	6	100
Learners with PI	1317	396	30
Total	**1433**	**468**	**3.3**

Source*: County offices (2021).*

From table 4, the percentage of sample size of head teachers was 6 (100%); counselors 6 (100%), PTs 6 (100%), OTs 6 (100%); teachers 48 (52%); learners with PI 396 (30%); and total sample size of respondents was 468 (33%). According to Dworkin (2012), to reach data saturation, qualitative studies require a minimum sample size of at least 5 to a maximum of 50 participants as adequate, therefore, a sample size of 48 teachers which is more than the recommended minimum number and slightly below the recommended maximum number was deemed sufficient for the qualitative analysis for the current investigation, and this represented 52% teachers.

The 30% sample size for pupils with PI, and 33% total sample size of the study population were so as pointed out by Sharma (2020) that at least 30% sample size of the total population is representative, therefore, the sample sizes of 30% and 33%, that is, sample size for learners with PI, and for the total population respectively were considered representative enough for the inquiry. According to Zamboni (2018), larger sample sizes provide more accurate mean values, identify the outliers that could skew the data in a smaller sample and provide a smaller margin of error. Therefore, the sample size for teachers (52%) and the total sample size for the population (33%)

which was more than the recommended minimum sample size (30%) was considered sufficient enough for the investigation.

3.7 Data Collection Instruments

The research used questionnaire for learners with PI; interview guide for: head teachers; counselors; PTs; and OTs; Focus Group Discussions (FGDs) for teachers; and an observation checklist for the researcher as data collection tools.

3.7.1 Questionnaire for Learners with Physical Impairments (QLWPI)

Questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. Questionnaire can be structured, for instance, with pre-determined questions with answers such that the respondents only tick the correct answers in short form. It is also called pre-coded, closed restricted and categorical questionnaire. Unstructured questionnaire is whereby pre-determined questions are given but have no answers. The answers are to be structured by the respondents. Open questions are given for respondents to give answers. Questionnaires are useful in obtaining important information about the population, and each item in the questionnaire is developed to address a specific objective or research question of the study (Saris & Gallhoter, 2014).

Structured questionnaire was used to extract information from learners with PI. Questionnaire was included in the investigation since it is convenient in terms of time and many learners were involved; it allowed collection of large amounts of data from learners which were useful for the research, and which may not have been easy to collect from interview schedules, this involved 396 learners with PI. There were two questionnaires, that is; adjustments questionnaire (AQ), and academic performance questionnaire (APQ).

The AQ for learners with PI had 5 sections, that is, section A, B, C, D and E. Section A included their bio data; section B was to extract information on adaptation of physical facilities; Section C was to gather information on access to counseling services; Section D was used to extract information on access to PT services; while section E was used to gather information on access to OT services. The AQ was used to collect data from the sampled 396 learners with PI.

The AQ focused on objectives 1, 2, 3, and 4, which was based on the relationship between: adaptation of physical facilities; access to counseling services; access to PT services; and access to OT services, and academic performance of learners with PI in public primary special schools in Nyanza Region. The Likert rating type scale was used for responses, that is; strongly agree (4.21-5.00), agree (3.41-4.20), somehow agree (2.61-3.40), disagree (1.81-2.60) and strongly disagree (1 00-1.80) and was presented as percentage frequencies of responses. Participants were given about 25 minutes to fill the questionnaire (Appendix I).

Learners with PI also filled a questionnaire on academic performance (APQ) in order to obtain information on their academic performance. This lacked bio data since it was previously captured in AQ. It involved their performance for the last three terms (term 2: 2019; term 3: 2019; and term 1: 2020) in terms of mean standard scores. The participants were given about 15 minutes to fill the questionnaire (Appendix J).

3.7.2 Interview Schedules

Interviews are face to face encounters which involve administration of a questionnaire or interview schedule. They can be individual or group interview and they are advantageous in that they provide in-depth data which is not possible to obtain using a questionnaire (Lorraine, Geoffrey & Peter, 2011). Also, more people are willing to communicate orally than in writing. Interview schedule was used since it provides room for probing; the interviewer can gather more information using the interviewee's body language as well as the emotional state of the interviewee. Interview schedules were used for head teachers, counselors, PTs and OTs. Each interview schedule was estimated to last for 45 minutes to 1 hour.

3.7.2.1 Interview Guide for Head Teachers (IGHT)

Individual in-depth interview was used. It was used on head teachers to get in-depth information on adjustments that enhance academic performance of learners with PI, and was easy to use on head teachers since they were few. Head teachers' interview guide was therefore based on the relationship between; adaptation of physical facilities; access to; counseling services, PT services and OT services, and academic performance of learners with PI in public primary special schools in Nyanza Region. The researcher conducted face to face in-depth interview for head teachers (Appendix K).

3.7.2.2 Interview Guide for Counselors (IGC)

In-depth individual interviews were used on counselors so as to obtain in-depth information on their services as adjustments that enhance academic performance of learners with PI, and was easy to use on counselors since they were few. Counselor's interview guide was based on the relationship between counseling services and academic performance of learners with PI. Six counselors were involved. The researcher conducted face to face in-depth interview for school counselors (Appendix L).

3.7.2.4 Interview Guide for Physiotherapists (IGPT)

Interview guide was used on PTs so as to obtain in-depth information on their services as adjustments that enhance academic performance of learners with PI, and was easy to use on PTs since they were few. Six PT's were involved, and their interview guide was based on the relationship between adaptation of physical facilities, and access to PT services and academic performance of learners with PI. The researcher conducted face to face in-depth interview for the PTs (Appendix M).

3.7.2.5 Interview Guide for Occupational Therapists (IGOT)

Interview was used on OTs to gain in-depth information on their services as adjustments that enhance academic achievement of learners with PI, and was easy to use on OTs since they were few, six OT's were used. The OT's interview guide was based on the relationship between; adaptation of physical facilities and academic performance, and access to OT services and academic performance of learners with PI. The researcher conducted face to face in-depth interview for OTs (Appendix N).

3.7.3 Focus Group Discussions for Teachers (FGDT)

This is a form of qualitative research which consists of interviews in which a group of people are asked about their perceptions, opinions, beliefs, and attitudes towards a service, concept or idea among others (Nyumba, Wilson, Derrick, and Mukherjee, 2018). The types of focus groups include; dual moderator, two-way, dueling moderator, respondent moderator, client participant, mini focus groups, teleconference, creativity groups, band obsessive groups, and online focus groups. The inquiry used dual moderator focus group where one moderator ensures that the session progresses smoothly, while the other ensures that all the topics are covered. FGDs were used for the inquiry since it helped generate a lot of information from

teachers on their perspectives on adjustments that enhance academic performance of learners with PI. The FGDs allowed for probing which generated more in-depth information. The FGDs included probing questions, follow-up questions and exit questions.

Class teachers were used for the investigation since; they teach learners with PI, they are in charge of various classes in school, they understand the challenges and individual needs of learners in their classes, they have information on learners' academic progress, and also, the schools' overall performance depends on performance of learners per class that class teachers manage. They therefore may also have information on adjustments that enhance academic performance of learners with PI, and this involved 48 class teachers. The teachers' FGDs was based on the relationship between; adaptation of physical facilities, access to counseling services, access to PT services and access to OT services, and academic performance of learners with PI.

According to Amugune (2014), FGDs should be divided into groups, while Barry and Nichelle (2016) pointed out that 6 to 8 participants are appropriate per focus group discussion. Therefore, the 48 teachers were divided into 6 groups of 8 participants each, and FGDs were conducted in private settings where a group of teachers were asked about: adaptations of school physical facilities, access to counseling services, access to PT services and access to OT services in relation to academic performance of learners with PI. The participants were allowed to agree and disagree with each other's ideas/opinions, and note taking and tape recording was done with prior permission of the participants. Each FGD took between 45 minutes to 1 hour (Appendix O).

3.7.4 Observations Checklist

An observation checklist is a research tool used by a researcher to record what is observed directly during data collection. Observation can enable one to draw inferences about the prospective that cannot be obtained by relying exclusively on questionnaire or interview data. Observation checklist was used for the investigation since it involved visible adaptation of physical facilities of learners with PI, hence would be best done by researcher as it allows taking notes of data observed directly by the researcher than use of questionnaire or interview schedules (Manu, 2018).

It was used to analyze the adaptation of physical facilities, and it involved observation criteria and comments by the researcher depending on what was to be observed. It was done by the researcher to find out the adaptation, availability, access, and adequacy of physical facilities, counseling services, PT services, and OT services in relation to academic performance of learners with PI. Photographs were taken to reveal the real state of the physical facilities for learners with PI. This took about 45 minutes (Appendix P).

3.7.5 Validity of research instruments

Validity is the degree to which results obtained from the analysis of the data purports to measure what it does to measure (Yue, 2016). There are different types of validity, such as construct validity which is a measure of the degree to which data obtained from an instrument meaningfully and accurately reflects or represents a theoretical concept. However, assessing it on data is not an easy task since it requires a researcher to establish theoretically derived hypothesis involving the concept under consideration. Criterion-related validity is the use of a measure in assessing subjects' behavior in specific situations.

It can be predictive or concurrent, however, it may pose threats to internal validity. Content validity on the other hand is a measure of the degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept. Content validity focuses on whether the full content of conceptual description is represented in the measure (Chiang, 2015). The instruments were validated using content validity since it ensures that all possible items that should be used in measuring the concept under study are contained hence were more valid.

The purpose, objectives and research questions were examined. The audience, their background such as educational, readability levels, access and the process used to select the respondents was determined, that is, sample versus population. The research instruments were conceptualized by generating statements and questions for the questionnaire, interview schedules, Focus Group Discussions (FGD), and observation checklist. The content was transformed into questions and statements, then a link among the objectives of the research and their translation into content was established such as attitudes, recalling facts, opinions or perceptions among others.

The validity was then established by addressing the question as to whether the instruments were; valid, representing the content, appropriate for the sample/population, comprehensive enough to collect all the information needed to address the purpose and goals of the study, or whether the instrument look like a questionnaire, interview schedule, FGD or observation checklist. This was for adaptation of physical facilities, access to counseling services, access to PT services and access to OT services. For attitude of head teachers, teachers, paraprofessionals and learners with PI, face validity was used (Paul and Krabbe, 2017). The readability test was then done.

It was then assessed by supervisors from Jaramogi Oginga Odinga University of Science and Technology as suggested by Bolarinwa (2015), that content validity is assessed by use of experts and professionals, and that validity is established by use of a panel of experts in the research subject and field test. The recommendations by the supervisors such as: using the right questions; ensuring that the questions used truly measure the issue of importance; and eliminating the biases; were used in the development of the final questionnaire, interview guide, FGD schedule, and observation checklist. The questionnaire was then ready for piloting test.

3.7.6 Reliability of Research Instruments

According to Fiona (2019), reliability is a measure of the degree to which research instruments give consistent results after repeated trials. The measurements of the same subjects are taken under the same conditions. There are different types of reliability such as; split-half method whereby the correlation between two halves of the same test is used to indicate the reliability. It requires only one testing session. An instrument is designed in such a way that there are two parts. Subjects' scores from one part are correlated with scores from the second part.

The equivalent form technique uses two equivalent instruments. Specific items in each form are different but are designed to measure the same concept. They are the same in number, structure and level of difficulty. The construction of two tests which measure the same concept is however difficult and expensive in terms of time and resources. Test-retest technique on the other hand involves administering the same instrument twice to the same group of subjects in two occasions and correlate the scores. Test-retest reliability can be used to determine the extent to which items or

measures are replicable or consistent over time. However, it may have carry-over effects (Tavakoli, 2012).

According to Fiona (2019), pre-test is vital, and reliability is established using a pilot test by collecting data from subjects not included in the sample Hence, to increase reliability, piloting was conducted, which, according to Junyong (2017), helps to identify any inadequacy in the items in the instruments, misunderstandings, or ambiguities. The researcher conducted a pilot study in 1 public primary special school for learners with PI that is school F for learners with PI which was not used in the inquiry. This was conducted on 40 (10%) learners with PI who were randomly selected. The 10% was used as suggested by Travethan (2020) that researchers need ten times (10%) the number of participants. The questions which needed corrections and were corrected were as shown on table 6.

The researcher used Cronbach's alpha to ascertain reliability. This is a measure of internal consistency that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. According to Oso and Onen (2013), a reliability value that ranges between 0.6 and above can be considered good enough for the investigation. The researcher used this to ascertain the reliability of the study. To do this, data collected from pilot test was analyzed with the help of Statistical Package for Social Science (SPSS) version 22 to produce tables, graphs and charts.

To examine the reliability of the pupils' questionnaire, a measure of internal consistency of the items in each sub-scale was established. Creswell (2014) affirms that internal consistence is the degree to which an instrument is error free, reliable and consistent across time and across the various items in the scale. Cronbach's alpha coefficient analysis was used to investigate the internal consistency of the questionnaires, since it is the most reliable test of inter-item consistency reliability for Likert scaled or rating scaled questionnaire. The reliability for multi-item opinion items were computed separately for all the sub-scales in the questionnaires and the coefficient alpha of these variables were reported in Table 5.

Table 5: *Internal Consistency: Cronbach's Alpha Results for the Questionnaire*

Scale	No. Items	Cronbach's alpha	Item (s) deleted	Conclusion (Reliable/ Unreliable)
Physical facilities	13	0.665	2 and3	Reliable
Counseling services	13	0.704	5	Reliable
Physiotherapy services	13	0.678	9	Reliable
Occupational therapy services	13	0.713	7	Reliable

Source: *Author (2021), SPSS Analysis.*

Table 6 reveals that all the sub-scales reached the required level of internal consistency of reliability with the Cronbach's alpha values ranging from a low of 0.665 (physical facilities questionnaire) to a high of 0.713 (OT services questionnaire). The Cronbach's alpha for all the sub scales suggest that the instruments had adequate reliability for the study. This indicates that all the items hanged out well with others in the sub-scales. However, some items, which did not hang well with other items, were deleted first in each of the sub-scales, making all the remaining items to correlate well with the total scale to a good degree. The deleted items were only excluded in the computation of final variables used in the inferential analysis. These findings concur with the recommendation by Oso and Onen (2013) that a coefficient of 0.60 and above is of adequate reliability, indicating that the instrument has adequate inter-item consistency reliability standard. Consequently, the questionnaires were considered suitable for data collection because they adequately measured the constructs for which they were intended to measure.

3.7.10.1 Trustworthiness of Qualitative Instruments

Trustworthiness of a research refers to the degree of confidence in data, interpretation, and methods used to ensure the quality of a study (Polit and Beck, 2014). As suggested by Devault (2019)), trustworthiness should be employed. These involve employing credibility, transferability (applicability), dependability and conformability. Devault's method of trustworthiness consist of trust-value, transferability, consistency and neutrality criteria of ensuring trustworthiness of the data to be collected as well as the inferences to be made.

3.7.10.1.1 Trust-value

Trust-value is helpful to the researcher in establishing confidence in the subject and the context in which the research is undertaken (Devault, 2019). In this inquiry, the researcher ensured confidence through credibility which is the confidence in the truth of the findings. This was achieved through persistence observation, prolonged engagement, notetaking during interviews, triangulation, referential adequacy, negative case analysis, tape recording and ensuring that the respondents focus on the topic under investigation.

3.7.10.1.2 Transferability

Transferability is the degree to which the findings have applicability in other contexts and settings or with other groups. According to Polit and Beck (2014), it is the ability to generalize the findings to a larger population. This was achieved through thick description. The current research used saturation sampling and purposive sampling techniques which ensure that a point is reached where no new information is obtained from further data, and adequate data has been collected for detailed analysis.

3.7.10.1.3 Dependability

Dependability is the ability to show that the findings are consistent and could be repeated with the same participants or in a similar context Polit and Beck (2014). To ensure that research findings were consistent, a pilot study was conducted to determine the reliability of research instruments. To ensure dependability, the supervisors and independent experts were also asked to scrutinize the data findings and the techniques of obtaining them.

3.7.10.1.4 Conformability

Conformability is the degree of neutrality or the extent to which the findings of an investigation are shaped by the respondents and not researcher's bias, motivation or interest (Devault, 2019). This was achieved by collecting data objectively without any preconceived ideas to avoid bias. This was done through conformability audit, triangulation, reflexivity, and audit trail; for instance, both data and data analysis were exposed to supervisors who would point out unintended traces of subjectivities or bias.

3.8 Data Collection Procedures

The researcher obtained a letter from the Board of Post Graduate Studies of Jaramogi Oginga Odinga University of Science and Technology to seek for a permit to conduct research from National Council for Science, Technology and Innovation, and then sought permission from County Commissioners and County Directors of Education of the respective counties to visit schools for data collection. The researcher sent letters of introduction to head teachers of the respective schools, teachers, counselors, PTs, and OTs. Consent of parents/guardians of learners with PI as well as learners' assent were sought. The researcher did introduction to the head teachers, teachers, counselors, physiotherapists, occupational therapists, and learners with PI. They were briefed on the purpose of the study and were assured of confidentiality.

Learners with PI were used for the investigation since they are the consumers of adjustments that enhance academic performance such as adaptation of physical facilities, access to counseling services, access to PT services and access to OT services. They are therefore in a position to provide the information on adjustments that enhance their academic performance, 396 learners with PI were used. The researcher personally administered the questionnaire to the learners, guided them and gave clarifications on how to fill the questionnaire which they filled, and each questionnaire took about 25 minutes.

The researcher waited and collected the questionnaire to ensure high return rates. Observation checklist was used to analyze the adaptations, availability, adequacy and accessibility of physical facilities in relation to academic performance of learners with PI, and access to; counseling services, PT services and OT services. It was done by the researcher including how instructional materials were used. Photographs were taken to reveal the real state of physical facilities.

Head teachers were used for the investigation because they teach learners with PI; they are school administrators in charge of all activities in the school; and are therefore in a position to provide more information on adjustments that enhance academic performance of learners with PI in their schools, six head teachers were used. They were used to obtain information on adaptation of physical facilities, access to counseling services, access to PT services, and access to OT services in their schools.

Counselors were used for the inquiry since their services are vital to learners with PI for social and psychological needs which play an important role as far as academic performance of learners with PI is concerned. They may therefore have information on counseling services in relation to academic performance of learners with PI. Counselor's interview guide was based on counseling services of learners with PI in relation to academic performance, and six counselors were involved.

The PTs were used for the study since their services to learners with PI promote gross motor functions which enable the learner with PI to be actively involved in the learning process, and which is vital in their academic performance, hence may have the required information on adjustments that enhance academic performance of learners with PI. Six PT's were involved, and their interview guide was based on adaptation of physical facilities and access to PT services in relation to academic performance of learners with PI, and six PTs were used.

Occupational therapists were used for the investigation since they provide services to learners with PI involving fine motor and sensory integration which are essential in learning. They may therefore have information on OT services in relation to academic performance of learners with PI. Six OT's were used, and the OTs' interview guide was based on the relationship between adaptation of physical facilities, access to OT services and academic performance of learners with PI.

The researcher conducted an in-depth interview on head teachers, school counselors, PTs, and OTs individually face to face in private settings on agreed dates. In the process, the researcher took notes and tape recorded the information with prior permission of the interviewees. Each interview took between 45 minutes to 1 hour.

Class teachers were involved in the inquiry since; they are in charge of various classes in school, they teach learners with PI, they understand the challenges and individual needs of learners in their classes, they have information on learners' academic progress, and also the schools' overall performance depends on performance of learners per class that they manage. They therefore may also have more information on adjustments that enhance academic performance of learners with PI in their classes, and this involved 48 teachers. They were used to obtain information on adaptation of physical facilities, access to counseling services, access to PT services, and access to OT services.

The researcher conducted FGDs on teachers which involved information on adaptation of physical facilities, access to counseling services, access to PT services, and access to OT services. The 48 teachers were divided into 6 groups of 8 participants each, and FGDs were conducted in private settings where a group of teachers were asked their opinions/ideas about: adaptations of school physical facilities, access to counseling services, access to PT services and access to OT services in relation to academic performance of learners with PI. The participants were allowed to agree and disagree with each other's ideas/opinions, and note taking and tape recording was done with prior permission of the participants. Each FGD took between 45 minutes to 1 hour. The researcher then thanked the respondents, and data collection period took about three months.

3.9 Data Analysis Methods

The mass of information collected is brought to order, structure, and meaning through the process of data analysis. The researcher used both quantitative and qualitative techniques to analyze data. This is based on the fact that when the two techniques are combined, their strengths and weaknesses are balanced by social scientists hence achieve a higher degree of reliability and validity compared to the use of only one (Cohen & Manion, 2011). Data was analyzed both quantitatively and qualitatively.

3.9.1 Quantitative Data Analysis

Coding is an analytical process in which data in both quantitative and qualitative form are categorized to facilitate analysis. One purpose is to transform quantitative data collected into a form suitable for computer-aided analysis (Saldana, 2015). After collecting data, quantitative analysis was facilitated by coding for the closed-ended questions from the questionnaire. The data was converted into numerical codes which represent attributes or measurements of the variables, only one code was assigned to each response category by making a code book that would enable the data to be entered into the computer. For instance, the data was organized into percentages according to the categories on the Likert rating scale type responses.

The researcher identified the independent, dependent and intervening variables and defined them. The researcher then formatted and analyzed data by use Likert scale (strongly agree to strongly disagree in a scale of 1 to 5). The data was then tabulated depending on how many strongly agree (4.21-5.00), Agree (3.41-4.20), Neither Agree nor Disagree (2.61-3.40), Disagree (1.81-2.60) and Strongly Disagree (1 00-1.80) and

were presented as percentages of the total number of responses. These were then condensed into broader groups of agree for strongly agree and agree; and disagree for strongly disagree and disagree.

The scores were summated to measure the respondents' attitude and the total scores represented the respondents' response. This was done by the aid of the Statistical Package for Social Sciences (SPSS) version 22 to produce tables and charts. Computers minimize chances of computational error, allowing easy graphic display of data, providing better management of large data hence saving time and labor (Lister, 2020).

The quantitative data was analyzed using both descriptive and inferential statistics. Descriptive statistics was used to describe the views of the respondents on each sub-scale, while the inferential statistics aided to make inferences and draw conclusions. The statistical tests; Pearson Product-Moment of Correlation, regression analysis, and analysis of variance (ANOVA) were used to investigate the relationship between the variables. All tests of significance were computed at $\alpha = 0.05$. The Statistical Package for Social Sciences (SPSS) version 22.0 was used to analyze the quantitative data.

Pearson product moment of correlation was used to determine the relationship between the two variables and the degree to which the two variables coincide with one another, that is, the extent to which the two variables are linearly related; or to test whether the relationship between two variables is greater than would be expected due to chance. A significant r shows that a true relationship exists. The significant level (P-value) was set at 0.05 whereby if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. However, if the p-value is larger than 0.05, it would be concluded that a significant difference does not exist (Creswell, 2014).

Regression analysis was used to estimate the relationship between a dependent variable and one or more independent variables. Multiple regression analysis was used to see if the independent variable predicts changes in the dependent variable when other variables are held constant; a significant R value means that the independent variable can predict differences in the dependent variable. Analysis of variance (ANOVA) was used to test the difference between the means of two or more groups, a significant F ratio shows that a true difference exists between the group

means (Creswell, 2014). The findings were presented in form of frequency tables for descriptive statistics and inferential statistics from which conclusions were drawn. Table 6 shows the data analysis matrix.

Table 6: *Data Analysis Matrix*

Objectives	Data Collection Instruments/ Items	Method of Analysis
To determine the relationship between adaptation of physical facilities and academic performance of learners with PI	Learners with PI questionnaire: Part B: Items 1-13. Head teachers' Interview: Items 1-3. Teachers' FGDs: Items 3-5. Observation Checklist: Items 1- 12.	Descriptive statistics, and inferential statistics Phases of thematic analysis Phases of thematic analysis Phases of thematic analysis
To establish the relationship between access to counseling services and academic performance of learners with PI.	Learners with PI questionnaire: Part C: Items 1-13. Head teachers' interview: Items 4-6. Teachers' FGDs: Items 6-8. School counselor's interview: Item 1- 6. Observation Checklist: Item 13.	Descriptive statistics, and inferential statistics Phases of thematic analysis Phases of thematic analysis Phases of thematic analysis Phases of thematic analysis
To find out the relationship between access to PT services and academic performance of learners with PI.	Learners with PI questionnaire: Part D: Items 1 -13. Head teachers' interview: Items 7 - 9. Teachers' FGDs: Items 9-11. PT's interview schedule: Items 1- 6. Observation Checklist: Items 14.	Descriptive statistics, and inferential statistics Phases of thematic analysis. Phases of thematic analysis. Phases of thematic analysis Phases of thematic analysis
To determine the relationship between access to OT services and academic performance of learners with PI.	Learners with PI questionnaire: Part D: Item 1-13. Head teachers' interview: Items 10 – 12. Teachers' FGDs: Items 12-14. OTs' interview schedule: Items 1- 6. Observation Checklist: Item 15	Descriptive statistics, and inferential statistics Phases of thematic analysis. Phases of thematic analysis Phases of thematic analysis. Phases of thematic analysis

Source: Researcher (2021).

3.9.1.1 Diagnostic Tests

The research explored the data to find out its suitability for correlation and multiple regression analysis. This was done through testing the assumptions of normality, multi-collinearity, and independency.

3.9.1.1.1 Normality of test results

In line with the recommendation by Oso and Onen (2013), Shapiro-Wilk's test (S-W) was used to investigate the normality of the variables. Shapiro-Wilk's test is comparable to the correlation between a given data and its corresponding normal scores, with S-W = 1 when their correlation is perfectly normal. This means that if the significant value of the Shapiro Wilk Test is greater than 0.05, the data is normal and if it is below 0.05, the data significantly deviates from a normal distribution. Table 7 is SPSS output showing Shapiro-Wilk tests results.

Table 7: *Tests of Normality of the Data Set*

Item description	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig
Physical facilities	0.185	292	0.060	0.944	292	0.068
Counseling Services	0.182	292	0.063	0.939	292	0.074
Physiotherapy services	0.083	292	0.044	0.985	292	0.097
Occupational therapy services	0.075	292	0.051	0.990	292	0.457
Academic Achievement	0.064	292	0.200*	0.989	292	0.312

Source: *Survey data (2021), SPSS Analysis.*

From Table 7, it is evident that there was no violation of normality by any of the variables. It is evident that all the variables met the assumptions of normal distribution given that there were no statistically significant differences (sig. < 0.05) noted in any of the variables with their corresponding normal scores that is their sig. values were greater than the prior set value of .05.

3.9.1.1.2 Assumptions of multi-collinearity

Multi-collinearity is a situation where there is a predictor variable in the multiple regression model that could be linearly predicted from the other variables with a significant degree of accuracy (Bhandari, 2020). In this regard, multi-collinearity is excessively high level of inter-correlation among the independent variables in a model, such that the effects of the independent variables on the dependent variable cannot be separated from each other. Bhandari (2020) argue that even though correlation matrix is sometimes used to investigate the pattern of inter-correlation among the variables, its use is not adequate. In that regard, this research investigated

multi-collinearity assumption by examining Tolerance and the Variance Inflation Factor (VIF), as clarified by Miles (2014). Table 8 shows SPSS output indicating Tolerance and Variance Inflation Factors.

Table 8: *Tolerance and Variance Inflation Factor (VIF) Statistics*

Model		**Collinearity Statistics**	
		Tolerance	**VIF**
1	Physical facilities	0.996	1.004
	Counseling services	0.900	1.111
	Physiotherapy services	0.884	1.131
	Occupational therapy Services	0.899	1.112

a. Dependent Variable: Academic Performance

Source: *Survey data (2021), SPSS Analysis.*

Tolerance is the proportion of variance in the predictor that cannot be accounted for by the other predictors. Oso and Onen (2013) affirm that a small tolerance value suggests that the variable under consideration is nearly a perfect linear combination of other independent variables already in the model and that it should not be added to the regression equation because it is insignificant. The variable's tolerance is $1\text{-}R^2$, while VIF is its reciprocal. According to Bhandari (2020), a variable whose tolerance values are less than 0.10 and VIF value greater than 10 may need to be investigated. From Table 8, it is evident that collinearity conditions were met, given that each of the variables had adequate tolerance (tolerance value > .10) and Variance Inflation Factor (VIF <10), indicating that there was no violation of multi-collinearity assumptions which is a requirement for multiple regression analysis.

3.9.1.1.3 Test for Independence of Observations

Assumption of independence of observations mean that the observations in the sample are independent from each other, signifying that the measurements for each sample subjects are in no way influenced by or related to the measurements of other subjects. Consistent to the recommendation by Oso and Onen (2013), Durbin Watson test was used to check if the assumptions that the observations are independent was met, as indicated in Table 9.

Table 9: *Test of Independence: Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Dubbi n-
1	0.751[a]	0.564	0.558	13.930	1.672

a) Predictors: (Constant), Physical facilities, Counseling services, Occupational therapy services, Physiotherapy services,
b) Dependent Variable: Academic Performance

When subsequent observations are not related, the Durbin-Watson statistic should be between 1.5 and 2.5 (Miles, 2014). Table 9 shows that the Durbin-Watson statistic is 1.672 which is between 1.5 and 2.5, suggesting that the data was not auto-correlated, signifying that the assumption of independence was not violated.

3.9.2 Qualitative Data Analysis

The qualitative data was derived from interview schedules, observation checklist, and FGDs. The collected data was perused and the related information to the research questions and objectives was identified by using all the six basic phases of thematic analysis. This involved; getting familiar with data; generating initial codes; searching for themes; reviewing themes; defining and naming the themes; and report production (Caulfield, 2019). This helped eliminate unusable data; interpreted ambiguous answers and contradictory data from related questions.

The researcher organized the data by reading thoroughly the data to get familiar with it, and using note cards to record available data. The field notes from interviews were edited and cleaned up. Categories, themes, and patterns were created by detecting various categories in the data distinct from each other, and then established relationships among these categories. Codes were used to generate themes and categories.

The information was analyzed and interpreted by evaluating and analyzing the data to determine the adequacy of information and credibility, usefulness, consistency, and validation or non-validation of the questions. Report writing was done at the same time with analysis. The researcher gave a vivid descriptive account of the situation under study. The report gave analytical view citing the significance and implications of the findings. It also showed how similar or different the findings were as compared to researcher's expectations (Caulfield, 2019). The six phases of thematic analysis are as indicated in table 10.

Table 10: *Phases of Thematic Analysis*

Phase	Description of Phase	Phase Processes
1.	Becoming familiar with the data	Reading and rereading the data in order to become familiar with what it entails.
2.	Generating initial codes	Generating initial codes by noting where and how patterns occur. The data is then reduced by collapsing it into labels in order to create categories for efficient analysis.
3.	Searching for themes	Codes are assembled into overarching for themes that accurately depict the data. The meaning of themes is described.
4.	Reviewing themes	Looking at how the themes support the data and the overarching theoretical perspective. If it seems incomplete, the researcher may find what is missing.
5.	Defining and naming themes	Defining what each theme is, which aspects of the data are being captured, and what is interesting about the themes.
6.	Report production	Writing the report by deciding which themes make significant contributions to understanding what is going on within the data.

Source: *Caulfield (2019).*

In reporting the findings, the following codes were generated for participants; Head teachers (HT1, HT2, HT3, HT4, HT5 and HT6); Counselors (C1, C2, C3, C4, C5 and C6); Physiotherapists (P1, P2, P3, P4, P5 and P6); and Occupational therapists' (O1, O2, O3, O4, O5 and O6). For teachers, the 48 teachers were grouped in 6 focus groups (FG) of 8 teachers each, and were coded as FG1, FG2, FG3, FG4, FG5, and FG6. FGD was conducted in private settings using dual moderator.

3.10 Ethical Considerations

According to Bhandari (2021), social research has ethics which should be adhered to and are accepted internationally. For a social scientist, ethical issues begin with the selection of the problem itself and continue throughout the data collection process. These were ensured by first, asking for permission from relevant authorities to conduct the research. Consent of the participants was sought as well as attaching consent letters to the research instruments. Consent of parents/guardians of learners below 18 years of age as well as assent of these learners were also sought. Intellectual honesty was ensured by not cooking ideas or plagiarism.

Pseudonyms were used for counties, schools, headteachers, teachers, counselors, physiotherapists, and occupational therapists. Privacy of research subjects was observed by not revealing the names of respondents for instance by using serial numbers. Protection of subjects was done by not exposing them, for instance the respondents were not required to write any of their personal details on the questionnaire such as names and schools. Integrity and humility were observed by setting the intentions for the research. Maintaining social distance with the respondents such as reasonable proximity was observed.

Objectivity was ensured by not being subjective or biased when collecting and analyzing the data, that is, the data was reported as it was. Research arrangements were done by organizing with respondents on when to collect data at their convenient time. The respondents were allowed to participate only willingly and had the freedom to withdraw from participation at will. Acknowledging the work of other authors was done both in text and in references. Confidentiality was maintained by not exposing the research subjects. Anonymity was maintained by not revealing the source of information. The findings were also reported exactly as the data indicated.

CHAPTER FOUR

FINDINGS, INTERPRETATIONS AND DISCUSSIONS

4.0 Introduction

This chapter presents the findings, interpretations and discussions of the research. The purpose of the study was to explore the adjustments that enhance academic performance of learners with PI and their relationship with academic performance in public primary special schools for learners with PI in Nyanza Region, Kenya.

The Null hypotheses were:

$H_{01:}$ There is no statistically significant relationship between adaptation of physical facilities and academic performance of learners with PI in public primary special schools in Nyanza Region.

$H_{02:}$ There is no statistically significant relationship between access to counseling services and academic performance of learners with PI in public primary special schools in Nyanza Region.

$H_{03:}$ There is no statistically significant relationship between access to PT and academic performance of learners with PI in public primary special schools in Nyanza Region.

$H_{04:}$ There is no statistically significant relationship between access to OT services and academic performance of learners with PI in public primary special schools in Nyanza Region.

Social Model of Disability theory was adopted. The independent variables were; adaptation of physical facilities, access to counseling services, access to PT services, and access to OT services. The research tools used were; questionnaires for learners with PI, interview schedules for; head teachers, counselors, PTs, and OTs; FGDs for teachers and an observation checklist.

The inquiry used mixed methods research, and used concurrent triangulation design within a mixed-methods approaches. The research would benefit: children with PI; teachers; education planners; Ministry of Education; curriculum developers; and the general population. The findings would be a contribution of knowledge in special education in general and in academic performance of learners with PI. Finally, the findings would serve as a basis for further research for scholars in the area of education in general and education of learners with PI.

As indicated in the research methodology, it is sub-divided into sections and subsections. The research findings are presented on the basis of the study objectives and hypotheses. In reporting the findings, the following codes were generated for participants: Head teachers (HT1, HT2, HT3, HT4, HT5 and HT6); Counselors (C1, C2, C3, C4, C5 and C6); Physiotherapists (P1, P2, P3, P4, P5 and P6); and Occupational therapists' (O1, O2, O3, O4, O5 and O6). For teachers, the 48 teachers were grouped in 6 focus groups (FG) of 8 teachers each, hence they were coded as FG1, FG2, FG3, FG4, FG5, and FG6.

The quantitative data was analyzed using both descriptive and inferential statistics. Descriptive statistics was used to describe the views of the respondents on each sub-scale, while the inferential statistics aided to make inferences and draw conclusions. Statistical tests; Pearson Product-Moment of Correlation, regression analysis, and ANOVA were used to investigate the relationship between the variables. All tests of significance were computed at $\alpha = 0.05$. The Statistical Package for Social Sciences (SPSS) version 22.0 was used to produce tables. For the qualitative data, a thematic analysis approach was used.

4.1 Questionnaire Return Rate and Demographic Information

4.1.1 Questionnaire return rate

Table 11 shows the summary of return rate of questionnaires from the pupil respondents, and it reveals that the questionnaires were adequate for the study.

Table 11: *Questionnaire Return Rate (n=396)*

Respondents	Questionnaires administered	Questionnaires returned	Return rate (%)
Learners with PI	396	292	73.7

Source: *Survey data (2021).*

The inquiry targeted a total of 396 sampled learners with PI on whom the questionnaires were administered. Out of this number, a total of 292 of them returned their questionnaires, having been appropriately filled, translating to an overall response rate of 73.7%. Several authors including Orodho (2013), Oso and Onen (2013) and Creswell (2014) among others recommend that a response rate of 50% is adequate, 60% is good and 70% and above is excellent for analysis and reporting on a survey.

In fact, according to Cleave (2020), a survey response rate of 50% or higher is often considered to be excellent. Based on these assertions, the current investigation's response rate of 73.7% was therefore quite acceptable. It was an excellent representation of the target population, the recorded high response rate was attributed to the fact that the questionnaire used was personally and directly administered to the respondents, whose teachers were pre-notified of the intention of the study.

4.1.2 Respondents' demographic information

The research sought to investigate the background information of the respondents, which was considered necessary for the determination of whether they were representative enough in terms of their demographic characteristics. The demographic information examined included gender of the respondents which was important since males and females have different mindsets due to certain issues such as cultural issues, they may have different adjustments needs and also to ensure that both genders were well represented in the study (Bhat, 2020). Table 12 shows the gender distribution of learners with PI who took part in the inquiry.

Table 12: *Gender Distributions of Respondents (n=292)*

Gender	Frequency	Percent (%)
Boys	159	54.4%
Girls	133	45.6
Total	**292**	**100**

Source: *Survey data (2021).*

From the results of the survey, it is indicated that 159 (54.4%) of the respondents were males, implying that majority of the pupils with physical impairments in classes 4 to 8 in Nyanza Region are males. The females formed 133 (45.6%) of the respondents, and both genders were well represented.

4.2 Findings on the Relationship between Adaptation of Physical Facilities and Academic Performance of Learners with PI in Public Primary Special Schools

The first research objective was to determine the relationship between adaptation of physical facilities and academic performance of learners with PI in public primary special schools in Nyanza Region. Adapted Physical facilities for pupils with PI are vital as they enable them to achieve their valued functioning, hence be able to move freely from one place to another with ease as well as learning in school. The problems associated with physical facilities for pupils with PI are due to mobility and physical fitness which may cause degrees of weaknesses and in coordination of the limbs

which may affect the mobility, posture, and manual dexterity, thereby causing pupil's difficulty to cope with ordinary school routine (Berg, 2020).

These may affect their active involvement in learning. Learners with PI may need adapted physical facilities like height adjustable desks, larger classrooms, specialized technology or specific services such as note taker to help complete tests/exams, and tasks in class. They may need assistance with toileting or hygiene (Borrey, 2017). Therefore, adapted and adequate physical facilities are vital. This was determined based on adequacy; accessibility; and availability of; infrastructure; instructional materials; specialized equipment; and assistive devices.

This objective was addressed through descriptive statistics which explored the views of the respondents on adaptation of physical facilities, and followed by use of inferential statistics to test the hypothesis on the relationship between adaptation of physical facilities and academic performance of learners with PI. In exploring the views of respondents (learners with PI), a thirteen Likert scaled itemed questionnaire was used. The items whose constructs were related to adaptation of physical facilities for learners with PI were scored using a five-point continuum scale depending on how many Strongly Agree (4.21-5.00), Agree (3.41-4.20), Somehow Agree (Neither Agree Nor Disagree) (2.61-3.40), Disagree (1.81-2.60) and Strongly Disagree (1 00-1.80) and presented as percentage frequencies of responses.

The scores were summated to measure the respondents' attitude on adaptation of physical facilities in their schools. Their views were summarized in percentage frequencies as shown in Table 13. For qualitative data, phases of thematic analysis were used.

Table 13: *Views of Learners with PI on Adaptations of Physical Facilities (n=292)*

Statement of Opinion	SD	D	N	A	SA	Mean	SD
I can move freely from lesson to lesson to learn since there are no obstacles in the classrooms.	80 (27.4%)	100 (34.2%)	14 (4.8%)	54 (18.5%)	44 (15.1%)	2.60	1.44
I access the learning environment with ease to learn since there are adequate ramps.	72 (24.7%)	98 (33.6%)	10 (3.4%)	68 (23.3%)	44 (15.1%)	2.71	1.44
I use computers and audio-visual aids in learning.	102 (34.9%)	104 (35.6%)	2 (0.7%)	48 (16.4%)	36 (12.3%)	2.36	1.41
I use tape recorder when I have writing difficulties.	96 (32.9%)	100 (34.2%)	2 (0.7%)	54 (18.5%)	40 (13.7%)	2.46	1.45
I use adequate assistive devices to learn.	84 (28.8%)	106 (36.3%)	16 (5.5%)	52 (17.8%)	34 (11.6%)	2.47	1.37
When I’ m learning, I don’ t easily get distracted.	78 (26.7%)	74 (25.3%)	20 (6.8%)	68 (23.3%)	52 (17.8%)	2.80	1.50
I sit comfortably in class when learning.	88 (30.1%)	86 (29.5%)	20 (6.8%)	64 (21.9%)	34 (11.6%)	2.56	1.41
School infrastructure is adequate for me to learn.	94 (32.2%)	54 (18.5%)	14 (4.8%)	80 (27.4%)	50 (17.1%)	2.79	1.54
Instructional materials are adequate for me to learn.	88 (30.1%)	88 (30.1%)	16 (5.5%)	50 (17.1%)	50 (17.1%)	2.59	1.48
I access the dormitories with ease.	72 (24.7%)	100 (34.2%)	11 (3.8%)	66 (22.6%)	43 (14.7%)	2.68	1.43
I use adequate games equipment.	84 (28.8%)	100 (34.2%)	6 (2.1%)	61 (20.9%)	41 (14.0%)	2.57	1.44
I use open fields comfortably.	90 (30.8%)	91 (31.2%)	12 (4.1%)	58 (19.9%)	41 (14.0%)	2.55	1.45
I access toilets with ease.	96 (32.9%)	80 (27.4%)	7 (2.4%)	66 (22.6%)	43 (14.7%)	2.58	1.49
Mean average response rate on adaptation of physical facilities for learners with PI						**2.59**	**0.27**

K**ey: Strongly Disagree (1.00-1.80); Disagree (1.81-2.60); Somehow Agree (2.61-3.40); Agree (3.41-4.20); Strongly Agree (4.21-5.00) and SD-Standard Deviation**.

The findings of the inquiry revealed that physical facilities for pupils with PI in public primary special schools for learners with PI in Nyanza Region is generally not adapted, not adequate and not accessible. This was interpreted by an overall mean rating of 2.59 (SD=0.27) in the scale of 1 to 5, implying that most of the available physical facilities in special schools are scanty and are not adapted hence not accessible by learners with PI. Despite the fact that adaptation of physical facilities for pupils with PI are vital as they help in removing barriers, hence enable them to learn and to move freely from one place to another with ease in school, the results of the survey show that they are barely accessible or adequate hence not adapted. This shows that learners with PI have difficulties attaining their valued functioning.

For example, when the respondents were asked whether they were able to move freely during the lessons, it emerged that only a small proportion [agree: 54 (18.5%); strongly agree: 44 (15.1%)] of them accepted that they are able to move freely, with a majority [strongly disagree: 80 (27.4%); disagree: 100 (34.2%)] of them confirming that they are not able to move freely from lesson to lesson due to some obstacles in the learning environment. This was further reflected by a low average mean response rating of 2.60, though with a fairly high standard deviation of 1.44 indicating a big variation in views among the respondents on the learning environment. This implies that the learning environment for pupils with PI is unfriendly due to physical barriers which may prevent learners with PI from attaining their valued functioning, working in groups, moving with ease from place to place and even to participate in group work.

Pupils with PI need to move from place to place within the learning environment to learn, such as to and from classrooms, offices, libraries, toilets, dormitories, water points, fire assemblies, and canteens among others. Due to their impairments, the obstacles within these learning environments may hinder their free movement to learn such as to participate in learning activities or undertaking different tasks. There is therefore need to remove all the obstacles through appropriate adjustments such as adaptations of the learning environment. This conforms to a research by Kabuta (2014) which found that there were obstacles pertaining to physical facilities for learners with PI. The following qualitative data also support the same finding, for instance, when head teachers were asked about their views on whether learners with

PI move freely without obstacles from place to place to learn, the following shows a response from one of them:

> *Pupils with physical impairments' movement from place to place is a bit difficult due to lack of proper adaptations of some buildings such as classrooms, libraries and offices (HT2).*

The qualitative response by a head teacher shows that some physical facilities in schools such as offices, classrooms and libraries are not well adapted to meet learners with PIs' needs. This may interfere with movements of learners from place to place to learn such as classrooms, hence making learners to learn with difficulties, and this makes learners with PI not achieve their valued functioning. This conforms to a research by Karandu (2014) which revealed that majority of learners with PI lack relevant physical facilities such as leveled doorsteps, lowered door handles, ramps, staircase rails and adapted toilets. There is therefore need to ensure that the learning environment is well adapted. The following interview excerpt by a PT bears the same testimony:

> *I consider the learning environment for pupils with physical impairments to be unfriendly since learners with PI still find it difficult to move from place to place with ease (P1).*

The qualitative response by the PT implies that as far as adaptation of infrastructure is concerned, there are obstacles that hinder movements of pupils from place to place to learn. This seems to suggest that their ability to move freely from place to place to learn is limited, which further implies that they may not be able to undertake different tasks or to participate well in learning activities. There is need for this to be addressed by ensuring that the physical facilities are adapted to meet learners' needs. The same take was shown by the OT through the following interview excerpt:

> *There is a problem with movement due to obstacles in the building that make it difficult for pupils with PI to move freely (O2)?*

The qualitative response by OT shows that learners with PI do not move freely to and from the buildings with ease. Learners with PI need appropriate adaptations to be able to move freely within the school environment. They need spaces for maneuvering within the learning environment alongside other adaptations. The obstacles in the learning environment may cause barriers to free movement of learners which may affect their learning. These findings are in line with an investigation by Addo (2014) which found that most learners with PI have barriers such as steps, spaces for

maneuvering, and ramps in most schools do not meet international standards. There is therefore need to make appropriate adaptations of physical facilities in schools for learners to enable them move freely from lesson to lesson to learn hence improve their academic participation. From FGDs with teachers, the following qualitative findings came out when teachers were asked about their views on whether learners with PI move freely without obstacles from place to place to learn:

> *Pupils with PI find it difficult to move freely in the learning environment due to lack of appropriate adaptations in most buildings (FG1)*

The qualitative data shows that pupils with PI still have obstacles that hinder their free movement from place to place. This seems to suggest that they do not learn comfortably due to these obstacles hence have not achieved their valued functioning. There is need to make the learning environment barrier free so as to enable them move comfortably to learn. Without appropriate adaptations, pupils with PI may be forced to be isolated or stay in their rooms hence miss out as far as their learning is concerned. This conforms to an inquiry by Nel, Rankoana, Govender, Mothimbi, and Moloantoa (2015) which found that the poor infrastructure provides many challenges and barriers to the disabled being able to move freely which at times lead them to stay in their rooms.

From the observation checklist, it was also determined that there were barriers such as lack of appropriate adaptations for school buildings for instance; most classrooms sizes were not spacious enough depending on the number of learners using wheelchairs; there was poor access to water points, offices, libraries, and canteens; some toilets had slippery floors, and fire assemblies were moderately accessible. The poor adaptations of school buildings may affect free movement of learners from place to place or from lesson to lesson to lean hence may interfere with their learning process since it hinders them from attaining their valued functioning. These findings are in line with an investigation by Soyingbe, Ogundairo, and Adenuga (2013) which found that activities of people with PI are restricted due to poor state of operations of most facilities. There is therefore need to make appropriate adaptations of physical facilities in schools for learners with PI such as all buildings to enable them move freely from place to place to learn without any obstacles.

In addition, when the study sought to establish the general accessibility of learning facilities within the learners' environment, the results of the survey revealed that most pupils with PI have poor access to appropriate physical facilities. Suffice; majority of learners with PI indicated that they are not able to access the learning environment with ease. For instance, it came out that only 68 (23.3%) and 44 (15.1%) of the respondents agreed and strongly agreed, respectively, that they easily access the learning environment but majority of the respondents, with 72 (24.7%) disagree and 98 (33.6%) strongly disagree that they access their learning environment with ease to learn, reflecting a low mean rating of 2.71 (SD=1.44).

This indicates that pupils with PI in public primary special schools find it difficult to move from place to place within the learning environment. Appropriate ramps are necessary for these learners as far as their movement from place to place is concerned, and lack of appropriate ramps may hinder their free movement in the learning environment hence make it difficult for learners with PI to achieve their valued functioning.

It can be argued that pupils with PI find it difficult to move from one place to another to learn within the learning environment due to lack of appropriate ramps; and this can make them miss a lot in learning and not be at bar with others, that is, they have not attained their valued functioning. It is important for schools to ensure that the learning environment is accessible to all learners with PI. This conforms to an inquiry by Zubayer (2011) which revealed that majority of schools are physically inaccessible to learners with PI.

Qualitative findings also support the above statement which shows that pupils with PI find it difficult to move from place to place with ease or access the learning environment due to poor adaptation of physical facilities. When head teachers were asked to say whether pupils with PI can move freely from place to place within the learning environment to learn, they responded as follows:

> *Pupils with PI find it difficult to move from one place to another especially those using wheelchairs since the pavements are too rough, they need renovation from time to time* (HT1).

The response indicates that the learning environment for pupils with PI is unfriendly since there is poor accessibility which prevent them from moving with ease, hence

accessing and maneuvering the learning environment becomes difficult. Poor access to learning environment to learn may imply that the quality or quantity of what learners with PI may learn when there is better access to learning environment is limited since thy have not attained their valued functioning. There is therefore need for appropriate adaptations such as adaptation of pavements to enable those using wheelchairs to move freely to learn, and this conforms to a research by Soyingbe, Ogundairo, and Adenuga (2013) which indicated that major facilities required by people with disability are lacking in many public buildings; some facilities are in poor state of operation; and the absence of these facilities restrict the activities of people with physical disability. The physiotherapist response on the same supported the same statement by saying:

> *The learning environment is unfriendly, this makes it difficult for pupils from moving from place to place to learn* (P1).

The interview excerpt from a physiotherapist indicates that pupils with PI find it difficult to move from place to place to learn due to inappropriate adaptations of the learning environment. This means that their free movement within the learning environment is limited, and this may interfere with how they learn from time to time as this makes them not achieve their valued functioning. There is therefore need to make appropriate adaptations to the learning environment. This finding is in line with a study by Oluremi and Olubukola (2012) which revealed that there were no adaptations of physical facilities and the available few were in poor condition. The same take was seen in the following interview excerpt by OT:

> *There is a problem with movement due to inadequacy of ramps, some paths have very rough ramps that affect the movement of pupils with mobility difficulties (O2).*

The interview excerpt from the OT indicates that in deed, there is a problem with movement due to lack of adequate ramps and poor adaptations of pathways. This implies that learners with PI have not acquired their valued functioning and this limits the movements of learners with PI within the learning environment and this may as well limit their ability to explore the environment to learn. There is therefore need for appropriate adaptation of the learning environment. This finding conforms to an inquiry by Muendo (2016) who found out that schools do not have adequate physical

facilities such as poor access to classrooms, laboratories, libraries and dormitories among others.

Qualitative findings from FGDs with teachers also support the findings which shows that learners with PI are not able to move from place to place with ease or access the learning environment due to lack of adaptation or inadequacy of physical facilities. When teachers were asked to say whether learners with PI can move freely from place to place within the learning environment to learn, the following response was noted:

> *The ramps to most entries are too rough especially to pupils using wheelchairs and crutches, this makes it difficult for them to move with ease* (FG4).

The qualitative response by teachers indicates that most entrances to learning environment are not accessible due to poor adaptations such as rough ramps. Ramps help learners with PI to access the learning environment such as school buildings. Learners with PI need ramps to access classrooms, offices, dormitories, and libraries among others. Lack of ramps means difficulty in accessing the learning environment, which may negatively affect learning as learners with PI may find it difficult to undertake different tasks or to be actively involved in learning activities. This also implies that these restrictions hinder learners from attaining their valued functioning. There is therefore need for proper adaptation to the learning environment to improve access to the learning environment for learners with PI. This finding conforms to an investigation by Karandu (2014) which revealed that majority of learners with PI lack relevant physical facilities such as leveled doorsteps and ramps.

From the observation checklist, it was also revealed that there was rough pathways and lack of appropriate ramps to most entries hence making access to classrooms, toilets, libraries, water points, and fire assembly points difficult for learners with PI especially the ones using wheelchairs. Lack of ramps or poor adaptation of pathways make it difficult for learners with PI to access the learning environment. There is therefore need for adaptations of pathways as well as having ramps to all entries. This supports the findings of a research by Zubayer (2011) which pointed out that majority of special schools have physical barriers which make them to be physically inaccessible to many learners with PI.

This finding confirms that pupils with PI in public primary special schools have difficulties in moving from place to place within the learning environment due to lack of appropriate adaptations. This makes it difficult for them to access most places in the learning environment. This has implications on learners' quality of life as they operate within the school compound. Rough ramps can make them strain more and they may even take more time to move to different places to access what they need. This calls for proper adaptations of the learning environment to make these learners to be able to operate with ease.

On the use of the physical facilities, it came out clearly that only 48 (16.4%) of the pupils agreed and another 36 (12.3%) strongly agreed that they sometimes use computers and audio-visual aids in learning, but 102 (34.9%) disagreed and 104 (35.6%) strongly disagreed with the assertion that they use computers and audio-visual aids in learning. This implies that most of them do not use computers and audio-visual aids in learning, reflecting a mean rating of 2.36 with a standard deviation of 1.41.

Computers and audio-visual aids are vital for pupils with PI as far as their learning is concerned, for instance they provide multisensory experiences, interaction, positive reinforcement, individualized instruction, and repetition which can be useful in skill building. Lack of these may interfere with how learners receive information or instruction during learning activities. There is therefore need for adaptations of instructional materials such as by using audio, visual, and audio-visual aids; this is vital for learners' attainment of valued functioning. This conforms to an investigation by Adalikwa (2013) which revealed that there is need for adequate instructional materials, and learners taught using instructional materials performed significantly better than those taught without instructional materials. The following is qualitative response from headteachers when they were asked to say whether learners with PI use audio-visual aids and computers in learning:

> *The available computers and audio-visual aids are not adequate given the high population of pupils with PI in the school* (H2).

The above interview excerpt shows that even though some computers and audio-visual aids are available, not all pupils use them due to their inadequacy. This means that most of them do not benefit from the use of computers and audio-visual aids

which are vital in disseminating knowledge. This conforms to a research by Kipkorir and Simatwa (2016) which revealed that Computer-Based Learning methods motivate learners with physical impairments on learning. There is therefore need to provide more computers and audio-visual aids to learners with PI. The following qualitative finding from the PT bears the same testimony:

> *There are very few computers and audio-visual aids as compared to the number of pupils with physical impairments…..they do not utilize them well (P2).*

The qualitative finding from a PT reveals that most pupils with PI do not access computers and audio-visual aids hence do not benefit from them. They need computers and audio-visual aids in their learning to increase their interest in the subject matter hence pay close attention, lack of these may make them not to fully pay attention when learning. Therefore, it is vital to ensure that computers and audio-visual aids are available to learners with PI. This is in line with a study by Tety (2016) which revealed that there are inadequate instructional materials, even though they are key to teacher's performance and learners' academic performance. The following qualitative findings from OT also support the same finding that there are inadequate computers and audio-visual aids:

> *The available computers and audio-visual aids in the school are not adequate for all pupils. This becomes even more tricky when they are to be shared by most of them at the same time (O1).*

The interview excerpt by the OT shows that there is indeed inadequate computers and audio-visual aids that can aid learning for learners with PI. This implies that majority of learners with PI do not benefit academically from the use of such instructional materials. There is therefore need to make these learning materials available in schools. This conforms to a research by Kipkorir and Simatwa (2016) which revealed that there was lack of computer-based learning (CBL), and that the use of instructional materials such as CBL improves learners' motivation and achievement in their academic performance. In FGDs with teachers, they were asked to say whether learners with PI use audio-visual aids and computers in learning, they mentioned inadequacy of audio-visual aids, for instance, a teacher from FG2 responded as follows:

> *Most of the available audio-visual aids are not functional since they are not in good condition. Only a few are functional but not enough for all learners especially if they need to use them at the same time* (FG2).

The qualitative response from FGDs interview excerpt shows that even though there are some audio-visual aids, most of them are not being used by learners due to their poor conditions and the ones in good condition are too few for the number of learners with PI who may need to use them. For instance, audio-visuals help break down information into manageable pieces that are easier to absorb, and increase the learners' interest in the subject matter hence help learners to pay close attention thereby improving their learning. This implies that learners who depend on audio-visual aids to learn miss out during lessons. There is therefore need for access to audio-visual aids, this conforms to an investigation by Oluremi and Olubukola (2012) which revealed that there were no instructional materials, and the available few were in poor condition.

Also, from the observation checklist, it was confirmed that there were no adequate computers and audio-visual aids for pupils with PI, since the available ones were not adequate enough to serve majority of learners with PI. The study has shown that there are few audio-visual aids and computers but due to their limited number, and the fact that some are not functional, most pupils do not use them. Computers and audio-visual aids are essential especially to pupils with motor difficulties as far as aiding their learning is concerned. This calls for, replacement, repair and maintenance and even buying more audio-visual aids and computers depending on the needs of learners with PI in the school so that all pupils PI can benefit from them. This conforms to an inquiry by Njoroge (2015) which revealed that facilities and resources for learners with special needs were available but not adequate.

Equally, only 54 (18.5%) agreed and 40 (13.7%) strongly agreed that they use tape recorder when they have writing difficulties, but more than two out of every three [strongly disagree: 96 (32.9%); disagree: 100 (34.2%)] of the learners who took part in the survey said they had never used tape recorder even when they have writing difficulties, reflecting a mean rating of 2.46 (SD=1.45) in the physical facilities usage scale. From the responses, it can be argued that most learners with PI who are not able to read or write without assistive devices are disadvantaged due to inadequacy of these devices. Writing and reading are essential activities in learning, when a learner

is not able to read or write, he/she may not be able to write notes, do assignments, or revise his/her work among others.

There is need to have adequate number of tape recorders in schools for pupils with PI to help them in reading and writing so as to enable them achieve their valued functioning, hence make it easier for them to learn. This conforms to an investigation by Adalikwa (2013) which found out that there were inadequate instructional materials in schools, and that instructional materials are vital as far as academic achievement is concerned. The headteachers were asked to say whether learners with writing difficulties use tape recorders, the following interview excerpt shows their responses:

> *We have some tape recorders but they are few. If for example four or more teachers want to use them in class at the same time, then it becomes difficult* (H1).

The interview excerpt from the head teacher shows that the number of available tape recorders does not match the number of pupils with PI who need to use them since they are few. This seems to suggest that, when the few available tape recorders are being used by some learners, the rest have to wait and as they wait, they lag behind and these learners will still continue to have difficulties when it comes to reading or writing, which may affect their learning. The schools should have adequate tape recorders to help pupils with PI in reading and writing. This is in line with a research by Njoroge (2015) which revealed that most of the learning resources were available but not adequate. When PTs were asked to say whether learners with PI with writing difficulties use tape recorders, they had this to say:

> *There are a good number of pupils with PI with writing difficulties who need to use tape recorders but the available tape recorders can just serve a few at a time (P6.)*

The above excerpt shows that there are pupils with writing difficulties who usually miss out due to lack of tape-recorders. This implies that most learners with PI are neither able to write nor read due to lack of tape recorders, and this may affect their learning if not addressed. This is in line with an inquiry by Muendo (2016) which revealed that most schools do not have adequate physical facilities.

The OTs also had the same stand that there are no tape recorders in the schools as shown:

> *In order for pupils to perform well, more tape recorders are required as this will help them with reading and writing (O4).*

The qualitative data by the OT indicate the concern on lack of tape recorders for learners with writing difficulties. This implies that there are no adequate adaptations for learners with writing difficulties as far as their difficulties in writing is concerned, hence they may miss a lot in learning. This is in line with a research by Tety (2016) which showed that instructional materials are key to learners' performance.

From FGDs with teachers, they supported the findings that there were no tape recorders in schools for learners with PI. For instance, a teacher from FG6 said:

> *We do not have tape recorders, pupils with writing difficulties therefore, find it difficult to write or to move at the same pace with other learners* (FG6).

The qualitative response by a teacher shows that there are no tape recorders in schools for learners with PI. This implies that learners with PI who need to use them miss out both in reading and writing, and this may negatively affect their learning. This conforms to an investigation by Karandu (2014) which revealed that majority of learners with PI lacked relevant physical facilities. There is need to have adequate numbers of tape-recorders in schools depending on the number of learners who need to use them.

This was also confirmed by observation checklist which revealed that there were no tape recorders which could be used by pupils with writing difficulties, which implies that they will always be lagging behind due to lack of proper adaptations of such instructional materials. The tape recorders are vital for learners with PI with writing difficulties to help compensate for their writing difficulties. The findings confirm that there is lack of tape recorders, this may be linked with their ability to write. There is therefore need for schools of learners with PI to have tape recorders depending on the number of learners who need to use them. This conforms to a study by Njoroge (2015) which revealed that facilities and resources for learners with special needs were available but not adequate.

Likewise, the results of the survey show that there is inadequate (mean=2.47; SD=1.37) assistive devices to learn; this was reflected by 106 (36.3%) and 84 (28.8%) of the learners who took part in the survey who rejected and strongly rejected, respectively, the assertion that learners with PI in the special schools use adequate assistive devices to learn. Only 52 (17.8%) and 34 (11.6%) of the surveyed learners agreed and strongly agreed, respectively, that they use adequate assistive devices in their school to learn. This indicates that learners with PI in public primary special schools for learners with PI have inadequate assistive devices. For learners with PI, assistive devices make things possible since they assist them to perform some tasks.

The findings established that assistive devices for learners with PI are inadequate. It can be argued that, due to lack of assistive devices, the role that assistive devices play in the classroom to help ensure that learners with PI have the same opportunity for education as "normal" learners, such as performing particular task is not well done and this may affect the attainment of learners' valued functioning. It is therefore important to provide adequate assistive devices for learners with PI. This is in line with a research by Ndlovu (2021) which established that assistive devices were inadequate.

The following interview excerpt show response from a head teacher when they were asked to say whether learners with PI use adequate assistive devices:

> *Generally, assistive devices for our pupils are not adequate, they are limited in number…..they are not available to all learners who need them* (HT 6).

The response indicates that most pupils who depend on assistive devices to learn do not access them due to inadequacy of these devices. This implies that most them who need assistive devices but are not able to access them are likely to be dependent and their participation in education is limited, this may make them lag behind as far as learning is concerned. This conforms to a study by Figueroa, Lim and Lee (2016) which found out that school facilities should be based on the needs of the learners. The following is a qualitative data from PT when asked to say whether the assistive devices are adequate:

> *There are pupils with PI whose impairments may need book holders, page turners or adapted keyboards but they are not available, these learners find it difficult to hold books when reading or writing (P4).*

The interview excerpt by the PT shows that pupils with PI lack book holders, page turners, and adapted keyboards, hence find it difficult to hold books when reading. This implies that learners with PI who have difficulties in holding books, turning pages, and using keyboards among others may lag behind in reading or writing due to inadequacy of these assistive devices, hence should be made available. This conforms to a research by Pakjouei, Aryankhesel, Kamali, and Seyedin (2018) which revealed that people with PI lacked assistive devices. The interview excerpt from OT also support the same when asked about the adequacy of assistive devices as shown:

> *Pupils with PI do not have adequate assistive devices such as adapted keyboards, page turners, and book holders, this is a challenge to them since their inadequacy makes them to become over dependent (O3)*

The interview excerpt from the OT indicates that the schools for learners with PI lack page turners, book holders and adapted keyboards. This may have implications as far as their reading and writing is concerned. There is need to ensure that learners with PI who need assistive devices access them. From FGDs with teachers, it was established that most schools for learners with PI have inadequate assistive devices. A respondent from FG3 said:

> *Assistive devices such as page turners, book holders and adapted key boards to help pupils with reading and writing difficulties are very limited. Most of our learners who depend on assistive devices to learn are disadvantaged due to their inadequacy (FG3).*

The qualitative data from the FGDs established that assistive devices for pupils are inadequate. This seems to suggest that most pupils who depend on assistive devices to learn miss out in performing some tasks due to their inadequacy. There is therefore need to ensure that all learners with PI access assistive devices depending on their needs. This is in line with a research by Ndlovu (2021) which established that assistive devices were inadequate.

Through observation checklist, it was further revealed that the schools had no page turners, book holders, and adapted keyboards for pupils with reading and writing difficulties. Assistive devices help maintain or improve learners' functioning and independence to facilitate participation and overall well-being. They can also prevent impairments and secondary health condition. The study has shown that schools of learners with PI do not have adequate assistive devices. It implies that most learners

with poor dexterity or missing limbs find it difficult to turn pages and may find difficulties in reading. Lack of adapted keyboards also makes it difficult for them to use computers in learning. It is therefore important for these schools to have adequate assistive devices to help learners with reading and writing difficulties. This conforms to an investigation by Karandu (2014) which revealed that learners with PI lack relevant assistive devices.

Regarding distraction of learners with PI, only 120 (41.1%) of the learners were satisfied with their learning environment as far as learning environment is concerned; they alluded that they do not easily get distracted when learning. However, there is an indication that many of the learners with PI do not concentrate so much when learning since they easily get distracted in the classroom. This was evident by the response of the majority of the pupils who affirmed that they easily get distracted when learning. This was revealed by a mean of 2.80 and a standard deviation of 1.50. This has implications on how teaching/learning materials are displayed in classrooms, seating placement in classroom, work space free from distraction, proximity seating, and removal of all non-related materials from space (Oluremi and Olobukola, 2012).

The findings revealed that pupils with PI get distracted when learning, this seems to suggest that the teaching/learning materials are not properly displayed; the learners' work space is not free from distraction; the non-related materials are within the space; or the work space is not made free from distraction; these may interfere with the concentration of the learner as far as performing a task or learning is concerned. Learners need undivided attention for them to concentrate in learning. The schools should ensure that the learning environment of learners with PI is learner friendly. This conforms to an investigation by Soyingbe, Ogundairo and Adenuga (2013) which established that the absence of some facilities restricts the activities of people with physical disability.

Qualitative findings support the above findings, for instance; when head teachers were asked to say whether there were distractions in the classrooms for learners with PI they responded as follows:

> *Sometimes you may find that some teaching/learning materials are not well displayed in the classrooms which may cause distraction to pupils, although this is something that we can rectify (HT5).*

The interview excerpt from a head teacher reveals that indeed there are some distractions for learners with PI in classrooms. This seems to suggest that learners with PI do not fully concentrate when learning due to distractions caused by how learning materials are displayed in their classrooms, seating placement in classroom, work space, proximity seating, and removal of all non-related materials from space and this may affect the way they receive instructions or undertake different tasks. There is therefore need; for teaching/learning materials to be displayed in classrooms properly, to consider seating placement in classroom, work space free from distraction, proximity seating, and removal of all non-related materials from space. This conforms to a study by Innerdrive (2019) which revealed that a classroom display can be a source for learners' distraction, and that seating plans can cause distraction.

When PTs were asked to say whether there were distractions in classrooms for learners with PI, the following response was given:

> *Some seating arrangements in the classrooms are not good enough, for instance, the work space should be free from distraction, and the proximity seating should be ensured* (P4).

The interview excerpt from the OT indicates that the seating arrangement in classrooms for learners with PI is not appropriate as far as distraction of learners are concerned. This implies that learners with PI may not fully concentrate in class due to this. This is not in line with a research by Njoroge (2015) which found out that the learning environment was supportive. This might have been attributed due to the fact that the previous inquiry only used questionnaire and interview schedules only while the current one used questionnaire, interview schedules, FGDs, and observation checklist as well hence, the current study was able to capture more varied information as far as learning environment of learners with PI is concerned. When teachers were asked in FGDs about their views on distractions of pupils with PI in classrooms, they held a common view that there are distractions in classrooms.

The following qualitative data came from a teacher from FG1:

> *Some learning materials in classrooms are not well displayed while some are irrelevant.…some teachers also carry their phones during the lessons even if they are not using them as teaching/ learning aids* (FG1).

The qualitative data from FGDs indicate that there are distractions in classrooms including display of learning materials while some distractions are caused by teachers through their mobile phones. This seems to suggest that learners with PI are distracted in classrooms, and this may affect their learning. It is vital to ensure that there are no distracters in the learning environment of pupils. This conforms to a study by Oluremi and Olobukola (2012) which revealed that there was poor learning environment and inadequate learning materials which could be linked to academic performance of learners.

The observation checklist also revealed that most learning materials in classrooms are not well displayed as some are very close to the pupils that they can play with them and hence may be distracted when learning; the seating placement does not facilitate learning; work space is not free from distraction; proximity seating is not appropriate; and non-related materials are still within the space. This implies that there are a lot of distractions in the classrooms, and most pupils do not concentrate when learning due to divided attention, and these therefore need to be addressed. This conforms to a research by Oluremi and Olobukola (2012) which revealed that there was inadequate provision of learning materials which could be linked to academic performance, and a study by InnerDrive (2019) which revealed that; presence of distracters can be linked to decline in performance, a classroom display can be a source for learners' distraction, and that seating plans can cause distraction.

Regarding comfort in learning, the results of the survey established that the learners are not very comfortable, as reflected with a mean of 2.56, though with a fairly big variation from one learner to the other as interpreted by a standard deviation of 1.48. On the same note, although about a third 98 (33.5%) of them confirmed that they sit comfortably in class when learning, majority 152 (53.0%) of the learners held a contrary opinion reflecting a mean comfort of 2.57 with a standard deviation of 1.48. Inadequacy of adapted wheelchairs imply that these learners do not learn comfortably due to pressure from their seat bones that adapted wheelchairs may help in relieving.

This implies that the equipment which make learners with PI comfortable are not up to date, and this may interfere with how they undertake different tasks as well as their concentration when learning. This also indicates that pupils with PI have difficulties in attaining their valued function. There is therefore need to ensure that they are

always comfortable. This finding conforms to a study by Addo (2014) which revealed that most basic learners with mobility impairments have barriers such as lack of seats for wheelchair users. Head teachers also supported the findings when asked if learners with PI sit comfortably in class. This was indicated using qualitative data from one of the headteachers as shown:

> *Some adapted wheelchairs with adequate leg space are available in classrooms for learners with PI using wheelchairs, this makes them sit more comfortably in class. However, with the ever-growing population of learners who need them, they are not adequate* (HT3).

The interview excerpt reveals that even though some physical facilities are lacking, some facilities such as adapted wheelchairs are available for wheelchair users though not adequate as per the population. This seems to suggest that due to inadequacy of these facilities, learners with PI are not comfortable when seated in classroom and this may affect their concentration as well as their learning, hence should be addressed. This conforms to a study by Soyingbe, Ogundairo and Adenuga (2013) which established that major facilities required by people with disability are lacking in many public buildings; and the absence of these facilities restrict the activities of people with physical disability. The interview excerpt from PT when asked whether learners with PI sit comfortably in class also support the same finding as follows:

> *There are few adaptive chairs for pupils……not all learners who need them are benefitting from them (P6).*

The interview excerpt from the headteacher indicates that adaptive chairs for learners with PI are not adequate in classrooms. This seems to suggest that pupils with PI face challenges as far as their positioning and posture are concerned due to lack of adaptive chairs. This may cause discomfort which may affect learners' concentration or undertaking some tasks, hence there is need for more adaptations. This conforms to a study by Njoroge (2015) which revealed that most of the facilities for learners with PI are available but not adequate. The following interview excerpt shows response by OT when asked about the comfort of learners with PI:

> *The available adapted wheel chairs are not adequate for pupils who need them…. most of them do not sit comfortably in class (O2).*

The interview excerpt by the OT indicates that learners with PI who need adapted wheel chairs do not access them hence have to do without them and this makes them uncomfortable. This may have effect on how they perform different tasks which may

have implications on their learning. This conforms to a research by Muendo (2016) which revealed that most schools do not have adequate physical facilities. From the FGDs with teachers, they also supported the findings that learners with PI do not sit comfortably in class. For instance, the following response came from a teacher from FG6:

> *Due to high population of pupils who need to use adaptive chairs, the few ones available are only used by fewer learners. Other learners have to do without them (FG6).*

The qualitative response from the teacher indicates that, there are adaptive chairs for learners with PI but they are not adequate. This implies that these pupils may experience discomfort in classrooms which may affect their concentration, hence needs to be addressed. This conforms to a research by Karandu (2014) which revealed that majority of learners with PI lacked relevant physical facilities.

From observation checklist, it was revealed that the schools had adapted wheelchairs with adequate leg space which were helpful for pupils using wheelchairs but not adequate as compared to the population of learners who need them. Inadequacy of adapted wheelchairs imply that these learners do not learn comfortably due to pressure from their seat bones that adapted wheelchairs may help in relieving. This may make them not to be able to sit for long during lessons. This calls for provision of adapted wheelchairs to all learners who use wheelchairs for them to learn comfortably. This agrees with an inquiry by Addo (2014) which revealed that most basic learners with mobility impairments have barriers such as lack of seats for wheelchair users.

On infrastructure, the findings of the research revealed that most of the public primary special schools in Nyanza Region generally have barely adequate (mean=2.79; SD=1.54) infrastructure, with only 130 (44.5%) of the respondents alluding that the infrastructure in their school is adequate for them to learn. More than a half 148 (50.7%) of the learners who participated in the study vehemently rejected the assertion that special schools have sufficient infrastructure for them to learn. This indicates that there is inadequate infrastructure in public primary special schools for learners with PI which are essential for learners to attain their valued functioning.

This seems to suggest that the school infrastructure is not well adapted to meet the needs of pupils. It implies that due to lack of adaptations of school infrastructure, learners do not operate with ease within the school environment, this may make them to be confined in some places or to take too long in completing some tasks. There is need to have adequate infrastructure in schools for these learners. This finding conforms to a research by Zubayer (2011) which revealed that majority of schools for learners with PI are physically inaccessible, and that facilities should be based on unique needs of each school. This however does not agree with an inquiry by Okumu (2020) which revealed established that physical environment of learners with PI was adapted as indicated by 11(57.89%) of the respondents. The difference might have been caused due to the fact that the previous study was carried out in a different region. The qualitative data from headteacher had the same view when they were asked about the adequacy of school infrastructure. One head teacher responded as follows:

> *The school infrastructure is generally inadequate for pupils with Physical impairments due to poor physical access, such as very rough ramps to entries of most buildings in the school* (HT4).

The response from headteachers indicates that pupils with PI have different needs. The infrastructure that is available for them is inadequate since it cannot meet their individual needs. School infrastructure should be adequate to support their learning. This is in line with Oluremmi and Olubukola (2012) which revealed that there was poor infrastructure in public schools.

The following qualitative response from the PT also support the findings that infrastructure for learners with PI is inadequate:

> *The school infrastructure is not friendly to these pupils, I consider it inadequate depending on their needs …it needs more adaptations (P5).*

The interview excerpt from the PT shows that the infrastructure in the schools for learners with PI is not adapted to meet learners' needs. This may pose challenges as far as their movement is concerned and may lead to learners being confined to one place, which may limit them from participating in learning activities. This is in agreement with a research by Mukhopadhy (2013) which revealed that there was

inadequate infrastructure in schools. The following qualitative response from the OT also support the findings that infrastructure for learners with PI is inadequate:

> *Considering the needs of these learners, the school infrastructure is not learner friendly (O4).*

The interview excerpt from OT indicates that the school infrastructure is not adequate as it does not address the needs of pupils. This needs to be adapted in order to meet learners' needs. This is in line with an inquiry by Muendo (2016) which found that schools do not have adequate physical facilities.

From FGDs with teachers, they supported the fact that there is inadequate infrastructure in schools. Pupils with PI need a friendly learning environment, if the infrastructure is not adapted to meet their needs then it becomes difficult for them to operate in the learning environment. This conforms to an investigation by Maingi (2016) which revealed that learners with PI lacked adopted classrooms. This means that the school environment is not well adapted to meet pupils' needs hence they are not able to access the learning environment to learn with ease. The school infrastructure should therefore be adapted to suit learners' needs.

According to observation checklist, there were inadequate infrastructure which was evidenced by poor access to most entries in the school environment, such as entries to library, toilets, water points, canteens, pathways, and fire assembly points. This means that the school environment is not well adapted to meet pupils' needs hence they are not able to access the learning environment to learn with ease. The school infrastructure should therefore be adapted to suit learners' needs. This agrees with a research by Addo (2014) which revealed that most basic learners with mobility impairments have barriers such as steps, narrow doorways and desk space, lack of seats for wheelchair users, open gutters, slippery floors, spaces for maneuvering, and ramps in most schools don't meet the international standards.

Equally, the results of the survey established that most of the schools suffer low (mean=2.59) adequacy of instructional materials. This was revealed by 88 (30.1%) and 88 (30.1%) of the sampled learners who strongly rejected and rejected respectively, the claim that there are adequate instructional materials in their special schools. This implies that the materials that should be used to promote or improve teaching and learning activities in the process of instruction are not adapted or

adequate. Learners with PI need adapted instructional materials for them to achieve their valued functioning, hence learn successfully. The adequacy of these materials is crucial in learning, instructional materials should therefore be adapted for these pupils. This conforms to a research by Oluremi and Olubukola (2012) who found out that learners with PI in public schools lacked instructional materials. When head teachers were asked to say whether instructional materials are adequate for pupils with PI, the following response came out:

> *The instructional materials in the school are not adequate with regards to pupils' population and their diversified needs* (HT4).

The qualitative response by the headteacher indicates that the instructional materials are available but not adequate for all learners with PI, which implies that not all pupils do benefit from them, and this may hinder their ability learn. There is therefore need for more adapted instructional materials. This finding conforms to an inquiry by Mukhopadhy (2013) which revealed that public primary schools for learners with special needs lack teaching/learning resources. The following interview excerpt from OT support the same findings when they were asked to say whether the instructional materials in school are adequate:

> *Instructional materials for pupils should be adapted to meet their needs but generally most of them are not available and most of the available ones are not adapted (O2).*

The interview excerpt from the OT shows that there are inadequate instructional materials and they are not adapted. This implies that most pupils are disadvantaged when it comes to use of instructional materials as far as learning is concerned. This also implies that most of them are disadvantaged when learning since they do not fully benefit from instructional materials. There is therefore need for adapted instructional materials in schools for learners with PI. This is in line with an investigation by Tety (2016) which revealed that schools lack adequate instructional materials.

From FGDs with teachers, they supported the findings that instructional materials for learners with PI are not adequate and not adapted.

For instance, the following statement came from a teacher from FG2:

> *Some instructional materials for pupils are available but too old, also, the learners have to share some of them during lessons…..If more than 3 classes are to use them at the same time, then other classes which also need to use them at the same time have to wait* (FG 1).

The qualitative data from the teacher indicate that some instructional materials are available, however, they are not adequate, implying that only few learners can benefit from them at a given time, which further implies that most learners with PI who may need such instructional materials miss out during the lesson. There is therefore need for more instructional materials. This finding conforms to the findings of a research by Muendo (2016) which revealed that schools do not have adequate physical facilities which negatively affect their academic performance.

From observation checklist, it was determined that there were inadequate instructional materials, and this was evident by the available instructional materials versus the number of learners who use them, indicating their inadequacy. These included; audio, visual, audio-visual, prints, and electronic interactive among others. This seems to suggest that the roles that instructional materials play in increasing learners' achievement by supporting their learning process, is not achieved in these schools, and this may make pupils perform poorly in academics. There is therefore need to equip the schools with adequate/adapted instructional materials. This finding conforms to an investigation by Karandu (2014) which revealed that learners with PI lack relevant teaching/learning resources.

With regard to how leaners access dormitories, the results of the survey established that their access to the dormitories is generally not very good. This was reflected by a mean response rate of 2.68 (SD=1.43) with only small proportion [agree: 66 (22.6%); strongly agree: 43 (14.7%)] of the respondents agreeing that they access to their dormitories with ease. More than one out of every two 172 (58.9%) of the learners who took part in the survey either disagreed or strongly disagreed that they have easy access to their dormitories. This suggests that, in most of the schools, PI pupils do not access their dormitories with ease, an indication that physical facilities in these schools are not very favorable to learners with PI which make them not to attain their valued functioning.

It can be argued that learners with PI find it difficult to move to and from dormitories with ease. This implies that there is lack of appropriate adaptations to enable them access dormitories with ease. This conforms to a study by Kabuta (2014) which found that there were obstacles pertaining to physical facilities for learners with PI. There is therefore need for more adaptations to remove the barriers within learners' dormitories. The following qualitative data from head teachers also supports the same finding; for instance, when head teaches' views were sought on whether pupils with PI move freely to and from their dormitories without obstacles, the following response came out:

> *There are still some barriers such as rough ramps but plans are underway to renovate them. (HT1)*

The interview excerpt from the headteacher shows that there is poor access to dormitories for learners with PI which makes it difficult to move to and from the dormitories where they are expected to rest at the end of the day and wake up in the morning to start each day's activities. This may make it difficult for learners with PI to attain their valued functioning. This conforms to a research by Addo (2014) which found that most learners with PI have barriers such as ramps, steps, and spaces for maneuvering. There is therefore need to make appropriate adaptations so as to make dormitories accessible to learners with PI. The following qualitative data from PTs bears the same testimony:

> *Access to and from the dormitories is not that good, some repairs need to be made, but I have advised the relevant authority on the same. (P6)*

The qualitative response by the PT indicates that there is poor access to and from the dormitories by pupils with PI and requires some renovations. This may bring them discomfort hence the need for more adaptations for learners with PI to achieve their valued functioning. This conforms to an investigation by Karandu (2014) which revealed that majority of learners with PI lacked ramps, lowered door handles, and staircase. When OTs were asked to say whether learners with PI access dormitories with ease, the following shows the response:

> *The door steps to the dormitories are not leveled, and the ramps are also too rough for the pupils to walk comfortably. (O2)*

The qualitative response from the OT indicates that there are still obstacles that hinder movement of pupils to and from their dormitories. This implies that these pupils still

face difficulties in accessing their dormitories and this makes it difficult for them to attain their valued functioning. This conforms to a research by Nel, Rankoana, Govender, Mothimi, and Moloantoa (2015) that the poor infrastructure provides many challenges and barriers to the disabled being able to move freely which at times lead them to stay in their rooms. There is therefore need to make more adaptations to ensure that there is proper access to dormitories for learners to achieve their valued functioning.

From the observation checklist, it was also established that pupils had difficulties due to rough and steep ramps and door steps which were not well leveled enough for easy accessibility by learners with PI. There is therefore need for changes in terms of physical structures such as slope access or elevators. Poor access to dormitories may affect learners' valued functioning. This is in line with a research by Zubayer (2011) which revealed that most schools are physically inaccessible to learners with PI. There is therefore need to make appropriate adaptations to ensure that all dormitories for learners with PI are accessible. From the FGDs with teachers, the following qualitative response came out when teachers were asked about their views on whether learners with PI access their dormitories with ease:

> *The dormitories are not very accessible due to rough ramps…we need some renovation. (FG3)*

Qualitative data from teachers shows that learners with PI find it difficult to move to and from their dormitories due to steep and rough ramps. This implies that these pupils strain wen moving to and from their dormitories every day. This seems to suggest that the difficulties that they face in accessing their dormitories my affect their valued functioning. This conforms to an inquiry by Addo (2014) which established that most learners with PI have barriers such as steps and ramps which do not meet international standards. There is therefore need for schools to give attention to adaptations as far as individual needs of learners with PI are concerned.

Similarly, the study found out that the PI learners do not have adequate games equipment that is appropriate to them. This was confirmed by a mean response rate of 2.57 (SD=1.44) with 100 (34.2%) of the respondents who disagreed and another 84 (28.8%) who strongly disagreed that their school has adequate games equipment for their use. Only about a third 102 (34.9%) of the sampled learners were in agreement that, their schools have adequate games equipment, translating to an adequacy level of

2.57 in the scale of 1to 5 with a standard deviation of 1.44. This indicates that, on average, the primary schools in Nyanza Region lack adequate and appropriate games equipment for use by the PI learners.

It can be argued that lack of games equipment may limit learners' level of physical activities which is important as it helps enhance brain function and cognition through increasing blood flow to the brain. There is therefore need for adequate games equipment. This finding is in agreement with a research by Soyingbe, Ogundairo, and Adenuga (2013) which found that most schools lacked facilities that restrict activities of learners with PI. The interview excerpt from head teachers also support the same finding, for instance, when headteachers were asked to say whether their schools had adequate games equipment, the following response came out:

> *We have games equipment although most of them need repair and replacement. (HT2)*

The qualitative response by the head teacher indicates that most games equipment which are available need repair and replacement. This implies that games equipment is not adequate for learners with PI in the school. This seems to suggest that learners with PI do not enjoy physical activities which involve games equipment. This conforms to a study by Njoroge (2015) which revealed that facilities and resources for learners with PI were available but not adequate. There is therefore need to ensure that games equipment is adequate for learners with PI.

The following qualitative data from a PT also supports the finding that learners with PI do not have adequate games equipment:

> *The available games equipment is available but not adequate for the population of learners with PI in the school…they are not enough to be used even by one eighth of the pupils. (P3)*

From the interview excerpt from the PT, the games equipment is available, however, they are not adequate. This seems to suggest that pupils do not participate maximumly in physical activities that involve games equipment and which are vital for their valued functioning. There is therefore need to ensure that games equipment is adequate and well adapted for pupils. This conforms to an investigation by Muendo (2016) which revealed that most schools do not have adequate physical facilities.

The following qualitative response from an OT also shows that learners with PI do not have adequate games equipment:

> *The available games equipment is not adequate as compared to the high population of pupils in the school*. (O4)

The interview excerpt from the OT indicates that the games equipment for learners with PI are not adequate. It can be argued that learners with PI do not explore the games equipment due to their inadequacy and this may limit their benefits from physical activities that involve using games equipment. This finding conforms to a research by Figueroa, Lim, and Lee (2016) which revealed that school facilities should be available depending on the needs of learners. There is therefore need to ensure that games equipment in schools are available and adequate. The following qualitative response from teachers also supports the findings that games equipment is inadequate:

> *Generally, the games equipment for these learners are inadequate, however, we sometimes improvise where we can*. (FG5)

The qualitative response by teachers in FGDs indicates that the games equipment for learners with PI are inadequate and sometimes they improvise. It can be argued that the inadequacy of games equipment may limit learners' physical activities which are vital in attaining their valued functioning. This is in agreement with a research by Ogundairo and Adenuga (2013) which established that the absence of some facilities restrict activities of people with PI. There is therefore need to increase the number of games equipment for learners with PI.

From the observation checklist, it was discovered that the games equipment was available but not adequate given the population of pupils. This implies that they miss out the chance to enjoy the physical activities involving use of games equipment and the benefits that may come from using them. This conforms to an inquiry by Muendo (2016) which revealed that schools do not have adequate physical facilities which negatively impacts on learners' academic achievement. There is therefore need to equip all schools for learners with PI with adequate games equipment.

It emerged from the survey results that even appropriateness for the use of open play fields comfortably by PI learners is low.

This was reflected by a mean rating of 2.55 (SD=1.45) by the respondents on comfort of their open fields for play. While only 58 (19.9%) and 41 (14.0%) of the sampled learners agreed and strongly agreed, 90 (30.8%) strongly denied and 91 (31.2%) denied that they always use their school's open field comfortably. This implies that schools for learners with PI do not have open fields that are suitable for use by the PI learners. This interferes with learners' ability to attain their valued functioning.

This seems to suggest that the open fields within the learning environment for pupils have some obstacles that prevent them from moving comfortably, hence, there is need to ensure that open fields are accessible to all learners with PI. This conforms to a research by Addo (2014) which determined that most schools for learners with PI lack spaces for maneuvering. The following qualitative response from a head teacher bears the same testimony when headteachers were asked to say whether open fields are used comfortably by pupils with PI:

> *Pupils have been using the fields although the fields need some adjustments from time to time*. (HT3).

The interview excerpt from the headteacher indicates that open fields need some adjustments. It can be argued that due to lack of appropriate adjustments, learners with PI are not able to use open fields with ease. There is therefore need to ensure that open fields are adjusted. This conforms to a research by Zubayer (2011) which found that there were physical barriers in the learning environment for learners with PI. When PTs were asked to say whether learners with PI use open fields with ease, the following was one of their responses:

> *The open fields here are not well adapted as at now…there is need to make adaptations from time to time, for instance, all the rags that learners with PI may slip over should thoroughly be removed on daily basis.* (P4)

The interview excerpt from the PT indicates that the open fields for pupils need some adaptations from time to time. This implies that pupils may not be able to use open fields comfortably. There is need for appropriate adaptation of open fields so that learners with PI can use them comfortably. This is in agreement with a research by Soyingbe, Ogundairo and Adenunga (2013) which revealed that most schools were lacking major facilities which restricted the activities of learners with PI. The

following statement came from one of the OTs when asked to comment on the use of open fields by learners with PI:

> *Those open fields need more adaptation to be more accessible to learners with PI. (O)*

The qualitative data from the OT indicates that the open fields for are not comfortable when used by pupils, and that they require some adaptations. It can be argued that due to poor adaptation of open fields, learners do not use them comfortably. There is therefore need for more adaptation of open fields in schools for learners with PI. This conforms to a research by Mukhopadhy (2013) which found that physical access to school facilities was poor. This finding was also supported by the following qualitative data from teachers in FGDs:

> *The open fields can be used comfortably by learners but only if the rags that can be tripped over are removed from time to time. (FG1)*

The qualitative response by teachers indicates that if the obstacles that can cause discomfort in movement are removed, the learners with PI can be able to use open fields comfortably, however, it depends on ones' concern. This implies that it is not always that learners with PI can use the open fields comfortably. This seems to suggest that there are obstacles in the open fields that may make learners with PI not to use them comfortably. This is in line with an inquiry by Karandu (2014) which revealed that majority of learners with PI lack relevant physical facilities.

From the observation checklist, it was noted that the fields were well lighted, however, the place for walkers and wheelchair access and those who crawl were not well adapted, hence need for more adaptation. There was also need to remove the rags that can be tripped over or tape them down for learners with PI to move comfortably. This conforms to a research by Njoroge (2015) which found that most of the resources/facilities in schools are available but not adequate.

Worse still, the results of the survey revealed that even accesses to wash facilities for the PI learners in some of the schools under survey is a problem. For instance, accessibility of toilets among the surveyed schools was rated at 2.58 with a standard deviation of 1.49. While some 107 (37.3%) of the respondents were satisfied with the accessibility of toilets in their schools, a respectable proportion 185 (62.7%) of them indicated that they do not access their toilets with ease.

This indicates that learners with PI do not access toilets with ease. This seems to suggest that adaptation that are necessary for easy access to toilets are not up-to-date. There is therefore need to ensure that the toilets are appropriately adapted for easy accessibility by learners with PI, as this helps them achieve their valued functioning. This is in line with an investigation by Karandu (2014) which revealed that most schools of learners with PI lack adapted toilets. When head teachers were asked to say whether learners with PI access toilets with ease, the following response came out:

> *Well, some toilets are well adapted and can be used comfortably by learners with PI while most of them need to be renovated.* (H6)

The interview excerpt from one of the head teachers indicates that more adaptations of toilets is needed, and this seems to suggest that adaptation of toilet facilities is not up-to-date. There is therefore need for more adaptation of toilets for easy access by learners with PI. This conforms to a research by Tilahum (2014) which found that children with PI have challenges in accessing toilets. When PTs' opinions were sought on accessibility of toilets by learners with PI, the following was the response:

> *The toilets are not easily accessible by learners with PI…they need more adaptation if learners with PI are to use them more comfortably.* (P1)

The interview excerpt from the PT indicates that toilets for learners with PI are not well adapted. This implies that learners with PI do not access toilets with ease. This conforms to a study by Kiyuba and Tukur (2014) which revealed that there were poor adjustments in school environment which caused poor access to physical facilities. Learners with PI need adapted toilets that they can easily access and use comfortably. The schools should therefore ensure that all toilets are well adapted. When OTs, opinions were sought on accessibility of toilets for learners with PI, the response was:

> *For easy accessibility, most toilets still need more adaptations.* (O5)

The interview excerpt from OT indicates the need for adaptation of toilets. This seems to suggest that most toilets for learners with PI are not adapted. It can be argued that since most toilets are not adapted, pupils do not access them with ease. Therefore, all toilets for learners with PI should be adapted for easy accessibility. This is in line with Zubayer (2011) which found that majority of schools for learners with PI had physical barriers as far as washrooms are concerned.

From FGDs with teachers on accessibility of toilets, the following response emerged:

> *Some of the toilets are well adapted while some need more adjustments. Also, with this growing population, there is need for more toilets for the learners. (FG2).*

The qualitative response from teachers indicates that not all toilets are well adapted. This implies that poor adaptation of toilets makes it difficult for pupils to access the toilets. There is therefore need to ensure that all the toilets are adapted. This conforms to an inquiry by Oluremi and Olubakola (2012) which revealed that most schools for learners with PI have barriers such as lack of adapted toilets. From the observation checklist, it was noted that most schools lack appropriate adaptations for toilets. These included; inadequate paddle type design for ease of use and supporting grab nails which are vital as far as adaptation of toilets is concerned. This implies that pupils with PI do not access toilets with ease. Therefore, appropriate adaptation of toilets for learners with PI is necessary. This conforms to an investigation by Tilahum (2014) which found that there were chronic challenges in accessing toilets for learners with PI in schools.

4.2.1 Hypothesis testing: Objective 1

To investigate whether there was any significant relationship between adaptation of physical facilities and academic performance of learners with PI, the null hypothesis was tested as follows:

H_{01}: *There is no statistically significant relationship between adaptation of physical facilities and academic performance of learners with PI in public primary special schools in Nyanza Region.*

In order to test the null hypothesis, a Pearson Product Moment Correlation Coefficient was computed with scores on adaptation of physical facilities as independent variable and academic performance as dependent variable. The scores of independent variables (adaptation of physical facilities) were computed from frequencies of responses by computing mean responses per respondents. Mean response across a set of questions of Likert scale responses in each item was computed to create an approximately continuous variable, within an open interval of 1 to 5, that is suitable for the use in parametric methods, as explained by Sullivan and Artino (2013), where high scale ratings implied high perceived physical facilities in public special schools of learners with physical impairments. The overall academic achievement was computed from

the mean average scores of the learners in the three exams that were administered to them for term 2: 2019; term 3: 2019; and term 1: 2020.

The significant level (p-value) was set at .05, where, if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. However, if the p-value is larger than 0.05, it would be concluded that a significant difference does not exist. Table 14 shows the SPSS output correlation analysis results.

Table 14: *Relationship between Adaptation of Physical Facilities and Academic Performance*

		Academic Achievement
Physical facilities	Pearson Correlation	.370**
	Sig. (2-tailed)	.000
	N	292

From Table 14, the finding of the research shows that there was statistically significant positive correlation between adaptation of physical facilities and academic performance (n=292; r = .370; p<.05). Since p-value = 0.000 < 0.05, the null hypothesis that "*there is no statistically significant relationship between adaptation of physical facilities and academic performance of learners with PI in public primary special schools*" was rejected. Therefore, there exists enough evidence to conclude that there is statistically significant relationship between adaptation of physical facilities and academic performance among learners with PI in public primary special schools for learners with PI, with high level adaptation, availability, adequacy, accessibility and usage of physical facilities associated to improved academic performance and vice-versa.

This seems to suggest that there are barriers which make it difficult for learners with PI to attain their valued functioning such as lack of appropriate adaptation of physical facilities which contributes to poor academic performance in public primary special schools for learners with PI which may cause difficulty in; free movement within the learning environment, undertaking different tasks, and participating in classroom activities among others, and this implies that their good quality of life and valued functioning are not achieved. There is therefore need for schools to have adapted physical facilities. This finding is consistent with a research by Oluremi and Olubukola (2012) which found out that there was a significant relationship between

availability of facilities for learners and academic performance of learners with special needs.

It can also be argued that pupils who access adapted physical facilities tend to perform well academically. This conforms to an investigation by Figueroa, Lim and Lee (2016) which revealed that schools with basic facilities have performed better than schools with poor facilities. This implies that access to adapted physical facilities by pupils is linked to their academic performance, hence need for adequate and accessible physical facilities in schools. However, the finding does not agree with Ibra, Umar and Igbaji (2017) which found out that there is no statistically significant relationship in the areas of facilities and academic achievement. This might have been so due to the fact that the previous research used a smaller sample than the current study hence might have had possible statistical errors. However, to estimate the level of influence of physical facilities on academic performance, a coefficient of determination was computed using regression analysis and the result was as shown in Table 15.

Table 15: *Model Summary on Regression Analysis of Adaptation of Physical Facilities on Academic Performance of Learners with PI*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.370[a]	.137	.131	19.506

Predictors: (Constant), Physical facilities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	115.720	15.942		10.301	.000	93.610	137.829
Physical facilities	29.257	6.113	.370	6.792	.000	20.779	37.735

a. Dependent Variable: Academic Achievement

$Y = \alpha + \beta x$

Academic Performance = 115.720 + 29.26x

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17551.758	1	17551.758	46.129	.000[b]
	Residual	110341.888	290	380.489		
	Total	127893.646	291			

a. Dependent Variable: Academic Achievement

b. Predictors: (Constant), Physical facilities

The model summary reveals that adaptation of physical facilities accounted for 13.1%, as signified by Adjusted R^2 =.131, of the variation in academic performance of pupils with physical impairments. This finding implies that variation in the physical facilities explains about 13% of the variability in academic performance of learners with PI in public primary special schools. This is a fairly sizeable influence on a dependent variable by one predictor variable.

This further suggests that due to systemic barriers, the learning environment for pupils with PI is not friendly and does not fully facilitate their learning, physical facilities for learners with PI should therefore be improved. Adaptation of these physical facilities help alleviate systemic barriers, and social exclusion which make it difficult or impossible for learners with PI to attain their valued functioning. This conforms to a research by Akomolafe and Adesua (2016) which revealed that there was a significant relationship between physical facilities and learners' level of academic performance. This implies that inadequate physical facilities are related to lower academic

performance and vice versa. Schools for learners with PI should therefore be provided with adapted physical facilities.

Table 15 also shows the coefficients values of regression model of the influence of physical facilities on academic performance. From the model it is evident that the slope coefficient for adaptation of physical facilities was 29.26, implying that academic performance of learners with PI improves by 29.26 which 95% CI (20.779, 37.735) units for each one-unit provision of adapted physical facilities, availability, adequacy, and access to/of adapted physical facilities in public primary special schools for learners with PI. Similarly, an improvement in adaptation of physical facilities by one standard deviation is associated to improvement of academic performance by .370 standard deviations. This finding is in line with Maingi (2016) which revealed that adequate physical facilities predict academic achievement.

The findings imply that adaptation or adequacy of physical facilities such as infrastructure, equipment, assistive devices, and teaching learning materials in schools help them to attain their valued functioning, and are associated with the academic performance of pupils. There is therefore need for schools of learners with PI to have adapted, adequate or accessible physical facilities. However, to investigate whether physical facilities was really a significant predictor to academic performance among the pupils in public primary special schools, Analysis of Variance was conducted, in line with the recommendation by Bhandari (2020), as shown in Table 15.

From the ANOVA output, there exists enough evidence to conclude that the slope of the population regression line is not zero, meaning adaptation of physical facilities is a significant predictor of academic performance, F (1, 290) =46.129, p=.000 <.05; *Adjusted* R^2=.131. Therefore, it was concluded that there is statistically significant influence of adapted physical facilities on academic performance. This implies that learners with PI who enjoy adapted physical facilities are likely to achieve their valued functioning hence, better academic performance. This is in line with a research by an inquiry by Muendo (2016) which revealed that inadequate physical facilities in schools negatively affect academic achievements of learners.

This further implies that the availability and adequacy of adapted physical facilities for learners with PI is associated to a better academic performance. This finding conforms to findings from a study by Ramil and Mohd (2020) which revealed that physical facilities were associated to learners' achievement. This also, implies that adequate adapted physical facilities are essential for learners with PI. Schools of learners with PI should therefore be well equipped with adapted physical facilities.

4.3 Findings on the Relationship between Access to Counseling Services and Academic Performance of Learners with PI in Public Primary Special Schools

The second research objective was to determine the relationship between access to counseling services and academic performance of learners with PI in public primary special schools in Nyanza Region. Counseling services are vital for pupils with PI since they encounter difficulty in coming to terms with their challenges such as social needs including isolation, motivation, self-concept, loss of confidence in self, poor coordination, over dependence, and social-emotional problems among others, therefore should be guided to acquire social skills necessary for their personality, adjustment and development (American School Counselor Association, 2020). They also need education and it is the duty of the counselor to see that their course of study is helped early enough to make correct choice of subjects, courses and career. Individuals with PI need to be psychologically and emotionally balanced and this need has to be in the light of psychological treatment being received from counseling psychologist.

There were 4 categories of responses to this objective. These included; head teachers, teachers, pupils with PI, and school counselors. For head teachers, teachers, and counselors, phases of thematic analysis were used. This objective was addressed through descriptive statistics to explore the views of the respondents on counseling services, and followed by use of inferential statistics to test the hypothesis on the relationship between counseling services and academic performance of learners with PI. Finally, qualitative analysis was also used.

To explore the views of respondents (learners with PI), a nine Likert scaled itemed questionnaire was used. The items whose constructs were related to access to counseling services for learners with PI were scored using a five-point continuum scale using strongly agree (4.21-5.00), agree (3.41-4.20), somehow agree (2.61-3.40),

disagree (1.81-2.60) and strongly disagree (1 00-1.80) and presented as percentages frequencies of responses. The scores were summed up to measure the respondents' attitude on the access to counseling services in their schools. The learners' views were summarized in percentage frequencies as shown in Table 16.

Table 16: *Views of Learners with PI on Access to Counseling Services*

Statement of Opinion	SD	D	N	A	SA	Mean	SD
I've always gone for counseling individually.	116 (39.7%)	98 (33.6%)	6 (2.1%)	40 (13.7%)	32 (11.0%)	2.23	1.38
I usually visit my teacher freely for counseling.	98 (33.6%)	114 (39.0%)	6 (2.1%)	44 (15.1%)	30 (10.3%)	2.29	1.34
Counseling, helps me to explore the world around me by figuring out what I want to do in my life.	86(29.5%)	122(41.8%)	6(2.1%)	44(15.1%)	34(11.6%)	2.38	1.35
Counseling has helped me to overcome social challenges.	94 (32.2%)	102 (34.9%)	8 (2.7%)	50 (17.1%)	38 (13.0%)	2.44	1.42
A counselor helps me to improve my success in school.	82 (28.1%)	116 (39.7%)	24 (8.2%)	36 (12.3%)	34 (11.6%)	2.40	1.32
A counselor helps me to participate well in classroom activities.	80 (27.4%)	134 (45.9%)	10 (3.4%)	42 (14.4%)	26 (8.9%)	2.32	1.26
Counseling has helped me to improve my academic performance.	114 (39.0%)	112 (38.4%)	6 (2.1%)	36 (12.3%)	24 (8.2%)	2.12	1.28
A counselor helps in preparing me to perform well in exams.	110 (37.7%)	114 (39.0%)	6 (2.1%)	36 (12.3%	26 (8.9%	2.16	1.29
I'm satisfied with the counseling services that I receive.	112 (38.4%)	116 (39.7%)	8 (2.7%)	32 (11.0%)	24 (8.2%)	2.09	1.24
A counselor helps meditate conflicts between my teachers and I.	94 (32.2%)	96 (32.9%)	7 (2.4%)	40 (13.7%)	24 (8.2%)	2.24	1.32
A counselor listens to my concerns about my emotional problems.	77 (26.4%)	114 (39.0%)	9 (3.1%)	40 (13.7%)	21 (7.2%)	2.28	1.23
A counselor helps organize peer counseling programs.	73 (25.0%)	101 (34.6%)	23 (7.9%)	33 (11.3%)	31 (10.6%)	2.41	1.32
A counselor helps me apply interpersonal skills.	104 (35.6%)	102 (34.9%)	13 (4.5%)	30 (10.0%)	12 (4.1)	2.01	1.14
Mean average response rate on access to counseling services						2.27	0.35

Key: Strongly Disagree (1.00-1.80); Disagree (1.81-2.60); Somehow Agree (2.61-3.40); Agree (3.41-4.20); Strongly Agree (4.21-5.00) and SD-Standard Deviation. Source: Survey data (2021).

On counseling services available, the findings established that there is generally poor access to and inadequate counseling services offered to pupils in public primary special schools in Nyanza Region. This was reflected by an overall mean rating of 2.27 with a standard deviation of 0.35 in scale of 1 to 5. For instance, from Table 4.14, the findings of the study show that many pupils do not go for counseling services individually due to lack of adequate counselors in their schools. This has been confirmed by the discovery that many of the pupils with PI in Nyanza Region are not able to access counseling services, as was reflected by average mean response rating of 2.23 with a standard deviation of 1.38.

In fact, whereas only a small proportion [agreed: 40 (13.7%) and strongly agreed: 32 (11.0%)] of the learners who took part in the survey alluded that they are sometimes able to access counseling services individually, a majority [strongly disagree: 116 (39.7%) and disagree: 98 (33.6%)] of them said they hardly access counseling services individually. It can be argued that counseling services in schools for learners with PI are not accessible due to inadequacy of counselors. This further implies that the role of counseling as far as promoting pupils' academic performance is concerned, is not well performed. It is therefore necessary for schools to ensure that counseling services are accessible to all leaners. This finding conforms to a research by Mihaela (2015) which established that there was a marked lack of qualified personnel in the field of school of guidance and counseling.

Qualitative findings also support the above statement which shows that the counseling services are not accessible. For instance, when head teachers were asked to say whether pupils with PI go for counselling individually, they said:

> *Guiding and counseling is usually time-tabled for learners with physical impairments.... a hired counselor comes to school once a week hence has limited time with learners* (HT 2).

The interview excerpt above shows that most pupils are not able to access counseling services whenever they need it since it is only done by one counsellor once a week. This seems to suggest that they can only receive counseling services once a week which may not meet all their counseling needs. This implies that learners do not get counseling services that address their social needs even though they usually face psychological challenges that these counseling services should address. Counseling services should be available in schools so that learners with PI can access them

whenever they are in need. This conforms to findings by Nyan (2011) which revealed that the counseling services are inadequate.

Qualitative data from counselors also support the statement which shows that the counseling services are not accessible. For instance, when counselors were asked to say whether pupils with PI go for counselling individually, one of the counselors said:

> *I only visit the school once a week for counseling services, which is not enough for me to handle the numerous cases that I receive (C4).*

From the interview excerpt by counselors, there is an indication that the counselor is not able to give the services to all pupils who need them. From this finding, it can be argued that pupils are not able to access counselling services individually whenever they need them due to inadequacy of counselors, and this may have negative effect on their academic performance. There is therefore need for adequate counseling services in schools for learners with PI. This is in line with findings by Wambui (2015) which established that the time allotted for counseling sessions was too short and inappropriate, and counseling sessions were not frequent. From FGDs with teachers, they also raised a concern towards inadequacy of counseling services. For instance, one of the teachers from FG6 said:

> *The counselor comes to school once a week, and this means that not all pupils with PI can access these services given the population of learners who may need these services at a time* (FG6).

From the qualitative data from teachers, the counselors have limited time with the pupils who need the services, which implies that most of them may not go for counseling services if they know that they may not be attended to due to inadequacy of counseling services. There is therefore need for more counseling services so that all pupils can access them and benefit from them. The qualitative data from observation checklist indicated that there were counseling rooms. It can be argued that even though the counseling rooms are in school, accessibility to counseling services is low due to inadequate time for counseling services. This conforms to findings by Salgong (2016) which revealed that there was too much workload for counselors making it difficult for the counselor to succeed. Also, from the observation checklist, most schools had counseling rooms and most of the counseling rooms had no privacy, hence the need for appropriate counseling rooms.

Equally, the results of the survey show that most learners with PI do not visit teachers freely for counseling, further revealing that there is poor access to counseling services. On whether the pupils usually visit their teachers freely for counseling, only 74 (25.3%) of them accepted they occasionally do but a majority of 212 translating to 72.7% of the sampled pupils with PI indicated that they rarely visit their teachers freely for counseling. This implies that there is generally low interaction between teachers and learners with PI for the purpose of counseling, which was reflected by a mean of 2.29 with a standard deviation of 1.34.

This seems to suggest that counseling services in public primary special schools in Nyanza Region are inadequate, and it can be argued that pupils with PI do not benefit from counselling services that should promote them academically, indicating that counseling services are not accessible. There is therefore need to induct teachers in counseling courses so as to be well equipped in counseling to help them. This finding conforms to a research by Waititu (2013) which established that there was lack of teacher counselors in schools. The following interview excerpt shows headteachers' response when they were asked to say whether pupils with PI visit teachers freely for counselling:

> *Few learners have visited some teachers who they trust when they have issues…the problem is that no teacher here is trained in counseling yet…but* we are organizing for the same (HT4).

The interview excerpt from head teachers indicate that even though only few learners visit teachers for counseling, they do not receive adequate counseling services as teachers lack training as far as counseling is concerned. This seems to suggest that learners with PI do not access counseling services from professional counselors, hence they miss counseling services that is useful as far as their academic achievement is concerned. It is important to conduct induction courses for teachers so that they are in a position to counsel pupils with PI in schools. This is in line with Wachianga (2010) which revealed that public schools for learners with PI lacked professional counselors.

Qualitative data from counselors supported the findings that most learners with PI do not visit teachers freely for counseling.

For example, when they were asked to respond on the same, a counselor responded by saying:

> *Few pupils have been visiting teachers for counseling especially when I'm not around but they are always referred to me since teachers are not trained in counseling (C5).*

The interview excerpt from a counselor indicates that most pupils do not visit teachers freely for counseling, and most teachers are not in a position to counsel pupils due to lack of counseling skills/knowledge. This implies that learners with PI do not access adequate counseling services. Access to counseling services for these pupils should therefore be considered. This conforms to findings by Odhiambo (2015) which found out that learners are willing to seek counseling services but just a few do seek because of lack of confidentiality. When teachers were asked to say whether the pupils usually visit teachers freely for counseling, they disagreed. The following qualitative response came from one of the teachers in FG 3:

> *We do not have a professional counselor employed or hired in school but there is a teacher in charge of counseling.... she is however not trained in counseling. Also,* m*ost pupils with physical impairments are not aware about counseling services* (FG3).

The qualitative data from teachers' FGDs shows that most pupils do not access counseling services due to inadequacy of teacher counselors and professional counselors. This seems to suggest that pupils who may need counseling services are not able to access them due to lack of professional counselors in schools. Counselors have a role to play in academic achievements of pupils with PI but these learners do not enjoy such services due to lack of counselors. There is need for schools to have adequate counseling services to meet pupils' psychological needs, and academic needs. This is in agreement with a research by Nyan (2011) which revealed that there is poor access to counseling services, that is, counseling services are inadequate.

On the same token, the findings of the study established that counseling services have not helped pupils with PI to learn to explore the world around them by figuring out what they want to do in their lives. This shows that the counseling services have not helped pupils due to their inadequacies. This was reflected by a mean response of 2.38 with a standard deviation of 1.35, with almost three quarters 208 (70.6%) of sampled learners with PI indicating that counselors do not help them.

Pupils with PI need to be counseled and helped in figuring out what they want to do in their lives as this gives them a sense of direction and motivation to learn. It can be argued that, due to poor access to counseling services, the role of counselors to help learners with PI in learning to explore the world around them by figuring out what they want to do in their lives has not been addressed through counseling. There is therefore need for schools to have adequate counseling services. This finding is in line with Kituvi (2014) which revealed that counselling, as it is practiced, does not meet required standards of what is desired in academic performance of learners.

When head teachers were asked if counseling services have helped pupils to learn to explore the world around them by figuring out what they want to do in their lives. A head teacher responded by saying:

> *Pupils do not get such services since there is no professional counselor in the school. Usually, there is a teacher in charge of counseling, however, she is not well trained in counseling and therefore lacks knowledge in counseling* (HT2).

The interview excerpt by the headteacher shows that there is no professional counselor in the school. This seems to suggest that pupils do not get the required counseling services which are vital in learning such as helping them to explore the world around them to figure out what they want to do with their lives. This finding is in line with a study by Njeri (2011) which revealed that teacher counselors had little training in counseling services. When counselors were asked if counseling services have helped learners with PI to learn to explore the world around them by figuring out what they want to do in their lives, one of the counselors said:

> *I do help pupils in all aspects of education but due to limited time, I find it difficult to rich out to majority of learners with PI (C5)*

The interview excerpt from a counselor shows that counselors help pupils with PI to learn to explore the world around them by figuring out what they want to do in their lives, however, not all pupils with PI benefit from this due to short time allocated for counseling. It can therefore be argued that there is poor access to counseling services by pupils with PI. There is need to ensure that all pupils with PI access adequate counseling services. This finding is in line with a study by Ocansey and Gyimah (2016) which revealed that pupils with disabilities had various academic needs and

counseling needs. From FGDs with teachers, the teachers support the statement that counseling services have not helped learners to explore the world around them by figuring out what they want to do in their lives. For instance, a teacher from FG5 said:

> *The school has a professional counselor although the time allocated for counseling is not enough to address the academic issues of most pupils with physical impairments* (FG5).

The qualitative response from FGDs with teachers shows that the counselor does not have adequate time to give counseling services to pupils with PI. This implies that not all pupils with PI receive such services. There is therefore need for adequate counseling services for them with PI. This finding conforms to a study by Alberto and Bossman (2015) who revealed that there is need to appoint full time counselors in each school to address the existing teething problems of learners.

On whether the learners with PI benefit from counseling services as far as their social challenges are concerned, the results of the survey revealed that counseling services have not helped majority of pupils with PI to overcome social challenges. This was reflected by an average mean of 2.44 with a standard deviation of 1.42. While 50 (17.1%) agreed, and 38 (13.0%) strongly agreed that counselors have helped them overcome social challenges, 196 (67.1%) insisted that counselors have not helped them to overcome social challenges. This seems to suggest that there is poor access to counseling services for learners with PI, which is in line with Odhiambo (2015) which found out that most teacher counselors are not trained in counseling.

This implies that due to inadequate counseling services, learners with PI still face social challenges which should have been addressed by a school counselor through counseling services. This also implies that counseling services have not helped to address the social factors such as socio-emotional problems and isolation among others which are vital for academic performance of learners with PI. It is necessary for schools of learners with PI to ensure that social challenges of learners with PI are addressed. This is in agreement with a study by Waititu, (2013) which found out that learners with PI suffer low self-esteem due to lack of qualified counselors. This however does not agree with an inquiry by Okumu (2020) which found that learners had high self-esteem to cope with their social environment. This may have been so due to the fact that the study was carried out in a different region.

The qualitative findings from a headteacher also support the statement which shows that most learners with PI are not helped to overcome their social challenges, this is shown by the following interview excerpt:

> *We do have a counselor but the school population is too high for just one counselor to meet individual counseling needs of each and every learner (HT1).*

The interview excerpt from the headteacher shows that not all pupils with PI are able to access counseling services. This seems to suggest that the role of counselors in helping pupils to overcome their social challenges is not adequately met. This finding however does not agree with an inquiry by Gatwa (2014) which revealed that counseling services had high level of impact on learners' social and emotional adjustments. This difference might have been due to the fact that the previous study was conducted outside Nyanza Region, also, it was carried out in high schools with older pupils, and the inquiry did not involve teachers and counselors as participants as opposed to the current study. The following interview excerpt from a counselor also support the findings that pupils with PI are not helped to overcome their social challenges:

> *I help pupils overcome social challenges, however, my time with them in the whole school is limited to only once a week. It is not easy or even possible for me to cater for individual needs of all learners in school since I am alone and I only visit the school once a week* (C6).

The interview excerpt from the counselor shows that pupils with PI do not have adequate time with the counselor due to limited time. This seems to suggest that pupils with PI do not receive adequate counseling services that should address their social challenges, which indicates poor accessibility of counseling services as far as addressing social challenges are concerned. This finding conforms to a study by Salgong (2016) which revealed that there was inadequate guidance and counseling in schools. From FGDs with teachers, the results showed that teachers maintained that learners with PI are not helped by counselors to overcome their social challenges. For instance, the following was a comment from FG1:

> *Based on the counselor learner ratio and limited time allocated for counseling, it is difficult for most pupils with physical impairments to benefit from counseling services* since most of them do not meet a counselor whenever they need one (FG1).

The qualitative response by a teacher from FGDs show that majority of learners with PI do not receive adequate counseling services, which seems to suggest that they may still be unsure of how to face their social challenges since they do not receive adequate counseling services on the same. Since most pupils with PI do not get adequate counseling services to address their social challenges, they still go on with school programmes as they are with all these social challenges unaddressed. This is in agreement with a study by Wambui (2015) who found that time allotted for counseling sessions was too short and that counseling sessions were not frequent. There is therefore need for adequate access to counseling services in schools for learners with PI.

The study established that most pupils with PI are not assisted by counselors to improve their success in school. This means that counseling services are not adequate and therefore are not as helpful to pupils as they should be. This was reflected by average mean response of 2.40 with a standard deviation of 1.32. While only 36 (12.3%) agreed and 34 (11.6%) strongly agreed that counselors help them to improve their success in school, majority of learners with PI, 198 (67.8) indicated that they are not assisted by counselors to improve in their success in school.

This means that counseling services are not accessible to learners with PI, and implies that the role of school counselors as vital members of the education team who should create successful learners and assist them academically with achievement strategies has not been done successfully, hence needs to be addressed. This finding is in line with a study by Kituvi (2014) which revealed that guiding and counseling as practiced does not meet the required standards of what of what is desired in academic achievement. The study findings are also supported by qualitative data. For instance, headteachers were asked about their opinions as to whether counselors assist pupils to improve their success in class. One of the headteachers responded by saying:

> *They need to do so and this needs to be continuous…however we do not have a professional counselor in school yet…we do have a teacher in charge of counseling but not yet trained in the same* (HT4).

The interview excerpt from the headteacher shows that they are aware of the roles of school counselors but these roles have not been played due to lack of professional counselors in schools. This implies that counselors hardly help pupils with PI to improve their success in school. There is therefore need to train teachers in counseling

so that they may be able to assist learners with such skills even when professional counselors are not available. This conforms to a study by Odhiambo (2015) which revealed that most counselors are not trained in guiding and counseling. Counselors also supported the statement that counselors do not help majority of pupils to improve their success in school, for instance when counselors were asked to say whether they help learners with PI to improve their success in school, the following qualitative response came from one of the counselors:

> *I do assist them to improve their success although I have limited time to do so…I would do this better if I have more time with them (C3).*

The interview excerpt by a counselor indicates that they help learners with PI to improve their success, however, the time for doing so is not sufficient to allow them do it effectively. This implies that the pupils do not fully benefit from counseling services that should address their success in school. There is need to ensure that counseling services are adequate in schools. This is in line with a study by Wachianga (2010) which revealed that public schools for learners with PI lacked professional counselors. From FGDs with teachers, teachers supported the statement that learners with PI are not assisted by counselors to improve their success in school. For instance, when teachers were asked about their opinions as to whether counselors assist the pupils to improve their success in class, a teacher from FG1 responded by saying:

> *In most cases, pupils do not get such assistance from counselors but from teachers. The school has no professional counselor.... the teacher in charge of counseling is also not trained in counseling. Most learners with PI therefore, rely on teachers for guidance* (FG1).

The qualitative response by the teacher indicates that the counseling services that learners with PI receive are not helpful to majority of pupils as far as their success in school is concerned since professional counselors are not available. Lack of professional counselors may suggest that pupils with PI do not receive services that professional counselors should provide such as helping them towards their success. Guiding learners with PI towards their success is vital. Pupils who miss such guidance may not be able to achieve their potential. Schools of pupils with PI should therefore have qualified counselors who should spend more time with the learners. This is in agreement with a study by Mubanga (2014) which established that school guidance

and counseling was not implemented in some institutions due to challenges such as lack of human resource.

The survey data further established that most pupils with PI do not get adequate assistance from counselors to participate well in classroom activities. This was reflected by an average mean response of 2.32 with a standard deviation of 1.26. It emerged that majority; 214 (72.3%) of learners were not being assisted by counselors to participate well in classroom activities. This means pupils with PI do not access adequate counseling services.

This seems to suggest that the counseling services that should assist pupils to participate well in classroom activities so as to improve in academic performance are not received by learners, and this may contribute to poor academic achievement. The schools should ensure that they are assisted to participate well in classroom activities. These findings are in line with Ocansey and Gyimah (2016) which revealed that pupils with disabilities had counseling needs. The following interview excerpts from a counselor bears the same testimony:

> *I don't always have enough time with pupils since I'm only allocated one day in a week…therefore such services as giving assistance to learners on how to participate well in classroom activities are given but to only a few pupils that I'm able to meet* (C6).

The interview excerpt from a counselor indicates that counselors assist pupils to participate well in classroom activities, however, not all of them get this kind of assistance due to counselor's limited time with them. This implies that the role of counselor in assisting learners to participate in classroom activities has not been done effectively, hence needs to be addressed. This is in line with a study by Nyan (2011) which revealed that the counseling services are inadequate in schools. The qualitative data from FGDs with teachers also supported the statement that pupils with PI have not been assisted to participate well in classroom activities. For instance, the following response came from FG1:

> *Most pupils do not receive adequate guidance and counseling services to Participate well in classroom activities due to poor access to counseling services and I believe this may negatively affect their learning (FG1).*

The interview excerpts indicate that the counseling services that pupils receive are not helpful to majority of them as far as their participation in classroom activities is concerned since only few learners are able to access them. This seems to suggest that there is poor access to counseling services by pupils, hence there is need to ensure that their counseling needs are addressed. When they are not guided on how to participate in classroom activities, they may be passively involved in the learning process such as undertaking different tasks. Active involvement in classroom activities enhances child centered learning which is beneficial to pupils. Appropriate counseling services should therefore be availed. This is in agreement with a study by Odhiambo (2015) which found out that most teacher counselors are not adequately trained in counseling.

The data from the study indicated that most pupils do not receive help from school counselors to improve their academic performance. For instance, whereas only small proportion [agreed: 36 (12.3%) and strongly agreed: 24 (8.2%)] of the learners who took part in the survey felt that their teacher counselors have helped them to improve in their academic performance, majority 226 (77.4%) of them felt that their teacher counselors have not helped them to improve in their academic performance in any way. This was interpreted to mean a low access to counseling services reflected by average mean response of 2.12 with a standard deviation of 1.28.

This means that there is poor access to counseling services by learners which implies that the role of school counselors in helping them to improve their academic performance is not being played effectively by counselors. This seems to suggest that the counseling services received by pupils are not fully addressing their academic performance. There is therefore need for counseling services that address improvement in academic performance of learners with PI. This finding is in line with Adhiambo (2020) which revealed that counseling services was inadequate in schools. However, this finding is not in line with a study by Mikaye (2012) which established that adequate counseling services are provided in schools. This difference may have been so due to the fact that the study used only the candidates' class to collect data.

The qualitative data from the headteachers also support the statement that learners with PI are not being helped to improve in their academic performance. For instance,

when headteachers were asked to say whether pupils with PI are helped by counselors to improve in their academic performance, one of the headteachers said:

> *There is one teacher who is in charge of counseling in school, she is however overwhelmed due to work and time schedule and high workload (HT4).*

The interview excerpt by the head teacher shows that even though pupils may be receiving counseling services to improve their academic achievement, the counseling teacher who provides the services is overwhelmed and there is also high workload. This seems to suggest that there is poor access to counseling services hence the counseling services received by pupils with PI are not fully addressing their academic performance and this may contribute to lower academic performance. There is need for schools to ensure that academic needs of learners are addressed. This agrees with a study by Salgong (2016) which revealed that there was lack of trained teacher counselors and the teacher counselors lacked and had much workload.

The qualitative data from the counselors also support the statement that pupils with PI are not being helped to improve in their academic performance. For instance, when counselors were asked to say whether the pupils are helped by counselors to improve in their academic performance, one of the counselors said:

> *I always help learners with PI to improve in their academic performance, however, the high workload won't allow me to play my role fully as a counselor (C2).*

This implies that in as much as pupils are assisted to perform well academically through counseling services, the assistance is not sufficient. There is therefore need for learners with PI to be fully assisted in academic achievement by counselors. This conforms to a study by Tawiah, Alberto and Bossman (2015) which established that full time counselors were lacking in schools. From FGDs with teachers, it was established that counseling services for learners with PI towards assisting them to improve in academic performance is not adequate. For instance, the following qualitative data came out from FG3 when teachers were asked whether counseling services help pupils to improve in their academic performance:

> *The counseling services are not adequate enough to support learners in all areas of academic performance* (FG3).

The qualitative data from FGDs indicates that counseling services are not adequate enough. This seems to suggest that pupils with PI do not receive adequate counseling services that address their improvement as far as their academic performance is concerned. There is therefore need for adequate counseling services which can address all areas of education. This conforms to a study by Ocansey and Gyimah (2016) which found out that learners with special educational needs and disabilities had various academic needs and counseling needs.

On the same note, the results also indicated that most pupils with PI are not being prepared by counselors to perform well in the examinations. For instance, only [agreed: 36 (12.3%) and strongly agreed: 26 (8.9%)] of the learners with PI who took part in the survey indicated that their counselors have helped them to prepare well in examinations, while majority 224 (76.7%) of them felt that the counselors have not helped them to prepare well in examinations. This was also interpreted to mean a poor access to counseling services reflected by average mean response of 2.16 with a standard deviation of 1.29. This is due to the fact that counseling services are inadequate and some teachers in charge of counseling lack technical know-how in counseling, hence are incompetent.

This implies that pupils with PI are not being prepared to perform well in examinations. There is need for schools for learners with PI to ensure that all pupils receive counseling services that address their performance in examinations. This is in line with Wambui (2015) which established that guidance and counseling sessions were too short and not frequent enough.

The qualitative data from respondents also supported the same statement that counselors do not help learners with PI to prepare them to perform well in exams. For example, when counselors were asked to say whether counselors prepare them to perform well in examinations. The following interview excerpt show one of their responses:

> *The time allotted for counseling is too short for me…If only I could have adequate time with these learners, I would be reaching out to all or at least most of them to prepare them to perform well in examinations since individuals have unique needs* (C1).

The interview excerpt from a counselor shows that counselors lack adequate time to provide counseling services to pupils. This seems to suggest that counselors do not provide adequate counseling services that help to prepare learners with PI as far as their preparation to perform well in examinations is concerned. There is therefore need to allocate more time for counseling in schools. This is in agreement with Kituvi (2014) which revealed that guidance and counseling as practiced in schools does not meet the required standards of what is desired in academic achievement. The qualitative findings from teachers also indicated that counseling services are not adequate enough to help prepare pupils to perform well in examinations. The following qualitative data came from FG5:

> *Since there is no full-time counselor and the available time for counseling is short, pupils are generally guided during school assemblies such as on Mondays....it is mostly not done one on one since the available counselor who only comes once a week has limited time with learners* (FG5).

The qualitative response from FG1 indicates that the role of counselors in helping pupils in improving their academic performance and preparing them in performing well in examinations is not adequately met. This implies that the available counselor is not able to reach out to all learners who need counseling services as far as academic performance is concerned since most pupils do not receive counseling services. For learners with PI to receive adequate counseling services, schools should employ professional counselors depending on their population. This agrees with a study by Pareira and Rekha (2017) which revealed that there is lack of dedicated time for counseling.

The data from the study also established that learners with PI are generally not satisfied with the counseling services they receive in their schools. This was reflected by a low average mean response rate of 2.09 with a standard deviation of 1.24, where 112 (38.4%) and 116 (39.7%) of the respondents strongly disagreed and disagreed, respectively, that they are satisfied with the counseling services that they receive. Only 56 (19.2%) of the sampled pupils were satisfied with the counseling services that they receive in their schools.

This finding implies that most pupils do not get adequate assistance from counselors to participate well in learning programmes that may help promote their academic performance, hence it can be argued that there is poor access to counseling services by learners with PI. It is therefore vital for schools to ensure that they access adequate counseling services. This finding conforms to a study by Mihaela (2015) which found that there was a marked lack of qualified personnel in the field of counseling, and also, the role of specialists being substituted by other people without appropriate qualification.

When headteachers were asked to say whether counselors provide adequate counseling services in schools of learners with PI. The following interview excerpt shows one of their responses:

> *We do not have a full-time counselor yet…we also have a tight schedule since we need to cover the syllabus so children must be taught* (HT1).

The qualitative data from headteacher indicates that time for counseling is short since there is no full-time counselor, and the school has a busy schedule. This seems to suggest that time allotted for counseling is too short to meet learners' academic needs, which implies that pupils do not receive adequate counseling services. This is in line with Nyan (2011) which established that counseling services in schools are not adequate and non-existence in some schools.

The qualitative data from counselors also supported the same findings that learners with PI are not satisfied with the counseling services that they receive, for instance, when counselors were asked to say whether counselors provide adequate counseling services in schools, the following was one of their responses:

> *Not all pupils are benefitting from counseling services due to little time allocated for counseling* services and heavy workload (C3).

The interview excerpt from counselor indicates that pupils with PI are not satisfied with the counseling services that they receive. The time allocated for counseling services is short hence not all learners access adequate counseling services. There is need to ensure that all pupils with PI in school access adequate counseling services. This is in agreement with a research by Wambui (2015) which found that time allotted for counseling was too short and inappropriate, and that counseling sessions were not

frequent. The qualitative data from FGDs with teachers also indicated that learners with PI are not satisfied with the counseling services that they receive in schools. For instance, when teachers were asked whether learners with PI should be satisfied with the counseling services they receive, the following qualitative response came from FG6:

> *We do not have a professional counselor yet…I usually try to do what I can although I'm not trained in counseling…I believe our learners miss a lot as far as access to counseling services are concerned* (FG6).

From the interview excerpts, it is clear that the counseling services offered to pupils are not adequate since they do not access them at the time of need, and some counseling services are provided by a teacher who has no counseling skills or knowledge. This shows that the counseling services in schools for learners with PI do not fully serve their purpose as far as their academic performance, and this has been attributed to by the fact that they are inadequate. For pupils to benefit from counseling services in schools, there is need for schools to have professional counselors and more time should be allocated for counseling services. This agrees with a research by Waititu (2013) which revealed that schools lacked qualified counselors, and a study by Ocansey and Gyimah (2016) which found that pupils had various counseling needs including social, emotional, physical, health and academic needs.

On whether the counselors help meditate conflicts between the teachers and learners, the results of the survey revealed that counseling services have not helped in mediation of conflicts between the pupils and their teachers. This was reflected by an average mean of 2.24 with a standard deviation of 1.32. While only 40 (13.7%) agreed and 24 (8.2%) strongly agreed that counselors have helped meditate conflicts between them and teachers, majority 190 (65.1%) of them insisted that counselors have not helped in mediation between them and teachers.

This seems to suggest that there is poor access to counseling services for pupils and teacher counselors are not properly trained in counseling to handle issues involving learners and teachers. This conforms to a research by Njeri (2011) which revealed that schools lacked professional counselors, hence lack appropriate counseling services. The schools should therefore ensure that all pupils access adequate counseling services. The following qualitative data from headteachers also bears the same

testimony when their opinions were sought on role of counselors on mediating conflicts between teachers and pupils:

> *The counselor is available; however, she spends little time with pupils with PI which may not be enough to attend to all issues affecting them.* (HT)

The interview excerpt from a headteacher indicates that even though the school counselor attends to learners' issues, little time is allotted for counseling. This implies that the little time the counselor spends with them may not be enough to address all their issues. It can be argued that not all pupils with PI may benefit from counseling services that capture mediation of conflicts between teachers and learners with PI. There is therefore need for schools to have adequate counseling services. This conforms to a study by Wachianga, Omoke and Ajowi (2015) which revealed that most of the physically challenged individuals encounter difficulty into coming to terms with their challenges. The qualitative data from counselors also bear the same testimony to the findings. When counselors were asked to say whether they help mediate conflicts between teachers and pupils with PI, the following response was noted:

> *I do help mediate conflicts between pupils and teachers, however, the time allocated for counseling is not enough to attend to most of them at the right time.* (C4)

The qualitative response from a counselor indicates that even though learners with PI receive counseling services, the time allocated for such services is not enough. This implies that not all of them access such services. There is need to increase the time spent for counseling so that most or all pupils with PI may benefit from the same. This conforms to a research by Mubanga (2014) which revealed that school guidance and counseling teaching syllabus was not implemented in some institutions due to lack of human resource among others. When teachers were asked to say whether a counselor helps mediate conflicts between teachers and learners, the following response was brought forward:

> *Mostly, we do not involve a counselor in mediating conflicts between our learners and us but our pupils do. However, the counseling sessions are too short for most of them to benefit from.* (FG6)

The qualitative responses from teachers shows that the counseling sessions are too short hence cannot help most learners who need the services. It can be argued that most pupils with PI do not get such services adequately from counselors due to limited time for counseling. This conforms to an investigation by Nyan (2011) which established that guidance and counseling in some schools are inadequate or non-existence. There is need for adequate counseling services for pupils with PI.

Likewise, the results of the survey also indicate that emotional issues of most learners with PI are not being appropriately handled by the counsellors. For instance, only [agreed: 40 (13.7%) and strongly agreed: 21 (7.2%)] of the pupils with PI who took part in the survey indicated that their counselors counselor always listen to their concerns about their emotional problems, while majority 191 (65.5%) of them felt that the counselors rarely listen to their emotional problems. This was also interpreted to mean a poor access to counseling services reflected by average mean response of 2.28 with a standard deviation of 1.23. This shows that counseling services for PI learners are inadequate and some teachers in charge of counseling lack technical know-how in counseling.

There is therefore need for adequate counseling services in schools for pupils with PI that address their concerns about their emotional problems. This conforms to an inquiry by Ocansey and Gyimah (2016) which revealed that learners with disabilities still had counseling needs. This finding was supported by qualitative data from the headteachers, for instance, when headteachers were asked to comment on role of counselors in listening to learners' concerns about their emotional problems, the following response was noted:

> *We do not have a professional counselor yet, however, the teacher in charge is expected to handle it. (HT6)*

The qualitative response from the headteacher shows that there is no professional counselor in the school to provide appropriate counseling services. It can be argued that due to lack of a professional counselor, learners with PI are not receiving adequate counseling services or counseling services that capture listening to their concerns about their emotional problems. There is therefore need for professional counselors in schools for pupils with PI to help learners achieve their valued functioning as far as counseling services are concerned. This finding is in line with an

investigation by Waititu (2013) which revealed that schools lacked qualified counselors, and an inquiry by Ocansey and Gyimah (2016) which found that pupils had various counseling needs including social, emotional, physical, health and academic needs. When counselors were asked to say if they listen to learners' concerns about their emotional problems, the following qualitative data supports the same finding:

> *I do but the work is too cumbersome considering the high population and emerging issues. (C3)*

The interview excerpt from one of the counselors indicates that even though the counselor listens to learners' concerns about their emotional problems, not all pupils benefit from the same due to high workload since there is only one counselor. There is need for improvement on counseling services. This conforms to a study by Kituvi (2014) which found that guiding and counseling as practiced does not meet the required standards of what is desired in academic achievement. The qualitative data from the teachers also supported the same findings. For instance, when teachers were asked to say whether counselors listen to learners' concern about their emotional problems, the following response came out:

> *We do not have a professional counselor…. We however do what we can. (FG5)*

The qualitative response from teachers shows that even though there are no professional counselor in schools, the teachers take up that role. This implies that pupils with PI do not access adequate counseling services as they would get from professional counselors. This seems to suggest that learners' concerns about their emotional problems are not well attended to. This is in line with a research by Mihaela (2015) which established that there was a marked lack of qualified personnel in counseling. There is need to ensure that all pupils access adequate counseling services.

On organization of peer counseling programs, the results of the study revealed that this is not always done as expected. For instance, when the respondents were asked whether their counselors usually help organize peer counseling programs, close to three out of five 174 (59.6%) of the PI pupils responded to the negative. Only 64 (21.9%) of the PI learners indicated that their counselors occasionally organize peer

counselling services for them. This reflected a mean response rate of 2.41 (SD=1.32), confirming that peer counselling services among the PI pupils is rare in primary schools in Nyanza Region, further indicating that learners with PI do not always access appropriate and adequate counselling services.

This means that there is poor access to counseling service by pupils. This implies that the role of counselors in organizing peer counseling programmes is not adequately met. This conforms to a research by Thilakarathna (2020) which revealed that counseling services were inadequate in most schools since majority are unqualified. The qualitative data from headteachers also supports the same finding. For instance, when headteachers were asked their opinions on whether counselors do organize peer counseling programmes, the following shows the response: *Not really, we do not have peer counseling programmes yet.* (HT5)

The qualitative data from headteacher shows that peer counseling programmes are not being organized by counselors in schools. It can be argued that learners with PI do not do peer counseling in their schools, hence do not benefit from peer counseling programmes. There is therefore need to initiate peer counseling programmes in schools for pupils with PI. This conforms to a study by Nyan (2011) which established that counseling services in schools are not adequate and non-existence in some schools. When counselors were asked to say whether they help organize peer counseling programmes for learners with PI, the following shows the response:

> *We have not started peer counseling programmes yet, however, I'm planning to start it soon. (C5)*

The interview excerpt from the counselor indicates that peer counseling programmes have not been organized in schools for learners with PI yet. This implies that, learners with PI are not benefitting from peer counseling programmes. This is in line with a research by Wambui (2015) which determined that the time allotted fir counseling services was too short and inappropriate. There is therefore need to ensure that peer counseling programmes takes place in schools. When teachers' opinions were sought on whether counselors do organize peer counseling programmes in their schools, the following shows the response:

> *We have not seen that happening here yet. Furthermore, we do not have a professional counselor who can initiate it.* (FG1)

From the qualitative response from FGDs with teachers, it is clear that peer counseling programmes have not been implemented in schools for pupils with PI. This implies that learners with PI do not enjoy counseling services involving peer counselors. This is in agreement with a study by Waititu (2013) which revealed that most schools lack qualified counselors. The school should therefore organize for counseling services that capture peer counseling.

The survey data further established that most pupils do not get adequate assistance from counselors to apply their interpersonal skills. This was reflected by an average mean response of 2.01 with a standard deviation of 1.14. It emerged that majority 206 (70.5%) of learners with PI confirmed that counselors never help them apply interpersonal skills and only 42 (141%) of them alluded that sometimes they get help to apply their interpersonal skills. This means that most learners with PI do not access adequate counseling services. This implies that pupils with PI do not access adequate counseling services that can enable them apply interpersonal skills that is essential as far as their valued functioning is concerned. Hence, need for access in counseling services. This finding conforms to an investigation by Nyan (2011) which revealed that counseling services in schools are not adequate, and are non-existence in some schools.

The qualitative findings from headteachers also support the same findings when they were asked their opinions on whether learners with PI get adequate assistance from counselors to apply interpersonal skills:

> *The counselor helps pupils with PI to apply interpersonal skills, however, we only have one counselor who visits the school only once a week…. the little time spent for counseling services may not benefit most learners*. (HT2)

The interview excerpt from the headteacher indicates that, even though the school counselor helps pupils apply interpersonal skills, the counselor spends little time with them which may not allow all of them to benefit from such services. It can be argued that, since the counselors spend a shorter time with learners, they do not benefit from counseling services. This is in line with an investigation by Rheka (2017) which revealed that there is lack of dedicated time for counseling. When the views of

counselors were sought on helping pupils with PI to apply interpersonal skills, the following was the response:

> *Due to limited time for counseling, I manage to help a few pupils that I am able to meet from time to time.* (C4)

The interview excerpt from the counselor indicates that only a few pupils that can be met by the counselor from time to time are helped to apply interpersonal skills. This implies that there are no adequate counseling services as far as helping learners to apply interpersonal skills is concerned, and the main challenge here is time allotted for counseling services. There is need to increase the time spent for counseling. This conforms to a study by Tawiah, Alberto and Bossman (2015) which established that full time counselors were lacking in schools. The qualitative data from teachers also supports the same finding. For instance, when views of teachers were sought concerning helping learners by counselors to apply interpersonal skills, they said:

> *Pupils here still need interpersonal skills….it is lacking.* (FG)

The qualitative data from teachers indicates that pupils have not acquired interpersonal skills. This implies that the role of counselors in helping them to apply interpersonal skills has not been played well. It can be argued that pupils with PI are not accessing counseling services that capture acquisition of interpersonal skills. There is therefore need for schools to ensure that all learners with PI access adequate counseling services. This conforms to a study by Wambui (2015) which established that counseling sessions were not frequent, and Nyan (2011) which revealed that counseling services in schools were not adequate.

4.3.1 Hypothesis testing: Objective 2

To investigate whether there was any significant relationship between access to counseling services and academic performance of learners with PI, the null hypothesis was tested:

H_{02}: *There is no statistically significant relationship between access to counseling services and academic performance of learners with PI in public primary special schools in Nyanza Region.*

Pearson Product Moment Correlation Coefficient was computed with scores on access to counseling services as independent variable and academic performance as dependent variable. The scores of independent variables (counseling services) were

computed from frequencies of responses. Mean response across a set of items of Likert scale responses was computed to create a continuous variable, within an open interval of 1 to 5 suitable for the use parametric methods, as explained by Sullivan and Artino (2013), where high scale ratings implied high perceived level of counseling services in public special schools of learners with physical impairments. The academic performance was computed from the mean average scores of the learners in the three exams that were administered to them in term 2: 2019; term 3: 2019; and term 1: 2020.

The significant level (p-value) was set at .05, such that if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. However, if the p-value is larger than 0.05, it would be concluded that a significant difference does not exists. Table 17 shows the SPSS output correlation analysis results.

Table 17: *Relationship between Access to Counseling Services and Academic Performance*

		Academic Achievement
Counseling Services	Pearson Correlation	.271**
	Sig. (2-tailed)	.001
	N	292

From Table 17, it is evident that there was statistically significant positive correlation between access to counseling services and academic performance (n=292; r = .271; p=.001). Since the p-value is less than 0.05, the null hypothesis that "*there is no statistically significant relationship between access to counseling services and academic performance of learners with PI in public primary special schools*" was rejected. Hence, there is enough evidence to conclude that there is statistically significant positive relationship between access to counseling services and academic performance among pupils with PI, with high level counseling services associated to improved academic performance and vice-versa. This finding is consistent with a study by Njeri (2011) which revealed that there is a positive relationship between access to guiding and counseling and academic performance of learners.

It is also vital for pupils with physical impairments to access counseling services for their valued functioning and mental well-being. This is in line with a study by Salgong (2016) which revealed that counseling services are linked to academic

performance of learners. Also, without counseling services, the pupils may not receive adequate help such as being assisted to explore the world around them and figuring out what they want to do with their lives. They also lack guidance on how to participate in classroom activities which are vital for their academic performance. It is important that learners with PI receive adequate counseling services in schools.

Further, to estimate the level of influence access to counseling services on academic performance of pupils, a coefficient of determination was computed using regression analysis and the result was as shown in Table 18.

Table 18: *Model Summary on Regression Analysis of Access to Counseling* **Services on Academic Achievement of Learners with PI**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.271[a]	.074	.070	20.2123

Predictors: (*Constant), Counseling services*

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Boun
1	(Constant)	154.84	7.750		19.980	.00 0	139.595	170.10
	Counseling services	16.209	3.376	.271	4.801	.001	9.565	22.854

a. Dependent Variable: *Academic Achievement*

$Y = \alpha + \beta_2 X + \varepsilon$

Academic Performance = 154.848 + 16.209x.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9417.737	1	9417.737	23.052	.000[b]
	Residual	118475.909	290	408.538		
	Total	127893.646	291			

a. Dependent Variable: *Academic Achievement*

b. Predictors: (*Constant), Counseling services*

The model summary (Table 18) reveals that counseling services accounted for 7.0 %, as signified by Adjusted R^2 =.070, of the variation in academic performance of pupils with physical impairment. This finding implies that variation in the counseling services explains 7% of the variability in academic performance of learners with physical impairment in public primary special schools within Nyanza Region. This is a fairly sizeable influence on a dependent variable by a predictor. This implies that

counseling services are not accessible to pupils with PI and they still need counseling services as it is vital for their attitudinal needs that would contribute positively to their valued function hence academic performance. This conforms to a research by Ocansey and Gyimah (2016) which revealed that counseling needs were related to academic achievement of learners with special needs. Children with PI suffer low self-esteem (Waititu, 2013). It is important that they receive adequate counseling services for their valued functioning, hence academic performance. Table 18 also shows the coefficients values of regression model of the influence of access to counseling services on academic achievement.

From the model, it is observable that the slope coefficient for access to counseling services was 16.209, implying that academic performance of pupils with PI in public special primary schools improves by 16.209 units for each one-unit positive change in counseling services, as indicated by *B*=16.209, CI (9.565, 22.854), *t*=4.801, *p*=001. Similarly, an improvement in access to counseling services by one standard deviation is associated to improvement of academic achievement by .271 standard deviations (*Beta*=.271).

This implies that for academic performance of learners with PI to improve, they need to access adequate counseling services. Pupils with PI have social challenges which need the help of a counselor to overcome, a counselor is also expected to help them achieve their success in school. Without counseling services, all these counseling needs may be compromised, hence contributing to poor academic performance. Therefore, these pupils need to be provided with adequate counseling services. This fits in to a research by Kapur, (2018) which found out that guidance and counseling had positive impact on academic achievement of pupils.

However, to investigate whether access to counseling services is a significant predictor to academic performance among the learners with PI in public primary special schools for pupils with PI, Analysis of Variance (ANOVA) was conducted, in line with the recommendation by Bhandari (2020), as shown in Table 18.

From the ANOVA output, there is sufficient evidence to conclude that the slope of the population regression line is not zero, signifying that counseling services is a significant predictor of academic achievement, F (1, 290) =23.052, p<. 001, Adjusted R^2 =.070. Therefore, it was concluded that there is statistically significant influence of

counseling services on academic achievement among the learners with PI. This implies that pupils who enjoy adequate and appropriate counseling services are likely to have better academic performance.

These findings imply that counseling services are essential for pupils with PI since it helps them in alleviating difficulties that they encounter in coming to terms with their challenges such as social needs like isolation, motivation, self-concept, loss of confidence in self, poor coordination, over dependence, and social-emotional problems among others. Hence, they need to have easily accessible, professional and adequate counseling services that help them attain their valued functioning. This finding is in line with a research by Salgong (2016) which revealed that counseling services is connected to academic achievement of learners.

4.4 Findings on the Relationship between Access to Physiotherapy Services and Academic Performance of Learners with PI in Public Primary Special Schools

The third research objective sought to establish the relationship between PT services and academic performance of learners with PI in public primary special schools in Nyanza Region. Physiotherapy services are vital for pupils with PI since they may have challenges as far as their fine and gross motor skills or mobility are concerned. There are also some environmental factors which may cause them pain, fatigue or mobility difficulties which may affect their concentration and ability to undertake different tasks, and consequently affect their academic performance, hence the need for PTs who can work effectively to help them overcome these challenges. This was determined based on access to PT services such as adequacy, competency/effectiveness of PT and availability of PT services.

There were 4 categories of responses to this objective. These included; head teachers, teachers, learners with PI, and school physiotherapists. This objective was addressed by, first, exploring the views of the respondents on access to PT services in their schools; second, inferential statistics was used to investigate the relationship between access to PT services and academic performance. For head teachers, teachers, and PTs, phases of thematic analysis were used.

In exploring the views of sampled pupils with PI, a Likert scaled itemed type responses questionnaire was used. The items whose constructs were related to access

to PT services and academic performance of learners with PI were scored using a five-point continuum scale from strongly agree (4.21-5.00), agree (3.41-4.20), somehow agree (2.61-3.40), disagree (1.81-2.60) and strongly disagree (1 00-1.80) and presented as percentages frequencies of responses. This was then condensed into broader groups of agree for strongly agree and agree, and disagree for strongly disagree and disagree. Access to PT services were determined based on adequacy; accessibility; competency/effectiveness of PT and availability of PT services. The scores were computed in frequency percentages and means to measure the respondents' attitude as shown in Table 19.

Table 19: *Views of Learners with PI on Access to Physiotherapy Services*

Statement of Opinion	SD	D	N	A	SA	Mean	SD
I always access physiotherapists help when I am in need.	84 (28.8%)	84 (28.8%)	12 (4.1%)	58 (19.9%)	54 (18.5%)	2.71	1.51
I contact Physiotherapist on my needs freely.	80 (27.4%)	90 (30.8%)	8 (2.7%)	60 (20.5%)	54 (18.5%)	2.72	1.51
The physiotherapist always helps me get the right equipment for my needs.	70 (24.0%)	102 (34.9%)	4 (1.4%)	64 (21.9%)	52 (17.8%)	2.75	1.47
Physiotherapist helps me to improve my physical well-being.	78 (26.7%)	94 (32.2%)	12 (4.1%)	56 (19.2%)	52 (17.8%)	2.69	1.48
Physiotherapist helps checks my equipment to ensure that it continues to meet my changing needs as I develop and grow.	84 (28.8%)	92 (31.5%)	10 (3.4%)	60 (20.5%)	46 (15.8%)	2.63	1.47
The physiotherapist always assists me to change my equipment when necessary.	76 (26.0%)	96 (32.9%)	10 (3.4%)	64 (21.9%)	46 (15.8%)	2.68	1.46
I am satisfied with physiotherapist's help that I receive.	41 (28.1%)	45 (30.8%)	6 (4.1%)	35 (24.0%)	19 (13.0%)	2.63	1.43
Physiotherapist's services help me improve my academic performance.	41 (28.1%)	40 (27.4%)	7 (4.8%)	32 (21.9%)	26 (17.8%)	2.74	1.50
I receive adequate physiotherapy services.	35 (24.0%)	51 (34.9%)	5 (3.4%)	31 (21.2%)	24 (16.4%)	2.71	1.45
Physiotherapist helps me to achieve maximum function.	75 (27.6%)	96 (35.3%)	6 (2.2%)	62 (22.8%)	53 (19.5%)	2.73	1.49
PT helps modify architectural barriers.	77 (28.3%)	97 (35.7%)	7 (2.6%)	62 (22.8%)	49 (18.0%)	2.68	1.48
PT helps me manage balance.	80 (29.4%)	92 (33.8%)	12 (4.4%)	63 (23.2%)	45 (16.5%)	2.66	1.46
PT advices me on mobility within classroom and school grounds	77 (28.3%)	97 (35.7%)	10 (3.7%)	61 (22.4%)	47 (17.3%)	2.67	1.46
Mean average response rate on access to physiotherapy services						2.70	0.48

Key: Strongly Disagree (1.00-1.80); Disagree (1.81-2.60); Somehow Agree (2.61-3.40); Agree (3.41-4.20); Strongly Agree (4.21-5.00) and SD-Standard Deviation. Source: Survey data (2021).

The results of the survey established that there is generally moderate access to physiotherapy services in public primary special schools in Nyanza Region. This was reflected by overall mean rating of 2.70 with a standard deviation of 0.48 in the rating scale of 1 to 5, suggesting that on average the respondents generally somehow agreed that there is access to physiotherapy services. For instance, the survey data show that there is moderate access to physiotherapy services as indicated by a mean of 2.71 (SD=1.51), with 168 (57.6%) of the learners who took part in the survey confirming this point. Only 54 (18.5%) of the respondents were in strong agreement that they always access physiotherapist's help when they are in need, reflecting a low access to physiotherapy services by most of the pupils who need the services.

This implies that PT services that learners with PI receive are inadequate hence not accessible, which also seems to suggest that the PT services that should help them to attain their valued functioning are not adequate. There is therefore need to ensure that there is proper accessibility of PT services in schools for pupils with PI. This finding is in line with an investigation by Wachianga (2010) which revealed that there was heavy workload by professionals in public special schools for learners with PI.

The qualitative data from headteachers, counselors and teachers also support the findings that there is poor access to PT services by pupils with PI. For instance, when headteachers were asked whether learners with PI access PTs' help whenever they are in need, one of the headteachers said:

> *The school hires one physiotherapist from a nearby hospital who visits learners to give services once a week, hence may not serve all pupils effectively due to high physiotherapist learner ratio* (HT2).

The interview excerpt from the headteacher indicates that due to the fact that the PT comes only once a week and given the high PT learner ratio, not all learners with PI access the PT services. It can be argued that fewer pupils benefit from PT services while the majority do not. The following interview excerpt from a PT bears a testimony to that. It shows the counselor's response when they were asked to say whether pupils with PI access PT services whenever they are in need:

> *My time for providing PT services to pupils here is programmed. I only come here once a week and that is the only time that I meet the pupils* (P2).

The interview excerpt indicates that only one PT serves the whole school population just once a week which may not make it easy for all pupils with PI to access PT services due to the limited time the PT spends with them. PT services are vital in helping pupils in activities to help improve access to curriculum as well as motor skills. It can be argued that if pupils do not access PTs' help due to limited time that the PT has with them in the school, they may miss PT's important services such as activities to help improve access to curriculum and motor skills which are important in learning such as in math and reading. The schools should reschedule the time that the PT spends with pupils such that the PTs spend more time providing PT services to learners. This is in agreement with an inquiry by Macdonald, Milne and Pope (2018) which revealed that there is association between several components of motor proficiency in primary settings, and academic performance in math and reading.

The qualitative data from FGDs with teachers also revealed that pupils do not always access PT services whenever they are in need. For instance, the following response came from teachers in FG3:

> *Pupils do not access PT services whenever they need…they only see the PT once a week (FG5).*

The qualitative data from teachers indicates that the time spent by PT with learners with PI is limited. This implies that learners are not able to access PT services whenever they need it, hence the PT services should be improved. From the data from observation checklist, the PT rooms were available. However, from other findings that PT services are not accessible, it can be argued that, even though the PT rooms were available, the time allotted for PT services was not adequate. This conforms to a research by Adams, Jones and Shepperd (2015) which revealed that there is imbalance between increasing service demands and limited PT capacity.

On the same note, the survey results revealed that most of the learners are not able to freely access their physiotherapists themselves. For example, whereas only 60 (20.5%) of the learners agreed and 54 (18.5%) strongly agreed that they always freely contact their physiotherapists on their needs, majority [strongly disagreed: 80 (27.4%) and disagreed: 90 (30.8%)] said they hardly get in contact with their physiotherapists on their needs freely.

This seems to suggest that the available PTs are not able to serve the whole school effectively due to low PT learner ratio, which also implies that pupils do not receive adequate PT services as they may need which may help them in mobility skills, joint range of movements, muscular strength and motor skills among others, and which are essential as far as their learning or academic performance is concerned. It is therefore important that PTs spends more time in schools so that pupils can be able to access their services when in need. This concurs with a research by Chidobe (2012) who found out that there is unavailability of physiotherapy services. The following interview excerpt bears the same testimony showing headteachers' response when asked to say whether learners with PI contact the OT freely whenever they are in need:

> *There is one physiotherapist who serves all pupils with physical impairments in school. He doesn't reside here but hired to serve them once a week. He therefore, has limited time with learners* (HT2).

The interview excerpt shows that the PT is not always available whenever pupils with PI may need his services. This implies that pupils with PI who would wish to see PTs for their services have to wait until the day that the PT comes for PT services, and this may cause a lot of discomfort to learners when learning which may affect pupils' concentration, there is therefore need for more PT services in schools. This concurs with a study by Adams, Jones and Sheppard (2015) who found out that there was imbalance between increasing service demands and limited PT capacity and decreased access to PT services. The following interview excerpt bears the same testimony showing PTs' response when asked to say whether learners with PI contact the PTs freely whenever they are in need:

> *Yes, they contact me when I am available…I provide PT services once a week here and I am alone (P3).*

The interview excerpt from PT shows that the PT is only available once a week for PT services, which seems to suggest that pupils with PI are only able to contact the PT once a week. This implies that pupils are not able to access PT services adequately. Equally, the qualitative data from teachers' FGDs also support the same statements that learners with PI do not contact PTs for services freely for their needs as shown:

> *There is only one PT who serves all pupils with PI and he comes only once a week for the same…which means they cannot access him whenever they need to (FG6).*

The response from FGDs indicates that only one PT is available for all pupils in the school and only provides PT services once a week, which implies that the pupils are not able to contact him/her for their needs freely. It can therefore be argued that there is lack of adequate PT services, there is need for PTs to have more time with learners with PI. This is in line with an investigation by Govindaswami (2010) which revealed that many PTs are experiencing difficulties in making the shift from direct to indirect support due to not having been provided with the necessary support.

In addition, the results of the survey show that learners with PI are generally not adequately (mean=2.75; SD=1.48) exposed to appropriate PT services. This came to light when the respondents were asked whether their PTs always help them get the right equipment for their needs. A majority of 172 translating to 58.9% of the sampled pupils with PI indicated that their PTs rarely help them get the right equipment for their needs, only 116 (39.7%) of the respondents alluded that their PTs help them to get the right equipment for their needs.

This implies that pupils with PI are not being assisted to get the right equipment for their needs. The right equipment is necessary for their comfort especially when moving from one place to another or when performing different tasks or participating in learning activities. There is need for schools to ensure that PTs are always available to learners with PI. This conforms to findings by Govindaswami (2010) which determined that many PTs are experiencing difficulties in providing PT services due to not having been provided with the necessary support. When headteachers were asked to say whether the PTs always help pupils to get the right equipment for their needs, the following shows a response from one of the head teachers:

> *We have one PT who is programmed to attend to pupils with PIs' needs once a week during which he can help pupils get the right equipment for their needs, however, the time may not be enough to attend to all the learners' needs* (HT3).

The qualitative findings from headteachers also supports the same claim that PTs rarely help pupils to get the right equipment for their needs. For instance, the interview excerpt from the head teacher indicates that in as much as there is a PT, he only attends to pupils once a week which is not adequate for every learner to benefit from, which implies that the PT services does not benefit all the pupils with PI and

this calls for more additional time with them. This is in line with a research by Wachianga (2010) which found out that there was a problem with provision of mobility services in public schools for learners with PI. The following qualitative findings from PTs also supports the same claim that PTs rarely help pupils to get the right equipment for their needs. For instance, when PTs were asked to say whether the PTs always help learners with PI to get the right equipment for their needs, the following shows a response from one of the PTs:

> *I help pupils to get the right equipment, however, I am overwhelmed given that I only have four days in a month to do it…this is not enough for me to attend to the needs of all pupils with PI appropriately* (P5).

The interview excerpt from PT indicates that the PT offers services only four times a month which may not be able to serve all learners with PI who may be in need. This seems to suggest that due to time limit; the PT is not able to cater for individual pupils' needs. This implies that pupils are not being assisted fully on their needs such as getting the right equipment for their needs from time to time. This conforms to a study by Kandersamy (2012) which revealed that there were inadequate PT services. The qualitative data from teachers also support the statement that PTs rarely help pupils with PI to get the right equipment. For instance, the following statement was made by a teacher from FG4:

> *Due to high physiotherapist pupil ratio, they are not able to monitor and attend to all pupils' needs as required. A learner may outgrow his/her equipment or the equipment may become faulty but if the physiotherapist is not around, the problem may be difficult for us to address* (FG3).

The qualitative response of teachers indicates that it's not easy for the available PTs to play their roles effectively to meet the needs of most learners since there is high PT learner ratio. Since some equipment may be important for independent living and some may assist with particular tasks, it means that if pupils do not get adequate assistance from PT to get the right equipment then they may be more dependent on others and may not be able to complete some tasks which may be essential as far as their academic achievement is concerned. The schools should therefore ensure that the PTs help learners with PI to get the right equipment always. This is in line with a research by Mwendwa (2010) which revealed that CPSK has not been able to provide

many of the essential rehabilitation services to children with CP due to lack of human resources.

On the effectiveness of the physiotherapy services received by the pupils with PI, the results of the study indicate that these services are rarely effective in helping the learners improve their physical well-being. For instance, whereas only 56 (19.2%) and 52 (17.8%) of the respondents agreed and strongly agreed, respectively, that physiotherapist's help them to improve their physical well-being, majority [78 (26.7%) strongly disagreed and 94 (32.2%) disagreed] of the pupils with PI refuted the claim that PTs significantly help them to improve their physical well-being. However, 12 (4.1%) of them remained non-committal on the claim that physiotherapist's significantly help them to improve their physical well-being, translating to a mean rating of 2.69 with a standard deviation of 1.48.

These results seem to suggest that pupils are not helped by PTs to improve their physical wellbeing which is also vital for psychological wellbeing as well as good quality of life, hence, there is poor access to PT services. Learners' well-being is useful in undertaking different tasks or being actively involved in learning activities. There is therefore need for improvement in PT services to address their physical wellbeing. This conforms to an inquiry by Mwendwa (2010) which revealed that many of the essential rehabilitation services are not being received by children with PI due to lack of human and material resources. The following qualitative data from one of the PTs bears the same concern when they were asked if they help learners with PI to improve their physical well-being:

> *I always try to deliver my services as much as I can but due to high population of pupils and given that I'm only one person offering these services, I may not be able to attend to all learner's needs effectively* (P6).

The interview excerpt confirms that PTs lack adequate time to provide PT services, implying that most pupils are not able to benefit from PT services which are essential for their wellbeing since PTs are not adequate. This conforms to findings by Govindaswami (2010) which determined that many PTs are experiencing difficulties in providing PT services due to not having been provided with the necessary support. The headteachers should ensure that PTs in their schools assist pupils to improve their physical well-being. The following qualitative data from a headteacher bears the same

concern when headteachers were asked if PTs help pupils to improve their physical well-being:

> *He helps them but his time is somehow limited since he only visits them once a week…if he has more pupils than he can handle then others may be disadvantaged (HT5).*

The interview excerpt from the headteacher indicates that the PT helps learners but his time with learners is limited, suggesting that he is not able to provide PT services that address physical wellbeing of majority of pupils. The schools should ensure that PT services address the physical wellbeing of all pupils so as to promote their academic performance. This conforms to a study by Kandersamy (2012) which revealed that there were inadequate PT services. The following qualitative data from FGDs with teachers bears the same concern when they were asked to say if PTs help learners to improve their physical well-being:

> *He does but just to some extent…I don't think it is logical to cater for majority of learners' physical wellbeing needs just a day in a week or four times in a month when he is alone (FG1).*

The qualitative data from teachers indicate that the PT does not fully cater for the physical wellbeing of learners due to time limit, implying they are disadvantaged as far as their physical wellbeing is concerned, and this may interfere with how they undertake different tasks or participation in learning activities, hence needs to be addressed. This conforms to a research by Kohl (2013) which revealed that there is need for physical exercises to improve health and facilitate academic performance.

On the relevance of equipment meeting the needs of pupils, the study findings show that only a small proportion 106 (36.3%) of the respondents were satisfied (mean=2.63) that their PTs help them check their equipment to ensure that it continues to meet their changing needs as they develop and grow. However, a majority 176 (60.3%) of the learners were not satisfied that their PTs' help in checking their equipment to ensure that it continues to meet their changing needs as they develop and grow.

This seems to suggest that PTs are not able to check pupils' equipment continuously, which may cause discomfort to pupils, overdependence, and lack of concentration which may impact negatively in their learning. This therefore indicates that there is poor access to PT services by pupils, and their ability to have quality life is not being

addressed, hence the need for more PT services in these schools. This is in line with a study by Wachianga (2010) which found out that there was a problem with provision of mobility services in public schools for learners with PI.

Pupils with PI do grow and develop hence their needs may change from time to time. It is important that their equipment always meet their changing needs. It is evident that their changing needs are not adequately met. If this is not done, they may not be able to achieve their potential due to discomfort. There is need for schools to ensure that pupils' changing needs are met by the PT. The PT should spend more time with the learners to identify their changing needs as well as meeting their needs. This is in agreement with an investigation by Westcott (2018) which established that there is need to improve active mobility practice so as to improve participation. This was supported by the qualitative data from headteachers when they were asked whether the PTs help check pupils' equipment to ensure that it continues to meet their changing needs as they grow and develop as follows:

> *The PT monitors pupils' equipment but I think it is a challenge for him to meet the needs of all pupils due to time schedule (HT2).*

The interview excerpt from the headteacher reveals that the PT is not able to effectively perform PTs' role of checking learners' equipment to ensure that it continues to meet their changing needs as they grow due to time schedules, and which is vital as far as their academic achievement is concerned. There is therefore need to increase the time spent by PTs with pupils so as to improve their motor ability. This is in line with a study by Effgen (2016) which established that there is need for greater motor abilities to enable learners navigate and manipulate their environment hence promote their academic performance. This was also supported by the qualitative data from PTs when they were asked whether they help pupils by checking their equipment to ensure that it continues to meet their changing needs as they grow and develop as follows:

> *I usually have limited time with these pupils. I always collaborate with some teachers to assist me in identifying any discomfort in learners* (P).

The interview excerpt from the PTs indicates that the PTs do not have sufficient time to provide PT services. This may suggest that pupils with PI do not receive PT services such as those that address checking their equipment to ensure that it

continues to meet their changing needs as they grow and develop, hence reduces their motor abilities which is vital in academic achievement. There is need to ensure that PT services address all learners' educational needs. This conforms to findings by Govindaswami (2010) which determined that many PTs are experiencing difficulties in providing PT services due to not having been provided with the necessary support. This was also supported by the qualitative data from FGDs with teachers when they were asked whether PTs help pupils' by checking their equipment to ensure that it continues to meet their changing needs as they grow and develop as follows:

> *We have about 250 pupils in this school versus only one physiotherapist who only comes here to provide physiotherapy services once a week. It's not easy for him to monitor all the equipment used by learners. In some cases, we report to him if we notice some continuous discomfort in the learner…however, we do not have the expertise to identify all the cases* (FG5).

The qualitative data from teachers indicates that PTs provide services once a week, implying that a pupil who needs a change in his/her equipment should wait until the following week. This implies that this learner will be uncomfortable all this time hence affecting his/her valued function and quality of life which may cause poor concentration and inability to perform certain tasks in class. This is in agreement with findings by Kandersamy (2012) which revealed that there were inadequate PT services and also that there was need for more PT services to improve health outcomes.

Likewise, whereas only 110 (37.5%) of the learners agreed that their PTs always assists them to change their equipment when necessary, majority 168 (58.9%) of pupils who took part in the survey observed that their PT rarely assists them to change their equipment even when it is necessary, translating to a mean rating of 2.68 with a standard deviation of 1.46.

This implies that attaining valued function and quality of life have not been met. Equipment do have tear and wear or may fail to serve its purpose at some point for instance when the learner has outgrown them or when they become faulty and need repair. Equipment should be monitored and changed when necessary, this is not well done and may cause discomfort to pupils hence affect how they perform different tasks or operate in the learning environment. The schools should ensure that learners'

equipment is continuously monitored by the PTs as well as changing them when necessary. This conforms to an inquiry by Wachianga (2010) which found out that there was a problem with provision of mobility services. The following qualitative data from a headteacher supports the same statement that most pupils are not assisted by PT to change their equipment:

> *The PT helps pupils to change their equipment, however, he may not be able to perform this role effectively due to time limit and being that he is alone versus many of them (HT1).*

The interview excerpt from a headteacher indicates that not all learners with PI benefit from PT services such as helping them to change their equipment when necessary. A comfortable equipment is vital in performing different tasks or being actively involved in class activities, hence the need to be assisted to change the equipment so as to be more comfortable. This is in line with a research by Govindaswami (2010) which determined that PTs are experiencing difficulties in supporting pupils with PI due to lack of necessary support such as resources among others. The following qualitative data from a PT also supports the same statement that most learners with PI are not assisted by PT to change their equipment:

> *I do help them to change their equipment when I am around, that is, on weekly basis but mostly I get overwhelmed (P5).*

From the interview excerpt, it is evident that only a few pupils are being helped by the PT to change their equipment. This means that even if other their equipment needs to be changed immediately then they have to wait until the PT comes the following week, and this may cause them discomfort. The following qualitative data from a teacher supports the same statement that most learners with PI are not assisted by PT to change their equipment:

> *In most cases, the physiotherapist attends to pupils through physical exercises than helping them change their equipment* (FG2).

The qualitative data indicates that most learners with PI receive physical exercises than changing their equipment. They may need to change their equipment from time to time with the help of a PT, however, the findings indicate that they rarely get these services which are vital for their comfort. The headteachers should ensure that all learners are helped by PTs to change their equipment to help improve their mobility.

This is in agreement with a research by Westcott (2018) which established that there is need to improve active mobility practice so as to improve participation.

As a whole, pupils with PI are generally not satisfied with physiotherapy services offered to them. This was reflected by a mean moderate rating of 2.63 (SD=1.43), where only a few 108 (37.0%) of the sampled learners were satisfied with physiotherapist's help that they receive in school. Close to three out of every five 172 (58.9%) of the respondents insinuated that they are not satisfied at all with physiotherapist's help that they receive in their schools, but 12 (4.1%) were not sure whether they were satisfied or not.

The PTs' services are vital in helping pupils with PI in mobility skills, muscle strength and motor skills and advice on activities to help to improve learners' access to curriculum hence contributing to good academic performance. Since majority of them are not satisfied with the PT services, it can be argued that their mobility skills, muscle strength, motor skills, or advice to improve learners' access to curriculum that the PTs should address are not adequately taken care of, therefore improving the quality of their lives are not adequately met. This finding is in line with a study by Adams, Jones and Sheppard (2015) which found out that there was imbalance between increasing service demands and limited PT capacity, and decreased PT services.

The following interview excerpt from one of the headteachers bears a testimony to this, for instance when they were asked to say whether they were satisfied with the PT services offered to pupils, one of them said:

> *Even though there are two residential physiotherapists in school, they do not meet most of the needs of pupils who need their services since their needs are more than they can provide* (HT2).

The interview excerpt from the headteacher indicates that most of the needs of learners are not met by the PTs. This implies that the PT services provided for the pupils are not adequate, therefore their academic needs which should be addressed by the PT are not being addressed, therefore there is need to increase the PT services in the schools. This finding is in line with an inquiry by Archer and Garcia (2014) which revealed that academic performance and well-being in children is associated to how intensely pupils exercise, well-being and to self-regulation. The following interview

excerpt from a PT also bears a testimony to this, for instance when PTs were asked to say whether they were satisfied with the PT services that they offer to learners with PI, one of them said:

> *I am not that satisfied with the services that are offered…I'm alone and the PT demands of these pupils are too high (PT2)*

The interview excerpt from the PT indicates that the PT services are not satisfying the PT needs of learners due to the limited number of PTs. Therefore, there is need to increase PT services to pupils. The qualitative data from FGDs with teachers also support the finding that pupils with PI are not satisfied with the PT services that they receive. For instance, when teachers were asked on the same, the following response came from FG2:

> *The school has only one physiotherapist who is hired and programmed to visit learners once a week. With the current population of learners, he is not able to meet most of their needs* (FG2).

The qualitative response shows that not all pupils benefit from PT services in school due to limited time that the PTs spend in providing PT services. This is in line with a research by Govindaswami (2010) which determined that PTs are experiencing difficulties in supporting pupils with PI due to lack of necessary support such as resources among others. Learners with PI may not be satisfied with PT services since they do not access them when in need, they are not helped by the PT to get the right equipment, PT does not help them to improve their physical well-being, and they are not assisted to change their equipment when necessary by the PT. This implies that most of the PT roles in schools of pupils with PI are not adequately met, that is, improving learners' quality of life and attaining valued functioning are not met. The schools should organize for more teachers to be trained as PT assistants and should as well reschedule the time that PT spends with learners so that PTs can fully play their roles in schools.

Similarly, many 162 (55.5%) of the pupils did not agree that physiotherapist's services help them improve their academic performance, only a handful 116 (39.7%) of the sampled learners were in agreement (mean=2.74) that physiotherapist's services help them improve advice on activities to help to improve pupils' access to curriculum hence contributing to good academic performance. From the findings, it

can be argued that the PTs have not effectively played their role of advising learners on activities to help them improve as far as access to curriculum is concerned.

This indicates poor access to PT services, and there is therefore need for schools to ensure that PT services address the issue of access to curriculum and help learners with PI improve in academic performance. This finding is in line with a research by Mwendwa (2010) which revealed that CPSK has not been able to provide many of the essential rehabilitation services to children with CP due to lack of human and material resources. The following interview excerpt from a headteacher also bears a testimony to this, for instance when headteachers were asked to say whether PTs' services help learners with PI to improve their academic performance, one of them said:

> *I think the PTs' participation in academic performance of pupils is minimal since they are overwhelmed due to high workload…I therefore don't expect them to address all areas of academic performance of learners with PI (HT3).*

From the qualitative data from a headteacher, it is clear that PT services have not helped learners with PI as far as their improvement in academic performance is concerned owing to the fact that the PTs are overwhelmed. This implies that they are not able to reach out to majority of pupils, hence it is vital for schools to ensure that all learners are helped to improve in academic performance through PT services. This finding is not in line with a research by Kandersamy (2012) which revealed that there was low demand for PT services, this might have been caused due to the fact that the previous study was carried out in a different country and only qualitative approaches and a smaller sample size were used while in the current study, both quantitative and qualitative methods and a bigger sample size were used.

The qualitative response by PTs also support the same findings that pupils with PI are nor helped by PTs to improve in their academic performance.

For instance, when PTs' opinions were sought on whether they help learners with PI to improve in their academic performance, one of them said:

> *Yes, the services I provide to pupils address their academic performance, however the time I spend with them is too short to allow them benefit fully as far as their academic performance is concerned….so not all pupils are able to fully benefit from it (PT6).*

From the interview excerpt from PT, learners with PI are not fully benefiting academically from PTs' services due to limited time spent with PTs. There is need for schools to ensure that they fully benefit from PT services as far as their academic performance is concerned. This finding is in line with an inquiry by Macdonald, Milne and Pope (2018) which established that several components of motor proficiency in primary settings are vital as far as academic performance is concerned. The qualitative data from FGDs with teachers also support the findings that PTs' services have not helped pupils to improve in their academic performance. For instance, when teachers were asked whether PTs help learners to improve their academic performance, the following response came out from FG2:

> *Physiotherapist plays his role to help pupils perform well but due to inadequacy of the services, most pupils are not fully benefitting from physiotherapy services* (FG2).

The interview excerpt indicates that not all learners with PI benefit from PTs' services as far as their academic performance is concerned. This is in line with a study by Adams, Jones and Sheppard (2015) which found that there was imbalance between increasing service demands and limited physiotherapist capacity. One of PTs roles is to advice on activities to help improve access to curriculum. The study results imply that the fact that there are PTs in schools does not mean that most pupils benefit from their services. Poor attainment of valued functioning which is expected to be provided by the PTs, may influence pupils' academic achievement. PTs should play all their roles for learners to benefit from them academically.

Although, 62 (21.2%) and 48 (16.4%) of the pupils agreed and strongly agreed, respectively, that they receive adequate physiotherapy services, majority of the learners as reflected by 70 (24.0%) who strongly disagreed and 102 (34.9%) who disagreed insisted that they do not receive adequate physiotherapy services, reflecting a mean response rating of 2.71 (SD=1.45). This implies that however much learners with PI receive physiotherapy services, the PT services are not adequate, hence they have poor quality of life, and lack valued function. Adequate PT services are vital for academic performance of pupils with PI hence it is important for the schools to ensure that there are adequate PT services for pupils with PI. This finding is in line with a research by Adams, Jones and Sheppard (2015) which revealed that there was imbalance between increasing service demands and limited PT capacity.

The headteachers also support the findings that PT services are inadequate for learners with PI, for instance when they were asked to comment on the adequacy of PT services, one of their responses was:

> *We have only one PT who provides PT services to all pupils with PI in the school once a week, given the high population of learners, it is not possible for all or majority of them to receive adequate services from him (HT5).*

The interview excerpt from the PT indicates that the PT services received by learners in schools are not adequate due to high workload of the PT. The PT services are vital in addressing academic performance of pupils. There is therefore need to increase PT services in schools so that all pupils with PI can benefit from them. This finding is in line with a study by Rochmes (2016) which revealed that there was need for provision of physical health services to pupils with PI. The following interview excerpt from a PT bears the same testimony when they were asked to say whether learners with PI receive adequate PT services:

> *I do try although it is not easy for me to provide adequate PT services to all pupils with PI in the school…I'm the only one doing this in this school and I only provide these services once a week (P4).*

The interview excerpt from the PT indicates that PTs do not have sufficient time to provide PT services to all pupils with PI. This implies that pupils with PI do not receive adequate PT services which are essential for their academic performance, hence it is vital to address it so that learners with PI may benefit from it academically. This finding is in line with an investigation by Westcott (2018) which revealed that there was lack of emphasis on active mobility practice by engaging learners within therapy sessions.

The qualitative data from FGDs with teachers also support the findings that pupils with PI do not receive adequate PT services, for instance, when teachers were asked to say whether PT services for learners with PI are adequate, one of the FGs responded by saying:

> *When physiotherapist comes once every week, not all pupils who require his services are attended to because there are many learners who require their services...not even in one month (4 times) has he been able to attend to the needs of all learners* (FG4).

The qualitative response from FGD indicates that PTs' services received by learners with PI are not adequate. This is due to lack of enough PTs in school and the limited time spent by the available PTs with learners with PI. This agrees with a study by Chidobe (2012) which found out that there was unavailability of physiotherapy services. Pupils with PI have varied needs, the PT only comes to school once a week, and these learners have changing needs. This means that some of their needs may not be met due to high PT learner ratio. It is therefore important that more PTs are hired or employed in schools and they should ensure that all learners' needs are met.

On whether physiotherapist really support needs of learners, the study findings show that only a small proportion 116 (42.3%) of the respondents were satisfied (mean=2.73; SD=1.49) that their PTs help them to achieve their maximum function. However, a majority 171 (62.9%) of the learners were not satisfied that their physiotherapist helps them to achieve their maximum function. This confirms that majority of learners with PI hardly receive adequate and appropriate physiotherapy services in their schools.

These pupils need to achieve maximum function to operate near normal, and this helps them undertake different tasks as far as their learning is concerned. It is important that PT services help them achieve maximum function, however, this is not the case. This finding concurs with the findings from a research by Kandersamy (2012) which revealed that there were inadequate PI services. This was supported by a qualitative data from headteachers.

For instance, when headteachers were asked whether PTs help learners with PI achieve maximum function, the following response was noted:

> *The PT helps pupils to achieve their maximum function, however, there is only one PT…he is overwhelmed due to high workload. This may make him not attend to all learners who need PT services in time*. (HT1)

The interview from the headteacher indicates that, in as much as the PT helps pupils with PI, the high workload makes him not to offer adequate PT services to all pupils who need PT services. This implies that not all learners with PI benefit from PT services as far as achievement of their maximum function is concerned. There is therefore need to increase PT services. This conforms to findings by Govindaswami

(2010) which determined that many PTs are experiencing difficulties in providing PT services due to not having been provided with the necessary support. The qualitative data from the PTs also bears the same testimony to this finding. For instance, when PTs were asked to say whether they help learners with PI to achieve maximum function, the following response came out:

> *I have been helping and I'm still helping them to achieve maximum function but I am overwhelmed due to high population given that I'm alone……I cannot perfect it.* (PT1)

The interview excerpt from the PT indicates that even though pupils with PI are helped to achieve maximum function, this cannot be attained due to high workload. This implies that there is need for more PTs if all or majority of learners are to achieve their maximum function. This concurs with an inquiry by Wachianga (2010) which established that there was a problem with provision of mobility services in public schools for pupils with PI. The qualitative data from teachers also bears the same testimony, for instance, when teachers were asked to say whether PTs help pupils with PI achieve maximum function, this response came out:

> *The PT helps pupils achieve maximum function, however, not all learners receive these services adequately due to high workload by the PT* (FG3).

The qualitative response from teachers shows that not all learners with PI are attended to by the PT as far as achieving maximum function is concerned. It can be argued that even though all pupils are expected to achieve maximum function, majority of them may not achieve it due to high workload. This conforms to a study by Adams, Jones, and Sheppard (2015) which established that there was imbalance between increasing service demands and limited PT capacity. It is therefore necessary for all schools for learners with PI to ensure that all pupils achieve maximum function.

Equally, although 62 (22.8%) and 49 (18.0%) of the learners agreed and strongly agreed, respectively, that physiotherapy services help modify architectural barriers in the school, majority of the pupils, as reflected by 77 (28.3%) who strongly disagreed and 97 (35.7%) who disagreed, insisted that they do not receive adequate physiotherapy services that modify architectural barriers, signifying a mean response rating of 2.68 (SD=1.48). This seems to suggest that most schools in Nyanza Region still have some architectural barriers.

This implies that, however much learners with PI receive physiotherapy services, the PT services are not adequate enough to significantly modify their architectural barriers. Modification of architectural barriers is vital for their valued function, and adequate PT services are important for their academic performance, therefore it is important for schools for pupils with PI to ensure that there are adequate PT services. This conforms to a research by Adams, Jones and Shepperd (2015) which found that there was decreased access to PT services.

The qualitative data from headteachers also supports the same findings. For instance, when headteachers were asked to say whether PTs help modify architectural barriers in the schools, the following statement shows the response:

> *The PT sometimes offers pieces of advice on architectural barriers, however, there are some architectural barriers*. (HT4)

The interview excerpt from the headteacher indicates that even though the PT offers advice on architectural barriers, there are still some architectural barriers in the school. This implies that learners with PI still experience some barriers in the environment. They need a barrier free environment in order to access every place easily. Architectural barriers may bar them from accessing different places in the learning environment hence negatively affect their valued functioning. There is therefore need to make all places within the learning environment more accessible. This is in line with an inquiry by Mwendwa (2010) which revealed that CPSK has not been able to provide many of the essential rehabilitation services due to lack of human and material resources. When the PTs' opinions were sought on their contribution on helping modify architectural barriers, the following statement was made:

> *I do advice the school on the same, however, there are some steep ramps and toilets that need adaptation.* (PT2)

The interview excerpt from the PT shows that there are still some barriers to free movement such as steep ramps and toilets that are not adapted among others. This implies that there are still some architectural barriers in schools for pupils with PI. It can be argued that even though the PT is expected to help modify architectural barriers, there are still architectural barriers in the schools, an indication that their role has not been played well. It is therefore vital for the schools to ensure that there are no architectural barriers so as to enable learners with PI attain maximum function. This

conforms to an inquiry by Chidobe (2012) which found that there was unavailability of PT services. From the FGDs with teachers, it came out that there were architectural barriers in schools. The following statement bears the testimony:

> *There are some architectural barriers in schools, some ramps are too steep and too rough for learners with PI to access different places with ease*. (FG3)

The qualitative response from teachers indicates that there are architectural barriers in the schools. This implies that the accessibility to different places may be difficult for pupils, and this may limit their movement to different places thereby making them not achieve their valued function, hence the need to ensure that all places are accessible. This conforms to a study by Kiyuba and Tukur (2014) which revealed that there was poor access to learning environment.

By the same token, majority 172 (63.2%) of the pupils did not agree that physiotherapist's services help them manage their balance, only a minority 108 (39.7%) of the sampled learners were in agreement (mean=2.66; SD=1.46) that physiotherapist's services help them improve in management of their balance hence contributing to good academic performance. From the findings, it can be inferred that the PTs have not effectively played their role of helping the leaners with PI improve in their management of balance, thus hampering their access to curriculum. This indicates poor access to PT services which hinders learners with PI from attaining their valued functioning; there is therefore need for schools to ensure that PT services address the issue of access to curriculum and help pupils with PI improve in academic performance.

It can be argued that the role of PT in helping pupils with PI manage their balance is not well played, and this makes learners with PI not to manage their balance well. This finding conforms to an investigation by Adams, Jones and Shepperd (2015) which revealed that there is imbalance between increasing service demands and limited PT capacity. When headteachers were asked to say whether PTs help pupils with PI to manage their balance, among the responses was:

> *The available PT helps learners with PI manage their balance, however, the workload is just too high for him…. not all pupils may benefit from these services.* (HT4)

The qualitative response from the headteacher shows that, even though the PT helps learners with PI to manage their balance, the high workload may make him not to deliver PT adequate services. This seems to suggest that there are pupils who are not being helped by the PT to manage their balance, hence, the need to ensure that all pupils with PI are assisted by the PT to manage their balance. This is in line with a research by Chidobe (2012) which established that there was unavailability of PT services. The qualitative response by PTs also indicated that learners with PI are not adequately helped by PTs to manage their balance, for instance when asked the same question, the following response was made:

> *I do help pupils with PI to manage balance, however, the workload is too high for me, I therefore may not be able to attend to all learners with PI at the right time.* (PT6)

The qualitative response from PT indicates that learners with PI are helped by PT to manage to manage their balance, however, not all pupils with PI can be helped at a time of need due to heavy workload for the available PT. This implies that some learners with PI miss PT services that can help them manage their balance, or these services may be delayed for some of them and this may affect how they manage their balance. This is in agreement with a research by Kandersamy (2012) which revealed that there were inadequate PT services.

There is need for more PT services in schools for pupils with PI. When teachers were asked to comment on the role of PT in helping learners with PI to manage their balance, the following response was noted:

> *That is done but he is alone. Also, the time allotted for PT services may not allow most learners with PI to benefit as far as managing their balance is concerned.* (FG3)

The qualitative response from teachers indicates that the PT helps pupils manage their balance, however, he is alone and given the high population of learners, the time allocated for PT services is not enough to serve all pupils. This implies that there are pupils who do not benefit from PT services of being helped to manage their balance since the PT only works within stipulated time and he is alone. This conforms to findings by Govindaswami (2010) which determined that many PTs are experiencing difficulties in providing PT services due to not having been provided with the

necessary support. There is need for schools of pupils with PI to ensure that PT services help learners to manage their balance.

Likewise, on enabling mobility within classrooms and school, the results of the survey indicate that psychotherapist's advice is not adequate. This was mirrored by a mean response of 2.67 with a standard deviation of 1.46. While only 61 (22.4%) and 47 (17.3%) of the sampled PI pupils agreed and strongly agreed that PT always advise them on mobility within classroom and school grounds, a sizeable proportion 174 (64.0%) of the surveyed PI learners insisted that they hardly receive any advice on mobility within classroom and school grounds. This is an indication of poor physiotherapy services offered to learners with PI in public schools within Nyanza Region.

This indicates that majority of learners with PI are not satisfied with the PTs' advice on mobility within the classrooms and school grounds. This implies that they do not access adequate PT services as far as their advice on mobility within classrooms and school grounds are concerned. Information or knowledge on mobility within classrooms and school grounds is vital as it helps them access the learning environment with ease, however, they do not access it. There is need to ensure that all learners with PI access advice on mobility within classrooms and school grounds. This is in line with an investigation by Wachianga (2010) which found that there was a problem with provision of mobility services in schools for learners with PI. The qualitative response from headteachers also had the same testimony, for instance, when headteachers were asked to say whether PTs advice pupils with PI on mobility within classrooms and school grounds, the response was:

> *Pupils with PI get pieces of advice concerning mobility, but there is need for more of PT services because the one around cannot manage all that alone.* (HTI)

The qualitative response from the headteacher indicates that even though the PT advices learners with PI on mobility, such services does not meet the requirement since there is high learner PT ratio. This seems to suggest that learners with PI may still have difficulty with mobility within classrooms and school grounds. There is need for the schools to address the issue of inadequate PT services. This conforms to a study by Westcott (2018) which established that there is need to improve active

mobility practice so as to improve participation. The PTs also support the same finding, for instance when PTs were asked to say whether they give pieces of advice on mobility within classrooms and school grounds, the response was as shown:
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> *I do advise them on mobility but only to learners that I can access when I'm around since I do a lot of work and I'm alone*. (PT3)

The interview excerpt from the PT indicates that the PT only gives advice on mobility to pupils that he can access. This implies that since there is only one PT with many learners with PI, many of them may not be able to access PT services involving mobility within classrooms and school ground. This finding is in line with a study by Kandersamy (2012) which revealed that there were inadequate PT services. From FGDs with teachers on the role of PT on advising learners with PI on mobility within classrooms and school grounds, the response was:

> *The PT helps pupils with PI on mobility within the learning environment, however, there is no consistency in this since it is rarely done*. (FG2)

The qualitative data from teachers indicates that the PT advices learners with PI on mobility but not consistently as this is rarely done. It can be argued that since the PT rarely gives advice to pupils with PI, most them do not benefit from PT services which entail mobility within the classrooms and school grounds. This conforms to a study by Westcott (2018) which established that there is need to improve active mobility practice so as to improve participation. Schools should ensure that all learners are adequately advised on mobility within classrooms and school grounds to enhance their valued function.

4.4.1 Hypothesis testing: Objective 3

To investigate whether there was any significant relationship between access to physiotherapy services and academic performance of pupils with PI, the null hypothesis was tested as follows:

H_{03}: *There is no statistically significant relationship between access to physiotherapy services and academic performance of learners with PI in public primary special schools in Nyanza Region.*

Pearson Product Moment Correlation Coefficient was computed with scores on access to PT services as independent variable and academic performance as dependent

variable. The scores on access to PT services, as the independent variable were computed from frequencies of responses. Mean response across a set of items of Likert scale responses was computed to create a continuous variable, within an open interval of 1 to 5 suitable for the use of parametric methods as explained by Sullivan and Artino (2013), where high scale ratings implied high perceived level of physiotherapy services in public special primary schools of learners with physical impairments. The academic performance was computed from the mean average scores of the learners in the three exams that were administered to them in term 2, 2019; term 3, 2019; and term 1, 2020.

A significant level (p-value) was prior set at .05, such that if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. However, if the p-value is larger than 0.05, it would be concluded that a significant difference does not exists. Table 20 shows the SPSS output correlation analysis results.

Table 20: *Relationship between Access to Physiotherapy Services and Academic Achievement*

		Academic Achievement
Physiotherapy Services	Pearson Correlation	.448**
	Sig. (2-tailed)	.000
	N	292

From Table 20, it is evident that there was statistically significant positive correlation between access to physiotherapy services and academic performance (n=292; r = .448; p<.001). Since p-value is less than 0.05, the null hypothesis that "*there is no statistically significant relationship between access to physiotherapy services and academic performance of learners with PI in public primary special schools*" was rejected. Hence, it was concluded that there is statistically significant positive relationship between access to PT services and academic performance among pupils with PI, with high level access to PT services associated with improved academic performance and vice-versa. This implies that there are still barriers that make it difficult for learners with PI to attain their valued function due to poor access to PT services by pupils with PI hence poor academic performance. This finding conforms

to a study by Cid and Diaz (2017) which revealed that physical exercise is associated with improved academic performance.

Also, adequate access to PT services is associated with academic performance of learners with PI. This also agrees with a study by Rasberry, Lee, Robin, Lisa, and Covile (2011) which revealed that there is association between school-based physical activity and academic performance representing measurements of academic achievement. One of PTs' roles is to help promote learners' physical activity which helps in physical well-being and mental well-being of pupils with PI. A learner who is physically fit may be able to be actively involved in learning and be able to undertake more tasks. It is important that every school of pupils with PI has adequate number of PTs and the PTs should play their role to ensure that their physical well-being is up to date. Further, to estimate the level of influence of access to physiotherapy services on academic achievement, a coefficient of determination was computed by use of regression analysis and the result was as shown in Table 21.

Table 21: *Model Summary on Regression Analysis of Access to Physiotherapy Services on Academic Performance of Learners with PI*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.448[a]	.201	.198	18.7753

a. Predictors: (*Constant), Physiotherapy services*

Model		Unstandardized Coefficients		Standardized Coefficient Beta	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	86.278	12.395		6.961	.000	61.883	110.673
	Physiotherapy services	43.257	5.070	.448	8.533	.000	33.279	53.235

a. Dependent Variable: *Academic Performance*

$Y = \alpha + \beta_3{}^X + \varepsilon$

Academic Achievement = 86.278 + 43.257x + error term.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25665.250	1	25665.250	72.807	.000[b]
	Residual	102228.395	290	352.512		
	Total	127893.646	291			

a. Dependent Variable: *Academic Achievement*

b. Predictors: *(Constant), Physiotherapy services*

The model summary (Table 21) reveals that access to physiotherapy services accounted for 19.8%, as signified by *Adjusted* R^2 =.198, of the variation in academic performance of pupils with physical impairment. This finding means that variation in the access to physiotherapy services explains about 20% of the variability in academic performance of pupils with physical impairment in public primary special schools. This is a substantial influence on a dependent variable by one predictor. This implies that there is poor access to PT services which are vital for quality of life and valued function for learners with PI such as mobility skills, joint range of movement, muscular strength and motor skills among others, and this contributes to poor academic performance. Table 21 also shows the coefficients values of regression model of the influence of physiotherapy services on academic performance.

From the model, it is evident that the slope coefficient for physiotherapy services was 43.257, connoting that academic achievement of learners with PI improves by this unit for each one-unit positive change in physiotherapy services among pupils with PI in public primary special schools. Likewise, an improvement in physiotherapy services by one standard deviation is associated to improvement of academic achievement by .448 standard deviations. This is in line with an inquiry by Westcott (2018) which found out that there is a positive association between both physical activity and fitness and academic performance.

This further implies that access to adequate PT services are associated with academic performance of learners with PI. This is in line with Chiarello and Lisa (2016) which revealed that learners who received physical therapy made progress on academic goals. The PTs help pupils with PI to have quality life and attain their valued function by improving their mobility skills, joint range of movements and muscular strength among others. These are vital as far as reading and writing are concerned. A learner with poor mobility skills, joint range of movements, or poor muscular strength may not be able to achieve his/her maximum potential. The PTs should therefore ensure that all the PT needs of learners with PI are met.

However, to investigate whether physiotherapy services is a statically significant predictor to academic performance among the learners with PI in special schools, Analysis of Variance (ANOVA) was conducted, in line with the recommendation by Bhandari (2020), as shown in Table 21.

From the ANOVA output, there is sufficient evidence to conclude that access to physiotherapy service is a significant predictor of academic achievement F (1, 290) =72.807, p <.001, Adjusted R^2=.198. Hence, it was concluded that there is statistically significant influence of physiotherapy services on academic performance. This implies that pupils with PI in special primary schools with adequate and accessible physiotherapy services are presumptive to have better academic achievement. This finding agrees with a research by Kohl (2013) which revealed that improved physical activity and fitness is associated with improved academic achievement.

Also, pupils with PI who receive PT services are likely to perform well than when they do not receive PT services. This finding agrees with an inquiry by Effgen et al (2016) which revealed that children who have greater motor abilities tend to have

better academic achievement. This implies that adequate PT services are related to good academic performance of learners with PI and vice versa. The head teachers of schools for pupils with PI should therefore ensure that they receive adequate PT services that meet their needs.

4.5 Findings on the Relationship between Access to Occupational Therapy Services and Academic Performance of Learners with PI in Public Primary Special schools

The fourth research objective was to determine the relationship between occupational therapy services and academic performance of learners with PI in public primary special schools in Nyanza Region. Pupils with PI have challenges as far as their developmental milestones, fine motor and sensory integration are concerned, which may affect their learning and consequently their academic performance if not well addressed. The OT services are vital in helping them overcome these challenges.

There were 4 categories of responses to this objective. These included; head teachers, teachers, pupils with PI, and school OTs. This objective was addressed by first exploring the views of the respondents on OT services in the schools; and second, using inferential statistics to establish whether there is a statistically significant relationship between access to OT services and academic performance of learners with PI. For head teachers, teachers, and OTs, phases of thematic analysis were used.

In exploring the views of respondents on OT services, a nine Likert scaled itemed type responses questionnaire was used. The items whose constructs were related to OT services were scored using a five-point continuum scale using strongly agree (4.21-5.00), agree (3.41-4.20), somehow agree (2.61-3.40), disagree (1.81-2.60) and strongly disagree (1 00-1.80) and presented as percentages frequencies of responses as shown in Table 22.

Table 22: *Views of Learners with PI on Access to Occupational Therapy Services (n=292)*

Statement of Opinion	SD	D	N	A	SA	Mean	SD
I always consult occupational therapist for help.	88 (30.1%)	108 (37.0%)	6 (2.1%)	60 (20.5%)	30 (10.3%)	2.44	1.37
With the help of occupational therapist in reducing barriers, I participate well within the school environment.	96 (32.9%)	102 (34.9%)	6 (2.1%)	62 (21.2%)	26 (8.9%)	2.37	1.35
I receive adequate assistive technology to improve my success.	78 (26.7%)	100 (34.2%)	10 (3.4%)	56 (19.2%)	48 (16.4%)	2.64	1.46
I'm satisfied with OT's planned activities to help me in my learning process.	100 (34.2%)	120 (41.1%)	2 (0.7%)	42 (14.4%)	28 (9.6%)	2.24	1.32
With the help of OT, I do access the learning environment so as to improve my progress.	100 (34.2%)	116 (39.7%)	10 (3.4%)	40 (13.7%)	26 (8.9%)	2.23	1.29
Through OT's help, I have developed self-advocacy and self-determination skills to improve my academic performance.	100 (33.6%)	96 (32.9%)	10 (3.4%)	52 (17.8%)	34 (11.6%)	2.40	1.41
Occupational therapist always helps me learn by adapting learning materials in the classroom.	104 (35.6%)	112 (38.4%)	6 (2.1%)	26 (8.9%)	44 (15.1%)	2.29	1.42
Occupational therapist helps me learn with ease by adapting the working surface of the classroom.	88 (30.1%)	112 (38.4%)	4 (1.4%)	56 (19.2%)	32 (11.0%)	2.42	1.37
I receive adequate occupational therapists' help.	94 (32.2%)	102 (34.9%)	4 (1.4%)	48 (16.4%)	44 (15.1%)	2.47	1.46
OT helps provide appropriate accommodations designed to enhance my potential for learning.	81 (29.8%)	109 (40.1%)	6 (2.2%)	62 (22.8%)	32 (11.8%)	2.50	1.37
OT helps me acquire functional performance skills needed to participate in and benefit from educational environment.	92 (33.8%)	103 (37.9%)	9 (3.3%)	62 (22.8%)	24 (8.8%)	2.39	1.33
OT helps me to actively participate in the learning environment.	76 (27.9%)	96 (35.3%)	14 (5.1%)	56 (20.6%)	48 (17.6%)	2.67	1.46
OT helps me function independently.	84 (30.9%)	123 (45.2%)	8 (2.9%)	45 (16.5%)	30 (11.0%)	2.37	1.33
Mean average response rate on access to occupational therapy services						**2.39**	**0.49**

Key: Strongly Disagree (1.00-1.80); Disagree (1.81-2.60); Somehow Agree (2.61-3.40); Agree (3.41-4.20); Strongly Agree (4.21-5.00) and SD-S. Source: Survey data (2021)

The findings of the study have revealed that occupational therapy (OT) services offered to learners with PI in public primary special schools within Nyanza Region is generally inaccessible. Using the scale of 1 to 5, the mean overall average occupational therapy services was rated at 2.39 with a small standard deviation of 0.49, implying that most of the respondents held a common stand regarding occupational therapy services which they generally felt is inadequate.

For instance, the findings of the study have established that many pupils do not enjoy consultation of occupational therapy services for help. This was reflected by an average mean rating of 2.44 with a standard deviation of 1.37, where 196 (67.1%) of the learners said they hardly consult OTs for help and only 90 (30.8%) of them accepted that they always consult OTs for help. This implies that pupils with PI do not fully benefit from OT services by helping them fulfil their roles as pupils. It can be argued that the PT services received by pupils with PI are not adequate; do not address learners' academic needs, and are not accessible, which seem to suggest that inadequacy of OT services make it difficult for pupils to attain their valued functioning.

There is therefore need for schools to ensure that pupils are able to access adequate OT services. This finding is in agreement with the results of an inquiry by Suc, Bukovec and Karpljuk (2017) which revealed that schools of learners with special needs have limited access to occupational therapists hence may contribute to their poor academic performance. The headteachers also supported the findings that OT services were not accessible, for instance, when headteachers were asked to say whether pupils with PI always consult OTs for help, the following interview excerpt shows a response from one of them:

> *The OT is programmed to come here for the services once a term during which learners can interact with him (HT1).*

The interview excerpt from the headteacher indicates that the OT only comes to school once a term hence has limited time with pupils. It can be argued that learners with PI do not enjoy consultations with OTs due to the limited time that the OTs spends with them, hence poor access to OT services, there is need to increase OT

services. This finding conforms to a study by Hammarlund (2015) which revealed that there was a great need for occupational therapy services. The OTs also supported the findings that pupils with PI do not always consult OTs for OT services. For instance, when OTs were asked to say whether they are consulted for help by learners with PI, one of them said:

> *Actually, there are limited occupational therapy services given to pupils in the school.... I am programmed to meet them only once in a term and this is not enough to attend to needs of most learners* (O2).

The interview excerpt indicates that OTs have limited time with pupils with PI, which implies that pupils do not access adequate OT services, which seems to suggest that most of them do not benefit fully from OT services. This finding is in line with a research by Kithii (2016) which revealed that there was need for OT services. Lack of access to OT services means that the roles of OT in the school are not fully met since learners miss their important services such as services related to their academic performance. Schools should ensure that all pupils access adequate OT services. The qualitative data from FGDs with teachers also indicated that there is lack of consultations between the pupils and OTs. This was shown from a comment from FG6 as follows:

> *There is one OT who provides OT services to pupils only once a term, I believe that majority of learners do not benefit from this (FG6).*

From the FGDs, it is evident that the time allotted for the OT is not enough for majority of pupils to have adequate consultations with him, hence this needs to be adjusted for them to benefit from OT academically. This finding conforms to a study by Mwendwa (2010) which revealed that essential rehabilitation services such as OT services has not been provided to learners with physical impairments.

Likewise, the survey data revealed that pupils with PI are not assisted by OTs to reduce barriers in the learning environment and that they do not participate well within the school environment. This was indicated by an average mean rating of 2.37 with a standard deviation of 1.35. It was also reflected by 198 (67.8%) of the learners

who rejected the claim that with the help of occupational therapist in reducing barriers among the learners with PI, they participate well within the school environment. Only 68 (30.1%) of the respondents agreed that they participate well within the school environment following the help of occupational therapist they receive in reducing barriers among the pupils with PI. This indicates that OT services are generally not accessible.

This implies that the role of OT in reducing barriers within the learning environment is not effectively performed indicating poor access to OT services. Learners with PI need a barrier free environment for them to move freely and be able to acquire their valued functioning that can help them to undertake different tasks. This conforms to a study by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting. The interview excerpts from head teachers bear testimony to that. For instance. When head teachers were asked their opinions on whether OTs help to reduce barriers in the learning environment, they responded by saying:

> *In most cases, it is upon the class teachers or subject teachers to reduce barriers in the learning environment since the OT only comes ones a term* (HT3)

The interview excerpt from the headteacher indicates that OTs are rarely seen in school since they only come to school once a term which translates to thrice a year, hence pupils with PI do not have adequate consultations with them. This implies that these learners still have some barriers in the learning environment that may affect their valued functioning, and this indicates poor access to OT services, and therefore it is important that the schools make arrangement for adequate OT services. This finding conforms to a research by Kaelin, Ray-Kaeser, Moioli, Stadler, Santinelli, Echsel, and Schulze (2019) which revealed that OTs collaborated with schools.

The qualitative data from observation checklist showed that PT rooms were not available. This may suggest that the OTs do not frequent in these schools for OT services hence poor access to OT services. The qualitative data from FGDs with

teachers bears testimony to that. When teachers were asked their opinions on whether OTs help to reduce barriers in the learning environment, they responded as follows:

> *There are still barriers that limit learner's participation within the learning environment…. occupational therapists rarely come to help us reduce them, however, we do what we can as teachers* (FG3).

The qualitative response from FGDs shows that the professional role of OTs in removing barriers in the learning environment for pupils with PI is not well performed due to limited time spent by OTs in schools since they rarely visit the schools, hence the teachers just do it their own way. This is in line with a study by Hammarlund (2015) which revealed that there was a great need for occupational therapists in schools. This means that learners with PI do not get access adequate OT services which should support their ability to participate in desired daily school activities that help support their academic outcomes such as reading, writing and math among others.

This implies that teachers may just do what they think as far as making the learning environment barrier fee is concerned without the help of a professional. The OT should therefore spend more time in school such that learners with PI receive more of their services of reduced barriers in the learning environment which may make learning easier for them.

The data from survey shows that most pupils do not receive adequate assistive technology from OTs to improve their success. This was reflected by the majority of the respondents who strongly disagreed (78; 26.7%) and who disagreed (100; 34.2%) that they receive adequate assistive technology to improve their success. Only 108 (35.6%) of the learners accepted that they receive adequate assistive technology to improve their success, translating to a low rating of 2.64 (SD=1.46).

This implies that pupils with PI do not receive adequate assistive technology that are essential in decreasing the impact of impairment or disability in learners with PI, also, the role of assistive technology in helping them to overcome communication barriers that they encounter in school is not met. It can be argued that there is poor access to

OT services for learners with PI, and there is therefore need for adequate assistive technology in schools. This finding conforms to a study by Suc, Bukovec and Karpljuk (2017) which revealed that both teachers and OTs expressed frustration with organizational and systemic factors that often-prevented better exchange of knowledge and information. This finding was supported by the qualitative data from OTs when they were asked to say whether learners with PI receive adequate assistive technology. The response from one of the OTs was as shown:

> *I only visit the school once a term, considering the population of pupils, the services provided to equip them with assistive technology are not adequate due to limited time with learners...hence most of them may lack assistive technology to support their success (*O2).

The interview excerpt from OT shows that even though there is an OT, he only visits the school once in a term and that allocated time is not enough to provide OT services to all learners with PI such as the assistive technology to support their success. This is in line with a research by Klerk, Buchenan, and Pretorious (2016) which revealed that occupational therapists are often faced with lack of adequate time as far as helping pupils to improve their success is concerned. This implies that these pupils lack assistive technology which can help improve their function in both physical disabilities and leaning, hence affect their academic achievement. OTs should therefore ensure that learners with PI get adequate assistive technology so as to achieve their success as far as their academic achievement is concerned.

This finding was also supported by the qualitative data from HTs when they were asked to say whether pupils with PI receive adequate assistive technology. The response from one of the HTs was as shown:

> *The assistive technology is not adequate for these pupils considering the limited time spent by OT with them (HT4).*

From the interview excerpt from the headteacher, the OT spends little time with pupils with PI hence it is not possible for the OT to address their needs I such as provision of assistive technology. Lack of assistive technology may affect learners'

normal functioning hence make them to be more dependent and have challenges in undertaking different tasks. This is in line with an inquiry by Stormbroek and Uchana (2016) which established that there was poor multidisciplinary collaboration and team work, and the OTs wanted to increase more time spent on OT services. The qualitative data from teachers through FGDs also indicated that pupils with PI do not receive adequate assistive technology to improve their success. The following response came from one of the FGs:

> *There is need for more OT services to address assistive technology of these learners…. the little time spent by OT with them is not just adequate for them to fully benefit from these services (FG1).*

The qualitative response from teachers indicates that OTs do not provide learners with PI with adequate assistive technology due to limited time that they spend with them, there is need for more OT services that would address the issue of assistive technology for pupils with PI. This is in line with an investigation by Stormbroek and Uchana (2016) which established that there was need to strengthen occupational therapy services.

On the level of satisfaction of OT's planned activities, the findings show that most learners with PI are not satisfied (mean=2.24; SD=1.32) with OT's planned activities. This was reflected by average mean rating of 2.24 with a standard deviation of 1.32, with about a three quarters 220 (75.3%) of the respondents confirming that they are not satisfied with OT's, only 70 (24.0%) of them accepted that they are satisfied with OT's believing that the planned activities help them in their learning process.

This seems to suggest that the planned activities by OTs to help learners with PI in their learning process are not effectively implemented, hence, the planned activities are not of help to most of them in school. This may also seem to suggest that there are little planned activities by OTs to help these pupils in their learning process and they are of no help to the pupils. This is not in line with an inquiry by Kaelin, Ray-Kaeser, Moioli, Stalder, Santinelli, Echsel and Schulze (2019) which revealed that nearly all OTs collaborate well with schools. This might have been so due to the fact that the previous study was carried out in Switzerland which is a developed country while the

current study was carried out in Kenya which is a middle -income. The following qualitative data shows a headteacher's response when asked whether OTs' planned activities were of help to learners with PI as far as their academic achievements are concerned:

> *They are of help to pupils but the problem is inadequacy…. they are not adequate due to limited time that the OT has with the learners (HT4).*

The interview excerpt from the headteacher indicates that the OTs' planned activities that should help pupils in their success are not adequate, which implies that they do not serve the purpose for which they are meant to. Therefore, there is need for more OT services in schools. This conforms to a research by Mwendwa (2010) which revealed that many of the rehabilitation services such as OT services have not been provided to children with physical impairment due to lack of human resource. The following qualitative data shows teachers' response when asked whether OTs' planned activities were of help to learners with PI as far as their academic achievements are concerned:

> *Yes of course they are of help to learners, the only challenge I face is time allotted for these services…providing these services to a school for only thrice a year….to me is unrealistic (O5).*

The qualitative data from the OT shows that learners with PI benefit from OTs planned activities, however, they are inadequate due to limited time allocated for OT services hence most of them do not benefit from them. This indicates poor access to OT services for learners with PI, hence need for more OT services. This conforms to a research by Kithii (2016) which revealed that there was need for support services such as OT services, and are a necessity. The following qualitative data shows teachers' response when they were asked whether OTs' planned activities were of help to learners with PI as far as their academic achievements are concerned:

> *OTs' planned activities do not help our pupils here much since the time he spends with these learners is limited…just once a term does not make much difference* (FG2).

The qualitative data from teachers' FG2 indicates that learners with PI do not benefit fully from OTs' planned activities as far as their academic performance is concerned. This implies that OTs' planned activities are not helpful as far as healthy school climates that are conducive for learning and even offering other valuable services to meet learning needs which are essential for academic achievement are concerned. The schools should therefore organize for OTs to spend more time with learners with PI. This finding is in agreement with the findings of a study by Suc, Bukovec and Karpljuk (2017) which revealed that schools of pupils with special needs have limited access to occupational therapists hence may contribute to their poor academic performance.

On access to learning environment, the study results indicate that whereas only 66 (22.6%) of the learners who took part in survey were in agreement that with the help of OT they access the learning environment so as to improve their progress, majority 216 (73.9%) of the respondents said they do not access the learning environment so as to improve their progress even with the help of OT services. This was further reflected by average mean rating of 2.23 with a standard deviation of 1.29.

The results of this survey indicate that most pupils with PI do not receive adequate help from OT to access the learning environment to improve their progress. It can be argued that, since they do not access the learning environment, they miss the benefits of accessing the learning environment such as increasing learners' interaction with peers and teachers, offering pupils the opportunity to apply their learning in other situations, and performing different tasks among others (American, Occupational Therapy Association, 2020). This conforms to a research by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting.

The OTs also support the same finding, for instance, the following qualitative data from an OT shows an interview excerpt when asked to comment on the OTs' help given to learners with PI to access the learning environment to improve their progress:

> *I do assist pupils to access the learning environment and this helps them to improve their progress, however, since I'm alone and my time with them is limited, I have always done only what I am able to do in a day, therefore it is difficult to attend to all learners' needs…currently I'm working on ways to collaborate with teachers on the same* (OT4).

The interview excerpt from the OT indicates that pupils with PI are assisted to access the learning environment to improve their progress, however, these services from the OT are not adequate since there is only one OT who only comes to school once a term. This implies that these services are not accessible enough to help improve the learners' progress. There is need to ensure that the OT services are adequate enough to address the needs of all learners with PI. This finding is in agreement with the findings by Suc, Bukovec and Karpljuk (2017) which revealed that schools of pupils with special needs have limited access to occupational therapists hence may contribute to their poor academic performance.

The HTs also support the same finding that pupils with PI are not being helped to access the learning environment to improve on their progress, for instance, the following qualitative data from an OT shows an interview excerpt when asked to comment on the OTs' help given to learners with PI to access the learning environment to improve their progress:

> *The OTs help pupils with PI to access the learning environment although rarely due to the time schedules (HT6).*

The qualitative response from the headteacher indicates that the OT helps learners to access the learning environment, however, he does that rarely. This implies that pupils with PI do not fully benefit from OT services that address access to learning environment to improve their success, and this may affect their normal functioning. This conforms to findings by Nichole (2019) which revealed that there was need for

OT services to help learners achieve maximum ability and independence. The teachers also support the same finding, for instance, the following qualitative data shows a teacher's response in FGDs when asked to comment on the help given to pupils with PI by OT to access the learning environment to improve their progress:

> *The school has one occupational therapist who has little time to offer OT services in school since he is programmed by the school to offer OT services only once every term to pupils with physical impairments...he therefore spends very little time with learners* (FG1).

The qualitative response from the teacher indicates that pupils with PI do not receive adequate assistance from the OT to access the learning environment so as to improve their progress since the OTs have limited time in the schools to perform such roles to their satisfaction. This implies that OTs do not fully play their role of enhancing learners' ability to participate in different learning environments which may help them in academic achievement. This is due to lack of time dedicated for such services since the school only hires one OT to school once a term. The amount of time spent by OT in schools should therefore be increased so that learners can get more of their services as far as their progress is concerned. This conforms to findings by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting.

Equally, the findings revealed that majority of learners with PI have not been helped by occupational therapists in developing their self-advocacy and self-determination skills which are helpful as far as their academic achievement is concerned. This was reflected by an average mean response of 2.40 with a standard deviation of 1.41, with only 62 (21.2%) of the pupils accepting that through OT's help, they have developed self-advocacy and self-determination skills to improve their academic performance. However, about two out of every three 196 (66.5%) of the surveyed learners with PI were found not to have developed self-advocacy and self-determination skills to improve their academic performance through OT's help.

This implies that OT services have not helped them to develop self-advocacy and self-determination skills that are helpful to them as far as improvement in their academic

performance is concerned. Therefore this may suggest that their ability to communicate their needs such as having confidence to ask for the tools they need to be successful in school, or to thrive in school is compromised due to lack of self-advocacy; and their ability to make positive things happen at school is also compromised due to lack of self-determination skills. There is therefore need for OT services that can promote learners' self-advocacy and self-determination skills. This is in line with the findings by Kithii (2016) which revealed that there was need for adequate support services such as occupational therapy services to support learners' achievements.

Qualitative data from headteachers also show some evidence to that, for instance, when headteachers' opinions were sought on whether OTs have helped pupils with PI on self-advocacy and self-determination skills, one of the headteachers responded by saying:

> *Assistance by OTs on self-advocacy or self- determination skills for learners is done but rarely due to lack of adequate time (HT6).*

From the interview excerpt, the OTs provide services to help pupils on self-advocacy and self-determination skills, however, they are inadequate which can be interpreted to mean that the pupils are not being helped by OTs on self-advocacy and self-determination skills which are essential for their academic performance, hence there is need for schools to ensure that learners with PI receive OT services as far as self-advocacy and self-determination skills are concerned. This is in line with an inquiry by Stormbroek and Uchana (2016) which established that there was need to strengthen occupational therapy services. Qualitative data from OTs also agrees with that, for instance, when OTs' opinions were sought on whether they have helped learners with PI on self-advocacy and self-determination skills, one of the OTs responded by saying:

> *I help them with self-advocacy and self-determination skills though once in a while since I am only here once a term and I have to ensure that I provide all OT services are provided (OT2).*

From OTs' qualitative response, the OT helps pupils with self-advocacy and self-determination skills to improve their academic performance but it is not adequate. This implies that they are not helped to develop self-advocacy and self-determination skills to help improve their academic achievement, hence the need for adequate and accessible OT services. This conforms to findings by Smith, Weaver, and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance such as handwriting. Qualitative data from FGDs with teachers also shows some evidence to that. When teachers' opinions were sought on whether OTs have helped learners with PI on self-advocacy and self-determination skills, the following response came from one of the teachers from FG4:

> *If any, very few pupils with PI have learnt self-advocacy skills and self-determination skills…most learners have not been taught these by the occupational therapists* (FG4).

The qualitative data proves that most pupils with PI do not benefit from OT services such as helping them to develop self-advocacy and self-determination skills which are essential for their academic performance. This is in agreement with an investigation by Mwendwa (2010) which observed that many of the essential rehabilitation services such as OT services have not been provided due to lack of human and material resources. This means that due to poor access to OT services, learners with PI who cannot self-advocate may find it difficult to identify their own weaknesses, ask for help or to confidently make decisions. If they lack self-determination, then they may have challenges in making choices and managing their lives, hence may not be able to speak out about their academic needs, which can help them in their academic performance. Schools therefore should be a venue to teach and practice these skills.

Similarly, the study results revealed that majority of learners with PI do not significantly benefit from OTs' services as far as helping them learn by adapting the learning materials in the classroom is concerned. This was reflected by an average mean response of 2.29 with a standard deviation of 1.42, with majority of the respondents 216 (74.0%) confirming that they have not benefitted from such OT services.

This can be interpreted to mean that OTs do not play their roles of adapting the learning materials for learners with PI. This implies that their learning materials are not well adapted to maximize their appropriacy. Physical impairment may have an impact on some or all activities to a greater or lesser extent. Many pupils with PI face challenges in physically accessing the learning environment hence need for OT services that address adaptation of learning materials. This is in line with an inquiry by Stormbroek and Uchana (2016).

The following qualitative data from OTs has a proof to that when they were asked to state whether they help in adapting learning materials in the classroom:

> *I always help teachers with adapting learning materials in the classroom whenever I visit the school. However, I only do this thrice a year* (OT2).

The qualitative data from the OT shows that even though OTs help in adapting the learning materials in the classroom, it is just done once in a while. This implies that OTs do not sufficiently help in adapting learning materials for learners with PI even though these learners need adapted learning materials. There is therefore need to ensure that learning materials for pupils with PI are well adapted to meet their needs.

The following qualitative data from HTs has a proof to that when they were asked to state whether OTs help in adapting learning materials in the classroom:

> *Yes, that is part of their work although mostly it is upon the subject teachers to use their knowledge to adapt the learning materials since the OT is not available most of the time* (HT1).

The interview excerpt from the headteacher indicates that in most cases, the OTs do not perform their role of preparing learning materials for learners with PI in the classroom, it is mostly done by teachers. The OTs are specially trained to perform their roles such as preparing learning materials in the classrooms but they do not play this role effectively due to limited time that they have with pupils, meaning that pupils with PI do not benefit from OT services. There is need to increase the OT services to

learners with PI. This conforms to a study by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcomes. The qualitative data from teachers has a proof to that, for instance when they were asked to state whether OTs help in adapting learning materials in the classroom, the following response came from FG1:

> *We mostly adapt the learning materials since the OT is not mostly accessible (FG3).*

The qualitative data from FGD indicate that there is inadequacy of OT services such as adapting the learning materials in the classrooms due to limited time they take in schools. This is in line with an investigation carried out by Kithii (2016) which revealed that there was need for adequate support services such as occupational therapy services to support learners' achievements. Adapting learning materials help meet learners' needs, can make it simple, can fit the context, can aid comprehension among others. This is essential as far as academic achievement of learners with PI is concerned. Hence, there should be a combined effort between teachers and OTs in adapting the learning materials.

In addition, whereas only 56 (19.2%) and 32 (11.0%) of the learners were in agreement and strong agreement, respectively, that OTs help them learn with ease by adapting the working surface of the classroom, a majority of the pupils believe that occupational therapist have not helped them learn with ease in adapting the working surface of the classroom. This was reflected by 200 (68.5%) who negated the claim that occupational therapists help learners with PI to learn with ease by adapting the working surface of the classroom and overall mean rating of 2.42 with a standard deviation of 1.37.

These results imply that most pupils with PI do not access OT services hence they do not benefit from OT services such as adapting the working surface of the classrooms that should enable them learn with ease since this affect their normal functioning. Motor skills limitations can influence participation of learners with PI in activities associated with the general education curriculum, hence the need for appropriate adaptation of working surface. This is in agreement with the findings by Mwendwa

(2010) which revealed that many of the essential rehabilitation services such as OT services have not been provided due to lack of human and material resources.

This was supported by the following qualitative data from OT when they were asked to say whether they help learners with PI to learn with ease by adapting the working surface of the classrooms:

> *I do that but not frequently since I don't have adequate time to offer such services as adapting the working surface of all the classrooms for pupils with physical impairments in the school* (O2).

The interview excerpt from OT indicates that the OT helps in adapting the working surface of the classrooms, however, not adequately since the OT has limited time to do all that. This implies that the working surface of the classrooms are not adapted and this may cause discomfort and injuries to the learners since they have motor limitations, and this means that their ability to attain valued functioning is not met. It is therefore vital for schools to ensure that working surface of the classrooms are adapted. This conforms to a research by Nichole (2019) which revealed that there was need for OT services to help learners achieve maximum ability and independence. From FGDs, the qualitative data from teachers also supported the findings that OTs do not help in adapting the working surface of the classrooms, the following response came from FG1:

> *We rarely receive such services from occupational therapist but we try to do what we can…however, lack of occupational therapy services has led to lack of support for learners' ability to participate in daily school activities with ease* (FG1).

The interview excerpt shows that pupils with PI are not able to learn with ease due to lack of services from OTs such as adapting the working surface of the classroom which has been caused by poor access to OT services. This is in line with an investigation carried out by Kithii (2016) which revealed that there was need for adequate support services such as occupational therapy services to support learners' achievements. This implies that, when the OTs do not visit schools frequently,

learners may miss their services of adapting the working surface of the classroom. Hence individual learner's independence is not maximized and this may make them rely on others. Also, individual pupils' skill development and participation will not be maximized implying that learners' needs are not accommodated hence may be disadvantaged as far as their academic achievement is concerned. Therefore, it is necessary that OTs help more in adapting the working surface of the classrooms of pupils with PI.

Further, this finding proves that most learners with PI in public primary special schools in Nyanza Region do not receive adequate occupational therapists' help. In addition, whereas only 48 (16.4%) and 44 (15.1%) of the pupils were in agreement and strong agreement, respectively, that they receive adequate occupational therapist help, a majority of the learners believe that occupational therapist have not helped them. This was reflected by 196 (67.1%) who negated the claim that pupils with PI get adequate help from occupational therapist and overall mean rating of 2.47 with a standard deviation of 1.46. This implies that the OT services for learners with PI are not accessible.

This seem to suggest that pupils with PI do not benefit from OT services which include; supporting academic achievement and social participation of learners by promoting occupation within all school routines including classrooms, recess and cafeteria time; helping children fulfil their roles as pupils and preparing them for college, career, and community integration; utilizing prevention, promotion, and intervention strategies for mental and physical health and well-being; as well as working with learners on fine motor skills and large motor skills among others. There is therefore need for schools to ensure that adequate OT services are available. This conforms to a research by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcomes.

The following interview excerpts from a headteacher bears witness to the same, when they were asked to say whether the OT services are adequate, one of the headteachers said:

> *Currently, the school has only one hired occupational therapist that provides occupational therapy services to learners with physical impairments once per term, however his services are not adequate given the school population* (HT3).

From the interview excerpt from the headteacher, the OT services are not adequate for learners with PI implying that they do not receive adequate OT services that should help promote their academic performance. There is need for schools to ensure that these pupils receive adequate OT services that can promote their academic performance. This conforms to a research by Smith, Weaver and Holland (2014) which revealed that there was need for OT services to promote academic performance such as handwriting and success. The following interview excerpts from an OT bears witness to the same, when they were asked to say whether their services are adequate, one of the OTs said:

> *I do provide OT services whenever I come to school…the only problem is time allotted for the services…It is not easy for me to serve the whole school well just thrice a year (O3).*

The interview excerpt from OT indicates that the OT services provided to learners with PI are not adequate implying that they do not benefit from OT services, which further seems to suggest that the OT services that should enable them as far as their academic achievement is concerned are not received by pupils with PI. There is need for schools of learners with PI to ensure that the OT services are fully accessed by all pupils. This conforms to a research by Nichole (2019) which revealed that there was need for OT services to help pupils achieve maximum ability and independence.

From the FGDs with teachers, they also supported the findings that OT services for learners with PI are not adequate, for instance, the following shows qualitative response came from one of the FGs when teachers were asked to say whether the OT services are adequate:

> *The OT services in this school are not adequate since he visits the school once every term…that is, only one day in a term. We have at least eight classrooms in the school with about 250 learners. If he has to play all his roles, it is not possible to serve all or most of these pupils* (FG6).

The qualitative response indicates that the school has inadequate services of OTs due to the limited time that he spends in school with pupils. This implies that there is poor access to OT services for learners with PI, and they do not benefit from them and this may affect normal functioning of these pupils. This is in agreement with a study by Mwendwa (2010) which revealed that many of the essential rehabilitation services such as OT services have not been provided due to lack of human and material resources. Due to inadequate provision of OT services, the learners with PI do not benefit academically as they lack the support on their ability to participate in desired daily school activities and being helped to fulfill their roles as pupils by supporting their academic achievement and promoting positive behaviours necessary for learning. There is therefore need to have adequate OT services in schools for learners with PIs.

On appropriateness of accommodation, the study results indicate that whereas only 94 (34.6%) of the learners who took part in survey were in agreement that OT helps provide appropriate accommodations designed to enhance their potential for learning, majority 190 (69.9%) of the respondents said OT do not help provide appropriate accommodations designed to enhance their potential for learning at all. This was further reflected by average mean rating of 2.50 with a standard deviation of 1.37.

This means that accommodations designed to enhance learners' potential for learning are not adequate, which implies that pupils with PI in Nyanza Region are not being helped by OTs as far as helping provide appropriate accommodations designed to

enhance potential for learning is concerned. This finding conforms to a research by Mwendwa (2010) which found that many of the essential rehabilitation services such as OT services have not been provided by CPSK. There is therefore need to improve on OT services as far as appropriate accommodations designed to enhance learners with PIs' potential for learning is concerned.

The qualitative response by headteachers bears the same testimony to the findings. For instance, when headteachers were asked to say whether OTs help provide appropriate accommodations designed to enhance potential for learning, the following shows the response:

> *Accommodations are provided to support learning, however there is need for adequate OT services to address this more effectively*. (HT6)

The interview excerpt from the headteachers indicates that even though there are accommodations to support learning, they are inadequate. This implies that learners with PI do not get adequate accommodations designed to enhance their potential for learning. It can be argued that the role of OT in helping provide appropriate accommodations designed to enhance potential for learning has not been played well. This conforms to a research by Suc, Bukovec and Karpljuk (2017) which revealed that schools for learners with special needs have limited access to OT services. There is therefore need to ensure that all pupils with PI are helped by providing appropriate accommodations designed to enhance potential for learning. The qualitative data from the OTS also agrees with the same findings, for instance, when OTs were asked to comment on their role in helping provide appropriate accommodations designed to enhance potential for learning, the following response came out:

> *I do try to provide appropriate accommodations that enhance learners' potential for learning each time I visit them; however, I spend very little time with them…. once a term*. (OT)

From OTs' qualitative response, even though OT services help provide appropriate accommodations designed to enhance potential for learning, very little time is given to this. It can be argued that the little time spent by OT in providing these services

does not allow learners with PI to have adequate OT services as far as helping provide appropriate accommodations designed to enhance pupils' potential for learning is concerned, hence need for more OT services that capture the same. This conforms to an inquiry by Kithii (2016) which revealed that there was need for OT services. There is therefor need for more OT services in schools for learners with PI. When teachers were asked to comment on the role of OT in helping provide appropriate accommodations designed to enhance potential for learning, the response was:

> *The OT helps provide appropriate accommodations designed to enhance potential for learning, however, it is not adequate due to limited time the services are provide to learners*. (FG6)

From teachers' qualitative data, it is indicated that pupils with PI are provided with appropriate accommodations designed to enhance potential for learning but this is inadequate. This implies that learners with PI do not receive the OT services that are intended to help provide them with appropriate accommodations designed to enhance potential for learning. This conforms to a research by Smith, Weaver and Holland (2014) which revealed that there was need for OT services in the improvement of academic performance. Therefore, there is need to increase OT services that can address the issue of helping provide appropriate accommodations designed to enhance potential for learning for pupils with PI.

Equally, the study results reveal that majority of learners with PI have not been helped by occupational therapists in developing their functional performance skills needed to participate in and benefit from educational environment. This was reflected by an average mean response of 2.39 with a standard deviation of 1.33, with only 86 (31.6%) of the pupils accepting that through OT's help, they have developed their functional performance skills needed to participate in and benefit from educational environment. However, a significant majority of 195 translating to 71.7% of the surveyed learners with PI denied the researcher's assertion that OT has helped them acquire functional performance skills needed to participate in and benefit from educational environment.

This means that learners with PI are not being assisted by OT to acquire functional performance skills needed to participate in and benefit from educational environment. Since this is one of the roles of an OT, it can be argued that learners with PI do not access adequate OT services that should help them acquire functional performance skills needed to participate in and benefit from educational environment, and which is vital for their valued functioning.

This finding concurs with the finding by Hammerlund (2015) which revealed that there was a great need for OTs in schools. There is therefore need to ensure that learners with PI access OT services that address acquisition of functional performance skills needed by learners with PI to participate in and benefit from educational environment. The headteachers' qualitative data also agrees with the same finding. For instance, when headteachers were asked their opinions on whether OTs help pupils with PI to acquire functional performance skills needed to participate in and benefit from educational environment, the following response came out:

> *Not all learners with PI have acquired functional performance skills needed to participate in and benefit from educational environment, this may be attributed to the fact that OT rarely visits the school.* (HT5)

The interview excerpt from the headteacher shows that the functional performance skills needed by pupils with PI to participate in and benefit from educational environment have not been acquired by learners since the OT rarely visits schools. This seems to suggest that if the OT can visit the school more often, then the pupils with PI would get adequate OT services. There is therefore need to ensure that all pupils with PI benefit from OT services of being helped to acquire functional performance skills needed to participate in and benefit from educational environment. This conforms to a research by Hargreaves (2012) which revealed that OTs had limited access to school environment. The qualitative data from OTs bears testimony to this.

For instance, when OTs' views were sought on whether the OTs help learners with PI to acquire functional performance skills needed to participate in and benefit from educational environment, the response was:

> *I do assist learners with PI to acquire functional performance skills that enable them to participate in and benefit from educational environment, however, due to limited time…. I can't say that it is adequate.* (OT1)

The qualitative response by OT indicates that the OT assists learners with PI acquire functional performance skills needed to participate in and benefit from educational environment but he rarely does this. This implies that most pupils with PI do not get adequate access to OT services that enable them to acquire functional performance skills needed to participate in and benefit from educational environment. Therefore, there is need for OT services to be expanded in order to address the acquisition of functional performance skills needed to participate in and benefit from educational environment. This concurs with a research by Klerk, Buchenan and Pretorious (2016) which revealed that OTs are often faced with lack of adequate time as far as helping learners improve their success is concerned.

When teachers' opinions were sought concerning role of OT on helping pupils with PI acquire functional performance skills needed to participate in and benefit from educational environment, the following response was noted:

> *Fewer learners have acquired functional performance skills needed to participate in and benefit from educational environment…there is need to improve OT services on this. (FG5)*

From the teachers' response, it is indicated that most pupils with PI have not acquired functional performance skills needed to participate in and benefit from educational environment. It can therefore be argued that they do not access OT services that should help them acquire functional performance skills needed to participate in and benefit from educational environment, there is therefore need for schools of learners with PI to ensure that learners access such services in order to achieve their valued

function. This is in line with a research by Stormboek and Uchana (2016) which established that there was need to strengthen OT services.

By the same token, this finding proves that most learners with PI in public primary special schools in Nyanza Region do not participate actively in learning environment as expected. This was confirmed by the fact that whereas only 56 (20.6%) and 48 (17.6%) of the pupils were in agreement and strong agreement, respectively, that OT has helped them to actively participate in the learning environment, a majority of the learners do not believe that occupational therapist have helped them to participate in the learning environment. This was reflected by 172 (63.2%) who negated the claim that pupils with PI get adequate help from occupational therapist to make them actively participate in the learning environment and an overall mean rating of 2.67 with a standard deviation of 1.46. This denotes that the OT services for learners with PI are not adequate to inspire in them active participation in the learning environment.

It can be argued that the role of OT in helping learners with PI to participate actively in the learning environment has not been played well. This implies that they do not access the OT services as far as helping them participate actively in the learning environment is concerned. There is therefore need to ensure that they access OT services that focus on helping them to participate actively in the learning environment. This finding conforms to a study finding by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcomes.

This finding was supported by the qualitative data from headteachers, for instance, when headteachers were asked to say whether OTs help learners with PI to participate actively in the learning environment, the following response was noted:

> *The OT helps learners with PI to participate actively in the learning environment but this is done on termly basis…. I don't think this is enough to make a big change as such*. (HT2)

The interview excerpt from headteachers indicates that OTs rarely help pupils with PI to participate actively in the learning environment since these services are only provided once a term. It can be argued that offering OT services just thrice a year may

not benefit majority of learners with PI given that some pupils may also need individual attention, and this may make them not to achieve their valued function. There is therefore need for more OT services. This is in agreement with a research by Smith, Weaver and Holland (2014) which revealed that there was need for OT services to promote academic performance.

On the same note, a qualitative response by the OT also bears the same testimony to that. When OTs' opinions on helping learners with PI to participate actively in the learning environment was sought, the following response came out:

> *Whenever I visit the school, I always address active participation of learners with PI in the learning environment, however, the time allocated for all these is not enough for me to ensure that pupils with PI actively participate in the learning environment.* (OT2)

The interview excerpt from the OT indicates that, even though the OT helps learners with PI participate actively in the learning environment, the services are inadequate due to lack of appropriate time to enable learners with PI benefit from such services. This implies that they do not access the OT services that would help them participate actively in the learning environment. This conforms to a research by Anderson (2016) which revealed that there was need for OT services which has the potential to influence academic outcome. The qualitative data from teachers' responses in FGDs also indicated the need for more OT services, for instance when teachers were asked to say whether the OTs help pupils with PI to participate actively in the learning environment, the response was:

> *If pupils with PI are to be helped fully to participate actively in the learning environment, more time of this is required with OT, otherwise, most learners with PI may not benefit from this.* (FG6)

The qualitative response by teachers indicates that majority of learners with PI do not benefit from OT services of being helped by OTs to participate actively in the learning environment. This seems to suggest that there is inadequate access to OT services by learners with PI as far as helping them to participate actively in the learning environment is concerned. There is therefore need for schools of pupils with

PI to increase OT services in schools. This finding is however not in line with a research by Stormboek and Uchana (2016) which found that OTs are playing an important role in improving access to OT services. The differences in the results may have been attributed to the fact that different research approaches were employed, that is, the previous study used quantitative approach while the current study used mixed-methods approach which had an additional qualitative data whereby the researcher can collect more in-depth data.

Lastly, the data from the survey shows that most learners with PI feel that the OTs do not help them function independently in spite of the OT services purportedly offered to them. This was reflected by the majority of the respondents who strongly disagreed (84; 30.9%) and who disagreed (123; 45.2%) that OT helps them function independently. Only 75 (27.5%) of the PI pupils accepted that OT services has helped them to function independently, translating to a low rating of 2.37 (SD=1.33). This suggests that OT services has not helped majority of learners with PI to function independently, as should be the case, an indication that OT services provided in public primary schools to learners with PI is inadequate and not easily accessed by these pupils. Pupils with PI need to achieve their valued function so as to function independently, hence the need for more OT services that can focus on helping pupils with PI to function independently. This finding is in line with a research by Kithii (2016) which established that there was need for OT services to help learners with PI manage challenges and eventually learn to be independent.

The qualitative data from the head teachers also supports the same finding. For instance, when headteachers were asked to say whether OTs help learners with PI to function independently, the following response came out:

> *The OT helps pupils with PI function independently, however, learners with PI have not gained much of it from OT services due to limited time for OT services*. (HT4)

The interview excerpt from the headteacher indicates that however much the OT has helped learners with OT to function independently, the OT services offered to learners is inadequate due to little time spent by OT with pupils. This seems to suggest that the OT services have not adequately addressed helping pupils with PI to function

independently. It is therefore important for the schools for learners with PI to consider increasing OT services that focus on helping pupils with PI to participate actively in the learning environment. This conforms to an inquiry by Kithii (2016) which there was need to increase more time spent by OT on OT services. The qualitative data from OTs also bears the same testimony to the findings. For instance, when the OTs were asked to say whether they help learners with PI to function independently, the following statement was made:

> *One of my goals is to help pupils with PI to function independently….in as much as I do this, not many learners with PI acquire these skills in time due to limited time I spend with them since most of them need individual attention*. (OT3)

The interview excerpt from the OT indicates that most learners do not access adequate OT services that focus on helping them to function independently. This implies that the OT services that are supposed to help pupils with PI function independently so as to achieve their valued function are not being accessed by pupils due to limited time for OT services. The schools for pupils with PI should therefore organize with OTs to ensure that learners with PI access these OT services adequately. This conforms to a research by Slovenia, Suc, Bukore and Karpljuk (2017) which revealed that OT had limited access to school environment. On the same note, the qualitative findings from the teachers through FGDs also supported the same findings. For instance, when teachers were asked to say whether OTs help learners with PI to function independently, the response was:

> *The OT helps pupils with PI to function independently, however, they rarely see the OT*. (FG1)

The qualitative data from teachers indicates that the OT rarely helps learners with PI to function independently. Learners with PI should be assisted to function independently as this helps them achieve their valued function which is vital in undertaking different tasks and avoid being a burden to others. It can be argued that pupils with PI do not access the OT services that focus on helping them to function independently. There is therefore need for schools for pupils with PI to ensure that all learners with PI access adequate OT services that help them function independently. This finding conforms to a research by Mwendwa (2010) which found that CPSK has

not been able to provide many of the essential services such as OT services to its members such as children with PI.

4.5.1 Hypothesis testing: Objective 4

To investigate whether there was any significant relationship between access to occupational therapy services and academic performance of pupils with PI, the null hypothesis was tested as follows:

H_{04}: *There is no statistically significant relationship between access to occupational therapy services and academic performance of learners with PI in public primary special schools.*

In order to do this, a Pearson Product Moment Correlation Coefficient was computed with scores on access to occupational therapy as independent variable and academic performance as dependent variable. The scores of independent variables (occupational therapy) were computed from frequencies of responses and by computing mean responses per respondents. Mean response across a set of questions of Likert scale responses in each item was computed to create an approximately continuous variable, within an open interval of 1 to5, that is suitable for the use parametric data, as explained by Sullivan and Artino (2013), where high scale ratings implied high perceived occupational therapy in public special schools of learners with physical impairments. The overall academic performance was computed from the mean average scores of the learners in the three exams that were administered to them for term 2, 2019, term 3, 2019 and term 1, 2020.

The significant level (p-value) was set at .05, where, if the p-value is less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference exists. However, if the p-value is larger than 0.05, it would be concluded that a significant difference does not exists. Table 23 shows the SPSS output correlation analysis results.

Table 23: *Relationship between Access to Occupational Therapy and Academic Performance*

		Academic Achievement
Occupational therapy	Pearson Correlation	.604**
	Sig. (2-tailed)	.000
	N	292

The finding of the study shows that there was statistically significant positive correlation between occupational therapy and academic performance (n=292; r = .604; p<.05). Since p-value = 0.000 < 0.05, the null hypothesis was rejected. Therefore, it was concluded that there is statistically significant relationship between access to occupational therapy and academic performance among learners with PI, with high level access to OT services and associated to improved academic performance and vice-versa. This implies that if the schools can have adequate access to OT services such as removing barriers in the learning environment, then pupils may be able to achieve their valued functioning as well as having quality life, such as when there is proper seating arrangement in classrooms that allow them support each other or work in groups, then the academic performance of learners with PI will improve (Oliver, 1983).

It can also be argued that the barriers in the learning environment which should be addressed by the OTs but are not yet addressed due to poor access to OT services, may prevent pupils from attaining their valued functioning hence preventing them from achieving their maximum potential, that is, academic performance. There is therefore need for schools of pupils with PI to ensure that OT services are accessible to all learners. This is in line with a research by Lee (2018) which found out that positive relationship existed that can be used to guide educators in improving OT services to improve academic achievement. This also means that learners with PI do not benefit from the role of OTs in improving the quality of their lives, their academic performance as well as aiding their daily activities, and sense of accomplishment, and this calls for improvement in OT services.

However, to estimate the level of influence of access to occupational therapy services on academic performance, a coefficient of determination was computed using regression analysis and the result was as shown in Table 24.

Table 24: *Model Summary on Regression Analysis of Access to Occupational Therapy Services on Academic Performance of Learners with PI*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604[a]	.365	.362	16.7394

Model		Sum of	Df	Mean Square	F	Sig.
1	Regression	46633.439	1	46633.439	166.425	.000[b]
	Residual	81260.206	290	280.208		
	Total	127893.646	291			

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	130.248	4.857		26.815	.000	120.688	139.808
	Occupational therapy services	25.690	1.991	.604	12.901	.000	21.770	29.609

a. **Dependent Variable:** *Academic Performance*

$Y = \alpha + \beta_4 x$

Academic Achievement = *130.248 + 25.690x*

The model summary reveals that occupational therapy services explain 36.2%, as signified by *Adjusted* R^2 =.362, of the variation in academic performance of learners with physical impairment. This is a substantial influence on a dependent variable by one predictor. This seems to suggest that the more the access to OT services, the higher the academic performance of learners with PI, hence, there is need for more OT services that would help in increased functional skills which would improve quality of life and consequently contribute to good academic performance. This call for improvement in access to OT services to pupils with PI. Also, table 24 shows the coefficients values of regression model of the influence of occupational therapy services on academic performance.

From the model table, it is evident that the slope coefficient for occupational therapy services was 25.69, implying that academic achievement of learners with PI improves by 25.69 units for each one-unit improvement occupational therapy services among the learners with PI in public primary special schools. Similarly, an improvement in occupational therapy services by one standard deviation is associated to improvement of academic achievement by .604 standard deviations. This implies that more access to OTs services to pupils with PI may have a positive relationship with their academic achievement. Schools with learners with PI should therefore ensure that all the roles of OTs are met. This is in line with an investigation by Brown (2019) which revealed that hours spent by OTs were found to be statistically significant predictors of academic performance.

However, to investigate whether access to occupational therapy services was really a significant predictor to academic performance among the learners with PI in special schools, Analysis of Variance was conducted, in line with the recommendation by Bhandari (2020), as shown in Table 24.

From the ANOVA output, there exists enough evidence to conclude that the slope of the population's regression line is not zero, meaning occupational therapy service is a significant predictor of academic achievement F (1, 290) =166.425, p=.000 <.05; *Adjusted* R^2=.362. Therefore, it was concluded that there is statistically significant influence of occupational therapy services on academic performance.

This implies that learners with PI who are exposed to adequate and accessible OT services are likely to record better academic performance. This agrees with an investigation by Brown (2019) which revealed that hours spent by OTs were found to be statistically significant predictors of academic performance. When OTs spend more time with pupils with PI in providing adequate OT services, the functional skills as well as attaining valued functioning of the learner may increase thereby improving learning and academic performance of learners. There is therefore need for adequate OT services in schools.

4.6 Multiple Regression Analysis

The study sought to establish a linear model that could be used to describe the optimal level of academic performance of pupils with PI in regard to adjustments. This was done by use of standard multiple regression analysis, where all the four aspects of adjustments were factored in the model at once. It was suitable because it could help to investigate how well the set of the independent variables were able to predict the academic performance of learners with PIs, in line with the recommendations by Oso and Onen (2013). Each variable was evaluated in terms of its predictive power, over and above that offered by all the other independent variables. It enabled the researcher to know how much unique variance in academic performance of learners with PIs, each of the aspects of adjustments explained. Table 25 shows the regression analysis model summary output**.**

Table 25: *Regression Analysis: Adjustments and Academic Performance*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.751[a]	.564	.558	13.9309	1.672

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72195.633	4	18048.908	93.002	.000[b]
	Residual	55698.013	287	194.070		
	Total	127893.646	291			

Coefficient output		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.	95.0% CI for B Lower Bound	95.0% CI for B Upper Bound	Part Correlation.
1	(Constant)	19.913	10.450		1.906	.058	-.656	40.481	
	Physical facilities	20.569	7.710	.260	2.668	.008	5.394	35.743	.104
	Occupational therapy services	24.943	1.660	.586	15.028	.000	21.676	28.210	.585
	Physiotherapy services	15.488	14.624	.160	1.059	.290	-13.296	44.271	.041
	Counseling services	9.274	7.469	.155	1.242	.215	-5.427	23.975	.048

In the model summary the "R" column represents the value of *R*, the multiple correlation coefficients. It is a measure of the quality of the prediction of the academic performance of learners with physical impairments by adjustments. The value of .751 indicates a respectable level of prediction. However, the value of Adjusted R Square (.558) indicates how much of the variance in the academic performance was explained by adjustments. This means that the model explains 55.8% of the variance in academic performance. This is the proportion of variance in the academic performance that is explained by the four predictor variables of adjustments. It is the proportion of variation accounted for by the regression model above and beyond the mean model.

This implies that with poor provision and access to adjustments, there will be poor AP which further implies that there are barriers which make it difficult for learners with PI to attain their valued functioning and this is associated to poor academic performance.

From these results, it can be argued that the remaining 44.2% of the variance in the academic performance is explained by other variables which were not investigated in the study. However, to assess the statistical significance of the result it was necessary to look at the ANOVA results shown in Table 25.

The ANOVA was used to test the null hypothesis that multiple *R* in the population equals 0. In this case the model reached statistical significance [F (4, 287) =93.002, Adjusted R^2=.558, sig. <.001], implying that the model was highly significant and adequate enough to explain the variance in academic performance of learners with physical impairments in public primary special schools for learners with PI in Nyanza Region, Kenya. Table 35 shows summary of regression coefficients values.

Table 26: *Regression Coefficients of Adjustments on Academic Performance*

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% CI for B		
		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound	Part Corre-lation
1	(Constant)	19.913	10.450		1.906	.058	-.656	40.481	
	Physical facilities	20.569	7.710	.260	2.668	.008	5.394	35.743	.104
	Occupational therapy services	24.943	1.660	.586	15.028	.000	21.676	28.210	585
	Physiotherapy services	15.488	14.624	.160	1.059	.290	-13.296	44.271	.041
	Counseling services	9.274	7.469	.155	1.242	.215	-5.427	23.975	.048

Exploration of Beta values indicate that the individual aspects of adjustments vary in their level of influence on academic performance of learners with PI in public primary special schools. For instance, of these four variables, occupational therapy services make the largest unique contribution (beta=–.586). This suggests that when occupational therapy services are improved in public primary schools by one standard deviation, the pupils' academic performance would improve by .589 standard deviations and vice versa. Equally, improving in the adaptation of physical facilities and physiotherapy services each by one standard deviation, would results into improvement of learners' academic performance by .260 (beta=.260) and .160 (beta = .160) standard deviations, respectively. However, it is surprising that increase in the access to counselling services may result into the least improvement of academic performance of pupils with PI, as reflected by a beta value of .155 only.

The other potentially useful piece of information in this regression results is the part correlation coefficients, which gives an indication of the contribution of each of the aspect of adjustments to the total R squared. For instance, the results show occupational therapy services has a part correlation coefficient of .585, physical facilities of .104, physiotherapy services of .041 and counselling services of .048. Squaring these values indicates how much of the total variance in the learners' academic performance is uniquely explained by the variable and how much R squared would drop if it wasn't included in the model.

For example, occupational therapy services which has the largest contribution to the model uniquely explains 34.2% of the variance in pupils' academic performance, physical facilities uniquely explain 1.1% and physiotherapy services explains only 7.6% of the variance in the learners' academic performance. Equally, counselling services only accounted for a negligible amount (0.7%) of the variance in learners' academic performance. Its noteworthy that total *R S*quared value for the model (0.558 or 55.8% explained variance) was not equal to all the squared part correlation values added up because overlaps or shared variance were removed.

In addition to these findings, the regression equations were extracted from Table 46 to help predict the influence of adjustments on academic performance of pupils with PI

in public primary schools in Nyanza region. The study was guided by a general regression prediction model as follows:

$$\text{Learners' Academic Performance} = \beta 0+\beta_1 X_1+\beta_2 X_2 + \beta_3 X_3+ \beta_4 X_4$$

Where;
X_1=Physical facilities,
X_2=Occupational therapy services,
X_3=Physiotherapy services, and
X_4 = Counselling services.

Thus, the predicated optimum academic performance of learners with PI in public primary schools was represented by:

$Y=19.913$ units + $20.569\ X_1\ units$ + $24.943\ X_2\ units$ + $15.488\ X_3\ units$ + $9.274 X_4$ units

From the model, the coefficients indicate how much leaners' academic performance changes with a change of an aspect of adjustment when all other variables are held constant. For example, for each one-unit improvement in the provision of adapted physical facilities, there is a subsequent rise in the academic performance by a mean average mark of 20.569. Likewise, for each one unit increase in the occupational therapy services there is an ensuing rise in academic performance by 24.94 marks among the learners with PI in public primary special schools. Equally, when there is increase in physiotherapy services by one unit, there would be a rise in the learners' academic performance by a mean mark of 15.49. Surprisingly, it emerged that improvement in access to counselling services among the pupils with PI would only results into rise of academic performance by a mean mark of 9.27.

This may be due to the fact that primary school learners are generally too young to be significantly impacted by counselling services. All the same, in general, the model was adequate to predict the level of academic performance among the public primary special schools for learners with PI. The model was statistically significant F (4, 287)

=93.002, Adjusted R^2=.558, sig. <.05. This confirms that adjustments are significant predictors of academic performance of pupils with PI in public primary special schools for pupils with PI, hence lack of adequate adjustments contributes to poor academic performance of these learners.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the findings, conclusions of the study, and recommendations based on the study objectives and findings. Further research is also suggested based on the study findings. The study had sought to investigate adjustments that enhance academic performance of learners with PI in public primary special schools in Nyanza Region. The purpose of the study was to investigate the reasons for poor academic performance of pupils with PI in public primary special schools for learners with PI in Nyanza Region, Kenya by finding out the provision of adjustments and their relationship with academic performance of pupils with PI. It was projected that adjustments (physical facilities, counseling services, PT services, and OT services) enhance academic performance of learners with PI in public primary special schools in Nyanza Region. Both quantitative and qualitative methods were used to explore the relationship between the independent and dependent variables of the study.

5.1 Summary of the Findings

The major findings are summarized based on study objectives as follows:

5.1.1 Relationship between Adaptation of Physical Facilities and Academic Performance of learners with Physical Impairments

The findings of the research determined that there was poor adaptation of physical facilities for pupils with PI in public primary special schools for learners with PI in Nyanza Region, Kenya, as was reflected by average mean response of 2.59. It emerged that majority of learners with PI indicated that physical facilities are not well adapted to meet their needs. For instance, majority of pupils with PI indicated that they cannot move freely from lesson to lesson to learn due to obstacles in the learning environment, as was reflected by adaptation of physical facilities response rate of 2.60. Also, more than half of learners with PI indicated that they do not access the learning environment with ease as was reflected by a mean of 2.71.

On the same note, majority indicated that they do not use computers and audio-visual aids in learning as was reflected by a mean of 2.36. Also, majority of learners with PI

indicated that they do not use tape recorders even when they have writing difficulties as was reflected by a mean of 2.46. Equally, majority of pupils with PI indicated that they do not use assistive devices to learn as was reflected by a mean of 2.47. As far as distraction in class is concerned, majority of learners who took part in the survey indicated that when they are learning, they get distracted, and this was reflected by a mean of 2.80.

On the same note, most pupils with PI indicated that they do not sit comfortably in class when learning, as was reflected by a mean of 2.56 with a standard deviation of 1.41. Concerning adequacy of school infrastructure, majority of learners with PI indicated that school infrastructure is inadequate. Equally, regarding adequacy of instructional materials, majority of learners with PI who took part in the survey indicated that instructional materials are inadequate, this was reflected by a mean of 2.79. These imply that there is poor adaptation of physical facilities for pupils with PI.

Also, access to dormitories was poor as reflected by a mean of 2.68 with a standard deviation of 1.43; inadequacy of games equipment was reflected by a mean of 2.57 and a standard deviation of 1.44; access to open fields was poor as was indicated by a mean of 2.55 with a standard deviation of 1.45; while there was also poor access to toilet facilities reflected by a mean of 2.59 and a standard deviation of 1.49.

From qualitative findings, four themes emerged to explain the relationship between physical facilities and academic performance. These were; adaptation, availability, adequacy and accessibility. It was determined that adaptation, availability, adequacy and accessibility of physical facilities to learners with PI was poor.

On establishing the relationship between adaptation of physical facilities and academic performance of pupils with PI, the findings revealed that there was a statistically significant positive correlation between adaptation of physical facilities and academic performance of learners with PI (n= 292; r= .370; P< 0.001) with high level adaptation, of physical facilities and associated to improved academic performance and vice versa.

5.1.2 Relationship between Access to Counseling Services and Academic Performance of Learners with PI in Public Primary Special Schools

The findings of the study established that there was poor access to counseling services for learners with PI in public primary special schools. This was reflected by the discovery that lack of counseling services is associated to low academic performance of pupils with PI, which was reflected by average mean response of 2.27 with a standard deviation of 0.35. However, majority of pupils with PI indicated that counseling services were unavailable, inadequate and inaccessible. It emerged that majority of learners with PI do not go for counseling services individually due to lack of counselors in schools as was reflected by counseling services rate of 2.23 with a standard deviation of 1.38. Equally, majority of learners with PI indicated that they do not visit their teachers freely for counseling with a mean of 2.29 with a standard deviation of 1.34.

On the same note, majority of pupils with PI indicated that counseling services have not helped them to explore the world around them by figuring out what they want to do with their lives as was reflected by a mean average of 2.38 with a standard deviation of 1.35. Majority of learners with PI indicated that counselors have not helped them to overcome social challenges. This was reflected by a mean average of 2.44 with a standard deviation of 1.42. Most pupils who took part in the survey study indicated that counselors do not help them to improve their success in school as was reflected by a mean of 2.40 with a standard deviation of 1.32.

Also, majority of learners with PI indicated that counselors do not help them participate well in classroom activities with a mean average of 2.32 with a standard deviation of 1.26. It emerged that majority of pupils who took part in the survey alluded that counselors do not help them improve their academic performance. This was reflected by an average mean of 2.12 with a standard deviation of 1.28. On the same note, majority of learners with PI indicated that counselors help in preparing them to perform well in examinations, while only a few indicated that they were being helped to perform well in examinations. This was reflected by a mean average of 2.16 with a standard deviation of 1.29. Equally, majority of learners with PI indicated that they were not satisfied with the counseling services that they receive as reflected by

an average mean of 2.09 with a standard deviation of 1.24. These imply that there is poor access to counseling services by pupils with PI.

Similarly, majority of learners with PI indicated that; counselors do not help them mediate conflicts between them and their teachers with a mean of 2.24 with a standard deviation of 1.32; counselors do not listen to pupils' concerns about their emotional problems as reflected by a mean of 2.28 with a standard deviation of 1.23; counselors do not help organize peer counseling as reflected by a mean of 2.41 with a standard deviation of132 and also, counselors do not help learners with PI to apply interpersonal skills as was reflected by a mean of 2.01 with a standard deviation of 1.44. .

From the qualitative findings, four themes emerged to explain the access to counseling services. The themes included; accessibility, availability, adequacy of counseling services, and competency of a counselor as far as counseling services are concerned. It was established that availability, accessibility, adequacy and competency of counselors and counseling services were poor.

On establishing the relationship between access to counseling services and academic performance of pupils with PI, the findings revealed that there was a statistically significant positive correlation between access to counseling services and academic performance of learners with PI ($n= 292$; $r= .271$; P value= $0.001< 0.05$) with high level access to counseling services and associated to improved academic performance and vice versa.

5.1.3 Relationship between Access to Physiotherapy Services and Academic Performance of Learners with PI in Public Primary Special Schools

The results of the survey established that there is poor access to PT services for learners with PI in public primary special schools in Nyanza Region. This was reflected by a mean response of 2.73 with a standard deviation of 0.49 in the scale of 1 to 5. For instance, majority of pupils with PI who took part in the study indicated that they do not always access PT's help when they are in need, while fewer indicated that they always access PT's help when they are in need, which was reflected by an average mean of 2.71. Fewer pupils with PI indicated that they contact PTs on their

needs freely, while majority of learners with PI indicated that they do not contact PTs freely on their needs, as was reflected by an average mean of 2.72.

It emerged that majority of learners with PI indicated that PTs do not help them get the right equipment for their needs while fewer pupils indicated that PTs help them get the right equipment for their needs, which was reflected by a mean average of 2.75. Concerning PTs' help to improve physical well-being of pupils with PI, majority of learners indicated that PTs do not help them to improve their physical well-being, while a few pupils indicated that PTs help them to improve their physical well- being as was reflected by a mean average of 2.69. It also emerged that majority of learners with PI indicated that PTs do not help in checking their equipment to ensure that it continues to meet their changing needs as they develop and grow while only few pupils indicated that PTs help in checking their equipment to ensure that it continues to meet their changing needs as they develop and grow. This was reflected by a mean average of 2.63.

As far as assisting learners with PI to change their equipment when necessary is concerned, majority of pupils with PI affirmed that PTs do not assist them to change their equipment when necessary as opposed to fewer pupils with PI who were of the contrary opinion. This was reflected by a mean average of 2.68. On the same note, majority of learners with PI indicated that they are not satisfied with PT services that they receive, while few indicated that they were satisfied with PT services. This was reflected by a mean response of 2.63.

As far as improving academic performance is concerned, majority of learners with PI indicated that the available PT services do not help them much in improving their academic performance, while few indicated that PT services help improve their academic performance as was reflected by a mean average of 2.74. It also emerged that majority of pupils with PI indicated that they do not receive adequate PT services while less than a half of learners indicated that they receive adequate PT services, and this was reflected by a mean average of 2.71.

Also, PT does not help learners with PI to; achieve maximum function as was reflected by a mean of 2.73 with a standard deviation of 1.49; modify architectural barriers with a mean of 2.68 with a standard deviation of1.48; manage their balance with a mean of 2.66 with a standard deviation of 1.46; and do not advice on mobility within classrooms and school grounds as indicated by a mean of 2.67 with a standard deviation of 1.46.

From the qualitative findings, four themes emerged to explain the access to PT services. The themes included; accessibility, availability, adequacy of PT services and competency of PTs as far as PT services are concerned. It was established that availability, accessibility, adequacy and competency of PTs and PT services were poor.

On establishing the relationship between access to PT services and academic performance of learners with PI, the findings revealed that there was a statistically significant positive correlation between access to PT services and academic performance of pupils with PI (n= 292; r= .448; P< 0.001) with high level access to PT services and associated to improved academic performance and vice versa.

5.1.4 Relationship between Access to Occupational Therapy Services and Academic Performance of Learners with PI in Public Primary Special Schools.

The findings of the study revealed that there is poor access to OT services for learners with PI. It was established that OT services offered to pupils with PI in public primary special schools are generally inadequate. This was reflected by a mean response of 2.39 with a standard deviation of 0.49 in a scale of 1 to 5. For instance, majority of pupils with PI who took part in the survey indicated that they do not always consult OTs for help due to unavailability of OTs. This was reflected by a mean response of 2.44 with a standard deviation of 1.37, while only a few learners with PI were of the contrary opinion.

Majority of pupils with PI indicated that OTs do not reduce barriers for them to participate well in classrooms, which was reflected by a mean of 2.37. On the same note, majority of learners with PI who took part in the research indicated that they do not receive adequate assistive technology from OTs to improve their success while only a few of them indicated that they receive adequate assistive technology from

OTs to improve their success, and this was reflected by a mean of 2.64 with a standard deviation of 1.46. On the same token, more than half of learners with PI indicated that they are not satisfied with OT's planned activities to help them in their learning process, while only a few were of contrary opinion. This was reflected by a mean of 2.24 with a standard deviation of 1.32.

While only few pupils with PI indicated that, with the help of OT, they access the learning environment so as to improve their progress, majority indicated that, OTs do not help them to access the learning environment so as to improve their progress. This was reflected by a mean of 2.23 with a standard deviation of 1.29. Similarly, majority of learners with PI indicated that OTs have not helped them to develop self- advocacy and self-determination skills to improve their academic performance, while only a few of them indicated that OTs have helped them to develop self-advocacy and self-determination skills to improve their academic performance as was reflected by a mean of 2.40 with a standard deviation of 1.41.

As far as adapting the learning materials in the classroom is concerned, more than a half of learners with PI indicated that OTs do not help them in adapting learning materials in the classroom while only fewer pupils indicated that OTs help them in adapting learning materials in the classroom. This was reflected by a mean of 2.29 with a standard deviation of 1.42. On the same note, majority of pupils with PI indicated that the OTs do not help them learn with ease by adapting the working surface of the classroom, while only a few learners indicated that OTs help them learn with ease by adapting the learning surface of the classroom, and this was reflected by a mean of 2.42 with a standard deviation of 1.37.

Also, majority of pupils with PI who took part in the study indicated that they do not receive adequate OT services. However, few learners indicated that they receive adequate OTs' help/services. This was reflected by a mean of 2.47 with a standard deviation of 1.46. These imply that there is poor access to OT services for pupils with PI. Pupils with PI also indicated that: OTs do not provide appropriate accommodation designed to enhance learners' potential for learning as was reflected by a mean of 2.23; with a standard deviation of 1.29; OTs do no help pupils to acquire functional performance skills as reflected by a mean of 2.40 with a standard deviation of 1.41;

OTs have not helped learners with PI to participate in the learning environment with a mean of 2.29 with a standard deviation of 1.42; and that OTs do not help learners with PI to function independently with a mean of 2.42 and a standard deviation of 1.37.

From the qualitative findings, four themes emerged to explain the access to OT services. The themes included; accessibility, availability, adequacy of OT services and competency of an OT as far as OT services are concerned. It was established that availability, accessibility, adequacy and competency of OTs and OT services were poor.

On establishing the relationship between access to OT services and academic performance of pupils with PI, the study revealed that there was a statistically significant positive correlation between access to OT services and academic performance of learners with PI (n= 292; r= .604; P < 0.001) with high level access to OT services and associated to improved academic performance and vice versa.

5.1.5 Adjustments and Academic Performance of Learners with PI in Public Primary Special Schools for Learners with PI

From the research findings, in the Regression Analysis Model Summary output on adjustments, the value of .751 indicates a respectable level of prediction. However, the value of Adjusted R Square (.558) indicates how much of the variance in the academic performance was explained by adjustments. This means that the model explains 55.8 percentage of the variance in academic performance. This is the proportion of variance in the academic performance that is explained by the four predictor variables of adjustments. It is the proportion of variation accounted for by the regression model above and beyond the mean model.

The ANOVA was used to test the null hypothesis that multiple *R* in the population equals 0. In this case the model reached statistical significance [F (4, 287) =93.002, Adjusted R^2=.558, sig. <.001], implying that the model was highly significant and adequate enough to explain the variance in academic performance of pupils with physical impairments in public primary special schools for learners with PI in Nyanza Region, Kenya.

Exploration of Beta values indicate that the individual aspects of adjustments vary in their level of influence on academic performance of learners with PI in public primary special schools. For instance, of these four variables, occupational therapy services make the largest unique contribution (beta=–.586). This suggests that when occupational therapy services are improved in public primary schools by one standard deviation, the learners' academic performance would improve by .586 standard deviations and vice versa. Equally, improving in the adaptation of physical facilities and physiotherapy services each by one standard deviation, would results into improvement of pupils' academic performance by .260 (beta=.260) and .160 (beta = .160) standard deviations, respectively. However, it is surprising that increase in the access to counselling services may result into the least improvement of academic performance of learners with PI, as reflected by a beta value of .155 only.

The part correlation coefficients give an indication of the contribution of each of the aspect of adjustments to the total R squared. For instance, the results show occupational therapy services has a part correlation coefficient of .586, physical facilities of .104, physiotherapy services of .041 and counselling services of .048. Squaring these values indicates how much of the total variance in the pupils' academic performance is uniquely explained by the variable and how much R squared would drop if it wasn't included in the model. However, counselling services only accounted for a negligible amount (0.2%) of the variance in learners' academic performance. Its noteworthy that total *R S*quared value for the model (0.558) explained variance was not equal to all the squared part correlation values added up because overlaps or shared variance were removed.

The regression equations were used to help predict the influence of adjustments on academic performance of pupils with PI in public primary schools in Nyanza region. The study was guided by a general regression prediction model as follows:

$$\text{Learners' Academic Performance} = \beta 0+\beta_1 X_1+\beta_2 X_2 + \beta_3 X_3+ \beta_4 X_4$$

Where; X_1=Physical facilities, X_2=Occupational therapy services, X_3=Physiotherapy services, and X_4 = Counselling services.

Thus, the predicated optimum academic performance of learners with PI in public primary schools was represented by:

$Y=19.913 \text{ units} + 20.569\ X_1 units + 24.943\ X_2 units + 15.488\ X_3 units + 9.274 X_4$ units

From the model, the coefficients indicate how much learners' academic performance changes with a change of an aspect of adjustment when all other variables are held constant. For example, for each one-unit improvement in the provision of adapted physical facilities, there is a subsequent rise in the academic performance by a mean average mark of 20.569. Likewise, for each one unit increase in the occupational therapy services there is an ensuing rise in academic performance by 24.94 marks among the pupils with PI in public primary special schools.

Equally, when there is increase in physiotherapy services by one unit, there would be a rise in the learners' academic performance by a mean mark of 15.49. Surprisingly, it emerged that improvement in access to counselling services among the learners with PI would only results into rise of academic performance by a mean mark of 9.27. All the same, in general, the model was adequate to predict the level of academic performance among the public primary special schools for pupils with PI. The model was statistically significant F (4, 287) =93.002, Adjusted R^2=.558, p <.001. This confirms that adjustments enhance academic performance and are significant predictors of academic performance of learners with PI in public primary special schools for learners with PI, hence lack of adequate adjustments contributes to poor academic performance of pupils with PI.

5.2 Conclusion

5.2.1 Adaptation of physical facilities and academic performance

From the first research objective, it was determined that, there was poor adaptation of physical facilities for learners with PI. The qualitative data also revealed that there was poor adaptation of physical facilities which made it difficult for pupils with PI to achieve their valued functioning. On establishing the relationship between adaptation of physical facilities and academic performance of pupils with PI, the findings

determined that there was a statistically significant positive correlation between adaptation of physical facilities and academic performance of learners with PI (n= 292; r= .370; P < 0.001) with high level adaptation, of physical facilities and associated to improved academic performance and vice versa.

It was also established that increasing adaptation of physical facilities by one unit would improve academic performance by 20.569 marks. It was therefore concluded that, poor adaptation of physical facilities for pupils with PI in public primary special schools for learners with PI in Nyanza Region contributes to their poor academic performance. Hence, adaptation of physical facilities is an important aspect as far as academic performance of pupils with PI is concerned.

5.2.2 Access to Counseling Services and Academic Performance

From the second research objective, it was established that; there was poor access to counseling services for learners with PI. The qualitative data also revealed that there was poor access to counseling services which made it difficult for learners with PI to achieve their valued functioning. On establishing the relationship between access to counseling services and academic performance of pupils with PI, the findings determined that there was a statistically significant positive correlation between access to counseling services and academic performance of pupils with PI (n= 292; r= .271; P value= 0.001< 0.05) with high level access to counseling services and associated to improved academic performance and vice versa.

It was also established that when access to counseling services is increased by one-unit, academic performance would improve by 9.274 marks. It was therefore concluded that, poor access to counseling services for learners with PI in public primary special schools for pupils with PI in Nyanza Region contributes to their poor academic performance. Hence, access to counseling services is an important aspect as far as academic performance of learners with PI is concerned.

5.2.3 Access to PT services and academic performance

From the third study objective, it was established that; there was poor access to PT services for learners with PI. The qualitative data also revealed that there was poor access to PT services which made it difficult for learners with PI to achieve their

valued functioning. On establishing the relationship between access to PT services and academic performance of pupils with PI, the study determined that there was a statistically significant positive correlation between access to PT services and academic performance of learners with PI (n= 292; r= .448; P < 0.001) with high level access to PT services and associated to improved academic performance and vice versa.

It was also established that when access to PT services is increased by one-unit, academic performance would improve by 15.488 marks. It was therefore concluded that, poor access to PT services for pupils with PI in public primary special schools for learners with PI in Nyanza Region contributes to their poor academic performance. Hence, access to PT services is an important aspect as far as academic performance of learners with PI is concerned.

5.2.4 Access to OT services and academic performance

From the fourth research objective, it was established that; there was poor access to OT services for learners with PI. The qualitative data also established that there was poor access to OT services which made it difficult for pupils with PI to achieve their valued functioning. On establishing the relationship between access to OT services and academic performance of pupils with PI, the it was established that there was a statistically significant positive correlation between access to OT services and academic performance of learners with PI (n= 292; r= .604; P < 0.001) with high level access to OT services and associated to improved academic performance and vice versa.

It was also established that when access to OT services is increased by one-unit, academic performance would improve by 24.943 marks. It was therefore concluded that, poor access to OT services for learners with PI in public primary special schools for pupils with PI in Nyanza Region contributes to their poor academic performance. Hence, access to OT services is an important aspect as far as academic performance of learners with PI is concerned.

5.2.5 Adjustments and academic performance

The current findings concluded that adjustments enhanced academic performance of learners with PI, however, there was poor adjustments that enhance their academic performance in public primary special schools for learners with PI in Nyanza Region, that is, there is: poor adaptation of physical facilities; poor access to counseling services; poor access to PT services; and poor access to OT services. These make it difficult for pupils with PI to achieve their valued functioning, hence contributes to poor their academic performance. The study established that there is a statistically significant positive relationship between the four aspects of adjustments and academic performance of learners with PI.

The independent variable which was able to explain most of the variation in academic performance of learners with PI was the access to OT services while access to counseling services explained the least. The study also established that: for each one-unit improvement in the provision of adapted physical facilities, there is a subsequent rise in the academic performance by a mean average mark of 20.569; for each one unit increase in the OT services there is an ensuing rise in academic performance by 24.943 marks; when there is an increase in PT services by one unit, there would be a rise in the learners' academic performance by a mean mark of 15.488. Surprisingly, it emerged that improvement in access to counselling services among the pupils with PI would only results into rise of academic performance by a mean mark of 9.274; therefore, it was concluded that, adjustments enhance academic performance, and lack of adequate adjustments contribute to poor academic performance of learners with PI in public primary special schools for pupils with PI in Nyanza Region.

5.3 Recommendations

(i) Since the research established that there is poor adaptation of physical facilities in schools for learners with PI, and that there is a statistically significant positive relationship between adaptation of physical facilities and academic performance of pupils with PI, there is need for the government, stakeholders, and headteachers to ensure that there is appropriate adaptations of physical facilities in schools depending on the needs of the learners with PI. These include; infrastructure, instructional materials, assistive devices, specialized equipment, computers, audio visual aids and tape recorders among others, this will enable pupils with PI to achieve their valued functioning hence improved academic performance.

(ii) From the findings, there is poor access to counseling services for learners with PI, and there is statistically significant positive relationship between access to counseling services and academic performance of pupils with PI, in line with these, there is need for the government and stakeholders to improve access to counseling services in these schools by employing more counselors, and training more teachers in counseling.

(iii) In line with the findings that there is poor access to PT services, and that there is statistically positive relationship between PT services and academic performance of learners with PI, the government and stakeholders need to focus on strategies to improve access to PT services in these schools. This would improve learners with PIs' mobility, joint range of movements, fine motor skills and gross motor skills among others which are useful in learning and which help improve their valued functioning and quality of their lives hence enhance their academic performance.

(iv) In line with the study findings that there is poor access to OT services for learners with PI, and that there is statistically significant positive relationship between access to OT services and academic performance of pupils, there is need for government and stakeholders to employ more residential OTs in schools for learners with PI depending on the needs of pupils in the school. Also, OTs should improve OT services to pupils with PI by supporting teachers in class and through collaboration with teachers as well as giving short induction courses to teachers. This is also vital for attainment of learners' valued functioning and quality of life which would help promote their academic performance.

5.3.1 Suggestions for further research

The current research investigated adjustments that enhance academic performance of learners with PI in public primary special schools in Nyanza Region, Kenya. A number of issues could not be comprehensively covered because of some limitations. The following research is therefore recommended based on the study findings:

i) Due to time constraints, the research was limited to one Region since it was not possible to cover all the schools for learners with PI in the country. Further study on adjustments that enhance academic performance of pupils with PI should therefore be conducted in all public primary special schools for pupils with PI in Kenya in order to give the true picture of the country as far as adjustments that enhance academic performance of learners with PI is concerned.

ii) Since the study was conducted using minors in primary schools, further study could be conducted on adjustments that enhance academic performance of learners with PI in institutions of higher learning. This would provide varied views of more mature pupils as far as adjustments that enhance academic performance of pupils with PI is concerned.

iii) In accordance with the study findings that there is statistically significant relationship between adaptation of physical facilities, access to counseling services, access to PT services and access to OT services and academic performance of pupils with PI, and due to the fact that the study only investigated these 4 factors (adjustments), further research should be conducted to find out the relationship between other factors and academic performance of learners with PI. This would help ensure that all adjustments or other factors that enhance academic performance of pupils with PI are captured hence find more solutions in improving academic performance of learners with PI.

iv) Since the study used more of purposive sampling techniques, further study could be carried out on adjustments that enhance academic performance of learners with PI using more of probability sampling techniques such as simple random sampling technique to give every respondent equal chance to participate in the study, hence enhancing accuracy of representation, as well as ensuring that there is no bias.

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APPENDICES
APPENDIX 1: RESEARCH AUTHORIZATION FROM JOOUST

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

BOARD OF POSTGRADUATE STUDIES
Office of the Director

Tel. 057-2501804
Email: bps@jooust.ac.ke

P.O. BOX 210 - 40601
BONDO

Our Ref: E462/4186/2014A

Date: 15th July 2019

TO WHOM IT MAY CONCERN

RE: EUNICE ADHIAMBO NYANGOYA – E462/4186/2014A

The above person is a bona fide postgraduate student of Jaramogi Oginga Odinga University of Science and Technology in the School of Education pursuing a PhD in Special Needs Education. She has been authorized by the University to undertake research on the topic: ***"Influence of Physical Facilities and Support Services on Academic Achievement of Learners with Physical Impairments in Kenya".***

Any assistance accorded to her shall be appreciated.

Thank you.

JARAMOGI OGINGA ODINGA
DIRECTOR BOARD OF
POST GRADUATE STUDIES
DATE .....
P. O. BOX 210 - 40601, BONDO.
UNIVERSITY OF SCIENCE & TECHNOLOGY

for Prof. Dennis Ochuodho
DIRECTOR, BOARD OF POSTGRADUATE STUD

APPENDIX II: RESEARCH AUTHORIZATION FROM NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **557035**

Date of Issue: **05/September/2019**

RESEARCH LICENSE

This is to Certify that Ms.. eunice adhiambo of Kenya Methodist University, has been licensed to conduct research in Kisumu on the topic: INFLUENCE OF PHYSICAL FACILITIES AND SUPPORT SERVICES ON ACADEMIC ACHIEVEMENT OF LEARNERS WITH PHYSICAL IMPAIRMENTS IN KENYA for the period ending : 05/September/2020.

License No: **NACOSTI/P/19/332**

557035

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License any any rights thereunder are non-transferable
3. The Licensee shall inform the relevant County Governor and County Commissioner before commencement of the research
4. Excavation, filming and collection of specimens are subject to further necessary clearence from relevant Government Agencies
5. The License does not give authority to tranfer research materials
6. NACOSTI may monitor and evaluate the licensed research project
7. The Licensee shall submit one hard copy and upload a soft copy of their final report (thesis) within one of completion of the research
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice

National Commission for Science, Technology and Innovation
off Waiyaki Way, Upper Kabete,
P. O. Box 30623, 00100 Nairobi, KENYA
Land line: 020 4007000, 020 2241349, 020 3310571, 020 8001077
Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke

APPENDIX III: RESEARCH AUTHORIZATION FROM MINISTRY OF EDUCATION – COUNTY DIRECTOR'S OFFICE

REPUBLIC OF KENYA

MINISTRY OF EDUCATION
State Department of Early Learning & Basic Education

Telegrams:"schooling",Kisumu
Telephone: Kisumu 057 - 2024599
Email: countyeducation.kisumu@gmail.com

When replying please quote

COUNTY DIRECTOR OF EDUCATION
KISUMU COUNTY
PROVINCIAL HEADQUARTERS NYANZA
3RD FLOOR
P.O. BOX 575 – 40100
KISUMU

REF: CDE/KSM/GA/3/24/ IV/100

20th February, 2020

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION
EUNICE ADHIAMBO– NACOSTI/P/19/33

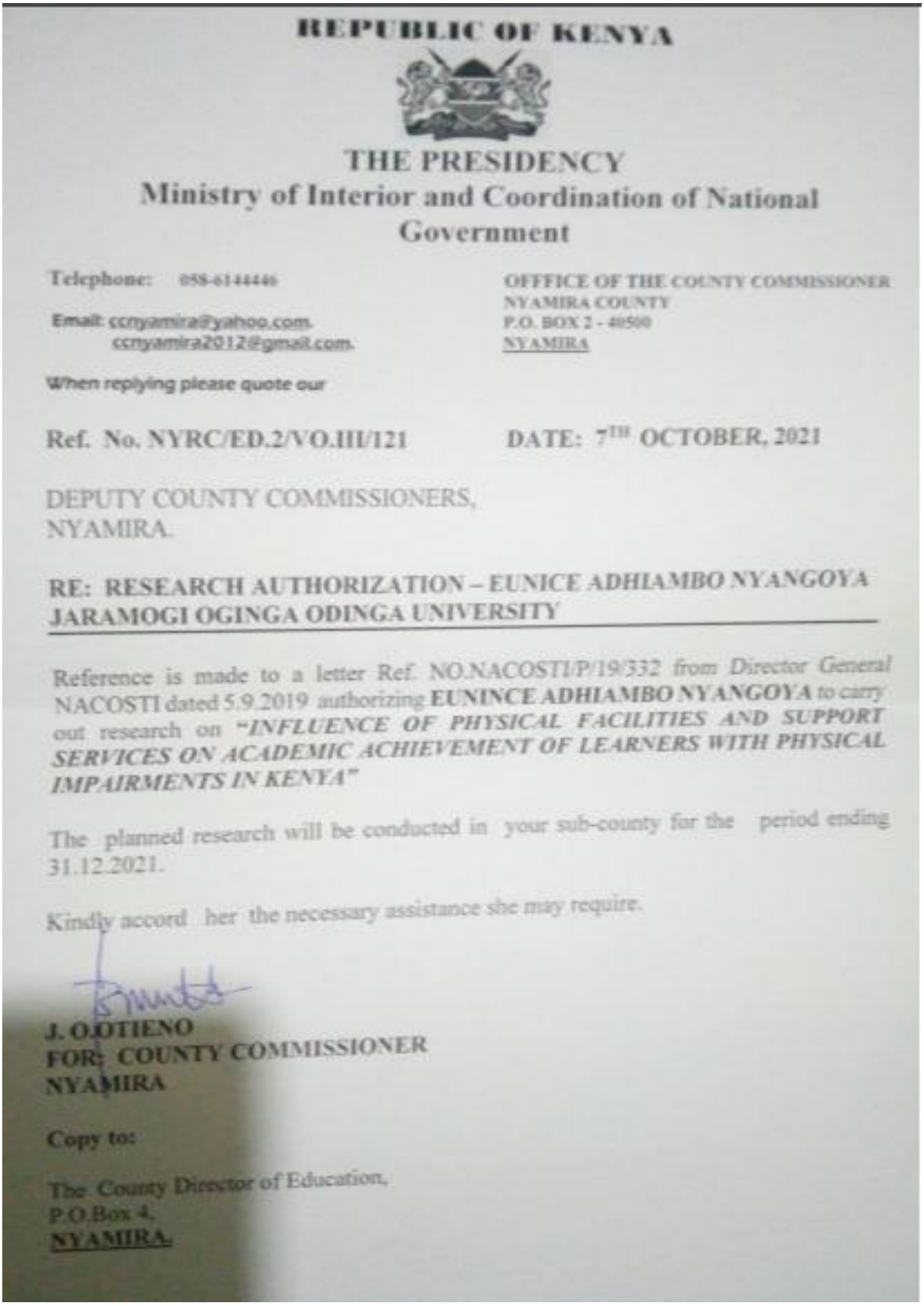
The above named is from Jaramogi Oginga Odinga University of |Science & Technology.

This is to certify that she has been granted authority to carry out research on ***"Influence of Physical Facilitators and Support Services on Academic Achievement of Learners with Physical Impairments in Kenya"*** for the period ending **5th September, 2020.**

Any assistance accorded to her to accomplish the assignment will be highly appreciated.

JAIRUS AMUTALA
For: COUNTY DIRECTOR OF EDUCATION
KISUMU COUNTY

APPENDIX IV: RESEARCH AUTHORIZATION FROM THE OFFICE OF COUNTY COMMISSIONER



REPUBLIC OF KENYA

THE PRESIDENCY
Ministry of Interior and Coordination of National Government

Telephone: 058-6144446

Email: ccnyamira@yahoo.com.
ccnyamira2012@gmail.com.

OFFFICE OF THE COUNTY COMMISSIONER
NYAMIRA COUNTY
P.O. BOX 2 - 40500
NYAMIRA

When replying please quote our

Ref. No. NYRC/ED.2/VO.III/121 DATE: 7TH OCTOBER, 2021

DEPUTY COUNTY COMMISSIONERS,
NYAMIRA.

RE: RESEARCH AUTHORIZATION – EUNICE ADHIAMBO NYANGOYA
JARAMOGI OGINGA ODINGA UNIVERSITY

Reference is made to a letter Ref. NO.NACOSTI/P/19/332 from Director General NACOSTI dated 5.9.2019 authorizing **EUNINCE ADHIAMBO NYANGOYA** to carry out research on ***"INFLUENCE OF PHYSICAL FACILITIES AND SUPPORT SERVICES ON ACADEMIC ACHIEVEMENT OF LEARNERS WITH PHYSICAL IMPAIRMENTS IN KENYA"***

The planned research will be conducted in your sub-county for the period ending 31.12.2021.

Kindly accord her the necessary assistance she may require.

J. O.OTIENO
FOR: COUNTY COMMISSIONER
NYAMIRA

Copy to:

The County Director of Education,
P.O.Box 4,
NYAMIRA.

APPENDIX V: RESEARCH AUTHORIZATION FROM MINISTRY OF EDUCATION – DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

REPUBLIC OF KENYA

MINISTRY OF EDUCATION

STATE DEPARTMENT of Early Learning and Basic Education

Telegram: "EDUCATION", Nyamira
Telephone: (058) 6144224
E-Mail. cdenyamiracounty@gmail.com
When replying please quote

COUNTY DIRECTOR OF EDUCATION
NYAMIRA COUNTY
P.O.BOX 745-40500
NYAMIRA

REF: NCEO/1/25/VOL.III/53

DATE: 7TH OCTOBER 2021

TO WHOM IT MAY CONCERN

RE: AUTHORITY TO CONDUCT RESEARCH BYEUNICE ADHIAMBO NYANGOYA

The above name person is a student at **JARAMOGI OGINGA ODINGA UNIVERSITY.** She has been given authority by the National Commission for Science, Technology and Innovation '***ON INFLUENCE OF PHYSICAL FACILITIES AND SUPPORT SERVICES ON ACADEMIC ACHIEVEMENT OF LEARNERS WITH PHYSICAL IMPAIRMENTS IN KENYA.***"

The planned research will be conducted in Nyamira County for the period ending 31.12.2021.

Kindly accord her necessary assistance she may require.

COUNTY DIRECTOR OF EDUCATION P.O Box 745-40500 NYAMIRA

Dimba Kennedy (Mr.)
FOR COUNTY DIRECTOR OF EDUCATION
NYAMIRA COUNTY

SGS

Appendix VI: Letter to Schools

LETTER OF PERMISSION

Dear Sir/Madam,

I am a PhD candidate at Jaramogi Oginga Odinga University of Science and Technology in the School of Education (Special Needs Education). I am conducting a research titled; "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. The study will be conducted in public primary special schools for learners with physical impairments in Nyanza Region. Kindly allow me to collect data from your school as one of the institutions.

I look forward to your support as I undertake the study.

Yours sincerely,

Eunice Adhiambo.

SCHOOL PERMISSION

I, on behalf of school management, confirm/decline your request.

Name of Administrator.....

Position.....

Signature/Stamp.....

Appendix VII: Informed Consent of Head Teachers

You are kindly requested to take part in this inquiry that seeks to obtain information on "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. This study is for academic purposes only and it will be conducted in public primary special schools for learners with physical impairments in Nyanza Region only. If you accept to take part in this study, an interview of about 45 minutes will be conducted. All the information you will provide will be treated with utmost confidentiality. Participation in this research is voluntary. You are free to take part in this research and you are also free to withdraw participation at will and any time without having to explain why.

I hereby accept/not accept to take part (tick appropriately) in the intended study.

Signature of participant..... Date.....

Appendix VIII: Informed Consent of Teachers

You are kindly requested to take part in this study that seeks to obtain information on "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. This investigation is for academic purposes only and it will be conducted in public primary special schools for learners with physical impairments in Nyanza Region only. If you accept to take part in this study, an interview of about 45 minutes will be conducted. All the information you will provide will be treated with utmost confidentiality. Participation in this research is voluntary. You are free to take part in this research and you are also free to withdraw participation at will and any time without having to explain why.

I hereby accept/not accept to take part (tick appropriately) in the intended study.

Signature of participant..... Date.....

Appendix IX: Informed Consent of Counselors

You are kindly requested to take part in this study that seeks to obtain information on "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. This research is for academic purposes only and it will be conducted in public primary special schools for learners with physical impairments in Nyanza Region only. If you accept to take part in this study, an interview of about 45 minutes will be conducted. All the information you will provide will be treated with utmost confidentiality. Participation in this research is voluntary. You are free to take part in this study and you are also free to withdraw participation at will and any time without having to explain why.

I hereby accept/not accept to take part (tick appropriately) in the intended study.

Signature of participant..... Date.....

Appendix X: Informed Consent of Physiotherapists

You are kindly requested to take part in this study that seeks to obtain information on "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. This inquiry is for academic purposes only and it will be conducted in public primary special schools for learners with physical impairments in Nyanza Region only. If you accept to take part in this study, an interview of about 45 minutes will be conducted. All the information you will provide will be treated with utmost confidentiality. Participation in this research is voluntary. You are free to take part in this inquiry and you are also free to withdraw participation at will and any time without having to explain why.

I hereby accept/not accept to take part (tick appropriately) in the intended study.

Signature of participant..... Date.....

Appendix XI: Informed Consent of Occupational Therapists

You are kindly requested to take part in this study that seeks to obtain information on "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. This study is for academic purposes only and it will be conducted in public primary special schools for learners with physical impairments in Nyanza Region only. If you accept to take part in this study, an interview of about 45 minutes will be conducted. All the information you will provide will be treated with utmost confidentiality. Participation in this research is voluntary. You are free to take part in this inquiry and you are also free to withdraw participation at will and any time without having to explain why.

I hereby accept/not accept to take part (tick appropriately) in the intended study.

Signature of participant..... Date.....

Appendix XII: Parental Consent

Purpose: This consent form is a request for your child's participation in a research study by Eunice Adhiambo Nyangoya, a doctoral candidate at Jaramogi Oginga Odinga University of Science and Technology (JOOUST). This research is being conducted under the supervision of Dr. Wachianga Washington and Dr. Charles Omoke Makori. The purpose of the research is to investigate the "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*.

Voluntary Participation: Participation in this study is voluntary. Moreover, if your child does participate, he/she may discontinue participation at any time and for any reason without negative consequences by letting the researcher know using the contact information below: 0711888655.

Explanation of Procedures: Your child will be asked to complete a survey regarding adjustments in school and their academic performance. The survey will take approximately 25 minutes to complete.

Confidentiality: You will be asked to provide a signature at the bottom of the next page signifying that you understand the information contained in this consent form. The researcher will keep this document separate from your child's completed survey such that there will be no way to connect survey responses with individual respondents. Moreover, minimal demographic and identifying information will be collected in order to help preserve privacy.

Completed surveys and the signed consent forms will be kept in a locked filing cabinet in the researcher's office. After collection, survey data will be entered into a password-protected Excel file and stored on a private password-protected computer to which only the researcher has access.

Discomfort and Risks: Risks from participation on this study are minimal. One potential risk is an accidental breach of confidentiality. As outlined above, various steps will be taken to maintain confidentiality.

Expected Benefits: There are no anticipated benefits from participating in this research other than contributing to the advancement of scientific knowledge.

Use of Research Data: The information from this research will be used only for scientific and educational purposes. It may be presented at scientific meetings and/or published in professional journals or books, or used for any other purposes which

JOOUST considers proper in the interest of education, knowledge, or research. As noted earlier, data will be analyzed and presented in the aggregate such that all individual responses will be kept confidential.

Approval of Research: This research project has been approved by the Board of Post Graduate Studies at JOOUST.

Liability/Limitation: JOOUST, it's agents, trustees, administrators, faculty, and staff, are released from all claims, damages, or suit, not limited to those based upon or related to any adverse effects upon which may arise during or develop in the future as a result of participation in this research. Please understand that this release of liability is binding upon you, your heirs, executors, administrators, personal representatives, and anyone else who might make a claim through or under you.

Consent to Participate: By signing below, I consent for my child to voluntarily participate on this inquiry. I acknowledge that:

1. I have read and understand the above description of the study.
2. I understand that if my child participates, I may withdraw him/her at any time without penalty.

Should you have any questions/concerns about your child's rights as a research participant, please contact JOOUST Institutional Review Board at Tel. 057-2501804; Email: bps@jooust.ac.ke

Eunice Adhiambo Nyangoya, Doctoral Candidate, eunyangoya@gmail.com

Child's name:_____

Check one:

_____ I do give consent for my child to participate in the study outlined above

_____ I do NOT give consent for my child to participate in the study outlined above

Parent/Guardian's name:_____

Parent/Guardian's signature: _____

Appendix XIII: Informed Assent of Learners with Physical Impairments

My name is Eunice Adhiambo Nyangoya, a PhD candidate at JOOUST. I am inviting you to participate in a research study about "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. Your parent/s know we are talking with you about the study. The form will tell you about the research to help you decide whether or not you want to take part in it.

What am I being asked to do?

If you decide to be in the study, I will ask you to fill the questionnaire for about 25 minutes on the above topic.

What are the benefits to me if I take part in the study?

If you take part in this investigation, it is hoped that your academic performance will improve.

Can anything bad happen if I am in the study?

I do not expect anything bad happening to you but some fatigue, boredom, anxiety or inconveniences among others. However, if you get tired, let me know. We will take a short break. Let me know of any other thing that may make you uncomfortable.

Who will know that I am in the study?

If you decide to be in the study, I will not tell anyone else how you respond or act as part of the study. Even if your parents or teachers ask, I will not tell them about what you say or do in the inquiry.

Do I have to be in the study?

No, you don't. The choice is yours. No one will get angry or upset if you don't want to do this. And you can change your mind anytime if you decide you don't want to be in the study anymore.

What if I have questions?

If you have questions about the study, you can ask me now or anytime during the study. You can also call me at 0711888655 or email me at eunyangoya@gmail.com. If you have any questions

about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the JOOUST Institutional Review Board at Tel. 057-2501804; Email: bps@jooust.ac.ke

I hereby accept/not accept to take part (tick appropriately) in the intended study.

Signature of participant.....Date.....

Appendix XIV: Adjustments Questionnaire for Learners with Physical Impairments

Dear Respondent,

My name is Eunice Adhiambo Nyangoya, a PhD candidate at Jaramogi Oginga Odinga University of Science & Technology. I'm currently carrying out a research on "*Adjustments that Enhance Academic Performance of Learners with Physical Impairments in Public Primary Special Schools in Nyanza Region, Kenya"*. The study is purely an academic exercise. The purpose of this questionnaire is to determine influence of use of physical facilities and support services. You have been randomly selected to participate in this study. I will be grateful if you fill the questionnaire objectively. There are no correct or incorrect responses to these statements. The information provided will be treated with confidentiality. Do not write your name or any identity in the questionnaire.

Instructions

Please, give honest response by putting a tick (√) to each of the correct items in this questionnaire.

PART A: DEMOGRAPHIC DATA

1. Please tick your gender

Gender	**Tick**
Male	
Female	

PART B: ADAPTATION OF PHYSICAL FACILITIES

Key: SA-Strongly Agree (5), A-Agree (4), N-Neutral (3), D-Disagree (2), SD-Strongly Disagree (1).

No.	**Statement of Opinion**	**SA**	**A**	**N**	**D**	**SD**
1.	I can move freely from lesson to lesson to learn since there are no obstacles in the classrooms.					
2.	I access the learning environment with ease to learn since there are adequate ramps.					
3.	I use computers and audio-visual aids in learning.					
4.	I use tape recorder when I have writing difficulties.					

5.	I use adequate assistive devices to learn.					
6.	When I'm learning, I don't easily get distracted in class.					
7.	I sit comfortably in class when learning.					
8.	School infrastructure is adequate for me to learn.					
9.	Instructional materials are adequate for me to learn.					
10.	I access the dormitories with ease.					
11.	I use adequate games equipment					
12.	I use open fields comfortably					
13.	I access toilets with ease					

PART C: ACCESS TO COUNSELING SERVICES

Key: SA-Strongly Agree (5), A-Agree (4), N-Neutral (3), D-Disagree (2), SD-Strongly Disagree (1).

No.	Statement of Opinion	SA	A	N	D	SD
1.	I've always gone for counseling individually.					
2.	I usually visit my teacher freely for counseling.					
3.	Through counseling, I've learnt to explore the world around me by figuring out what I want to do in my life.					
4.	Through the help of a counselor, I'm able to overcome social challenges.					
5.	A counselor helps me to improve my success in school.					
6.	A counselor helps me to participate well in classroom activities.					
7.	A counselor helps me to improve my academic performance.					
8.	A counselor helps in preparing me to perform well in exams.					
9.	I'm satisfied with the counseling services that I receive.					
10.	A counselor helps mediate conflicts between my teachers and I					
11.	A counselor listens to my concerns about my emotional problems					
12.	A counselor helps organize peer counseling programmes.					
13.	A counselor helps me apply interpersonal skills.					

PART D: ACCESS TO PHYSIOTHERAPY SERVICES

Key: SA-Strongly Agree (5), A-Agree (4), N-Neutral (3), D-Disagree (2), SD-Strongly Disagree (1).

No.	Statement of Opinion	SA	A	N	D	SD
1.	I always access physiotherapist's help when I'm in need.					
2.	I contact Physiotherapist on my needs freely.					
3.	The physiotherapist always helps me get the right equipment for my needs.					
4.	Physiotherapist's helps me to improve my physical well-being.					
5.	Physiotherapist helps checks my equipment to ensure that it continues to meet my changing needs as I develop and grow.					
6.	The physiotherapist always assists me to change my equipment when necessary.					
7.	I'm satisfied with physiotherapist's help that I receive.					
8.	Physiotherapist's services help me improve my academic performance.					
9.	I receive adequate physiotherapy services.					
10.	Physiotherapist helps me to achieve maximum function.					
11.	Physiotherapist helps modify architectural barriers.					
12.	Physiotherapist helps me manage balance					
13.	Physiotherapist advises me on mobility within classroom and school grounds.					

PART E: ACCESS TO OCCUPATIONAL THERAPY SERVICES

Key: SA-Strongly Agree (5), A-Agree (4), N-Neutral (3), D-Disagree (2), SD-Strongly Disagree (1).

No.	Statement of Opinion	SA	A	N	D	SD
1.	I always consult occupational therapist for help.					
2.	With the help of occupational therapist in reducing barriers, I participate well within the school environment.					
3.	I receive adequate assistive technology to improve my success.					
4.	I'm satisfied with OT's planned activities to help me in my learning process.					
5.	With the help of OT, I do access the learning environment so as to improve my progress.					
6.	Through OT's help, I have developed self-advocacy and self-determination skills to improve my academic performance.					

7.	Occupational therapist always helps me learn by adapting learning materials in the classroom.					
8.	Occupational therapist helps me learn with ease by adapting the working surface of the classroom.					
9.	I receive adequate occupational therapist's help.					
10.	Occupational therapist helps provide appropriate accommodations designed to enhance my potential for learning.					
11.	Occupational helps me acquire functional performance skills needed to participate and benefit from educational environment.					
12.	Occupational therapist helps me to actively participate in the learning environment					
13.	Occupational therapists help me to function independently.					

Thank you for responding.

Appendix XV: Academic Performance Questionnaire for Learners with PI

The aim of this questionnaire is to determine your academic performance for the past three terms.

Instructions

Please, give honest response to each of the items in this questionnaire. Please be as honest as possible. Don't give an answer just because it is the right thing to say but because it is the truth.

Please write your mean score marks in the spaces provided accordingly.

Year	Term	Mean Score Marks Out of 500
2019	2	
2019	3	
2020	1	

Thank you for responding.

Appendix XVI: Interview Guide for Head Teachers

1.How are physical facilities adapted to be accessed by learners with PI in your school? (Probe)

2. How do physical facilities promote academic performance of learners with PI in your school? (Probe)

3. In what ways can physical facilities be improved to promote academic performance of learners with Pl? (Probe)

4. How do learners with PI in your school access counseling services? (Probe)

5. What can you say about the adequacy of counseling services for learners with PI in your school? (Probe)

6. How do counseling services influence the academic performance of learners with PI? (Probe)

7. How do learners with PI in your school access physiotherapy services? (Probe)

8. What can you say about the adequacy of PT services for learners with PI in your school? (Probe)

9. Explain how PT services contribute to academic performance of learners with PI. (Probe)

10. How do learners with PI in your school access OT services? (Probe)

11. What can you say about the adequacy of OT services for learners with PI in your school? (Probe)

12. How do OT services in your school contribute to academic performance of learners with PI? (Probe)

Thank you for responding.

Appendix XVII: Focus Group Discussions for Teachers

1. School.....

2. Males.....Females…….....Total.....

3.How are physical facilities adapted to be accessed by learners with PI in your class? (Probe)

4. How do physical facilities promote academic performance of learners with PI in your class? (Probe)

5. In what ways can physical facilities be improved to promote academic performance of learners with Pl in your class? (Probe)

6. How do learners with PI in your class access counseling services? (Probe)

7. What can you say about the adequacy of counseling services for learners with PI in your class? (Probe)

8. How do counseling services contribute to the academic achievement of learners with PI in your class? (Probe)

9. How do learners with PI in your class access physiotherapy services? (Probe)

10. What can you say about the adequacy of PT services for learners with PI in your class? (Probe)

11. Explain how PT services contribute to academic performance of learners with PI in your class. (Probe)

12. How do learners with PI in your class access OT services? (Probe)

13. What can you say about the adequacy of OT services for learners with PI in your school? (Probe)

14. How do OT services contribute to academic performance of learners with PI in your class? (Probe)

15. What aspects of adjustment is/are more adequate?

16. Is there anything else you would like to say about adjustments that enhance academic performance of learners with PI?

Thank you for responding.

Appendix XVIII: Interview Guide for School Counselors

1. How long have you worked as a counselor? (Probe)
2. What does your counseling services to learners with PI focus on? (Probe)
3. What can you say about your work load when giving counseling services to learners with PI? (Probe)
4. How do learners with PI in this school access counseling services? (Probe)
5. How do counseling services provided to learners with PI contribute to their academic performance? (Probe)
6. Suggest ways to improve counseling services for learners with PI so as to improve their academic performance.
7. What can you say about the accessibility of physical facilities for learners with PI in this school? (Probe)
8. What can you say about the accessibility of PT services for learners with PI in this school? (Probe)
9. What can you say about the accessibility of OT services for learners with PI in this school? (Probe)

Thank you for responding.

Appendix XIX: Interview Guide for Physiotherapist

1. How long have you worked as a physiotherapist? (Probe)
2. What does your physiotherapy services to learners with PI focus on? (Probe)
3. What can you say about your work load when giving physiotherapy services to learners with PI? (Probe)
4. How do learners with PI in this school access PT services? (Probe)
5. How do physiotherapy services provided to learners with PI contribute to their academic performance? (Probe)
6. Suggest ways to improve physiotherapy services for learners with PI so as to promote their academic performance.
7. What can you say about the adaptation of physical facilities for learners with PI in this school? (Probe)
8. What can you say about the accessibility of counseling services for learners with PI in this school? (Probe)
9. What can you say about the accessibility of OT services for learners with PI in this school? (Probe)

Thank you for responding

Appendix XX: Interview Guide for Occupational Therapist

1. How long have you worked as an occupational therapist? (Probe)
2. What does your occupational therapy services to learners with PI focus on? (Probe)
3. What can you say about your work load when giving occupational therapy services to learners with PI? (Probe)
4. How do learners with PI in this school access OT services? (Probe)
5. How do occupational therapy services provided to learners with PI contribute to their academic performance? (Probe)
6. Suggest ways to improve occupational therapy services for learners with PI so as to promote their academic performance.
7. What can you say about the adaptation of physical facilities for learners with PI in this school? (Probe)
8. What can you say about the accessibility of PT services for learners with PI in this school? (Probe)
9. What can you say about the accessibility of counseling services for learners with PI in this school? (Probe)

Thank you for responding.

Appendix XXI: Observation Checklist

No.	Observation Criteria	Comments
1.	Adaptation of Classrooms (Access)	
2.	Availability of Ramps in buildings (Access)	
3.	Availability of Computers and Audio-Visual Aids (Access)	
4.	Access to Tape Recorders (Access)	
5.	Access to Assistive Devices (Mobility Aids)	
6.	Classroom Display (Access/ Distraction)	
7.	Adaptation of Desks, Benches, Chairs and Tables (Access)	
8.	Adaptation of Infrastructure (Access)	
9.	Adaptation of Instructional Materials (Access)	
10.	Access to Dormitories (Access)	
11.	Adapted Games Equipment (Access)	
12.	Adapted Open Fields (Access)	
13.	Adaptation of Toilets (Access)	
14.	Availability and Adaptation of Counseling Rooms	
15.	Availability and Adaptation of PT Rooms	
16.	Availability and Adaptation of OT Rooms	

Appendix XXII: Prevalence of Disabilities by Background Characteristics

Background Characteristics	Type of Disability (Impairments)									
	None	Hearing	Speech	Visual	Mental	Physical	Self-Care	Other	Total	Total Disabled
Residence										
Rural	95.5	0.6	0.2	1.2	0.3	1.6	0.4	0.2	100.0	4.5
Urban	95.4	0.3	0.2	1.9	0.3	1.3	0.4	0.3	100.0	4.6
Province										
Nairobi	94.9	0.3	0.1	2.7	0.3	1.1	0.3	0.2	100.0	5.1
Central	94.8	0.5	0.1	1.3	0.5	2.2	0.4	0.2	100.0	5.2
Coast	94.8	0.8	0.3	1.8	0.3	1.4	0.4	0.2	100.0	5.2
Eastern	95.0	0.5	0.2	1.5	0.3	1.6	0.5	0.3	100.0	5.0
N/Eastern	97.4	0.4	0.1	0.3	0.1	1.2	0.5	0.0	100.0	2.6
Nyanza	93.2	0.8	0.3	1.9	0.2	2.5	0.6	0.4	100.0	6.8
R/Valley	96.8	0.4	0.1	0.7	0.2	1.1	0.4	0.3	100.0	3,2
Western	96.7	0.7	0.2	0.8	0.3	1.2	0.2	0.1	100.0	3.3
Sex										
Male	95.5	0.6	0.2	1.2	0.3	1.6	0.4	0.2	100.0	4.5
Female	95.4	0.5	0.2	1.5	0.2	1.6	0.4	0.3	100.0	4.6
Age										
0-14	97.6	0.5	0.2	0.3	0.1	0.6	0.3	0.2	100.0	
15-24	96.4	0.4	0.2	0.1	0.2	1.1	0.3	0.3	100.0	
25-34	96.0	0.4	0.1	0.1	0.5	1.3	0.3	0.3	100.0	
35-54	93.5	0.4	0.1	2.8	0.4	2.3	0.3	0.2	100.0	
55+	85.3	1.1	0.2	5.1	0.6	6.2	1.1	0.4	100.0	
Don’t know	72.5	2.3	0.3	7.4	0.9	11.0	5.4	0.1	100.0	

Source: KNSPED (2007).

Appendix XXIII: Nyanza Region KCPE Performance Analysis for Top 10 Public Primary Schools.

SCHOOL	YEAR (MSS)				
	2016	**2017**	**2018**	**2019**	**2020**
A	375.26	376.56	373.11	365.30	377.45
B	375.26	368.77	364.62	351.72	374.43
C	363.64	371.02	344.63	370.29	
D	355.18	378.67	370.38	355.65	355.09
E	344.63	352.58	360.71	345.60	345.31
F	341.24	348.94	355.86	345.60	344.13
G	336.97	356.69	363.57	360.09	349.31
H	331.98	348.58	349.51	353.69	334.66
I	329.78	337.08	335.49	342.71	330.73
J	327.61	341.99	330.61	334.69	332.44
K					330.62

Source: Nyanza Region Education Offices (2020).

Appendix XXIV: Nyanza Region KCPE Performance Analysis for Bottom 10 Public Schools.

SCHOOLS	YEAR (MSS)				
	2016	**2017**	**2018**	**2019**	**2020**
1	181.65	189.75	179.90	178.85	152.66
2	199.18	229.12	233.78	203.01	154.74
3	201.10	177.67	167.83	147.68	157.21
4	188.01	201.33	208.10	179.54	161.54
5	189.74	200.01	178.47	207.56	172.30
6	167.05	187.02	171.14	216.75	173.32
7	176.28	188.11	247.00	170.06	164.26
8	198.07	202.26	212.47	176.88	168.50
9	177.16	198.09	192.17	182.42	174.36
10	206.03	198.81	195.55	210.06	162.51

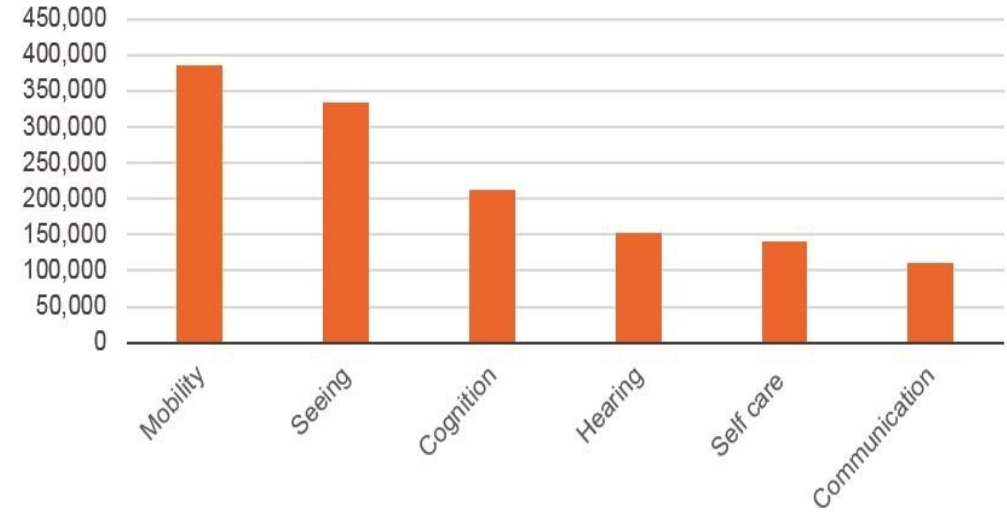
Source: Kisumu, Siaya, Homa-Bay, Migori, Nyamira, & Kisii County Offices (2020).

Appendix XXV: Mean Average Scores for Learners' with PI in Termly Tests (Academic Performance)

Learners	Marks	Learners	Marks	Learners	Marks	Learners	Marks	Learners	Marks
1.	162.5	26.	169.4	**51.**	194.4	**76.**	169.4	**101.**	197.2
2.	186.1	27.	191.7	**52.**	191.7	**77.**	197.2	**102.**	213.9
3.	166.7	28.	197.2	**53.**	208.3	**78.**	216.7	**103.**	183.3
4.	183.3	29.	158.3	**54.**	214.9	**79.**	183.3	**104.**	183.3
5.	216.7	30.	183.3	**55.**	230.6	**80.**	175.0	**105.**	208.3
6.	202.8	31.	172.2	**56.**	208.3	**81.**	205.6	**106.**	163.9
7.	180.6	32.	191.7	**57.**	194.4	**82.**	163.9	**107.**	205.6
8.	194.4	33.	213.9	58.	202.8	83.	200.0	108.	219.4
9.	202.8	34.	244.4	**59.**	172.2	**84.**	211.1	**109.**	169.4
10.	213.9	35.	183.3	**60.**	163.9	**85.**	208.3	**110.**	141.7
11.	213.9	36.	183.3	**61.**	152.8	**86.**	163.9	**111.**	163.9
12.	205.6	37.	175.0	**62.**	227.8	**87.**	213.9	**112.**	233.3
13.	194.4	38.	222.2	**63.**	207.3	**88.**	177.8	**113.**	219.4
14.	194.4	39.	213.9	**64.**	186.1	**89.**	172.2	**114.**	166.7
15.	197.2	40.	177.8	**65.**	208.3	**90.**	213.9	**115.**	200.0
16.	222.2	41.	180.6	**66.**	155.6	**91.**	175.0	**116.**	236.1
17.	188.9	42.	155.6	**67.**	191.7	**92.**	205.6	**117.**	177.8
18.	200.0	43.	172.2	**68.**	183.3	**93.**	166.7	**118.**	163.9
19.	211.1	44.	175.0	**69.**	180.6	**94.**	216.7	**119.**	163.9
20.	205.6	45.	177.8	**70.**	197.2	**95.**	175.0	**120.**	200.0
21.	191.7	46.	213.9	**71.**	230.6	**96.**	175.0	**121.**	191.7
22.	208.3	47.	163.9	**72.**	211.1	**97.**	211.1	**122.**	175.0
23.	222.2	**48.**	152.8	**73.**	211.1	**98.**	202.8	**123.**	172.2
24.	236.1	49.	186.1	**74.**	177.8	**99.**	197.2	**124.**	172.2
25.	166.7	50.	191.7	**75.**	180.6	**100.**	188.9	**125.**	177.8
126.	162.5	154.	169.4	**183.**	194.4	**212.**	169.4	**240.**	197.2
127.	186.1	155.	191.7	**184.**	191.7	**213.**	197.2	**241.**	213.9
128.	166.7	156.	197.2	**185.**	208.3	**214.**	216.7	**242.**	183.3
129.	183.3	**157.**	158.3	**186.**	214.9	**215.**	183.3	**243.**	183.3
130.	216.7	158.	183.3	**187.**	230.6	**216.**	175.0	**244.**	208.3
131.	202.8	159.	172.2	**188.**	208.3	**217.**	205.6	**245.**	163.9
132.	177.8	**160.**	194.4	**189.**	175.0	**218.**	186.1	**246.**	180.6
133.	166.7	**161.**	219.4	**190.**	191.7	**219.**	180.6	247.	
134.	194.4	162.	213.9	**191.**	186.1	**220.**	172.2	**248.**	166.7
135.	197.2	163.	177.8	**192.**	208.3	**221.**	213.9	**249.**	200.0
136.	222.2	164.	180.6	**193.**	155.6	**222.**	175.0	**250.**	236.1
137.	188.9	165.	155.6	**194.**	191.7	**223.**	205.6	**251.**	177.8
138.	200.0	166.	172.2	**195.**	183.3	**224.**	166.7	**252..**	163.9
139.	211.1	167.	175.0	**196.**	180.6	**225.**	216.7	**253.**	163.9
140.	205.6	168.	177.8	**197.**	197.2	**226.**	175.0	**254.**	200.0
141.	180.6	169.	191.7	**198.**	194.4	**227.**	163.9	**255.**	205.6
142.	194.4	170.	213.9	199.	202.8	228.	200.0	256.	219.4
143.	202.8	171.	244.4	**200.**	172.2	**229.**	211.1	**257.**	169.4
144.	213.9	172.	183.3	**201.**	163.9	**230.**	208.3	**258.**	141.7
145.	213.9	173.	183.3	**202.**	152.8	**231.**	163.9	**259.**	163.9
146.	205.6	174.	175.0	**203.**	227.8	**232.**	213.9	**260..**	233.3
147.	194.4	175.	222.2	**204.**	207.3	**233.**	177.8	**261.**	219.4
148.	191.7	176.	213.9	**205.**	230.6	**234.**	175.0	**262.**	191.7
149.	208.3	177.	163.9	**206.**	211.1	**234.**	211.1	**263.**	175.0
151.	222.2	178.	152.8	**207.**	211.1	**235.**	202.8	**264.**	172.2
150.	236.1	179.	186.1	**208.**	177.8	**236.**	197.2	**265.**	172.2
152.	191.7	180.	213.9	**209.**	230.6	**237.**	175.0	**266.**	191.7
153.	208.3	181.	163.9	**210.**	211.1	**238.**	211.1	**267.**	175.0

268.	222.2	182.	152.8	**211.**	211.1	**239..**	202.8	**288.**	172.2
269.	236.1	274.	186.1	**279.**	177.8	**284.**	197.2	**289.**	172.2
270.	166.7	275.	191.7	**280.**	180.6	**285.**	188.9	**290.**	177.8
271.	177.8	**276.**	194.4	**281.**	175.0	**286.**	186.1	**291.**	180.6
272.	166.7	**277.**	219.4	**282.**	191.7	**287.**	180.6	292.	180.6
273.	177.8	**278.**	194.4	**283.**	175.0				

Appendix XXVI: Number of Kenyan People with Disabilities by Domain



Source: Kenya Population Housing Census (2019).