# FACTORS INFLUENCING IMPLEMENTATION OF ORIENTATION AND MOBILITY PROGRAMME FOR LEARNERS WHO ARE BLIND IN SELECTED SPECIAL PRIMARY SCHOOLS FOR VISUAL IMPAIRMENT IN KENYA

**BY**

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## DECLARATION

**Declaration by candidate:**

This thesis is my original work and has not been presented in either part or full for examination for degree in this or any other University.

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**Declaration by the supervisors:**

This thesis has been submitted for examination with our approval as University Supervisors.

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## DEDICATION

I dedicate this work to my late father James Randiki Mango and immediate family members Mr. Francis Okuku and my children Queen, Sunday, Amondi, Mzee and Dayo for their constant love, encouragement and moral support throughout the period of study. Your words of encouragement and push tenacity have motivated me. Special thanks for being there for me throughout the entire study process and being my cheer leaders.

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**ABSTRACT**

Independent movement offers learners who are blind connection to the world, hence the need for training in Orientation and Mobility (O & M) skills before achieving purposeful mobility. In Kenya, training in O & M skills in special schools is deficient given that most of the learners are not independent. Moreover, Baseline survey (2014-2015) from the three selected special primary schools in Kenya indicated that out of 171 learners who are blind from (STD 4-8), only 23(13.45%) use white cane for orientation and mobility and 148(86.54%) do not use white cane, yet this is the mobility aid that enhances independence. The study sought to investigate factors influencing implementation of orientation and mobility programme for learners who are blind. Objectives of the study were to: determine teacher characteristics in teaching of learners who are blind on O & M skills; establish teaching and learning strategies used in training of learners who are blind on O & M skills; establish the attitudes of learners who are blind towards use of white cane for independence; assess skills of learners who are blind on O & M. The study was based on Havighurst‟s Developmental Task Theory and a conceptual framework. The research adopted descriptive survey research design. The study population consisted of 171 learners who are blind, 28 teachers and 8 house parents from the selected three special primary schools. Simple random sampling technique was used to select 57 learners who are blind. Purposive sampling technique was used to select 7 teachers specialized in O & M. Saturated sampling technique was used to select 8 house parents. Data was collected using questionnaires, interview and observation schedules. Face and content validity of the instruments was ascertained by experts from the Department of special needs education. A pilot study using test re-test method was carried out in one school which was not part of the sampled schools. Reliability coefficient for teacher questionnaire was 0.86; questionnaire for learners who are blind was 0.83. Quantitative data was analyzed using frequency counts, percentages and means. Qualitative data was transcribed, analyzed, organized and reported in emergent themes and sub themes. Findings of the study indicated that factors influencing implementation of orientation and mobility programme for learners who are blind were determined by teacher characteristics in teaching O & M (Mean=2.65) implying that teachers are not adequate as only 7(38.8%) had attended in-service course for O & M after regular training. The study revealed that teaching and learning strategies were not adequate (M=2.34) implying inadequacy of resources and inconsistency in teaching and learning of O & M. Attitude of learners who are blind towards the use of white cane (Mean =3.3) for negative items implying negative attitude and positive items (M=2.09) implying negative attitude. Assessing skills of learners who are blind on O & M (Mean=2.17) implying inadequate mastery of O & M skills. The observation schedule confirmed assessing skills of learners who are blind on O & M (M= 1.90) indicating that learners who are blind use white cane to a small extent. The study recommended; intensive institutional counseling to learners who are blind, consistency of teaching and learning strategies and refresher courses for teachers. The findings of this study are of use to researchers, Ministry of Education officials and teachers to address the issues of the visually impaired in regard to O & M training.

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## ABBREVIATIONS & ACRONYMS

**AFB** – American Foundation for the Blind

**BCA -** Blind Canadian Alliance

**CEC-** Council for Exceptional Children

**CSB -** California School for the Blind

**DPI -** Disable People International

**ECC**- Expanded Co-curriculum

**EFA -** Education for All

**ETA'S -**Electronic Travel Aids

**GOVI** - Gambia Organization of the Visually Impaired

**I.C.E.V.I -** International Council for Education of the Visually Impaired

**K.I.C.D -** Kenya Institute of Curriculum Development

**K.S.B** - Kenya Society for the Blind

**K.U.B -** Kenya Union of the Blind

**M.o.E.S.T -** Ministry of Education Science and Technology

**NCB -** National Council for the Blind

**NICHCY-** National Dissemination Center for Children with Disabilities

**NGOs -** Non Governmental Organization

**O & M -** orientation and mobility

**PWDs** – People with disabilities

**R.N.I.B -** Royal National Institute for the Blind

**RoK -**Republic of Kenya

**SAVH** - Singapore Association for the Visually Handicapped

**SEN** – Special Education Needs

**SNE** – Special Needs Education

**UNCRPD** - United Nations Conventions on the Rights of Persons with Disability

**UNDPI –** United Nations Department of Public Information

**U.N.E.S.C.O** - United Nations Educational Scientific & Cultural Organization

**U.N.I.S.E** - Uganda National Institute of Special Education

**VI-** Visually Impaired

**WIOA-** Workforce Innovation & Opportunity Act

**WW2-** World War Two

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# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Orientation and mobility are learning areas that learners with visual impairment require in addition to the regular academic curriculum. Acquiring this kind of fundamental and enabling life skill like the acquisition of academic and social skills, is of great importance to the social and economic independence of blind and visually impaired persons (Cameto, Nagle, SRI International, 2007). Orientation and mobility skills begin to be developed in infancy starting with basic body awareness and movement and continuing on into adulthood as the individual learns skills that allow him to navigate his world efficiently, effectively and safely (Welsh & Blash, 2010). IDEA (2004), considered orientation and mobility training as the services to persons with visual impairment by certified personnel to enable those visually impaired to systematically attain orientation and safe movement within their vicinity, school, home and community. The ability to establish and maintain the awareness of position in space is regarded as orientation while the act of moving through space in efficient and self-manner is regarded as mobility (William, Richard & Bruce, 2010).

Around 1.4 million children have irreversible blindness, requiring access to visual rehabilitation services to optimize functioning and reduce disability (WHO, 2012). (Berger, 2012) indicated that vision impairment can negatively influence an individual's daily activities. Research studies showed that people who are blind are at risk of depression and physical problem, (Kafle, 2011). Further, a study by Sarabandy and Kamali (2012) suggest that visual impairment affects people's quality of life and reduces

their social skills. Accidents happen especially in mobility- related tasks. Manduchi & Kurniawan (2011) conducted a survey interview in 2010 on accidents that people experience during their mobile tasks. In their findings following interviews with 300 individuals, around 34% of legally blind and more than 45% of blind participants experienced head- level accidents once a month or less while about 18% of legally blind and 9% of blind interviewees experienced the type of accident more often, on a monthly basis. 23% of these accidents had medical consequences. In total, 7% experienced falls in walking once a month or more. The supportive tools, white cane and guide dogs could not prevent these accidents due to their limitation in object detection above knee level, navigation and orientation. Celeste & Grum ( 2010), cited studies on the play behaviour of children who are blind that shows they engage less frequently than their sighted peers in manipulative and symbolic plays, and there is a high risk that participation in child – initiated learning activities will be limited particularly if initiated travel skills have not yet been established.

The formal and coordinated endeavors among professionals to train individuals with visual impairments in orientation and mobility were initiated in the 1940s after the start of the Second World War, when veterans of World War 2 returned to America with vision impairment and blindness, they wanted to have the same level of independence as they had before. Welsh *et al*, (2010) noted that during World War 2, many soldiers who had been blinded in the battle were sent to hospitals at Valley Forge and Diddle, then to a rehabilitation program for the blind in Avon, Connecticut. The long cane idea created by Richard Hoover at Valley Forge Hospital, was established, refined and extended by staff. Amid the following couple of years, a methodical approach to deal with independent

travel using the long cane strategy turned into the establishment of the new instruction in orientation and mobility. It was from that point that the requirement for orientation and mobility training was realized. Bled Soe (2010) explains as “foot travel” were basic either self-taught or passed on through teachers who were themselves blind, individuals with visual impairments needed to discover ways of moving about independently by themselves. While the skills of individuals who had learned how to travel independently were generally admired by the general public, it was Richard Hoover in 1944 who made the observation that people who are blind were not travelling well (Welsh, *et al.,* 2010).

In order to address these difficulties and empower people who are blind in their independent mobility many technological assistive tools have been introduced since world war two. However, these tools are not widely used and adopted by people who are blind. Roentgen, Qelderblom, Soede, & Witte, (2008) review on 146 electronic support tools indicates that none of the reviewed tool can substitute white cane. The white cane originated in Europe in 1921 when James Biggs, a photographer who had lost his vision began to paint his walking cane white to alert others to his presence (Lions Club International, 2014). As far as the absence of vision is concerned it is therefore, vital for learners with visual impairments to develop independence and a sense of self mastery (Gray, 2008). During travel, the majority of the environmental information is received through the visual system. Hence, if there is loss in vision, participation in social and physical activities is hampered and negatively influences a person’s mobility and quality of life, (Brouwer,Sadlo.Winding,& Hanneman,2008). It is vital that functional and purposeful mobility instruction be provided to children and adults who are blind to

promote overall health, independence, quality of life and to prevent learned helplessness (Parker, 2009).

During orientation and mobility training, people who are blind are taught to ambulate and negotiate the environment safely and independently, (Deverell, Taylor & Prentice, 2009). Training is often supplemented by the use of assistive device meeting the need of a person who is blind and facilitated by a trainer specialized in O & M instructions, (Ballemans, Kempen & Zijlstra, 2011). Although evaluating studies on O & M training of learners who are blind are scarce, (Ballermans, Kempen & Zijlstra, 2011), previous studies have shown beneficial effects of the training. Parker (2009) emphasized the benefit of Orientation and Mobility to persons who are blind. The idea of being able to move efficiently and independently in various environments enhances not only self-esteem but also self- confidence. Since orientation and mobility involves movement in space, the body is exercised in the process.

WHO (2011) observed that accurate data for Persons With Disabilities (PWDs) in developing countries is mostly lacking resulting in systematic problem for planning policy making and implication. Further, the 2003 Persons with Disability Act (PDA) have already been criticized for its slow and phased implication (Africa Union for the Blind, 2009). According to American Foundation for the Blind (2013), there exists two sets of curriculum for learners with visual impairment, the co- curriculum and expanded co curriculum (ECC), AFB (2013). The ECC was developed to address the gaps in the general education curriculum that were critical to the success of these students (AFB, 2011). The need to provide students with VI a dual curriculum was recommended based on concerns that these students were not receiving the instruction needed to prepare them

for adult living. The ECC is the body of knowledge and skills that are needed by students with visual impairment due to their unique disability and their specific needs. These are – daily living skills, sensory perception skills, orientation and mobility, communication skills and self- help advocacy skills. Students with visual impairment need ECC in addition to the co academic curriculum of general education. The ECC should be used as a framework for assessing students, planning individual goals and planning instructions. In Califonia, people have negative connotation concerning the White cane for mobility (Handbook CDSS, 2012). Although, the white cane was introduced around the 1940, only 2% of the people with visual impairment use white canes as navigation tool for performing daily activities independently, Roentagen *et al* ,(2008). This can be attributed to that most visually impaired people do not travel alone outside of their own residence due to risk of accidents as lack of preview and knowledge of environments and information for orientation, (Manduchi & Kurniawan, 2011).Along with pity and sympathy comes a great deal of discrimination due to society's myths and misconceptions about visual impairment. In Pennsylvania, 300,000 people have visual impairment, 90% cannot travel independently; 7% use white cane; 3% could use guide images and refuse to carry the white cane to hide their identity, (Erickson, et al, 2017).

Despite recommendations and self-established importance of orientation and mobility instruction as discussed by Sapp and Hatlen (2010), the provision of orientation and mobility instruction within the education sector remains inconsistent particularly in the United Kingdom and Austria. Visiting teachers may have limited expertise to O & M sessions as can occur when O & M specialists are contracted from blindness agencies to provide services to children, this practice is currently the norm in Austria (Deverell &

Scott, 2014) and in the same instance, as both Palmer (2005) and Scott (2009) have established, O & M intervention with children is restricted to taking place outside school hours, resulting to very limited contact with the teaching staff. A larger challenge is lack of availability of O & M specialists to provide consistent O & M intervention in education settings as identified by Wells (2008) and Scott (2009). Research from both United States (Lohmeier et al, 2009) and Austria (Brown & Beamish, 2012) has consistently found teachers struggling to find time to implement the skills of O & M. Therefore, lately there has been expanding concern over the inconsistent nature and quality of provision of orientation and mobility support for learners in the school within the United Kingdom (Franklin, Keil, Crofts & Cole – Hamilton, 2001). In regard to this, the implementation of orientation and mobility curriculum in educational setting can prove challenging.

Volkel (2008), observed that lack of self - contained systems that allow individuals who are blind to navigate through familiar environment has led to an increase in efforts to develop new systems and technologies for the navigation and orientation of people with visual impairment. Using radar and ultra-sonic technologies, new series of mobility aid devices have been designed to help learners who are blind to navigate, such as electronic travel aids (ETAs), (Cesetti, 2010). ETAs' are relatively new device in comparison to the cane or dog guide systems of mobility. Efforts to design a better electronic mobility aid over the past forty years replacing the traditional cane with a more functional option have been unsuccessful. Roentgen (2008) argues that the available electronic mobility aids do not fully meet the needs of people who are blind. The above studies and the current are based on orientation and mobility and use of assistive technology. However,

the difference with the above was that the current study specifically focused on training learners who are blind on O & M for independence.

Research report by National Council for the Blind (NCB) done with 566 registered blind people and Irish Guide Dogs for the Blind (IGDB) (Executive Summary, 2008) revealed that participants reported that they considered the offer of training in orientation and mobility skills as not relevant to either situation for various reasons, such as not needing it as they relied on sighted guide as their primary technique as shown in Table 1

**Table 1: Use of Mobility Aids in Ireland N=566**

| Mobility aids | People who are blind | Percentage |
|---|---|---|
| Sighted guides | 333 | 58.8 |
| White cane | 205 | 36.1 |
| Guide dogs | 28 | 5.1 |
| **Total** | **566** | **100** |

**Source: Research Report by National Council for the Blind (Executive summary, 2008)**

In the developing countries of Asia, Africa and Latin America where an estimated 90% of the world's blind population is to be found, the teaching of orientation and mobility skills has most unfortunately, been accorded a very low priority, if any at all Robert. Zaekle, (2008). This is understandable in view of the sad fact that not more than 5% of the two million children with visual impairments in these developing countries are currently receiving any kind of education. Children who are visually impaired in Africa are particularly educationally vulnerable, they are more likely to begin school late, repeat

classes or grades and drop out early, (International Council for Education of the Visually Impaired, 2010).

In the 1960s Universities in China started training programs for O&M specialists who worked with adults and school-aged children. In the 1980s the O&M recognized the benefit of providing services to pre-school age children. Today, O & M specialists have developed strategies and approaches for serving increasingly younger populations so that O&M training may begin in infancy (Chao-Chen, 2012). However, stigmatization associated with cane use is unfortunately geographically widespread with fear of stigmatization, attracting unwanted attention and preventing integration with sighted people found to be the main barriers to cane use in South India, (Zaborowski, B. 2011). Safhi (2009) observed that some of the Arabic countries have special education programmes at the university level to prepare educators of students with special needs, and most of these university programmes do not have personnel preparation programmes in the field of visual impairments or other disabilities. Furthermore, there is lack of information on how teachers of visual impairments students are prepared in the Arabic countries.

In South Africa, the noted challenge was the revelation that after orientation and mobility training, the learner's mobility had not at all improved. The majority of the learners still embraced the habit of utilizing their self- taught cane strategies (Perla & O' Doneneli, 2004). Through orientation and mobility instruction students are given the opportunity to travel safely, independently, efficiently and gracefully through all appropriate environments. Research done in South Africa by Lumadi and Maguvhi (2012) on perspectives of South African special school teachers reported that participants did not

establish the qualifications of a teacher they considered as specialists. Furthermore, most schools for children with visual impairment have only one Orientation and Mobility instructor to meet the needs of approximately one hundred and twenty students. In Uganda, Nyende (2012) argued that despite the Kyambogo University training SNE teachers the number with skills to teach orientation and mobility is disappointingly low to meet the demand. The above studies and the current study were done on teacher specialists in O & M while the current study focused on implementation of orientation and mobility by teacher specialists for learners who are blind.

The earliest documentation of orientation and mobility training in Kenya dates back to 1976 whilst Christoffel Blinden Mission (CBM) a private worldwide association from West Germany organized the first workshop at the request of the Ministry of Education to instruct a gathering of teachers in Kenya's schools for the visual impairments on orientation and mobility. The mobility instructor, Theodore Reusch, facilitated the training (Nasimiyu, 2008). After the teacher's workshop, it was expected that the instructors would instruct other teachers and learners in orientation and mobility competencies. Be that as it may, without an orientation and mobility instructional programme, an inspector to carry out an enforcement of the instruction of the abilities and a training establishment to prepare extra teachers, it was challenging for orientation and mobility instruction to become noteworthy.

In the year 1982 the Ministry of Education issued a work license to Inge Danielcek, who was by then a CBM mobility instructor. Danielcek was sent to St. Lucy School wherein taught orientation and mobility until 1985 (Nasimiyu, 2008). And, after it's all said and done, it was impractical to adequately impact the Ministry of Education authorities

together with the schools to incorporate mobility training in the schools' educational programmes. In January 1983, the Ministry of Education once more issued a work license to Edward Mullen, who was a CBM representative, from the United States of America. His primary obligation was to instruct Kenyan teachers on the concepts and aptitudes (skills) of orientation and mobility (Mullen, 1989).

Mullen worked closely with the special education inspectorate section for three years, specifically facilitating in-service courses in orientation and mobility in schools for the learners with visual impairments and making plans for the establishment of orientation and mobility teacher training course. In 1986, a teacher training course was held at the Kenya Institute of Curriculum Development, sponsored by both the Ministry of Education and CBM. Immediately after the completion of the training, the graduates returned to their particular schools to execute an orientation and mobility programme (Nasimiyu, 2008).

Presently, Kenya Institute of Curriculum Development (KICD) has made an attempt to prepare pre-school curriculum, independent living and developmental skills curriculum for the learners with visual impairments (SNE policy framework, 2009). Notwithstanding this effort, it is far incredible that curriculum-based establishment has not been virtually included in the prevailing ongoing National Curriculum. Along these lines, it is necessary therefore, to have a curriculum that is satisfactorily responsive to the issues of the learners. This consists of specialist courses such as orientation and mobility.

It is, nonetheless, disturbing that in various schools and institutions in Kenya and in several other developing nations, the teaching of orientation and mobility receive casual consideration. Saya (2002) proposes that a comprehensive way to deal with instruction

requires great orientation and mobility abilities' preparation which must be incorporated into the teaching and curriculum programmes. This might empower the learners to profit through the aggregate learning encounters the same way their sighted companions advantage from theirs. Thus, the study was conducted to investigate the factors influencing the implementation of orientation and mobility programmes for learners who are blind in special primary schools for learners with visual impairments in Kenya.

In Kenya since independence, various commissions have recommended policy guidelines on special needs education. The National Education Committee on Education objectives and Policies (1976) emphasized assessment and integration of learners with disabilities. The Totally Integrated Quality Education and Training, Koech Commission observed specialized personnel for learners with special needs and absence of clear policy guidelines (Koech Report, 1999). However, most of these past commissions have not been put into legal documents or harmonized for smooth provision of Special Needs Education. Furthermore, no commission considered the teaching of O & M skills as important to learners who are blind. Therefore the teachers overlooked this area overshadowed by other subjects. However, National Education Sector Plan (NESP. 2018), states that MoE shall: Facilitate the production, procurement, and distribution of specialized learning resources, assistive devices, and learning technologies, facilitate the maintenance of specialized learning resources, assistive devices, and technology through quality storage, repairs, replacement, upgrading, and capacity building of relevant staff.

People with visual impairment also need to utilize their mobility skills in order to overcome possible obstacles while moving, besides utilizing navigation systems. Mulimu ( 2008) conducted a study on factors hindering teaching O & M to students who are blind

in Thika primary school for the blind. In another study by Altunay Arslantekin and Ekinci (2014), it was aimed to define the training received by university students with visual impairments for orientation and mobility skills, and the mobility problems experienced by these students. Students affected by visual impairment were interviewed in the research. The above studies looked at orientation technology and electronic navigation system aimed to define the training received by university students with visual impairments for orientation and mobility skills and mobility problems experienced by the students. The similarities between the previous and current study was training of orientation and mobility skills to learners with visual impairment. The difference with the above previous studies was that the current study looked at training of learners who are blind on orientation and mobility at primary level.

According to Okange, (2011) non-existence of specialized facilities, equipment and lack of specialist teachers led to absence of adapted and specialist curriculum. Little has been done in Kenya to make sure that there are in-school programmes set up that support the instruction of orientation and mobility. An earlier investigation on factors preventing teaching of orientation and mobility looked at whether orientation and mobility by and large was effectively instructed by skilled orientation and mobility instructors and focused more on teachers' competencies and time provided for teaching (Nasimiyu, 2008).

Nyanza and Trans Nzoia regions in Kenya have the highest percentage of PWDs who mention people's attitudes towards them at home as a problem on a daily basis (16% and 19% respectively) MOE (2009). Baseline survey (2014-2015) from the three selected special primary schools in Kenya indicated that out of 171 learners who are blind from

(STD 4-8), only 23(13.45%) use white cane for orientation and mobility and 148(86.54%) do not use white cane, yet this is the mobility aid that enhances independence as shown in table 2.

**Table 2: Learners who are blind using white cane for mobility**

| **Schools** | **No. of learners who are blind** | **No. of learners who use white cane** |
|---|---|---|
| A | 45 | 23(51.1%) |
| B | 61 | 0 |
| C | 65 | 0 |
| **Total** | **171** | **23(13.45%)** |

**Source: The Three Selected Special Primary Schools**

Table 2 provided information on the number of learners who are blind using white cane skills in the three selected special schools in Kenya. This has raised great concern, therefore the researcher set to investigate factors influencing implementation of orientation and mobility programme for learners who are blind.

### 1.2 Statement of the Problem

Orientation and mobility training aim to facilitate independent functioning and participation in the community of people with blindness. Although, O & M has been identified as fundamental programme in the education of learners who are blind, it was not given much attention as it was not time tabled. Baseline survey (2014-2015) from the three selected special primary schools in Kenya indicated that out of 171 learners who are

blind from (STD 4-8), only 23(13.45%) have basic skills in orientation and mobility using white cane and 148(86.54%) do not use white cane due to lack of confidence and O & M skills hence depended on sighted guides for travel. Yet, without efficient skills in O & M, an individual's access to and interaction with the world can be limited. The absence of active programmes and support services raised a great deal of concern about the achievement of the instruction of orientation and mobility in special primary schools in spite of the fact that there are trained teachers who are capable of training learners in orientation and mobility. Therefore, the current study was carried out to investigate factors influencing implementation of O & M programme for learners who are blind.

## 1.3 Purpose of the Study

The purpose of this study was to investigate factors influencing implementation of orientation and mobility programme for learners who are blind in selected Special Primary Schools in Kenya.

### 1.3.1 Objectives of the Study

This research was guided by the following objectives

1) Determine teacher characteristics in teaching orientation and mobility skills to learners who are blind.
2) Establish teaching and learning strategies used in training of learners who are blind orientation and mobility skills.
3) Establish attitudes of learners who are blind towards use of white cane for orientation and mobility.
4) Assess O & M skills for learners who are blind

### 1.3.2 Research Questions

i) What are the teacher characteristics in teaching O & M skills to learners who are blind?

ii) What are the teaching and learning strategies used in training of learners who are blind on O & M skills?

iii) What are the attitudes of learners who are blind towards use of white cane?

iv) What skills in O & M do learners who are blind possess?

## 1.4 Scope of the Study

The research was carried out in three selected special primary schools for learners with visual impairment in Siaya, Kisumu and West Pokot counties in Kenya. It involved both boys and girls in upper primary standard four to eight. It investigated factors influencing implementation of orientation and mobility programme for learners who are blind in selected public special schools in Kenya.

## 1.5 Limitations of the Study

The study focused on three selected special primary schools for learners who are blind thus, limiting my findings to only three counties. For more noteworthy definitive results the various schools for learners who are blind in different counties in Kenya ought to have been studied. The questionnaires had floor and ceiling effects because some respondents might have given false information to please the researcher. This was minimized by use of interview and observation schedules.

## 1.6 Assumptions of the Study

The study assumed that:

i. Learners who are blind apply O & M skills appropriately.

ii. White canes are available in the schools for learners with visual impairments.

iii. All participants in the study would give true information.

iv. All teachers in the schools for visual impairment are trained to teach orientation and mobility skills.

### 1.7 Significance of the Study

The findings of the study may assist:

The study might be significant for policy makers as it might recognize flaws in implementation in O & M curriculum, subsequently encouraging change to facilitate successful implementation of orientation and mobility curriculum. The study may give valuable data that may enable partners mobilize resource towards the provision of suitable resources for training in O & M. The results of the study bring to the pool of knowledge missing that inform national policy on implementation of orientation and mobility provision. The outcomes may be used by Kenya Institute of Curriculum Development (KICD) and Ministry of Education for planning. The results might help in documenting factors influencing the implementation of orientation and mobility programme. Learners who are blind may gain appropriate independence, mobility, body posture and alignment. The orientation and mobility training would provide learners who are blind with skills for independence travel at school and home.

## 1.8 Theoretical Framework

The researcher employed Havighurst‟s Developmental Task Theory (1972) to guide the study and to explain the rational of acquiring orientation and mobility skill for adults with visual impairment.

Robert Havighurst considered Developmental Tasks of Adolescence to include the following: Achieving new and more mature relations with age-mates of both sexes; Achieving a masculine or feminine social role; Accepting one's physique and using the body effectively; Achieving emotional independence of parents and other adults; Preparing for an economic career; Acquiring a set of values and an ethical system as a guide to behavior; Developing an ideology; Managing a home; Taking on civic responsibility. One of the tasks for adults with visual impairment is managing orientation and mobility that may help them to successfully achieve the entire tasks as mentioned by Havighurst. He asserts that none of the schools can ignore the developmental tasks. Research had shown that those tasks are closely interrelated and that difficultly in one task lead to difficultly in another. For instance, failure in social interaction of persons with visual impairment may be due to lack of other developmental tasks like orientation and mobility training. According to the present study acquiring skill of orientation and mobility will be of significant to individuals with visual impairment.

Havighurst further emphasized that learning is basic and that it continues throughout life span, occurring in stages, where the individual moves from one stage to the next by means of successful resolution of problems or performance of developmental tasks (such as learning orientation and mobility skills). These tasks are those that are typically encountered by most people in the culture where the individual belongs. If the person

successfully accomplishes and masters the developmental task, he feels pride and satisfaction, and consequently earns his community or society's approval. This success provides a sound foundation which allows the individual to accomplish tasks to be encountered at later stages. Conversely, if the individual is no t successful at accomplishing a task, he is unhappy and is not accorded the desired approval by society, resulting in the subsequent experience of difficulty when faced with succeeding developmental tasks. This theory is applicable and relevant to the present study in the sense that it presents the individual as an active learner who continually interacts with a similarly active social environment. Concerted efforts need to be made in providing successful instructions in orientation and mobility to persons with visual impairment

### 1.8.1 Conceptual Framework

Relationship between independent variable (Orientation and Mobility Skills) and its influence on the dependent variable training of learners who are blind)

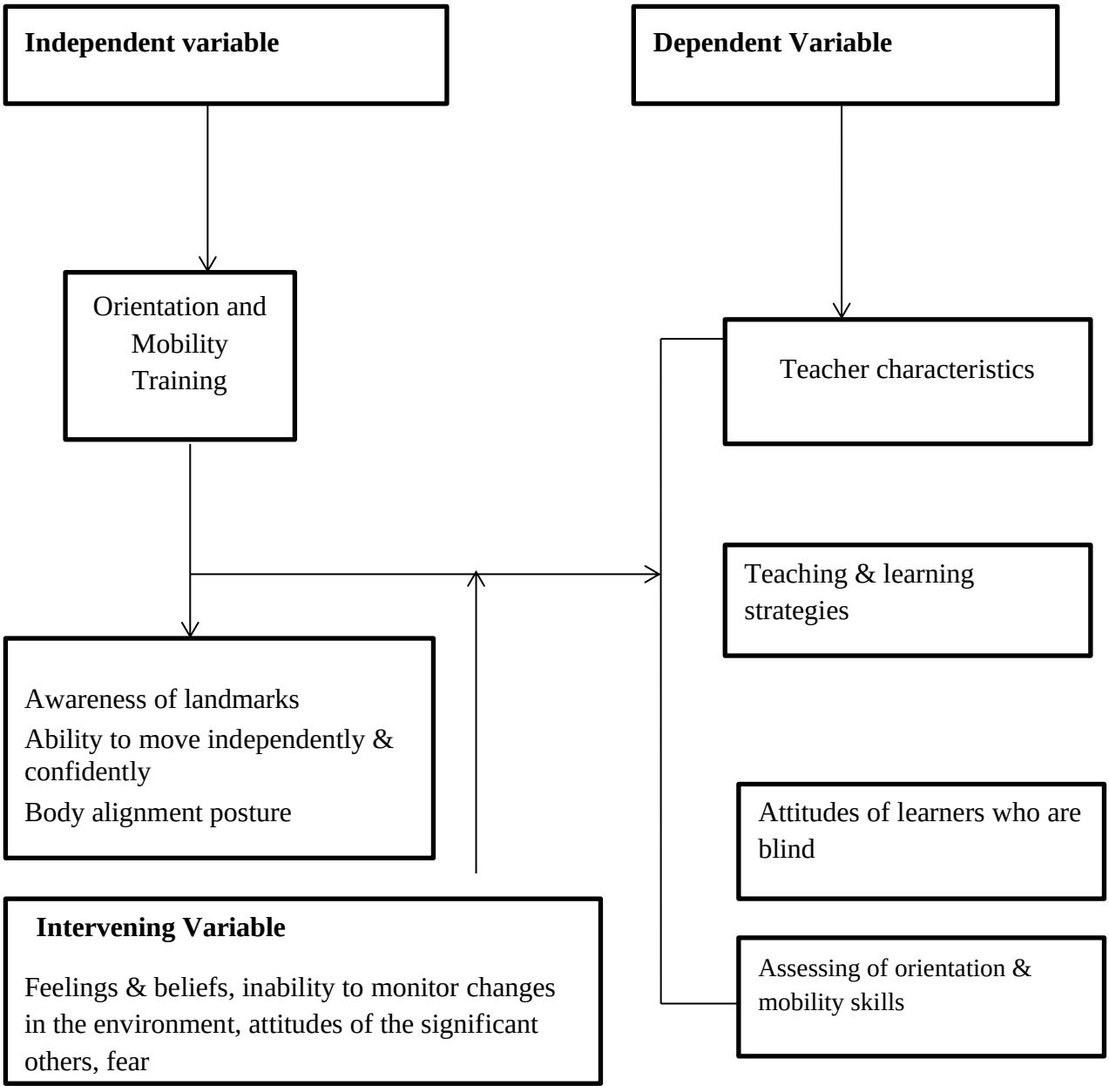


**Fig. 1 : Designed by the Researcher (2021)**

Looking at the above table, the independent variable (Orientation and Mobility Skills) affects the dependent variable (training of learners who are blind) through teacher characteristics; teaching and learning strategies, attitudes of learners who are blind and assessing skills of learners who are blind on orientation and mobility. The diagram also indicates other extraneous variables that can affect the implementation of orientation and mobility training for learners who are blind such as; Fear of unknown, Inability to monitor changes in the environment, the attitude of significant others, feelings and beliefs.

### 1.9 Operational definitions of key terms

**Assistive Devices**- These are equipment aimed at reducing effects of disabilities resulting from impairment. They enhance functional abilities of people with special needs.

**Factors-** teacher characteristics, teaching methods, learner's attitude and O & M skills

**Implementation-** Is the realization of the programme, accomplishment and its application for safe mobility and independence

**Independent Travel** - confidence and free movement to places without needing help from other people

**Mobility-** implies to oneself propelled movement using body mechanisms or mobility aids through the environment

**Orientation and mobility (O & M) training –** refers to the instructions given to the learners by qualified workforce to engage them accomplish efficient, safe and independent movement in their schools, homes and community settings

**Orientation -** is the process of using the senses to establish one's position and relationship to other significant objects in the environment

**Stigma -** dishonor attached to the use of white cane for orientation and mobility

**Teacher characteristics -** Teachers professional knowledge and behavior on teaching orientation and mobility skills to the visually impaired learners

**Visual impairment (VI) –** refers to alteration in vision which may adversely affect learner's day by day activities or tasks. It consists of both low vision and blindness**.** and other visual tasks

# CHAPTER TWO

# LITERATURE REVIEW

## Introduction

This chapter presents an overview of the published literature related to the objectives of the study. The literature was discussed in the sub-themes of the study objectives reflecting the major ideas raised to the problems.

## 2.1 Teacher Characteristics in Training of Learners who are Blind on Orientation & Mobility skills

Orientation and mobility instruction offer learners an arrangement of foundational skills to utilize remaining visual, auditory and tactile information to comprehend the surroundings. It additionally gives opportunities and aptitudes that can increase the learners' familiarity with the surroundings, bringing about expanded inspiration, freedom and safety (Gense, & Gense, 2004). Emphasizing the importance of the right to access education by all, the UNESCO (2012) asserts that, "if the right to education for all is to become a meaningful reality, we must ensure that all learners have access to quality education that meets basic learning needs and enriches lives. Education is being proactive in identifying the barriers and obstacles that lead to exclusion", (UNESCO 2012). Fundamentally, orientation starts during birth and is a constant process practised all through life and ought to be consolidated into mobility training from the beginning. The successful programme of training is individual focused and maintained by the learners' individual supportive networks. Orientation and mobility instruction ought to be designed to augment the coordination of all available supportive networks (Bozeman, & McCauley, 2010). Bines and Lei (2011) contended that disability remains a significant

factor in exclusion from schooling. However having impairment per se should not spell doom for a person living with disability as long as the barriers created by disability are addressed effectively in education (UNESCO, 2012).

Bardin & Lewis (2008) observe that O & M is a fundamental training to enable learners who are blind function efficiently and effectively. O & M enriches concepts, ability and skills that enhance comfortable and independent movement of a learner who is blind in the society (Jacobson, 2013). Unlike the sighted, people with visual impairments must rely on other sensory channels. This brings to the fore the intrinsic role of an instructor in orientation and mobility in providing such professional services. Long & Guidice (2010) observe that for O & M specialists, assessing the ability of individuals who are blind or have Low vision to keep track of self to object relationships and result from movement is a key aspect of instructional process. A learner who is blind will receive a set of coherent instruction to follow from the instructor in order to learn effective O & M skills, (Lohmeiet, Blankenship & Hatlen, 2009). These skills have proved to be useful to be accessible in any social environment in an independent and effective manner. Thus it serves the purpose of educational, vocational, social and recreational opportunities for learners who are blind, (Mcdonnall, 2011; Kelley 2011). The classroom teacher should encourage independence as often as possible to avoid the trap of 'learned helplessness' (Simon *et al.,* 2010).The learner who is blind needs encouragement to move independently through the classroom, and the teacher needs to organize the classroom accordingly. Part of becoming independent for students with visual impairment is learning when to advocate for assistance (Baraka, 2013). Not all instructional tasks will be immediately possible for a student with visual impairments, even with

accommodations. The key is designing instruction so that the student has the most opportunity to act independently. Students who are blind are encouraged to have ownership within the learning process and independence at a level appropriate to their development. Helping the students to use their senses more effectively enables them to be more aware of their surroundings, creating a comfort zone where the anxiety is lower with less stress, (Naubethong State Special School, 2011).

Teachers of students with visual impairment employ strategies that support the child's multisensory capabilities (visual, auditory, and tactile) in the classroom environment (AFB, 2011). In order to meet students' educational needs, specialized services, appropriate instructional books, and materials (including Braille), as well as specialized equipment and technology should be integrated. Another area of concern reported in the literature is the lack of sufficiently trained personnel (AFB, 2012). Further, Skellenger & Sapp, (2010) identify broadening awareness of the importance of O & M and ensuring sufficient numbers of appropriately qualified O & M personnel are trained. For the orientation and mobility instructor a consideration of the relationship with the student may be the first step in effective instruction. Such a relationship requires a respect for diversity and is quite necessary in all types of instructions and learner interaction (Weiner, Welsh and Blasch, 2010). Providing learners with visual impairments with an opportunity to participate in planning their own lessons communicates respect for students and for their input. This reinforces the basic perception of respect for diversity (Weiner, 2010).

Sharon (2008) observed that the classroom teacher plays an instrumental part in setting a positive role for achievement. New Vision (2012), reported that teachers should be

equipped with the relevant skills to ensure that disabled learners achieved their goals. Teachers need to be trained to cater for a diversity of children so that a learner with special needs benefits from the education system. The special teacher teaches individuals the skills necessary to interpret the environment clues and how to use the white cane to travel independently, (Research Institute on Blindness, 2004 - 2010). Unless the skill of O & M is actively taught, the learners with visual impairment are at risk of not being able to function productively within the community, (Tanya, 2010). The O& M teachers teach sensory, perceptual, cognitive and problem -solving skills to facilitate their students' needs to successfully self-orient themselves to unfamiliar environment, (Welsh, and Blash, 2010). Teaching learners with visual impairments demands besides special knowledge a high degree of insight, sensitivity and devotion.

In U.S.A, O & M training programmes range in length from a two – year academic Master degree, 12 – 18 months. In U.S a requirement for O & M specialists is to be fully sighted in order to monitor the safety of their students (Weiner & Siffeman, 2010), as a result structured discovery learning was developed. Diploma programme training in Western Europe; training in correspondence in some Eastern European countries and some programmes of two weeks or less in remote developing regions of the Globe. O & M professional preparation programmes address the pre-cane foundations which include the development of sensory awareness; sound localization; spatial concept; and independent movement to a sure effective navigation and safe travel. In practice however, very little time is given to these fundamental holistic rehabilitation, (Skellenger & Sapp, 2010). O & M specialists in the USA remain uncomfortable in providing services to very young children. Further, (Lewis & McKenzie, 2010) found a significant number of

paraprofessionals are fully responsible for O & M intervention, arguing this practice is particularly concerning “these are highly specialized skills that require high: quality instruction and ongoing assessment to achieve positive attitudes for students who are blind”.

In the United Kingdom and Australia, O & M is a core domain within one curriculum, the specialized learning areas that the students who are blind require in addition to the regular academic curriculum (Sapp & Hatlen, 2012). Specialist vision support teachers and O & M specialists are responsible for teaching skills. Despite these recommendations and well established importance of the Expanded Core Curriculum as discussed by Sapp & Hatlen, (2010), the provision of O & M intervention within the education sector remains inconsistent. O & M intervention with children in Australia is primarily delivered by professionals with a range of undergraduate qualifications and situated within an allied health environmental in charitable blindness agencies, Deverell & Scott (2014), and within the Australian context there remains lack of clarity as to how O & M intervention should be delivered. Deverell & Scott (2014) identified that there is currently no certification process for O & M in Australia and the content of personnel training courses are varied. The nature of O & M profession in Australia as Deverell & Scott (2014) explain creates difficulties with recruiting and training O & M personnel who are required to work within the education sector. At the former USSR internals ( residential schools for the blind ) it was the afternoon caregiver who was trained in O & M skills as the government did not allow the inclusion of O & M in the school curriculum, ( Sapp & Hatlen, 2012). The implication in many countries is that O & M skills should be taught in children’s’ free or creation time.

In Qatar, the difficulty of preparing, employing and retaining special education workforce are embedded into the complexities of national reform endeavours. In the Gulf state Pupil-Teacher Ratio is reported to be 40:1 in 2005 (UNESCO, 2008). Different learners need levels of services, so caseloads differ depending on the learners' needs. Likewise orientation and mobility instructors offer services straightforwardly, generally working one-on-one with learners and periodically with small groups. Similarly, in typical orientation and mobility training settings in which there are ever-present dangers, it is essential to give one-on-one training particularly tailored to meet the exceptional requirements of a learner instead of a gathering. Sacks, & Rothstein (2010) noted that teachers make either positive or negative perceptions in light of the extent of their classes. The researcher notes that when such classes are large, the learners do not get extra consideration needful for their positive academic results. At the point when such a situation is presented, teachers eventually feel the weight of potential inadequacy and their perception turns out to be unavoidably negative.

Sub-Saharan Africa has specialized curriculum and other enactment ordering that learners with unique instructive requirement get the necessary services they require (Reynolds, & Fletcher-Janzen, 2007). In spite of the way that governments in Sub-Saharan Africa embraced specialized curriculum policies, services are not accessible to by far most of the learners in the countries (Reynolds, & Fletcher-Janzen, 2007). Emotionally supportive networks are essential if such programmes are to be successful. The Educator (2010), reports that in Malawi, Montfort Special Needs Education trains 30 specialists every year through a certificate course in visual impairment. The trainee teachers receive lectures on inclusive education and the adaptation of the curriculum and training in orientation and mobility, basic visual assessment, activities of daily living, the Braille code and maintenance of Perkins Brailler. The trainees undertake, a six week training practice,

normally in primary schools resource centre for the visually impaired. On completion of the courses, teachers are posted by MoEST to either a resource centre, a tertiary education or to the MIEP to work full time as a teacher of visual impairment. The MoEST organizes in-service training courses once a year for itinerant teachers which are financed by Sightsavers International.

Uganda is privileged to have a university with a fully-fledged faculty on special needs education and rehabilitation. Kyambogo University offers courses in special needs education both at diploma and degree levels and this has been the case since 1988, when the Institute of Teacher Education Kyambogo began offering courses in special needs education. Despite the presence of this university, the number of teachers with skills to teach children with special needs is disappointingly low to meet the demand, (Nyende, 2012). Further, Ravenscroft (2010) asserts qualified teachers for visual impairment lack the training and qualifications to teach O & M techniques

In Kenya, research has established that the teacher-pupil ratio is 1:70 in some schools, which is a long way past the prescribed most extreme proportion of 1:40. Such high ratio presents difficulties as teachers think that it is difficult to give individualized attention on all learners in regular schools particularly the learners with specific learning difficulties (Aduda, 2012, November 18). Teacher-pupil ratios have an influence on perception of teachers which therefore have an impact on teaching of learners. This is so critical considering that apart from most nations persistently insisting on proper teaching of learners, most governments in Sub-Saharan Africa especially Kenya, are introducing other subjects in the education programme, thus expanding the workload of the regular subjects. The Government of Kenya has embarked on capacity building for primary

school teachers in special needs curriculum. In addition, university programmes have been preparing teachers for all levels of education with a purpose of enhancing the essential countrywide capacity to deal with special needs education (Njoka, et al., 2012). The Kenya government has additionally put resources into in-service training of teachers to boost special needs education (NSNE, 2009). It is approximated that the ratio of pupils with special needs to a specialized teacher is 20:1 (in special institutions for learners with visual impairments**)**. The suggested pupil-teacher ratio is between 5:1 and 15:1 depending on severity (NSNE, 2014)

According to a study by Nasiforo (2010) conducted in Kenya Teachers' Training colleges, it revealed that tutors felt that there were no adaptations in all the practical subjects, they lacked skills of assisting the blind students, thus they left them depend on sighted students for explanations. It is observed that the 8-4-4 curriculum does not take care of learners with special needs. Teachers who work with such learners may experience challenges in curriculum dissemination and environmental and materials adaptation (Yalo, Indoshi, Agak & Were, 2010). All the teachers met testified that, because they were obliged to stick to the traditional program and methods of work, they had no room to attend to the needs of learners with severe SEN. This challenge is coupled with other challenges they shared with those in special schools and centres, which is inadequate skills, resources, budget, information and unsupportive infrastructure and culture (UNESCO, 2012). There is inadequate provision made to meet corresponding increased need for O&M skills since the curriculum does not cater for it. (Kitonga, 2011) study on Challenges Facing Teachers in teaching students with VI in a special school in Kenya sought to find out whether teachers were adequately trained to teach learners with

visual impairment. Okemwa (2013), study on Influence of Social Environment on learners who are blind on development of science process skills in a special school in Kenya analyzed teacher characteristics in special schools for learners with VI. More so, Dodgson (2013) investigated the professional practice of the rehabilitation worker in delivering O & M training to the blind. The similarity between the previous studies and the current study was that all addressed learners with visual impairment. The difference occurred where Okemwa's study focused on development of Science process skills while Dodgson and the current study looked at how O & M instructors delivered training to learners with visual impairment.

## 2.2 Teaching and Learning Strategies used in Training of Learners who are Blind on Orientation and Mobility Skills

Vision is a critical component in the early process of the neurological development of sensorimotor skills. Children who are born without functional vision often fail to develop efficient sensorimotor skills, including upright posture, gait, and mature coordination. This lack of development, in turn, can interfere with the efficient performance of many daily activities, (AFB, 2011). As definitions of O & M have identified, individuals require an ability to integrate motor development with sensorimotor awareness (Weiner *et al*., 2010) in order to purposefully interact with the environment. Learners who are blind have two approaches for locating objects. One is ego-centered (ie. Body-centric), the other is external reference centered, that is using objects in the perceived environment as a reference point. People who are blind especially congenitally blind and early blind people, adopt mostly the ego- centered approach in all sorts of tasks in mobility travel; way – finding, object location, spatial information encoding, as they cannot take the

information about all objects in the environment all at once (Cattaneo & Vecchi 2011; Kammoun *et al*.,2012 Keating, 2008).

Literature provides evidence of how a student with visual impairment should learn, and the appropriate strategies that should be used to provide instruction. Lack of any degree of vision will affect learning, and students with vision loss often require specialized instruction to grasp concepts. These students often must learn through alternate mediums, using his or her other senses (AFB, 2012). Effective teachers of students with visual impairment employ strategies that support the child's multisensory capabilities ( visual, auditory and tactile) AFB ( 2011)

In order to acquire O & M skills, learners who are blind need to undergo intensive training that is provided by O & M instructors. Orientation technique according to Deverell (2009) include the ability to identify and use non- visual environment clues and landmark, knowledge of indoor and outdoor numbering systems, measurement of maps (audio and tactile ) and the development of self- familiarization skills and strategies. Although most studies and training programmes in spatial orientation do not examine, special learning of unfamiliar spaces, a few studies have been conducted to investigate the role of exploratory strategies in learning, (Long & Giudice, 2010). Three primary exploration strategies have been identified as being used by learners who are blind for self –familiarization; *perimeter, gridline and reference point* (Hill & Ponder, 2017).

Students who are blind also rely on specialized materials in order to meet their individual learning needs, and teachers are required to identify ways to alter their teaching in order to meet those individual learning needs. The enhancement of visual information and alternative forms of presenting visual information using auditory or tactual means are two

widely used strategies that are effective to convey concepts to students with visual impairments. Researchers are now focusing on developing and evaluating this broad approach. However, research on these strategies has been criticized because studies lack a comparative design (Douglas *et al.*, 2009). Adapted books, specialized equipment, and other technologies have provided students with sensory impairments equal access to the core and specialized curricula (Sapp & Hatlen, 2010). Furthermore, Ojwang (2011) says that our students, more so from poor backgrounds, are thirsty for books but the books are not there. Without adequate resources we cannot expect learners who are blind to acquire O & M skills and this trend will continue unless the current situation in the schools for VI is changed. The previous researchers and the current research agreed on specialized books and equipment for meeting teaching and learning needs of learners with visual impairment. However, the current study focused on teaching and learning strategies using specialized books for O & M and use of assistive device which the previous studies did not address.

Mobility techniques are taught within controlled indoor environment with proficiency in these techniques, required prior to the introduction of a mobility aid such as the white cane (Deverell, 2009). The techniques include the sighted guide technique, methods exists for travelling narrow spaces, negotiating stairs, reversing direction, negotiating closed doorways and seating self-protecting techniques allow for semi-independent travel in familiar environment within both upper and lower body protection technique, the arms must be far though from the body to allow time to react if an arm is contacted ( Deverell, 2009) " The learner who is blind is taught systematic search patterns and techniques for self-familiarization to indoor environment.

The teaching of independent travel is best provided in a systematic fashion that makes use of the research and creative approaches that reflect and advance the combined learning of the entire profession (Welsch, 2010). For students with visual impairment however, the use of a concrete, activity –oriented approach is a necessity and must be an integral part of a teacher's plan for differentiation (Marilyn, 2008).Through significant encounters with their surroundings and others, learners with visual impairments can expand their opportunities for development and learning. Subsequently, it is critical that the learners should be given suitable guidelines to address their requirements of mobility (Bischof, 2008). Besides curricular adaptations, instructional and environmental adaptations will also have to be made. Instructional adaptations involve any part of the teaching-learning process, that is, the teacher's instructional methods, materials and strategies; learning activities; performance requirements for each learner; and assessment procedures. The most important of curricular adaptation and modification is to try and match the cognitive communicative, emotional and physical aspects of the curriculum with the abilities, strengths and needs of the learners ( Schwarts, 2008).

According to Tanya (2010), instructional adaptations involve any part of the teaching and learning process that is, the teachers' instructional methods, materials and strategies, learning activities; performance requirements for each learner, and assessment procedures. Doorlag and Lewis (2010) as well as UNESCO (2009) gave some examples on how to make instructional and environmental adaptations. They suggested that the teacher provides additional instruction and assistance in areas where the learners experience difficulty; structure practice activities to provide learners with enough time to master skills; be flexible with regard to timeframe; provide special support in particular

subjects (e.g. orientation and mobility) over and above the periods allotted for more traditional subjects; and change task requirements so that learners can listen rather than read, or give answers orally rather than write.

Educators of students who are blind have also recognized the need for instruction in traditional academic areas and instruction in Common Core State Standards (National Governors Association Center for Best Practices, 2010). The belief is that children who were blind should be provided with the same opportunities, experiences, and hopes as sighted children (McGinnity, Seymour-Ford, & Andries, 2009). In the late nineteenth century, social Darwinism replaced conservatism as the primary rationale for individuals that were different from those of the general population, and therefore more segregated programs and settings became the norm (McGinnity et al., 2009). One key practice found in all O & M instruction is the attempt to use the natural environment for introduction and assessment. That environment can include the child's home, classroom, school and neighbourhood. Experts in the field suggest that O & M instruction provide "fundamental and enabling life skills (Huebner & Wiener, 2010).

In the United States (U.S.), O & M is designated as a service under federal law for children and adults with visual impairments, including those with additional disabilities. O&M is listed as a related service in the Individuals with Disabilities Education Act (IDEA, 2004). IDEA mandates that O&M services be provided in order to prepare children to travel in school, home, and community environments. O&M is also included in the Rehabilitation Act of 1973, as amended by the Workforce Innovation and Opportunity Act (WIOA, 2016). In spite of the fact that orientation and mobility has been perceived as a noteworthy component in the instruction of learners with visual

impairments in the United States (Corn, Hatlen, Huebner, Ryan, & Siller, 2010), and as a related service stipulated in the IDEA (2004), the orientation and mobility needs of children with visual impairments are still underserved (AFB, 2011). Research that was based on National Longitudinal Survey data undertaken by AFB in the United States on transition to work among learners aged 13 to 16 years shows significant connections between learners' successful transitions to work and learners' being trained in even only a few of the content areas of the orientation and mobility curriculum. The research, notwithstanding, additionally demonstrated that instruction in the orientation and mobility curriculum was not generally offered in a coordinated way (Sacks, & Rothstein, 2010). This demonstrated the need to explore whether this was the situation for learners with visual impairments in Kenya.

Blind Citizens Australia supports the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD) (BCA White Cane Policy FINAL 2011). BCA further reported that providing training in mobility skills to persons with disabilities and to specialist staff working with persons with disabilities. Moreover, encouraging entities that produce mobility aids, devices and assistive technologies and to take into account all aspects of mobility for persons with disabilities." (BCA, White cane Policy FINAL 2O11). Scott (2009) study on orientation and mobility in the Australian education framework established that orientation and mobility instruction with learners with visual impairments was confined to occurring outside school hours bringing about extremely restricted contact with instructors. However, the literature on early childhood concept development tends to recommend adult – directed structured opportunities for learning; Skellenger & Sapp (2010), for example the language such as "take the child to….and

provide systematic instruction" is necessary. In Netherlands, O & M training is mainly practice – based because standardized and validity O & M training in using the identification cane is lacking. Zijlstra (2011),

In China, the stakeholders in Special needs education successfully convinced the Ministry of Education to include Orientation and mobility in the curriculum of the visually impaired learners in early 2000, so that they can be taught in Orientation and Mobility. (Official newsletter of the World Blind Union,- Asia Pacific 2008). Although curriculum for learners who are blind is available in Pakistan, compared to the curriculum of the sighted it is not fully developed, (Khan & Bihlol, 2014). O&M specialists address environmental barriers and teach individuals alternative techniques for navigating various environments to increase their skills and confidence.

Dissatisfaction with the progress towards SNE has caused demands for more changes in many African countries according to Simon, Echeita, Sandoval and Lopez (2010).The Nigerian constitution makes a provision for suitable education for all children. In Gambia, Organization of the visually impaired (GOVI), observes World White Cane Day to enlighten motorist, pedestrians, road users and the general public on the importance of the White Cane to the blind people (All Africa, 2014). However, Final Report of National Policy on Inclusive Education (Vayrynen, 2008) pointed out that the basic education broad curriculum does not adequately address the diverse needs of all learners leading to high dropout rates. In Botswana, a student with blindness is equated to 4 students in a general education classroom. In light of this situation, there should be reduction of students in classes the students with blindness are placed. The teaching and learning processes should therefore be all embracing, employing all the instructional activities that

can produce the best in a student with blindness. Mastropieri and Scruggs (2015) add that concrete materials or physical objects that learning support staff use to engage students in the hands on learning of various subjects are important because they assist students in learning numerous concepts easily. In order to effectively achieve the set goals in teaching students with blindness, contact during instruction, especially when manipulative or concrete objects are involved, should sometimes be one-to-one, equal-status, and cooperative (Silverman, 2015).

Learners who are blind require instruction in Braille, independent living skills, as well as orientation and mobility skill training. They may also require counselling to help them adjust to blindness, especially those with adventitious blindness that is acquired after birth (Kirk & Gallagher 2008). Literature suggests that an important aim in the field of visual impairment is to identify educational models for students who are blind or who have visual impairments that demonstrate evidence-based outcomes for these individuals. The majority of the literature demonstrates the need to improve access as an essential outcome. Implications of this focus have relevant bearings on the creation of recommendations that are directly related to the teaching approaches and constructs of the curriculum required for students with visual impairments (Douglas *et al.*, 2009).

There are many barriers that could impact the academic and social progress of a student with visual impairment (Hatlen, 2010).The educational environment itself can be a barrier for students with visual impairment if the environment is not designed for their specific needs (Hatlen, 2010). This could include anything from the delivery of instruction to the independent practice activities for students. Students with visual impairment have to be provided opportunities in which they are receiving information in

various modalities (touch, hear, taste, and feel) in order to compensate for their lack of vision. Students with visual impairment may also not receive specialized instruction in the student's most appropriate learning style (AFB, 2012).

Since special teachers have developed techniques for developing listening skills, it is therefore incumbent upon the teacher of children who are blind to ensure that the learner is assisted to experience and learn through other sensory channels, (Kaputa, 2010). Virgili and Rubiri (2009) identified two studies that included O & M .The conclusion was that the current evidence, which is based on this body of existing research, suggests that participation in O & M instruction with adults was no more effective than participation in creation activities for developing travel skills. The previous studies concur with current study on technique / skills on visual impairment. The contrast occurred where the first study was on low vision while second study focused on adults and the current study was on learners who are blind

In Kenya, the fundamental challenge that identifies with the provision and training of learners with visual impairments incorporates educational programmes that are not contextualized to address unique needs (KESSP, 2005; Republic of Kenya, 2009) and furthermore absence of coordination among service providers (Njoka, Riechi, Obiero, Kemunto, Muraya, Ongoto, & Amenya, 2012). Republic of Kenya (2012), Policy Framework paper states that Special Education requires appropriate adaptation to curricular, teaching methods, education resource and the learning environment in order to cater for individual differences. As provided for in relevant international Conventions to which Kenya is a signatory (UNCRPD, 2006) this policy reads, state shall provide training in mobility skills to persons with disabilities and to specialist working with

disabilities. Sharia Malik, (2010) study investigated O & M training in special education curriculum for social adjustment problems of VI in Pakistan. Ogombe (2013) established that specialist curriculum for the VI in the area of O & M was not receiving due recognition as it was not in the school time table. More so, Shinali, Kara and Thunguri (2014) study analyzed adapting of curriculum for learners with visual impairment in integrated ECD centres in Kenya. Mahmoud (2015) explored O & M acquisition skills among students with VI aimed at finding out whether O & M acquisition of skills are incorporated in the curriculum of VI, and whether teachers do teach acquisition of skills. The above studies are similar to the current study as they are focusing on curriculum for visual impairment. The difference exists where the current study was specific on teaching and learning strategies in orientation and mobility for learners who are blind.

Brawand and Johnson (2016) advise that stakeholders involved in the education of students who are blind need to collaborate in order for the students to fully benefit from all instructions in the classrooms. The foregoing practices are expected to yield the desired results and provide equal and equitable education opportunities for all. The study on teaching and learning strategies adopted at the school that caters for students with vision impairment aimed to explore the teaching and learning strategies the school employs to meet the needs of the nation and the students in particular.

### 2.3 Attitudes of Learners who are Blind towards Use of White Cane

Globally, the white cane has helped millions of people with visual impairment navigate their environments with confidence safely (Free Cane Program/NFB 2012). Early focus on white cane instruction is essential for the child who is blind to develop the skills needed to travel and move independently about the environment. At the beginning of the

twentieth century, blind people were generally regarded as dependent members of society who were both unfortunate and pitiable. Their abilities were overlooked; capacities underestimated and needs given low priority (Lillian Foundation, 2011). A rights based approach argues that it is the environment that handicaps people and not the impairment in itself. Students with visual impairment have negative perceptions including images and attitudes that isolate and discriminate against them in their own communities and society at large. (Disabled People's Rights in Kenya 2007). Several scholars have emphasized the crucial role of the social environment and attitudes of significant others in supporting the blind individual adjustment (Bell and Silverman, 2011). Moreover, Brown, Packer and Passmore (2011) are skeptical about the environment factors perceived as critical for learners who are blind. Scott (2014) additionally found that early white cane use built up the perception that learners would utilize the white canes improperly and dangerously, transforming them into "weapons".

Despite the importance of the white cane as a mobility device, there are few reports of people who are blind using it. Ferguson (2007) reported that many people who are blind resisted using the white cane due to negative connotation of dependency. The assumption that white cane use implies the person is blind may make it difficult for the students who are blind to accept the white cane. The white cane has the dual function of a mobility aid for detecting obstacles and a symbolic indicator that the person is blind, ( Thurstan, 2010).

The white cane is quite fundamental for the blind since independent movement influences the development of the learner and the learning process. Through significant encounters with their surroundings and others, learners with visual impairments can expand their

opportunities for development and learning. Subsequently, it is critical that the learners should be given suitable guidelines to address their requirements of mobility (Bischof, 2008). A number of teachers maintain that motivation and perceptions have an immediate relationship on the performance of the learners. It was sensible to assume that orientation and mobility are variables that may influence motivation and perceptions and along this line performance (Wiener, Welsh, & Blasch, 2010). For this situation, perceptions of a learner towards orientation and mobility training can either motivate or discourage the need to gain orientation and mobility skills.

There are studies discussing researches on the effectiveness of electronic mobility devices (Roentgen, Gelderblom, Soede & Witte, 2008). A study was done by Lancioni, Singh, O'Reilly, Sigafoos, Campodonico and Oliva (2008) on the effectiveness of orientation technology for the purpose of increasing mobility levels of individuals with multiple impairments. Navigation using direction instructions produced through digital mapping software and synthetic speaking was researched by Kalia *et al*. (2010). All studies indicate that navigation systems assist individuals in understanding locations of their destinations or various objects. Electronic navigation system provides the person with information on their route or surroundings (Havik, Kooijman & Steyvers, 2011). The above studies dealt with the navigation using assistive device while the current study focused on learners who are blind using white cane for orientation and mobility skills.

Wiener, Welsh, and Blasch (2010), observes that the perceptions of learners can be a noteworthy hindrance to the effective instruction in orientation and mobility. A considerable portion of the perceptions emerge exclusively from the absence of opportunities and information and similarly from the perceptions of associates,

instructors and guardians. Conduct in social circumstances is affected by the socially established implications of an object, for this situation the white cane. The white cane conveys no inherent significance in itself, rather, Denzin (2010) proposes, its significance is characterized through social connections in how individuals behave toward it. Symbols are dependably socially interpreted and it is through this interpretation that individuals come to see themselves and their part in public arena. Critically, Denzin (2007) clarifies symbols evoke perceptual reactions that associate individuals to others and influence people's activities. These perceptual reactions are in this manner fundamental to the development of orientation and mobility instruction. As indicated by Wiener, et al. (2010) individuals who are as yet encountering the injury of loss of vision or who are still in the shock, withdrawal, denial, lamenting, and discouragement stages ordinarily will not present themselves for training.

Literature investigating the experience of age-related vision-loss by Moore, Constantino and Crisp (2000) and Wong, Guymer, Hassel and Keefe (2004) reliably distinguished basic topics of evasion toward the utilization of a white cane as a mobility aid. Participants in Wong, Guymer, Hassel and Keefe (2004) study saw the long cane as a "symbol of visual impairment, disabilities (sic) and shortcoming". Ferguson (2007), reports that a number of individuals who were visually impaired opposed utilizing the white cane in view of negative implications of dependence. It might moreover have represented self-pity and self-insufficiency.

The initial reception of assistive devices by blind users in experimental conditions was positive (Roentgen *et al.*, 2008). Unfortunately, none have matured into widely used tools or have gained acceptance in the blind community because of the many problems

involved in using them in real-world use-cases such as their size, weight, battery life, reliability, ease of use, cost, interference with other senses and primarily the time required to master them even on a basic level. White cane travellers, according to Sauebururger and Bourquin (2010) can become proficient to extent they are not cognitively aware of the white cane or the particular technique they are using, therefore effective travellers owning the cane. Bayliss (2011) argues that ownership is strongly linked with self-identity. Further, Denzin (2010) argues the designation of ownership by young children "Valued social objects" is a necessary step towards the child perceiving themselves as a distinct social being, separate from peers and adults. The attitudes towards white cane use by people who are blind have been found to range from concerns about being "outed" positively liberating due to the removal of dependence and the need to be accompanied everywhere. Further, Thurstan (2010) observed that adjustment to any form of vision loss can be gradual and usually an emotional process.

Misconception against people who are blind, and the negative connotation can cause individuals to less self- concept, self -esteem, and personal satisfaction and prevent them independence, (Jacko *et al,* 2010). The use of white cane may also be stigmatized. The more serious visual impairment that people have, the lower the socioeconomic status they will gain, (Lansingh, Carter, Ulldermolins, Valencia & Eckert, 2012). A study of the social interactions and attitudes to assistive technology of sensory impaired people found that several white cane users had initially avoided the use due to concerns about standing out and being marked as the blind person, (Deverell, Taylor & Prentice, 2009). Nevertheless, the assistance and support of family, school and community plays a vital role in the development of O & M skills among children who are blind, ( Fazzi & Naimy,

2010). A successful team approach to action, in this case incorporating O & M intervention within a child's educational experience requires "corporative action" (Charon, 2010).

O & M specialists are also aware of unique psychosocial issues affecting people who are blind. Gibson (2012), consistently identifies common themes of avoidance and reluctance towards the use of a long as a mobility aid. Participants in Wong et al., ( 2004) study saw the long cane as a symbol of blindness, disabilities and weakness…..it may also have represented self-pity and self-insufficiency. For instance, some individuals with low vision do not use a mobility device (such as a long cane) in all travel situations. Without the presence of the long cane, individuals' visual impairment may not be noticeable to the public; thus, these individuals may struggle in some social situations, such as when they need to ask for assistance. O&M specialists facilitate structured opportunities for white cane use during which individuals who are blind can practice social interactions and develop effective strategies for these types of situations (Welsh, 2010).

There are multiple reasons why many people who are blind avoid the use of the white cane, but the primary factors are; fear of striking people or fragile objects with it, collisions with obstacles at a height that the White Cane does not detect and the social stigma among some of the blind and primarily the late-blind (though it should be noted that many others embrace this differentiation positively, and use the White Cane to draw attention to themselves as blind deliberately; (Pavey, Dodgson *et al.*, 2009).

Higgig's (2015) reported in her New Zealand based- study of both adults and children, although younger participants attributed negative attitude towards use of white cane in

part to poor instruction and late cane introduction. The long cane carries no intrinsic meaning in itself, rather, Denzin (2010) proposes its meaning is defined through social interaction, in how people behave towards it. This is evident from the number of studies highlighting the cane as a "stigma symbol".

In Califonia, people have negative connotation concerning the white cane for mobility (Handbook CDSS, 2012). It brings to mind images of helpless and pitiable persons gropping along the street. In Pennsylvania, 300,000 people have visual impairment,90% cannot travel independently; 7% use white cane; 3% could use guide images and refuse to carry the white cane to hide their identity, (Erickson, et al, 2017).

In Europe, most learners expressed a general reluctance to use a white cane (usually referred to as a 'white stick.' They hide the cane in a hand bag or backpack, or reluctance to go out. Journal of the Australian College of Road Safety Vol. 29 no 3 (2012) reported that people who choose not to use a white cane usually say they do not want pity or to show their disability. Whatever is behind such negative stereotypes, it's clear that they present a serious barrier to rehabilitation. Along with pity and sympathy comes a great deal of discrimination due to society's many myths and misconceptions about visual impairment. The White cane for mobility is so conspicuous and a mark of inferiority. In Kirchner *et al.,* (2008) study, 53% of guide dog users and 46% of white cane users reported that they found the attitudes of the public a barrier to physical activity. These barriers are in large part due to negative and disabling social attitudes towards impairment due to white cane as a symbol of impairment (Schillmeire *et al.,* 2008). Stigmatization associated with white cane use is unfortunately geographically widespread with fear of stigmatization, attracting unwanted attention and preventing integration with

sighted people found to be the main barriers to white cane use. In Britain, a short white cane had been used as a means of identification, generally in conjunction with sighted assistance although Ferguson ( 2013) reported that many who are blind resisted using this cane due to negative connotation of dependency

In South Africa a study by Perla and O'Donnell (2004) on encouraging problem solving in orientation and mobility demonstrates that moving into the unknown can be exceptionally terrifying for some learners with visual impairments and simply confidence and trust in the instructor and in the immediate environment would enable them to reach out and interact. This implied that learners fear walking alone without a guide hence orientation and mobility instruction would help eliminate this fear of the unknown. This fear may hinder the development of orientation and mobility instruction.

Agwang (2014) observes that besides poverty in Uganda there is a negative attitude towards persons with disabilities in most families. As a result of this, families are negligent and inadequately support education of children with visual impairment. In most Ugandan societies, the white cane is least recognized and respected. This is due to poor and inadequate sensitization of the general public and low enforcement by the government authorities to ensure the safety of movement of persons with visual impairments. In Kenyan societies, parents expect their children to provide for and support them during old age. So when a parent has a child with disability, they consider themselves as having an uncertain future (Opini, 2011, Gona *et al*, 2010) Report from strategic plan 2012-2016 by the Kenya Society for the Blind (KSB 2011) identifies low enrolment attributing to multi- factors among them; competing priorities within the ministry of education, limited support by NGO's and negative cultural beliefs and

attitudes on disability. In relation to the latter, there is apathy towards the handicapped students including those with visual impairment who are viewed as punishment or bad omen to the family and community.

Lack of educational outreach and advocacy efforts is a reason for negatives attitudes towards those with visual impairment in Kenya (KSB Strategic Plan 2012-2016). The symbol of white cane is deeply ingrained in our society. It evokes more negative than positive connotation. Perhaps, it is time to rethink mobility issues in the light of modern technology (Mairu, 2010).

Engec (2006) collected data from Louisiana public schools grades 1-12 to examine the effect of mobility on academic achievement. Using ANCOVAs to control for differences in ethnicity, gender and qualification for free or reduced lunch, findings indicated the impact of mobility was greater than either gender or poverty status (as measured by free or reduced lunch status). The study focused on effect of mobility on academic achievement. In Pakistan, R. Krama (2014) studied personality and attitude of teenagers learning cane travel. In Nigeria, Okonkwo (2017) studied, challenges, counseling needs and coping strategies of learners with visual impairment in regular secondary schools but his study was not specific on attitudes of blind learners towards use of white cane. In Kenya, Agesa (2014) investigated challenges faced by learners with VI in Inclusive setting with no stress made on their attitude towards using the white cane. Further, the study did not capture learners with visual impairments in the special schools. Krama's study is similar to the current as they both focus on attitude of learning white cane travel. In the current study, the researcher intended to establish the attitudes of learners who are blind towards O & M. skills in the selected primary special schools in Kenya.`

## 2.4 Assessing Skills of Learners who are Blind on Orientation and Mobility

Best, Heller & Bigge (2010) observe that assessing skills is usually seen as the beginning of instructional models. In implementing an education program, attention should be given on the instructional techniques used, the functionality of the skills taught and the age appropriateness of the instructional materials and activities used. O & M specialists conduct assessments and provide instruction in multiple domains, including concept development, sensory awareness and development, sensorimotor development and facilitation, orientation, mobility, assistive technology, environmental access, social, and psychosocial, (Fazzi & Naimy, 2010). O&M specialists[1] are professionals who have specialized knowledge and skills related to teaching individuals with visual impairments to travel in their natural environments. O&M specialists introduce travel skills in increasingly complex environments to prepare people to travel as independently as possible in various familiar and unfamiliar settings, including home, school, day program, workplace, and community. O&M services involve ongoing comprehensive assessments which lead to an individualized curriculum and instruction based on the person's current and future needs, strengths, limitations, and preferences. The practice of O&M is dynamic in response to new technologies, ongoing research, and best practices.

O&M skills can be assessed formally and informally through the use of both observation techniques and assessment instruments. Furthermore, assessments can identify students' strengths and needs, and determine priorities for instruction (Pogrund *et al.,* 2012).The specialists should evaluate to what extent the visually impaired students possess orientation and mobility skills and instruction should be provided accordingly (Tuncer,

2008). For effective instruction and encouragement of movement, teachers should assess and improve students' skills (Zebehazy, Zimmerman & Fox, 2007). Evaluation of orientation and mobility skills of the visually impaired by teachers enhanced performance levels of visually impaired students' mobility skills. Liefer (2008) identified several specific areas to be assessed, body image, motor skills and spatial skills. Effective use of the O & M techniques requires the use of cognitive process such as decision making, problem solving and an understanding of body, spatial and environment concepts ( Deverell., et al 2009).

O&M specialists conduct environmental assessments to evaluate areas where people with visual impairments currently travel or may travel in the future. Environmental assessments focus on aspects of an environment that could support or hinder independent travel such as signage, sound, texture, and organization; and safety features and hazards. A key element of this assessment involves observations of an individual performing tasks in the environment; however, O&M specialists may also use checklists, interviews, and questionnaires to gain a more thorough understanding of the individual's functioning. For individuals with low vision, environmental assessments may also include visual attributes such as lighting, glare, color, and contrast. Based on the assessment results, the O&M specialist recommends modifications to the environment (e.g., home, workplace, day program) that could reduce the risk of falls, and promote safety and independent functioning, (Jacobson, 2013).

Assessment data are often used to make high stakes decisions about the frequency, duration, and appropriateness of O&M services (Fazzi & Naimy, 2010). Purposes of O&M assessments can range from evaluation of a specific device to a global evaluation

of a student's skills. O&M assessment is used to determine a need for services, establish present levels of performance, monitor achievement of goals, and evaluate the effectiveness of instruction (Bina *et al.,* 2010). The O & M specialist will assess a student's familiarity with the classroom, school and home setting. The specialist will additionally determine the need for pre-cane skills, cane skills, use of specialized devices and general independent travel skills.

In USA, qualified O & M specialists conduct initial and ongoing comprehensive assessments of individuals' travel skills and needs. New O&M assessments need to be conducted with changes in vision, transitions in environment, and as the needs of the individual dictate. The assessment process includes interviews with individuals and other people who interact with them (e.g., family members, teachers, caregivers, support staff); review of medical records (including medications); evaluation of travel skills using formal and informal tools; evaluation of auditory perception and other sensory systems; and evaluation of current and future travel needs. Assessment results are used to determine eligibility for O&M services and to guide subsequent O&M goals. When appropriate, O&M specialists may recommend assessments by other professionals (e.g., audiologists, counselors, physical therapists), (Jacobson, 2013).

According to American Foundation for the Blind (2014), assistive device has removed many barriers to education for the visually impaired individuals. Further, an assistive device facilitates social inclusion and enhances quality of life for helping persons with disabilities to become capable, independent and live a more satisfactory life, (Ring, 2008). In order for the above to be achieved, professions in the field should strive to evaluate the effectiveness of the device in an attempt to provide consumers with the

information that will allow them to have the highest quality experience possible when using the device. Evaluations ought to incorporate perceptions of understudies performing regular assignments in indoor and open air situations, ( Bina *et al.,* 2010). It is best to view O & M instructions as classified in the student's IEP as a process that begins with assessment. The process is practical and ongoing. The target of O & M instructor is to provide a set of instructions followed by practical environment and experience to develop the skills and concepts, ( Fazzi & Naimi, 2010 ).

The O & M evaluation, although not required in Florida in order to determine eligibility for services as a student with a visual impairment, has been identified as an area of need for this population of students (Ambrose & Corn; Emerson & Corn, 2006). One study, the National Longitudinal Transition Study-2 (Cameto & Nagle 2007) reports national data collected for the 2000-2001 school on 480 youths, ages 11-13, through checklist, the provision of O&M and the assessed abilities was unreported. Aliyu, ( 2014) conducted a study entitled " Effects of O & M Training on the Locomotors Behaviour of Students with Visual Impairment". The above study concurs with the current on orientation and mobility evaluation. They differed as the previous study was a longitudinal study and the current was an empirical study

Chao Chien (2012) conducted a study in O&M in India to test whether orientation is significantly related to mobility. National Mobility (2008) in Ireland had a study in mobility experiences and perceptions of blind and visually impaired people. R. P Finger, (2016) study aimed to determine the feasibility of an assessment of vision related O & M tasks in persons with severe vision loss. The study by Finger is similar to the current study as both were based on assessment of severe vision loss and tasks related to O & M.

In Kenya, (Koweru, R.A, Omoke, M.C, Orodho, J. A, 2013) conducted a study in the role of assistive technology on quality education outcome for the disabled. The existing literature on the above studies had similarities in O & M. The study by Chao Chien was a comparative while the current study was an empirical study. The second previous study was on assistive technology while the current was on training of learners on O & M.

A few studies have been published regarding orientation and mobility issues. However, aneed existed for a detailed assessment of teaching orientation and mobility in the schools for learners with visual impairments.

**2.7 Summary**

The previous section had looked into the important literature on orientation and mobility training. Essential viewpoints which had been covered in the section included teacher characteristics, teaching and learning strategies, attitudes of learners with visual impairments and assessing skills of learners who are blind on orientation and mobility.

In consideration of the literature reviewed, it had been found out that orientation and mobility training had been downplayed. Despite the fact a few investigations had been carried out on orientation and mobility in parts of the nations in the world, for instance, practises for deciding the provision of orientation and mobility instruction for students with low vision in Florida, in the United States, little had been done on the same in Kenya. It was conceivable that if similar studies would be done in Kenya comparable outcomes would be realized. While it was obvious that timetabling plays a pivotal part of orientation and mobility training, it was not clear why orientation and mobility training was excluded in the official school timetable in Kenyan schools for learners with visual impairments.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Research Design

The study used a mixed method research approach. Creswell, (2011) asserts that a mixed method research involves collecting, analyzing and mixing both quantitative and qualitative methods in a single study to better understand the research problem. Fraenkel & Wllen (2009), a mixed method research involves the use of descriptive statistics themes to analyze information. This approach was appropriate for this study because it helped compare quantitative data obtained by means of closed- ended questions and qualitative data obtained through interview and open- ended questions to see if they were related.

Descriptive survey design was used to carry out the study since it allowed collection of relatively small amount of standardized information from many respondents within a short period. The researcher administered a survey to a sample of teachers who are specially trained on O & M skills, learners who are blind and house parents. It was presented in both qualitative and quantitative design. Qualitative research was relevant as it allowed the researcher to listen to the views of participants and obtain a detailed understanding of the phenomenon" (Creswell, 2008). Wild and Allen (2009) proposed that qualitative methods are accepted for scientific research to gain a better understanding of the needs of students who are visually impaired.

### 3.2 Area of Study

The study was carried out in the three selected special primary schools in Siaya, Kisumu, and West Pokot Counties in Kenya for learners with visual impairment. The three special primary schools in the counties were purposively selected because O & M specialist had earlier introduced the training of O & M in the schools.

The school in Siaya County is in the Southwest part of Kenya and lies between latitude 0° 26′ N to 0° 18′ N and longitude 33° 58′ E and 34° 33′ W. The school is in South Gem Location in Siaya County (en.wikipedia.org/wiki/siaya, county). The school in West Pokot County is situated in the northwest region of Kenya in the former Rift Valley Province. (en.wikipedia.org/wiki/westpokot county). Its latitude is 1° `3″ 59 99° N and longitude 35° 07° 0.12″ E. The school in Kisumu County is in latitude-0.06067 and longitude 34.81578 in Miwani Location. The study was conducted in these counties due to the fact that the schools were in diverse geographical distances and each school had unique expectations and experiences, though with similar characteristics. Tapping into such diversity was to help the researcher to take care of all the divergent experiences of the participants in regard to the instruction of orientation and mobility.

Cultural practices are valued in the three counties. Economic activities are farming and fishing. The three special primary schools are mixed boarding from ECDE to STD Eight but the study was conducted among boys and girls from STD 4-8.

### 3.3 Study Population

A population refers to an entire group of individuals having a common observable characteristic (Mugenda & Mugenda 2008).The study population was 207 consisting of

171 learners who are blind, 28 teachers and 8 house parents from three selected public primary special schools in Kenya. Learners who are blind from STD 4 -8 were involved because of their age and ability to respond to interview and they are expected to have gone through training on O & M skills.

In the study, the researcher used purposive, simple random and saturated sampling techniques to identify the sample. Purposive sampling was utilised since the researcher only sought cases rich in information for study in depth. In the study the sample participants were selected basing on their knowledge, sufficient and relevant work experience and expertise in regard to the instruction of orientation and mobility. Observation schedule was carried among learners who are blind to assess orientation and mobility skills. Teachers and house parents provided information on the factors influencing implementation of O & M programme for learners who are blind. The total number of teachers, learners who are blind and house parents in the three selected public special schools is shown in Table 3

**Table: 3 Population Distribution in the three selected special primary schools in Kenya**

| **Respondents** | **N** | **%** |
|---|---|---|
| Teachers | 28 | 13.52% |
| Learners with visual impairments | 171 | 82.60% |
| House parents | 8 | 3.86% |
| **Total** | **207** | **100**% |

**Source: Three Special Primary Schools (learners who are blind from class 4-8), Kenya 2015**

### 3.4 Sample and Sampling Techniques.

Orodho (2009) refers to a sample as a small representative portion of a target population. Simple random sampling technique was used to select the three primary special schools for the visually impaired, 57 (33.33%) learners who are blind drawn from the three selected special schools in Kenya to participate in the study. Purposive sampling technique was used to select 7 (25%) teachers who had specialized in orientation and mobility. Saturated sampling technique was used to select 8 (100%) house parents drawn from the three selected primary special schools in Kenya. The sample size distribution was selected as indicated in table 4.

**Table 4: Target and sample population**

| Respondents | Target | Sample size | Percentage |
|---|---|---|---|
| Learners who are blind | 171 | 57 | 33.33% |
| Teachers | 28 | 7 | 25% |
| House parents | 8 | 8 | 100% |

**Source: Three Primary Special Schools (learners who are blind from class 6-8), Kenya 2015**

### 3.5 Instruments

The research objectives formed the basis from which the research instruments were constructed. In the data collection, the researcher used a set of questionnaire for teachers. To supplement questionnaires, there were interview and observation schedules to gather more in-depth information from house parents and learners who are blind. A combination of data collection methods was preferred to avoid response and information bias, ensure validity and accuracy of information derived, Mugenda and Mugenda (2008).

### 3.5.1 Teachers` Questionnaire

Questionnaires are items developed to address a specific objective and research questions of the study. In the current study structured questions which were accompanied by a list of possible alternatives from which respondents select the answers that best describes their situation were used, Mugenda and Mugenda (2008). Questionnaires allowed the collection of small amount of standardized information from respondents over a short period of time. Respondents were asked to rate each item on rating scale that had four levels. Rating scales are the most prevalent scales (Narli, 2010). They are relatively easier to develop and administer compared to other scales.

In order to study factors influencing implementation of O & M programme for learners who are blind, a questionnaire was developed with five items designed. It was piloted in one school representing the different categories of the study. The questionnaire, including a cover letter was distributed to participants. All subjects were expected to respond to the questionnaire and their responses were guaranteed confidentiality. This helped obtain information from teachers in a shorter period of time since they were many.

The researcher did a pre-test of data collection tools to gauge the length of the process checking and ensuring their validity and reliability to identify inappropriate questions which would not yield purposeful information. This helped in detecting errors, identifying areas of difficulties and approximating the time required for data collection. The questionnaire for teachers addressed objectives one and two and attached as appendix i.

### 3.5.2 Questionnaire for Learners who are Blind

The questionnaire for learners who are blind addressed objective three and attached as appendix ii.

### 3.5.3 Interview Schedule

Thomson, (2009) asserts that "Interviews are the central elements of data collection process in phenomenological research. Structured interviews were held with the house parents to collect in—depth information on factors influencing implementation of O & M programme for learners who are blind. Interviews complemented the questionnaire in the collection of information related to implementation of O & M programme for learners who are blind. The interview items addressed the third and fourth objectives and attached as appendix iii.

### 3.5.4 Observation Schedule

In the study, a semi- structured observation schedule was developed based on the work of Mitchell (2008). Non-participant observation was used whereby the observer devised a systematic set of rules for recording and classifying events, and was perceived to be as objective as possible with the least intervention of the observer in the process being observed. This method was preferred as it verified the truth of the statements made by informants in the context of questionnaires and interview schedule. The observation checklist was used to gather data from the learners to give additional information which could not be captured in the questionnaire. It also provided an opportunity to assess the learners who are blind on O & M skills. The researcher considered six hours of active use of the white cane. The observation schedule addressed objective four and was attached as appendix iv.

### 3.6 Validity of the Research Instruments

Orodho (2009), validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under investigation. In this study face and content validity were used. Face validity is a qualitative means of ascertaining whether a measure on the face of it reflects the concept of content, (Creswell, 2009). Content validity, on the other hand, is a qualitative means of ensuring that a measure includes an adequate and representative set of items to cover a concept, (Drost, 2011). In this study the determination of both face and content validity ensured that the research instruments were accurate and there was a clear connection among the questions asked and variables measured. Content validity was utilized on the grounds that it measured the degree to which the sample of the items represented the content that the instruments were intended to measure. To verify the validity of the instruments used in this study, the research instruments were presented to the experts in the department of special Needs Education, Maseno University. They judged the instruments independently and made recommendation on their accuracy. The goal was to approve the instruments as measuring instruments with the end goal for them to be appropriate tools. The suggestions offered were incorporated in the final research instruments before they were pre-tested. The tools were refined based on the recommendations of the lecturers before use.

### 3.7 Reliability of the Research Instruments

Orodho (2009) defines reliability as the extent to which the instrument is stable and consistent across repeated measures. A reliability test is a method of making the test reliable by pre- testing the instrument. This identifies errors found in the study instrument

which can later be corrected. To ensure the reliability, a pilot study was carried out in one school which was not part of the actual study. Instruments were administered to the respondents for the first time then administered to the same participants after two weeks. Mean scores from the tests were then correlated using Pearsons "r". The reliability coefficient was set at 0.70 and above which is considered as an acceptable measure.

Reliability for the questionnaire for teachers yielded a reliability coefficient of 0.86 and questionnaire for learners who are blind yielded 0.83 which indicated that they were reliable.

### 3.8 Data Collection Procedure

The researcher sought permission to collect data from Maseno University Ethics and Review Committee (MUERC). Courtesy call was made to County Director of Education where the three special schools are located. Personal visit to the schools was made to brief those head teachers and participants about the research and for good public relation. A second visit was made for the purpose of data collection. The questionnaires were given to the respondents for filling. The learners were informed clearly about the purpose of the interview and that they would not be linked to any conversation to preserve anonymity and confidentiality. The learners were interviewed individually using the semi-structured interview guides for their perceptions towards orientation and mobility training since some of them were not able to read and respond to a questionnaire. The interview schedule and observation were completed by the researcher and the questionnaires collected after three days.

### 3.9 Methods of Data Analysis

Data analysis is the process of systematically searching and arranging field notes, data and other materials obtained from the field with an aim of increasing understanding and enable one to present them to others (Orodho, 2009). This research produced data that required both qualitative and quantitative data analysis. Quantitative analysis entails analyzing numbers about a situation by choosing specific aspects of that situation.

Descriptive statistics were used to analyze the quantitative data obtained. The statistics that were used included frequency counts, means and percentages. In coding and interpretation of the questionnaires from learners who are blind and teachers teaching O & M, items from open- ended questionnaire were coded with each of the Five- points rating scale. Qualitative data was analyzed by assigning open-ended response to specific response categories each of which was assigned a specific value. The values obtained from both quantitative and qualitative data were entered into the computer and further analyzed to establish the outcomes of the study facilitated by the Statistical Package for Social Sciences (SPSS) version 20.

The data were converted into percentages and was presented in tabular form. For objective one, mean was used to establish teacher characteristics in teaching O & M skills to learners who are blind. Objective two employed the means to establish teaching and learning strategies variable. Objective three employed the use of means, frequency counts and percentages to establish attitude of learners who are blind. The attitude of learners was determined by first summarising the scores of each learner for each item. The sum was then divided by the number of items for each element to obtain the mean score. Mean scores for all the learners were lastly summed up and divided by the total scores of

learners to obtain the general mean score for each element. For negative items, a mean of above three implied negative attitude while a mean of below three implied positive attitude towards the specific element. For positive items, mean of above three implied positive attitude towards a specific element. This was in line with the Likert format that was adopted in the questionnaires to establish learners who are blind attitude towards use of white cane for independence. For objective four, means were used in assessing skills of learners who are blind on orientation and mobility for independence.

The qualitative data of this study was collected from interview and observation schedules. Responses were put into themes and were analysed qualitatively using content analysis. These were preferred in light of their effectiveness and capacity to deal with large amounts of information. It involved description of data as indicated by the responses, data analysis and processing of the information.

### 3.10 Ethical Considerations

Skovdal and Abebe, (2012) , the framework of "moral principles guiding research from its inception through to completion and publication of results" form the basis of the research decision-making process by providing values based on a respect for the rights and dignity of all those involved in the research programme and an integrity to produce valid and credible results. Ethical considerations protect the rights of participants by ensuring confidentiality. It is unethical for the researcher to share identifying information regarding the study with anyone not associated with the study. The respondents were assured of the confidentiality of information given and informed that their views were treated with high confidentiality. Informed consent, confidentiality, security and data management was considered in detail. Skovdal and Abebe, (2012), state that prior to

undertaking any of the research activities each of the participants should receive the briefing document containing a statement of intent to protect their identity during the study and in the publication of results; in addition, they should be informed of their right to withdraw at any time without prejudice. Protection of the respondent's identity, that is anonymity and privacy were highly observed by not capturing respondent's names on the questionnaires. The researcher conformed to the principle of voluntary consent whereby the researcher disclosed the real purpose of the study and gave the respondents a chance to willingly participate in the study.

Informed consent was obtained from the parents or guardians of learners who are blind who assented on behalf of their children. The assent form was signed by the guardian and a copy was issued and a copy retained in the study file. The collected data was kept under lock and key and made accessible only to the researcher. After data analysis, the raw data was kept safely, out of reach of any unauthorized person. Approval to carry out this study was provided by the School of Graduate Studies (SGS) Maseno University Ethics and Review Committee (MUERC).

# CHAPTER FOUR

# RESULTS AND DISCUSSION

This section presents results and discussion on data on factors influencing implementation of orientation and mobility programme for learners who are blind in selected special primary schools in Kenya. The data was collected using questionnaires, interview and observation schedules.

## 4.1 Demographic Characteristics

Demographic characteristics are facts about the make – up of a population. In this study, these characteristics included gender, age, professional qualification and academic qualification. These were considered important variables in this study on factors influencing implementation of O & M programme for learners who are blind. The frequency table displays demographic information of respondents in frequency counts and percentages. From the findings it showed that all learners who are blind were drawn from the special public primary schools. The respondents were requested to provide their gender, age, total length of service, total years of teaching O & M and their professional qualification. The teacher respondents were 4 (57.14%) males and 3 (42.85%) females.

**Table 5: Demographic information of the Respondents**

| Demographic Information | Category | F | % |
|---|---|---|---|
| Age | 19-24 years | - | 5% |
| | 25-30 years | 2 | 28.57% |
| | 31-35 years | 3 | 42.85% |
| | 36-39 years | 1 | 14.25% |
| | >40 years | 1 | 14.25% |
| | | **7** | **100%** |
| Total Gender | Male | 4 | 55% |
| | Female | 3 | 45% |
| | | **7** | **100%** |
| Total length of service | Below 5 years | 1 | 14.25% |
| | 5-10 years | 1 | 14.25% |
| | 10-15 years | 3 | 42.85% |
| | 15- 20 years | 2 | 28.57% |
| | | **7** | **100%** |
| Total years of teaching O & M | 1- 5 years | 3 | 42.85% |
| | 6-9 years | 2 | 28.57% |
| | 10 years & above | 2 | 28.57% |
| | | **7** | **100%** |
| Professional qualification | Certificate in special needs education | 1 | 14.25% |
| | Diploma in special needs education | 3 | 42.85% |
| | Degree in special needs education | 2 | 28.55% |
| | Masters in special needs education | 1 | 14.25% |
| | | **7** | **100%** |

Table 5 indicates that teachers aged between 31- 35 years were the majority teaching in special primary schools for learners with visual impairments with a frequency of 3 (42.85 %). They were closely followed by those aged between 25-30 years at 2 (28.57 %). They were followed by the teachers aged between 36-39 years of age at a frequency of 1 (14.25 %) and those aged >40 years recording 1 (14.25 %). There were no results of those between 19- 24 years in schools for the visually impaired. The majority of the teachers fall between age 31-35 implying that they still a long way to gain more experience in teaching learners who are blind.

Table 5 shows that there were 4 male teachers (57.14 %) and 3 female teachers (42.85 %) of the 7 respondents specialized in Orientation and mobility out of 28 teachers who have special needs education. There was equal gender representation among the teachers in special primary schools for visual impairment.

Establishing teachers' level of education was important for this study as it may help to get in depth information on issues concerning the factors influencing implementation of orientation and mobility and their knowledge. The findings are consistent with Akinsuli (2010) in a study in Nigeria which showed that teachers' qualifications and experience are significantly related to students' achievement. Gaad and Khan (2010) equally argue that teachers who do not have enough knowledge and training to address the needs of learners who are blind cannot be successful in the implementation of orientation and mobility. This study therefore concurs that if training of orientation and mobility is to become effective, it is a requirement for teachers to gain more knowledge and understanding.

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### 4.2 Teacher Characteristics in Training of Learners who are Blind on Orientation and Mobility Skills for Independence

The study sought to determine teacher characteristics on factors influencing implementation of orientation and mobility programme on learners who are blind. It was important to establish the percentage of teachers who had undergone training on how to teach learners who are blind on O & M skills. The results are shown on table 6

**Table 6: Professional/ Academic Qualification**

| Qualifications | Frequency | Percentage |
|---|---|---|
| M .Ed SNE | 1 | 14.25 |
| B. Ed SNE | 2 | 28.57 |
| DIP. SNE | 3 | 42.85 |
| P1/CERT. IN SNE | 1 | 14.25 |
| **Total** | **7** | **100** |

The findings of the study on table 6 indicate that 3 (42.85%) of the teachers had Diploma in SNE. 2 (28.57%) teachers had Bachelor's Degree in SNE. Others 1 (14.25%) teacher and 1 (14.25%) teacher had masters and P1/Cert. in SNE respectively. These are teachers who have SNE qualification with further specialization in O & M.

Teachers' academic and professional qualifications were considered important for this study because teachers who were specialized are reported to be able to develop effective O & M skills, professional attitudes and values. They were also well equipped with the knowledge and ability required to identify and develop the educational needs of the learner/.

Findings of the study are consistent with previous studies by Bauder *et al* (2009), which suggested that few special education teachers feel prepared to teach assistive technologies to students which may impact the extent of AT use in the classroom. They coincide with the study by Karim (1994) who contended that the role of teachers in any educational innovation is very important because their knowledge, skills, and attitudes count a great deal in the success of the innovation. Teachers need time to develop confidence and coping strategies in the context of continuous support in the classrooms. The O & M teacher must have a positive attitude and approach to blindness in general and to independent travel. The teacher character is an indicator of adequate qualification that will determine whether he is qualified. The service for the VI students in need of O & M should be adequate to compensate for the students lack of visual functioning.

Despite having all the teachers in this study qualified to teach SNE in primary schools, only 7 (25%) were trained in O & M. This implied that teachers were not adequate in public special schools to meet the number of learners who are blind who need O & M skills. Individual attention to learners who are blind was not possible since the teachers were not adequate. This implies the need for training more teachers on orientation and mobility.

Since the teaching experience of the sampled teachers was one of the demographic characteristics that the study sought to establish, teachers were asked to state the length of time for which they had worked as teachers.

**Table 7: The Years The Teachers have taught O and M**

| | Frequency | Percent |
|---|---|---|
| < 1 year | | |
| 1-5 years | 1 | 14.25 |
| 6-10 years | 2 | 28.57 |
| >10 years | 4 | 57.14 |
| **Total** | **7** | **100** |

Table 7 above shows that majority of the teachers 4 (57.14%) had taught O & M for >10 years, and 2 (28.57%) had taught O $ M for 6- 10 years. Only a minimal number of 1 (14.25%) teacher had experience of 1 -5 years.

Experience was important particularly for teachers of learners who are blind due to uniqueness of the individual learners. With the expansion of life expectancy, it could be argued that time has come to re-evaluate this uneven distribution of support and to build up a wider core of O & M professional to respond to the growing needs of learners who are blind. Without adequate number of teachers specialized in O & M, it was difficult to cope with the number of learners who require training in orientation and mobility. It was important that teachers attend seminars and workshops to be equipped with essential skills in teaching O & M.

In any profession employees need refresher courses and capacity building to embrace new ideas that might have come up due to research and also to do their work better. Teaching is no exception and in countries like France and Japan it is mandatory that

teachers attend in –service courses to be relevant and to stay in service. As Means and Oslon (2009) noted staff developments continually support teachers not only in technology but even in all curricular contexts. In addition, Wang‟ (2009) observes that apart from professional training, an educator should possess experience, passion, ability and patience for children with difficulties.

With the regular colleges doing little to prepare teachers to teach learners with visual disability as Yusuf (2010) says, in- service courses should be made mandatory after a period of time to refresh the teachers of better teaching strategies for O & M. The in-service courses that are subject- method focused are helpful to teachers as teachers learn new strategies of doing their work. Such courses can be organized at different levels but with the intention of content delivery. Head teachers should be at the fore front in ensuring that teachers teaching in their schools undergo such trainings or even organize an in-house training. The Kenyan situation is different as the teacher can get into service and teach until retirement without a refresher course since the teacher cannot lose certificate to practice if he/ does not attend in-service after a certain period of time.

The teachers were further asked to specify the in-service courses they had attended and their relevance to O & M training. Table 8 shows how the teachers rated the trainings they had attended.

**Table 8: Training and Their Relevance**

| Title of Training | Rating | Frequency | Percentage |
|---|---|---|---|
| O & M | Very relevant | 7 | 38.8 |
| ADL | Relevant | 2 | 11.1 |
| Braille | No relevance | 6 | 33 |
| Low Vision | Relevant | 2 | 11.1 |
| Functional Assessment | Relevant | 1 | 5.5 |
| **Total** | | **18** | **100** |

Table 8 above showed that O & M training attended by 7(38.8%) teachers was very relevant to teaching O & M skills for independence to learners who are blind. Activities of Daily Living, Low Vision and Functional Assessment trainings were also relevant to the training. However, training in braille was not relevant. ADLs are important and form part of making them independent. Nyman, Dibb, Victor and Gosney (2011) showed that people with VI have a lower participation rate in daily activities.

Relevant courses are in line with the New Vision (2012) which reported that teachers should be equipped with the relevant skills to ensure that learners with disabilities achieved their goals.

### 4.3: Teaching and Learning Strategies on Training of Learners who are Blind on O & M Skills

The second objective of the study was to establish teaching and learning strategies on training of learners who are blind on O & M skills.

Teachers' responses on teaching and learning strategies on training of learners who are blind on O & M skills for independence are shown in Table 9

**Table 9: The Extent to which Teachers employ the Teaching and Learning Methods**

| Teaching & Learning Methods | VLE f(%) | LE f(%) | SE f(%) | NA f(%) | M |
|---|---|---|---|---|---|
| Discussion | 2(28.57%) | 1(14.25%) | 3(42.85%) | 1(14.25%) | 2.57 |
| Explanation | 1(14.25%) | 2(28.57%) | 3(57.14%) | 1(14.25%) | 2.42 |
| Play | 2(28.57%) | 2 (28.57%) | 1 (14.25%) | 3(42.85%) | 2.71 |
| Dramatization | | 1(14.25%) | 1(14.25%) | 5(71.42%) | 1.42 |
| Group work | 2(28.57%) | 1 (14.25%) | 1(14.25%) | 3(42.85%) | 2.28 |
| Demonstration | 3(42.85%) | 2(28.57%) | | 2(28.57%) | 2.71 |
| Questions and Answer | 1(14.25%) | 2(28.57%) | 3(42.85%) | 1(14.25%) | 2.4 |
| **Mean** | | | | | **2.35** |

**KEY: VLE=4; LE=3; SE=2 ; NA=1**

Table 9 above indicates that different teaching and learning strategies were used in teaching O & M skills to learners who are blind. The strategies used to a very large extent were demonstration (M=2.71) and play (M= 2.71). The two strategies were followed by discussion (M= 2.57). Explanation as a strategy (M= 2.42), question and answer (M=2.4) and group work (M=2.28). Dramatization (M=1.42) indicating that it was used to a small extent. The overall mean for teaching methods was 2.35 which implied that teaching methods were used to a small extent. Demonstration and play which were used to a very large extent and are learner- centered where teachers do not employ a single teaching method. The approaches emphasize a variety of different types of strategies that shifts the role of the instructors from givers of information to facilitating students' learning. Combination of different strategies is in line with Shaheen (2009);

Hosken, (2008) who stated that combination of instructional strategies intensifies the learning experiences. Helping the students to use more senses effectively enables them to be more aware of their surrounding. This means that they often know when they are at a particular spot and by easily examining it, can start to create a comfort zone for themselves. Children who are blind can initiate their own conceptual learning, an approach that Grieshaber (2010) explains is considered to be more meaningful for young children than more formal teaching approaches. This is the basis for the beginning of self- determined behaviour.

To improve teaching for learners who are blind, learners should be provided with an adapted or a specialist curriculum, provision of adequate teaching resources, IEP to be designed by a multidisciplinary team and all teachers to be given further training on how to differentiate instructions for learners who are blind. Teachers should have access to a wide range of specialist strategies especially where they work with learners with the most complex needs; there is the need for teachers to be able to adapt more generic strategies to meet the specific needs of an individual learner. Teachers should demonstrate understanding of their strategies to ensure they are confident in making adaptations in accordance with the child's development and other needs.

Teachers were further asked, how many lessons they had in O & M per week. The results are shown in table 10.

**Table 10 : The Number of O & M Lessons per Week**

| | Frequency | Percent |
|---|---|---|
| 3 lessons | 4 | 57.14 |
| 2 lessons | 1 | 14.28 |
| 1 Lesson | 2 | 28.57 |
| **Total** | **7** | **100** |

Table 10 shows the results of O & M lessons taught by teachers in a week. 2(28.57%) teachers had 1 lesson for O & M in a week. 4(57.14%) teachers had 3 lessons in one week while 1 (28.57%) teacher indicated that he/she had 2 lessons for O & M in a week.

From the data collection, there was unavailability of time. Findings revealed that whereas these skills were taught, they were not consistent on the timetable. The teacher therefore, had to create his/her own time outside the normal class time to teach these skills. However, the challenge was that lessons for these skills were not plotted on the main school timetable. Such time could not be adequate enough for learners who are blind to grasp the skills and be competent. The findings were consistent with Ogombe (2013) who established that specialist curriculum for the VI in the area of training for O & M was not receiving due recognition as it was not in the school timetable. Therefore, without proper guidelines it becomes difficult for O & M to be implemented. Jha (2008) observed that the curriculum in any education system is one of the major barriers or tools that facilitates the implementation or development of more inclusive system. Thus it was important that these skills be provided for in the school timetable.

In relation to teaching and learning strategies used in the schools, the following question was being responded to: rate the availability of teaching and learning resources. Table 11 is a representation of the availability of the resources in the school.

**Table 11: Teaching and Learning Resources**

| **Resources** | **Available &Adequate** | **Available but inadequate** | **Not available** |
|---|---|---|---|
| | f (%) | f (%) | f (%) |
| White cane | - | 4(57.14%) | 3(42.85%) |
| Time | 1(14.25%) | 4(57.14%) | 2(28.57%) |
| Specialized personnel | 1(14.25%) | 5(71.42%) | 2 (28.57%) |
| Books | - | 3(42.85%) | 4(57.14%) |

Table 11 shows the frequency and percentage which denote available and adequate, available but inadequate and not available as got from the responses in the questionnaires. Available and adequate denote a situation in which a particular resource is there and in the right quantity for use by the students and teachers in a school. Available but inadequate means that the particular resource is there but the number is low for effective use. The rating for white cane showed available but inadequate as 4 (57.14%) and not available as 3 (42.85%). Time as a resource was available and adequate indicated by 1 (14.25%), available and inadequate 4(57.14%) and not available 2 (28.57%). For specialized personnel the ratings were available and adequate represented by 1 (14.25%), available and inadequate 5 (71.42%).and not available 2 (28.57%) Ratings on books were available but inadequate 3(42.85%) and not available 4 (57.14%)

Table 11 shows that in all the schools, the specialized personnel are available although inadequate. These are denoted by 14.25% and 71.42 % respectively. This concurs with findings by Nyende (2012) who argued that despite the Kyambogo University training SNE teachers, the number with skills to teach O & M is disappointingly low to meet the demand. Moore & Skinner (2010), argue it is extremely challenging for service delivery providers to meet needs of family and their children with disabilities, and this is particularly the case for children with low incidence disabilities such as blindness. This, therefore implied that inadequate number of O & M teachers were a stumbling block of effective handling of learners who are blind in teaching O & M.

Textbooks for teaching O & M were found to be available but inadequate 42.85% and not available 57.14%. Availability of O & M books is a motivating factor for learners with VI and teachers to read, more so, if they are of different types. It therefore means that students are limited in getting knowledge as books are the main source of knowledge. This in essence confirms what Ojwang (2011) says that our students, more so from poor backgrounds, are thirsty for books but the books are not there. Without adequate resources we cannot expect learners who are blind to acquire O & M skills and this trend will continue unless the current situation in the schools for VI is changed.

White cane was found to be available but not adequate 57.14% and not available 42.85% in the three schools. The study revealed that teaching and learning strategies depended on teaching methods (M=2.35) and teacher ratings of teaching and learning strategies of O & M at school level (M=2.33), with an overall mean (M=2.34). The study also revealed that teaching and learning resources (white cane, specialized personnel, time and books) were not adequately. Further, the numbers of O & M lessons per week were not consistent as

there were those teachers having 3 lessons, 2 lessons and 1 lesson per week. This showed inconsistency in teaching of O & M. This implied inadequacy of teaching and learning strategies. This implied that the Kenya Institute of Curriculum Development (KICD) had not made any attempt to put in place programmes to help in the teaching of orientation and mobility as well as the trained personnel to advocate for the proper programmes and resources to be availed to help in the implementation of the curriculum.

The researcher suggested that inadequate resources observed by the teachers was a clear reflection of the lack self- assurance in teaching O & M.

Despite the development of a number of high tech devices, the white cane is still the most commonly used mobility aid. Therefore, the learners who are blind should be availed with personal white cane for use out of school. The white cane is a mobility aid that substitutes sight and without it mobility of learners who are blind would be limited. The white cane withdraws and becomes a medium like other senses, but through which the world is experienced and engaged. It extends tactile perception. The user gets mediated perception of the world by experiencing the world through the white cane for O & M.

On teaching O & M at school level the factors affecting the teaching of O & M were rated by teachers as shown in table 12.

**Table 12: Teacher's rating on Teaching O & M at School Level ( n=7)**

| Factor | Very Large Extent f(%) | Large Extent f(%) | Small Extent f(%) | Not at All f(%) | M |
|---|---|---|---|---|---|
| Students attitude towards training | | 1 (28.57%) | 3(42.85%) | 3(14.28%) | **1.55** |
| Students' age at onset of VI | | | 5(71.42%) | 2(14.28%) | **2.05** |
| Inadequate instructional time | | | 4(28.57%) | 3 (28.57%) | **1.85** |
| Teachers' proficiency in O & M skills | | | 4(57.14%) | 3(28.57%) | **3.10** |
| Teachers' attitudes towards learners who are blind | | 2(28.57%) | 2(57.14%) | 3 - | **2.15** |
| Teachers' attitude towards teaching O & M | | | 3(28.575%) | 4(57.14%) | **1.80** |
| Teachers' professional & academic qualification | | 3(42.85%) | 4(57.14%) | | **2.20** |
| Teachers' experience | | 2 (28.57%) | 3(42.85%) | 2(28.57%) | **2.8** |
| In-service training | | 3 (42.85%) | 3(42.85%) | 4 14.28%) | **1.90** |
| Play facilities | | | 2(50%) | 5(15%) | **2.75** |
| **Mean** | | | | | **2.21** |

**KEY: 4.00-3.00 = Very Large Extent; 2.9- 2.00 =Large Extent; 1.9- 1.00= Small Extent; Less than 1 = Not at All**

Table 12 shows teacher's rating on teaching of O & M at school level. The results indicated that inadequate instructional time (M=1.85), learners' attitude towards training(M=1.55), In-service training (1.90), age at onset of visual disability (M=2.05), teachers' attitude towards learners' who are blind (M=2.15), play activities (M=2.75) teachers' attitude towards teaching of O & M (M=1.80), teachers' professional and academic qualification (M=2.20) influence training in O & M to a large extent while teacher proficiency ( M=3.10) and teacher's experience influence teaching of O & M to a large extent.

The findings are in line with a study by Deverell, Taylor & Prentice, (2009).which stated that the social interactions and attitudes to assistive technology of sensory impaired people found that several white cane users had initially avoided the use due to concerns about standing out and being marked as the blind person. The findings were confirmed by a report on Journal of the Australian College of Road Safety (2012) which reported that people who choose not to use a white cane usually say they do not want pity or to show their disability. Whatever is behind such negative stereotypes, it's clear that they present a serious barrier to rehabilitation. The findings were confirmed by Executive Summary (2008), which revealed that participants reported that they considered the offer in training of orientation and mobility skills as not relevant to their situation for various reasons, such as not needing it as they relied on sighted guides as their primary technique. These findings are consistent with recommendations made in a study done by CEC (2003), that teachers should be equipped with basic skills and knowledge in handling children with disabilities.

The O & M instructor should encourage independence as often as possible to avoid the trap of 'learned helplessness'. The learner who is blind needs to be encouraged to travel independently through the classroom and the teacher needs to be patient and have positive attitude. Parents and teachers are to convey a positive attitude about the white cane.

### 4.4 Attitudes of Learners who are Blind towards Use of White Cane Orientation and Mobility Skills

The study sought to establish the attitudes of learners who are blind towards training on O &M for independence. The learners who are blind were asked the following questions about their status on blindness and their responses are tabulated on Table 13

**Table 13: Use of White Cane by Learners who are Blind (n=57)**

| **Statement** | **F (%)** | **F (%)** | **F (%)** | **F (%)** |
|---|---|---|---|---|
| When did you lose your sight? | Since birth<br>16 (28.07%) | 1-4 years ago<br>21 (36.84%) | 5-10 years ago<br>13(22.80%) | 10 & above years ago<br>7(12.28%) |
| When did you start using white cane? | At 6 years<br>8(14.03%) | At 10 years<br>33(57.89%) | At 12 years<br>16(28.07%) | |
| How much time do you spend practicing O & M daily? | less than an hour<br>37(64.91%) | 1-2 hours<br>17(29.82%) | 3-4 hours<br>3(5.26%) | |

Table 13 shows that majority 21 (36.84%) of the learners who are blind became blind 1-4 years ago. 16 (28.08 %) of the learners have congenital blindness. Those who acquired blindness 5-10years ago were 13 (22.80 %). The remaining 7(12.28%) of the learners who are blind became blind 10 and above years ago. More recently, South Well (2012) identified that counselors working with individuals with adventitious vision loss and their family identify issues of identity, stigma and stereotype of white cane as a common issue. Emotions according to Denzel (2009) form the basis of social relationship connecting us to others and influencing our actions.

When learners who are blind were asked when they started using white cane, the response showed that 33(57.89%) of the learners started using white cane at 10 years of

age. Those who started using white at 12 years of age were 16 ( 28.07%) while 8 (14.03%) of the learners who are blind started using white at 6 years of age. A study of adults spatial perception (Fiehler, Reuschel & Rosla, 2009) found that adults who were congenitally blind and started O & M instruction before the age of 12 demonstrated space perception that neared the levels of sighted peers, whereas those who began O & M training after age 12 had lower scores. Scott (2009 ) argued that O & M intervention, particularly in the early years is more holistic than a set of "informal " and " formal" skills, rather, skills need to be integrated in order to facilitate appropriate development in children .Further, Fiehler & Rosler ( 2010) recommend "visually impaired people to start intense O & M training as early as possible". The relevance of O & M intervention, and particularly long cane mobility, during this stage "the children acts towards objects in the world" (Sharon, 2010).

Response on the time spent were as follows learners who are blind who spent less than 1 hour were 37 (64.91%), learners spending 1-2 hours were 17 (29.82%) and blind learners who spent between 3-4 hours were 3 (5.26%). From the response, it can be concluded that learners who are blind have negative attitude towards use of white cane for O &M and that is why the highest number (65%) spend less time on practice

The findings of this study concur with those of Schellmeire et al (2008) who asserted that barriers are in large part due to negative and disabling social attitudes towards impairment due to white cane as symbol of impairment. The findings were echoed by Bell & Silverman (2011) who emphasized the crucial role of social environment and attitudes of significant others in supporting blind individual and adjustment. Perhaps the learners had been associating the white cane with an image of stigma hence the negative

perception towards using the white cane. This finding concurred with Wiener, Welsh, and Blasch (2010), who observed that the perceptions of learners could also be the primary barrier to the successful instruction in orientation and mobility. Most of the perceptions rise up entirely from lacking understanding and opportunities and from the perceptions of peers, teachers and guardians.

Stigmatization associated with white cane use is unfortunately geographically widespread with fear of stigmatization, attracting unwanted attention and preventing integration with sighted people found to be the main barriers to white cane use. This lack of acceptance is due to the stigma associated with long cane use and blindness and possible due to fear of courtesy stigma or being stigmatized by associates.

Parents need adequate sensitization by the government authorities to ensure the safety of movement of persons with visual impairment. Lack of educational outreach and advocacy efforts is a reason for negative attitude towards those with visual impairment in Kenya. O & M skills contribute to development in social, mental and physical interaction and the general well-being of the student who is blind.

The learners who are blind were asked to rate the statements on their attitudes towards white cane for orientation and mobility. The results are shown on table 14

**Table 14: Attitudes of learners who are blind towards orientation and mobility for independence (n=57)**

| Statement | SA f(%) | A f(%) | UD f(%) | SD f(%) | D f(%) | Total Score | Mean Score | Attitude |
|---|---|---|---|---|---|---|---|---|
| I get stigmatized | 13 | 34 | 4 | | 6 | 220 | 3.8 | Negative |
| I worry when using white cane | 18 | 21 | 3 | 8 | 7 | 206 | 3.61 | Negative |
| I fear a lot when using white cane | 17 | 20 | 5 | 6 | 9 | 201 | 3.5 | Negative |
| I avoid using white cane | 11 | 27 | 10 | 5 | 4 | 207 | 3.63 | Negative |
| I feel embarrassed | 19 | 16 | 9 | 7 | 6 | 101 | 3.36 | Negative |
| I feel frustrated when using white cane | 7 | 9 | 6 | 2 | 6 | 99 | 3.3 | Negative |
| I avoid attending white cane demonstration lessons | 9 | 6 | 5 | 3 | 7 | 97 | 3.23 | Negative |
| Response of others affect my use of white cane | 3 | 3 | 2 | 10 | 12 | 65 | 2.16 | Positive |
| I use white cane willingly | 2 | 3 | 5 | 15 | 5 | 72 | 2.4 | Negative |
| I feel courageous using white cane | 1 | 2 | 6 | 14 | 7 | 66 | 2.2 | Negative |
| I feel proud using white cane | 1 | 1 | 9 | 6 | 13 | 61 | 2.03 | Negative |
| I feel confident using white cane | - | 3 | 3 | 7 | 17 | 52 | 1.73 | Negative |

**Overall Key: Strongly Agree (SA); Agree (A); Undecided (UD); Strongly Disagree (SD); Disagree (D)**

Table 14 shows the attitude of the learners who are blind on training O & M for independence in public primary special schools in Kenya. For negative items (stigma,

worry, fear, avoidance, embarrassment, frustration, response of others,& attending O & M demonstration), a mean of above three implied negative attitude while a mean of below three implied positive attitude towards the specific element. For positive items ( willingness, courage, pride, & confidence), mean of above three implied positive attitude towards a specific element The highest rated negative attitude towards training on O & M was stigma (M= 3.8); worry ( M= 3.76 ); fear ( M=3.46); avoidance (M=3.4); embarrassment (M=3.36); frustration (M=3.3); response of others (M=2.16). The highest rated positive was willingness (M=2.4); courage (M=2.2) and the least rated were pride ( M= 2.03) and confidence (M =1.73). The results indicated an overall mean (M=3.3) for negative items implying negative attitude. Overall mean for positive items (M= 2.09) implying negative attitude. This implied that attitude of learners who are blind towards use of white cane for O & M was negative. Attitudes of learners who are blind toward use of white cane for O & M reflect the mixed emotions and beliefs about people who are blind held by society. For some assistive device meant stigma, few came to view it as a source of independence. The findings revealed that majority of the students who are blind were not adequately trained in O & M skills due to their negative attitude towards use of white cane. The findings of the study concur with Erikson (2017) who observed that learners who are blind refuse to carry the white cane to hide their identity.. The findings were echoed by Bell & Silverman (2011) who emphasized the crucial role of social environment and attitudes of significant others in supporting blind individual and adjustment.

Teaching learners who are blind demand besides special knowledge, a high degree of insight, sensitivity and devotion. Attitudes of learners who are blind towards the white

cane reflect the mixed reactions and beliefs about blindness held by society. For some, the cane meant stigma or embarrassment others came to view it as a source of courage, confidence and enjoyment. Learners attitude towards use of white cane depend on motivation and role models.

House parents were interviewed on how they encourage learners who are blind to use white cane for O & M, House parents reported that they do encourage learners who are blind to use white cane. The following verbal quotes were given as for encouragement

House parent 1:

*It will make you move about in school freely.*

House parent 2:

*You will not delay moving to places*

### 4.5 Assessing Skills of Learners who are Blind on O & M

Assessing skills of learners who are blind on O & M was carried out through the use of likert scale in order to find out how white cane for O & M facilitates walking speed; making appropriate judgment; maintaining safety and confidence during training; follow-ups and monitoring done by teachers; appropriate application of cane skills; maintaining proper body alignment during training; using all senses during training; maintaining spatial concept development during training.

The results are shown on table 15.

**Table 15: Assessing Skills of Learners who are Blind on O & M (n=7)**

| Statement | SA | A | R | SD | D | Mean |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| I check that learners make appropriate judgments | | 1 | 1 | 2 | 3 | **2** |
| Safety and confidence are maintained during training | | | 1 | 2 | 4 | **1.57** |
| I do follow ups & monitoring on use of white cane | | 1 | 4 | 1 | 1 | **2.7** |
| I ensure that cane skills are applied appropriately | | 1 | - | 2 | 4 | **1.7** |
| I check that learners who are blind maintain proper body image during training | -- | 2 | 2 | 2 | 1 | **2.7** |
| I check that learners who are blind use all the senses during training in O & M | - | 1 | 1 | 3 | 2 | **2.14** |
| Spatial concept development is maintained within the area of training | | | 4 | 2 | 1 | **2.42** |
| **Mean** | | | | | | **2.17** |

**KEY**: Strongly Agree (SA)=5; Agree ( A)=4 ; Rarely (R )=3; Strongly Disagree (SD)=2; Disagree (D)=1

Table 15 shows ratings on assessing skills of learners who are blind on O & M. Results showed that the highest rated assessment done by teachers was followed by making frequent follow- ups and monitoring use of white cane (M= 2.7) & proper body alignment (M=2.7), followed by spatial concept development maintained within the area of training ( M=2.42) followed by use of all senses was rated with (M= 2.14) checking use of white cane (M=2) and appropriate judgment when using the cane was (M= 1.7), applying cane skills appropriately was rated as (M=1.7). The least rated were safety when using white cane (M= 1.57). This indicated a mean of 2.17. This implied that assessing use of white cane for orientation and mobility for independence was below average.

Findings of the study concur with those of Vayrynen (2008) who observed that with regard to skills a wide range of assessment areas should be developed in order to reflect the diversity of the learner and not to place any learner at a disadvantage due to disability. The study is in line with those of Best, Heller & Bigge (2010) who observe that assessment is usually seen as the beginning of instructional models. They add that attention should be given on the instructional techniques used, the functionality of the skills taught and the age appropriateness of the instructional materials and activities used. O&M skills can be assessed formally and informally through the use of both observation techniques and assessment instruments.

The findings of the study are echoed by those of Hatlen (2008) who stated that most learners who are blind or visually impaired require assistive devices to enhance walking. This means that their walking speed may not match those of the sighted peers. When walking speed does not match, they are poorly accepted by their peers. Peer relations are considered as one of the most vital developmental outcomes as learners reach adolescence. These findings are supported by Nyberg, Henricsson & Rydell, (2008) who states that blind or visually impaired learners do not become socially integrated. A reason for this is that visual information plays a role in the refinement and acquisition of social skills that are necessary for acceptance by peers. Thus they face great challenges when initiating and maintaining interactions with others. Roe (2008) adds that opportunities to interact with others need to be embedded in everyday, whole-class activities and also need to be taken as and when they emerge.

The findings of this study are similar to those of (Bina *et al.*, 2010) who reported that O & M can be measured formally and informally through the use of both observation

techniques and assessment tools.The study confirms an observation by many, (including the researcher) that there was an acute shortage to train the persons with visual impairment in those very important travel skills. Learners who are blind require competence in different areas of development.

Application of white cane skills are pegged on the learners who are blinds' motivation on its use. For learners who are blind to apply white cane skills correctly, they need to understand it as a mobility aid and must be used correctly to locate landmarks and visual cues. An assistive device facilitates social inclusion and enhances quality of life for helping persons with disabilities to become capable, independent and live a more satisfactory life. The training equips the visually impaired person with skills to move around with a good degree of independence building confidence in their ability to travel.
Assessing skills can identify learners who are blinds' strengths and needs, and determine priorities for instruction. The O & M teacher evaluates to what extent the learner who is blind possesses orientation and mobility skills and instructions to be provided accordingly.

In order to get in depth information, House parents were further interviewed and asked if they can assist a learner who is blind to use white cane. All the house parents reported that they do assist the learners who are blind.
The following verbal quotes were given as for assistance:
House parent 3,
*Please carry your cane in the right way. If you don't have a cane you won't go further.*

It is important that learners who are blind are taught the correct body alignment as they use the white cane and there should be uniformity in its use to show that they have mastered the use.

The house parents were further asked on what they do to ensure that all the blind learners get out of the dormitory with the white cane. The following verbal quotes were given:

House parent 4

*Put your cane where you will get it and take it with you tomorrow. Go for your cane.*

Storage after use plays a key role in ensuring that the learner will have ease in remembering its position.

Observation schedule was further used in assessing skills of learners who are blind for orientation and mobility. The results of the observation schedule are depicted on table 16

**Table 16: Observation schedule on assessing skills of learners who are blind on orientation and mobility programme (n=57)**
**Extremely Large (EL)=5; Very Large (VL)=4; Large (L)=3; Small Extent (SE)=2; Not at All (NA)= 1**

| Statement | Ratings | | | | | Total |
|---|---|---|---|---|---|---|
| | 5 | 4 | 3 | 2 | 1 | |
| The learner who is blind uses proper body alignment posture | | 1 | 18 | 10 | 28 | **1.8** |
| The learner who is blind can find his own way around class and compound | | | **-** | **24** | **33** | **1.42** |
| The learner who is blind is comfortable when using the white cane for orientation and mobility | | | **5** | **11** | **41** | **1.36** |
| Recognizes and uses landmarks and cues for orientation purposes | | | **-** | **31** | **26** | **1.54** |
| Willing and motivated to use the cane | | | **2** | **25** | **30** | **1.45** |
| Exhibits confidence during travelling | | | **7** | **18** | **32** | **1.56** |
| Applies cane skills in order to travel safely and independently in indoor environments | | | **6** | **22** | **29** | **1.59** |
| Detects and responds appropriately to obstacles in his path | | **17** | **23** | **11** | **6** | **2.8** |
| The learner who is blind hesitates to use alternate routes | | **10** | **22** | **18** | **7** | **2.6** |
| Learners who are blind can talk and walk simultaneously using the white cane | | **17** | **28** | | | |
| **Total Mean** | | | | | | **1.90** |

Table 16 shows that learners who are blind use white cane for orientation and mobility to a small extent as the rating was (M=1.90) which was the lowest score from the observation schedule. The results concur with studies by Ward and Meijer (2010) who

observed that the white cane has so far failed to be adopted by the blind community. Therefore, assessing skills of learners who are blind on orientation and mobility calls for constant practice by the user to enable them acquire and apply skills correctly and for proper body alignment.

Responses of the qualitative analysis from the interview were related to the questions in accordance with the interview schedule (appendix 3). Of particular importance however, is the fact that even though not all questions was discussed (answered) per se, answers to these questions also provided valuable input. So, the results of the qualitative analysis from the interviews were in agreement with related themes from the literature review and in particular with the theoretical framework in which Havighurst talked of the concept of 'teachable moment' psychologically speaking the teachable moment was the correct time for learning a given task. Successful mastery of those skills resulted in adjustment and would prepare the individual for harder tasks ahead. However, failure in a given developmental task would result in lack of adjustment, increased anxiety, social disapproval and inability to the more difficult tasks to come. Havigurst further emphasized that learning is basic and that it continues throughout life span, occurring in stages, where the individual moves from one stage to the next by means of successful resolution of problems or performance of developmental tasks. One of the tasks for adolescence who are blind was managing orientation and mobility. Havighurst asserted that none of the school could ignore the developmental tasks, for research had shown that those tasks were closely interrelated and that difficulty in one task could lead to difficulty in another. Therefore, teaching O & M was important to students who are blind. However, skilled instruction in O & M could not be given to learners who are in that

manner unless concerted efforts were made to evaluate their O & M skills. Findings of the study agree with the study by Long & Guidice (2010) who observed that for O & M specialists, assessing the ability of individuals who are blind or have Low vision to keep track of self to object relationships and result from movement is a key aspect of instructional process.

The findings of this study concur with Keller (2012) who observed that orientation and mobility was a skill of primary importance in the development of persons with visual impairment. That is because people with visual impairment have limited familiarization and also have to be taught how to move around, a skill which is almost automatic for sighted people. If early O & M intervention is to become standard educational practice, Fine (2012) suggests it will be through "collective action…..People in common course make it happen"

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# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

The chapter looks at summary of the findings, conclusions and recommendations based on the specific objectives which were teacher characteristics, teaching and learning strategies, attitudes of the learners who are blind and assessing skills of learners who are blind on orientation and mobility

## 5.2 Summary of findings

The findings revealed that learners who are blind are not adequately trained on orientation and mobility skills in the three selected primary public special schools in Kenya. To establish factors influencing implementation of orientation and mobility programme for learners who are blind, the study focused on the following specific objectives: determine teacher characteristics on teaching of learners who are blind on orientation and mobility skills, establish teaching and learning strategies for teaching orientation and mobility skills, establish attitudes of learners who are blind towards the use of white cane for independence and assessing skills of learners who are blind on O & M. Conclusions and recommendations were based on the results of the findings.

### 5.2. 1 Teacher characteristics in teaching orientation and mobility skills to learners who are blind

The study revealed that teachers' experience in teaching O & M were indicated as follows: none of the respondents had experience of less than 1 year, 1 (14.25%) had 1-5 years while 2 (28.57%) had 6-10 years of experience and the remaining 4(57.14% ) had

10 years of experience. This implied inadequate teacher training in the area of O & M. As a result teachers did not know the relevant O & M techniques to teach.

The results showed that O & M training attended by 7(38.8%) teachers was very relevant to teaching O & M skills for independence to learners who are blind. Activities of Daily Living, Low Vision and Functional Assessment trainings were also relevant to the training. However, training in braille was not relevant. This therefore means that teachers require in –service (staff development) to improve on their methods of delivery and more so those that encourage O & M for independence. A lot of information on content delivery continuously comes out once teachers are out of colleges and this can only be got through in- service courses.

### 5.2.2 Teaching and Learning Strategies used in Teaching Orientation and Mobility Skills to learners who are blind

The findings of the study revealed that variety of teaching and learning strategies were used for teaching O & M for independence. The teaching and learning methods used to a very large extent were demonstration (M=2.71), Play (M=2.71), discussion (M=2.57), while Explanation (M=2.42), Question and Answer (M=2.4), group work (M= 2.28)), and dramatization (M=1.42) were used to a small extent.

The findings indicated that the teachers who use 3 lessons per week were 4(57.14%) while those who use 2 lessons per week was 1 (14.28%). 2(28.57%) teacher indicated that they use 1 lesson in O & M per week. This implied that teachers took less time in teaching O & M.

The rating for white cane showed available but inadequate as 4(57.14%) and not available as 3(42.85%). Time as a resource was available and adequate indicated by 1(14.25%), available but inadequate 4(57.14%) and not available 2(28.57%). For specialized personnel the ratings were available and adequate represented by 1(14.25%), available and inadequate 5(71.42%) and not available was represented by 2(28.5 %). Ratings on books were available but inadequate and 3 (42.85%) representing available and inadequate while not available was represented by 4(57.14%).

The study revealed that factors influencing implementation of O & M skills were inadequate instructional time (M=1.85), learners' attitude towards training (M=1.55), In-service training (1.90), age on onset of visual disability (M=2.05), teachers' attitude towards learners' who are blind (M=2.15), play activities (M=2.75) teachers' attitude towards teaching of O & M (M=1.80), teachers' professional and academic qualification (M=2.20) influence implementation of O & M to a large extent while teacher proficiency ( M=3.10) and teacher's experience influence teaching of O & M to a large extent. There were no factors which influence teaching of O and M to a small extent or not at all. This implied that time and learners' attitude influenced training to a very large extent.

### 5.2.3 Attitudes of learners who are blind towards the use of white cane for O & M

This section provides a summary of the third objective which was, 'to establish attitudes of learners who are blind towards the use of white cane for orientation and mobility". The study revealed that 21(36.84%) of the learners who are blind lost their sight since birth were 16(28.07%) indicating congenital blindness. Those who became blind 1-4 years were 21 (36.84 %). The learners became blind 5-6 years ago were 13 (22.80). The remaining 10(12.28%) of the learners became blind 10 and above years ago.

Learners who are blind learners who spent less than 1 hour were 37(64.91%), learners spending 1-2 hours were 17(29.82%) and learners who spent between 3-4 hours were 3 (5.26%). it can be concluded that learners who are have negative attitude towards use of white cane for O &M and that is why the highest number 37 (64.91 %) spend less time on practice.

The learners who are blind started using white at different periods of their life. Those who started using white at 6 years were 8 (14.03%) while those who started using white cane at 10 years were 33(57.89%). 16 (28.07%) of the learners who are blind started using white cane at 12 years of age.

The highest rated attitude towards training on O & M was stigmatization (M=3.8), avoidance (M=3.63), worry (M=3.61), fear (M=3.5), embarrassment (M=3.36), frustration (M=3.3), avoiding attending white cane demonstration (M=3.23), Using white cane willingly (M=2.4) response of others (M=2.13); willingness (M=2.4); courage (M=2.2), response of others (M=2.16), pride (M=2.03) and the least rated was confidence to use white cane (1.73) in using white cane. This implied that attitude of learners who are blind towards use of white cane for O & M was negative.

The learners who are blind further indicated that because they do not enjoy using white cane for O & M, they spend minimal time in practice and that is why the highest number (66.67 %) spend less time on practice.

### 5.2.4 Assessing Skills of Learners who are Blind on Orientation and Mobility

Techniques and functionality are key areas for assessing skills of learners who are blind as they move about. When used appropriately assessed on orientation and mobility would provide safe mobility.

Results showed that the highest rated assessment done by teachers was making frequent follow- ups and monitoring use of white cane (M= 2.7), followed by proper body image (M=2.7). Spatial concept development (M=2.42), use of all senses was rated with (M= 2.14). Checking use of white cane (M=2), applying cane skills appropriately was rated as ( M=1.7). The least rated were safety and confidence when using white cane (M= 1.57). This indicated an overall mean of 2.17.Therefore, assessing skills of learners who are blind on orientation and mobility was below average. This implied inadequate mastery of O & M skills.

## 5.3 Conclusions

The purpose of the study was to investigate factors influencing implementation of orientation and mobility programme for learners who are blind in selected public primary special schools in Kenya.

### 5.3.1 Teacher Characteristics in training of Learners who are Blind O & M skills

The study revealed that teachers specialized in O & M are inadequate to meet the number of learners who require O & M training. Moreover, teachers lack capacity building to embrace new ideas that would help them do their work better. Further, experience was important particularly for teachers of learners who are blind due to the uniqueness of the individual learners.

### 5.3.2 Teaching Strategies used in Training of Learners who are Blind on Orientation and Mobility Skills

On teaching and learning strategies the teachers' responses indicated that demonstration and play were used to a very large extent and this was followed by discussion. Discussion, explanation, questions and answers, group work and dramatization were used to a small extent due to inadequacy of resources such as specified syllabus, adequate time, textbook, specialized personnel and white cane which led to inadequate teaching of practical skills.

### 5.3.3 Attitude of learners who are blind towards the use of white cane skills

The study revealed that attitude of the learners who are blind towards the use of white cane for orientation and mobility skills was negative. The negative attitude comes about as a result of avoiding use of white cane, embarrassment, stigma and discrimination associated with the use of white cane.

### 5.3.4 Assessing skills of Learners who are Blind on Orientation and Mobility

The study revealed that orientation and mobility skills of learners who are blind on was below average which implied inadequate mastery of O & M skills. Therefore, evaluation of orientation and mobility skills of learners who are blind be done by teachers to enhance performance levels of learner's mobility skills.

## 5.4 Recommendations

Based on the summary of the findings the following recommendations were made as per the objectives of the study

### 5.4.1 Teacher characteristics in training Learners who are Blind on Orientation and Mobility Skills

It was revealed that the teaching of O & M was not effective in schools for the VI due to the shortage of O & M instructors and omission on the timetable and the teachers of O & M are overwhelmed by the increasing number of learners who are blind to be trained. It is recommended that collective support should be encouraged to help in sharing the task of training on the use of white cane for O & M. It is highly recommended that teachers attend in-service courses to be well versed with teaching of mobility skills to learners who are blind.

### 5.4 .2 Teaching and Learning Strategies used on Training Learners who are Blind on O & M Skills

Teachers should be consistent on instructional time for O & M for independence. Both human and material resource should be adequately availed. O & M teachers should provide support, consultation and materials to SNE teachers with learners who are blind within their classes.

### 5.4.3 Attitudes of Learners who are Blind towards the Use of White Cane Skills

Learners who are blind should be given intensive institutional counselling to avert stigma associated with the use of white cane as a symbol of blindness. Guardians and the other individuals involved should be sensitised on the need to counsel the learners who are

blind on the use of white cane as a mobility aid without fear.There is need for institutional counseling so that learners who are blind can view white cane as an aid that can provide freedom of movement and safe travel. Overall, thoughts, feelings, benefits and experiences of learners who are blind use of white cane are systematically discussed to overcome potential psychosocial issues.

### 5.4.4 Assessing Skills of learners who are blind on Orientation and Mobility

The appropriate age for learners to start using white cane should be specified to enhance functionality of white cane as a mobility aid. Of greater importance are techniques involved orientation and mobility skills.

## 5.5 Suggestions for Further Research

The following topics have been recommended for further research by other researchers who would like to venture in Orientation and Mobility skills:

i) Policy on O & M skills for independence

ii) Effectiveness of Teacher in- service training on learners who are blind on O & M skills

iii) Parental involvement on training on the use of white cane for orientation and mobility.

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# APPENDICES

## Appendix 1: Questionnaire for teachers in the schools for learners with visual impairment

I am a Master of Education student at Maseno University conducting a study entitled "Factors influencing implementation of orientation and mobility programme for learners who are blind in selected public primary special schools in Kenya.". Please respond to the questions honestly. Your responses will be treated confidentially.

### SECTION A: DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

**Demographic Information for the Teachers**

**This information is being taken for information purpose only and will be kept in a safe place**

**Please tick appropriately**

Gender Male ☐

Female ☐

Age 19- 24 years ☐

25- 30 years ☐

31- 35 years ☐

35- 39 years ☐

> 40 years ☐

**A. Professional qualification and academic qualification**

i) Indicate your professional qualification and academic qualification in the following table ( Tick ∨)

Diploma ( )

B. Ed ( )

M. Ed ( )

Others ( )

Specify ……

**B Work Experience**

i) How many years have you taught O & M since attaining 1st professional qualification ( Tick ∨ as approximately )

a) Less than 1 year ☐

( b) 1 - 5 years ☐

( c) 6-10 years ☐

(d) over 10 years ☐

**C In service Training**

i) Have you attended any in – service training on O & M for Learners who are blind? Yes ( ) No ( )

If yes, please enter details of In service training

| Year | Title of training | Duration | Venue | Organization |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ii) For each of the training attended, note its relevance in meeting needs of learners who are blind in O & M

**SECTION B:**

**i) Teacher characteristics in teaching orientation and mobility skills**

1) Indicate your professional/academic qualification

Masters M. Ed [ ]

B. Ed [ ]

B.Ed SNE [ ]

Dip /S1 [ ]

P1 [ ]

2. How many in- service courses have you attended on O & M in the last five years ?

1- 4 **[ ]**

5 & above [ ]

None **[ ]**

3. For how long have you taught orientation and mobility since attaining your first professional qualification?

1- 5 years **[ ]**

6- 9 years [ ]

10 years and above **[ ]**

**Teaching and Learning Strategies used in Teaching O & M skills**

Time on the task, teaching and learning strategies

5. How many lessons do you have in teaching O & M per week, how many do you use?

1 lesson [ ]

2 lessons [ ]

3 lessons [ ]

**Tick ∨ where applicable**

6. Do you have extra teaching time outside the normal school time table?

Yes [ ]

No [ ]

If yes specify the duration ( i ) 1 hour per week [ ]

( ii ) 2 hours per week [ ]

( iii) 3 Hours per week [ ]

( iv ) None [ ]

( v ) Not applicable [ ]

If no provide reasons……

**Rate the availability of the following teaching resources used in O & M in your school**

| | **Resource** | **Adequate** | **Not adequate** | **Not available** |
|---|---|---|---|---|
| 1 | White cane | | | |
| 2 | Time | | | |
| 3 | Specialized personnel | | | |
| 4 | Books | | | |

**G . Indicate the extent to which the following factors influence training of O & M at the school level.**

**The list of alternatives are:**

**To a Very Large Extent ( VLE )**

**To a Large Extent ( LE )**

**To a Small Extent ( SE )**

**Not at All ( NA )**

**Tick ( ∨ )**

| | **Factor** | **VLE** | **LE** | **SE** | **NA** |
|---|---|---|---|---|---|
| 1 | Learner's attitude towards assessment on O & M skills | | | | |
| 2 | Learner's age at the onset of blindness | | | | |
| 3 | Inadequate instructional time | | | | |
| 4 | The proficiency in O & M | | | | |
| 5 | Teacher's attitude towards learners who are blind | | | | |
| 6 | Teacher's attitude towards O & M programme | | | | |
| 7 | Teacher's professional and academic qualification | | | | |
| 8 | Teacher's experience | | | | |
| 9 | In service training | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 10 | Play facility e.g space | | | | |

**Assessing O & M Skills of Learners who are Blind**

Select and tick ( ∨ ) the column that best suits your opinion towards assessing skills O & M skills of learners who are blind

| | Statement | SA | A | U | D | SD |
|---|---|---|---|---|---|---|
| 1 | Use body image correctly | | | | | |
| 2 | Learners develop spatial concept | | | | | |
| 3 | Learners master Cane skills | | | | | |
| 4 | Make appropriate judgment | | | | | |
| 5 | Refuse/ accepting assistance | | | | | |
| 6 | Learners display Safe movement and confidence | | | | | |
| 7 | Learners have Sensory skills | | | | | |

**Appendix 2: Questionnaire for Learners who are Blind**

My name is Dorothy Randiki, a Master student, Maseno University. I am carrying out a study on "Factors influencing implementation of orientation and mobility programme on learners who are blind in selected public primary special schools in Kenya". You have been selected as a respondent in the study because of your role in use of white cane for O&M. Based on your experience and knowledge, please provide your views pertaining to the study.

**Instructions:** The purpose of this study is to establish the attitude of blind learners towards assessment on O & M skills

**Put a tick against the response that best suits your understanding**

1) When did lose your sight?

I was born blind [ ] 1-4 years ago [ ] 5-10 years ago [ ]

10 years & above [ ]

2) When did you start using white cane? At six of age [ ] At Ten years of age [ ] At 12 years of age [ ]
3) How much time do you spend practicing O & M? Less than 1 hour [ ] 1-2 hours [ ] 3- 4 hours [ ]

**The scores are as shown below**

| **Strongly Agree** | **Agree** | **Undecided** | **Strongly Disagree** | **Disagree** |
|---|---|---|---|---|
| **5** | **4** | **3** | **2** | **1** |

**Rate your attitude towards use of white cane for O & M**

| | **Attitude towards using white cane** | **SA** | **A** | **UD** | **SD** | **D** |
|---|---|---|---|---|---|---|
| 3 | I avoid using white cane | | | | | |
| 4 | Response of others affect my use of white cane | | | | | |
| 5 | I feel embarrassed using white cane among my fellow learners | | | | | |
| 6 | I worry being watched when using white cane | | | | | |
| 7 | I get stigmatized when using white cane | | | | | |
| 8 | I fear using white cane because I keep on trampling on objects | | | | | |
| 9 | I feel frustrated whenever I miss a direction | | | | | |
| 10 | I avoid attending O & M demonstrations because O & M | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | lessons bore me a lot | | | | | |
| 11 | I am willing to use the white cane for orientation and mobility | | | | | |
| 12 | I feel courageous and independent using white cane for O & M | | | | | |
| 13 | I feel proud using white cane independently | | | | | |
| 14 | I feel confident using white cane for O&M | | | | | |

**Appendix 3: Structured Interview schedule for house parents**

**Factors influencing implementation of orientation and mobility programme on learners who are blind in selected public primary special schools in Kenya".**

**Name of School ……. Sub- County …….**

**Number of learners with visual impairments ……**

This interview schedule is to help the researcher gather information factors influencing implementation of O & M programme for learners who are blind. All information given will be treated with utmost confidentiality

1) Can you assist a learner to use the white cane correctly?

If yes, where did you learn how to assist learners?

2) What do you do to ensure that all learners get out of the dormitory with a white cane?

3) How do you encourage learners to use white cane for O&M?
4) What do you do when a learner comes to the dormitory/Hall without a white cane?

**Appendix 4 : Observation schedule**

The purpose of this observation schedule is to establish Factors influencing implementation of orientation and mobility programme for learners who are blind in selected public primary special schools in Kenya". The scores are as shown below

| **Extremely Large (EL)** | **Very Large (VL)** | **Large (L)** | **Fairly Large (FL)** | **Not At All** |
|---|---|---|---|---|
| **5** | **4** | **3** | **2** | **1** |

**To what extent does the learner who is blind use the following skills?**

| | **Skills** | **EL** | **VL** | **L** | **FL** | **NA** |
|---|---|---|---|---|---|---|
| | | **5** | **4** | **3** | **2** | **1** |
| 1 | The learner who is blind uses Body alignment posture | | | | | |
| 2 | The learner who is blind can find his own way around class and compound | | | | | |
| 3 | The learner who is blind is comfortable using white cane for O & M | | | | | |
| 4 | Recognizes and uses landmarks and cues for orientation purposes | | | | | |
| 5 | The learner who is blind is willing and motivated to use the white cane | | | | | |
| 6 | Exhibits confidence in movement | | | | | |
| 7 | Applies cane skills in order to travel safely and independently in indoor | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | environments | | | | | |
| 8 | Detects and responds appropriately to obstacles in his path | | | | | |
| 9 | The learner who is blind hesitates to use alternate routes | | | | | |
| 10 | The learner who is blind can talk and walk simultaneously | | | | | |

**Appendix 5: A Consent Form**

**CONSENT TO SERVE AS A SUBJECT IN RESEARCH**

I consent to serve as a subject in the research investigation entitled "Factors influencing implementation of orientation and mobility programme for learners who are blind in selected public primary special schools in Kenya".

The nature and general purpose of the research procedure and the known risks have explained to me by the principal investigator. The investigator is authorized to proceed on the understanding that I may terminate my service as a subject at any time I so desire. I understand the known risks that specific details of the research cannot be indulged until data has been collected.

I understand that it is not possible to identify all potential risks in research procedure and I believe that reasonable safeguards have been taken to minimize both the known and unknown risks.

Witness…….. signed …….. ( subject)

Date ……

**Appendix 6: Parent Consent Letter**

Dear parent/ guardian,

Your child …….. has been identified to participate in the research investigation entitled “Factors influencing implementation of orientation and mobility programme for learners who are blind in selected public primary special schools in Kenya”.

I am asking you to permit your child to take part in the research process. Any information from this study will be treated with confidentiality.

Yours sincerely,

Randiki Dorothy Mango

RESEARCHER

**Appendix 7: Letter of Approval**