THE CHALLENGES OF INCLUSIVE TECHNICAL TRAINING EDUCATION FOR LEARNERS WITH VISUAL IMPAIRMENTS IN MACHAKOS, KENYA.

BY

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DECLARATION

DECLARATION BY THE STUDENT

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DEDICATION

I dedicate this work to my God.

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I thank God for having given me the energy, grace and wisdom to pursue my studies for over the last 50 years, up to this far. I am also grateful to; Moi university, Moi university management, my lecturers and supervisors; for guiding and giving me the necessary support to improve this work.

ABSTRACT

Kenya Government adopted Inclusive Education for learners with Special Needs Education (SNE) in most of its learning institutions. However, some challenges have been reported in primary, secondary and university inclusive education sectors. The purpose of this study was to find out the challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Machakos Technical Training Institute for the Blind (MTTIB). The objectives of the study were to find out the impact of: Instructional materials, teacher's experiences and qualifications, learners' relationships and the external environmental factors. The study adopted Gagne's Theory of Instruction, and Shulmans' Pedagogical content of knowledge theory respectively. A Mixed method research approach research was used. The target population included: Principal, Heads of departments, Integrated sighted and visually impaired learners, trained and untrained teachers, and support staff. Purposive, random and proportionate sampling procedures were used to sample 164 participants. Questionnaires, interviews, and observations schedules were used to collect data. Piloting was carried out for reliability and validity of the instruments. Qualitative data were analyzed using content analysis, whereas quantitative data were analyzed descriptively using percentages and pie charts. The study revealed that there was lack of enough specialist adapted instructional materials for the learners with visual impairments, teacher's lack of ITTEVI specialist experiences and qualifications affected the quality of ITTEVI training. Unfriendly relationship between sighted and visually impaired learners posed challenge to the management and teachers. Unfavorable environment such as inaccessible terrains, fences and lack of adaptations in the workshops scared the visually impaired. Lastly, some of the sighted learners were not willing to participate in the co-curricular activities with visually impaired learners. This study recommends that MTTIB management needs a clear understanding of ITTEVI requirements and avail enough adapted facilities, personnel and environmental adaptations for ITTEVI, in order to improve the ITTEVI quality and make the training process friendly and accommodative for both sighted and visually impaired learners in Machakos, Kenya.

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ABBREVIATIONS

APDK	Association for the Physically Disabled in Kenya
ECDE	Early Childhood Development and Education
EFA	Education for All
IEP	Individualized Educational Programme
ITTEVI	Inclusive Technical Training Education for Visually Impaired
MDGs	Millennium Development Goals
MTTIB	Machakos Technical Training Institute for the Blind
PCK	Pedagogical Content Knowledge
PTRs	Pupil-Teacher Ratios
SNE	Special Needs Education
TIVET	Technical, Industrial, Vocational and Entrepreneurship Training

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This study chapter, about the Challenges of Inclusive Technical Training Education for Learners with Visual Impairments, gives the background of the study, the statement of the problem and purpose of the study, the objectives and the research questions. It has also dealt with significance, justification of the study, scope and limitations, assumptions of the study, theoretical framework and operational definition of terms.

1.1. Background of the Study

Kenya Government's vision for education is to have quality education and training for development,(Koech Report, 1999)**.** Its mission is to provide, promote and co-ordinate quality life-long education, training and research for Kenya's sustainable development and responsible citizen amongst other things. This makes the purpose of Kenyan education and training focus on the development of an individual's personality, in order to enable him fit into society as a productive and civilized individual. Education and training, therefore, seeks to offer equal opportunities to all learners (Republic of Kenya, Ministry of Education, Science and Technology Sessional Paper No 1 of 2005)**.** It is clear that the long-term objective of the Kenya Government is to provide every Kenyan with basic quality education and training. Consequently the Koech Report (1999) recommended ways and means of enabling the education system facilitate accelerated industrial and technological development, life-long learning and adaptation in response to changing circumstances amongst other things.

Performance of Education sector, since independence in 1963 is remarkable. Learners at various levels of education have substantially increased. For example, Formal public primary schools enrolment grew from 891,533 pupils in 1963 to 7.2 million pupils in 2004 (3.5 million girls and 3.7 million boys), and the secondary level enrolment grew from 30,000 learners in 1963 to 862,908 learners in 2003 (415,246 girls and 447,662 boys).

Kenya has 4 national polytechnics, 17 institutes of technology, 1 technical teachers' training college, 21 technical training institutions, over 600 youth polytechnics distributed throughout the country and over 1,000 commercial colleges that offer courses in computers and non-technical areas of training. Overall the total enrolment in public Technical, Industrial, Vocational and Entrepreneurship Training (TIVET) institutions has increased to over 79,000 learners in 2003, (44% of which were females), (Republic of Kenya, Ministry of Education, Science and Technology Sessional Paper No 1 of 2005).However, when it comes to people with special needs, most people prefer not to present them for enrolment in any form of education or training, as opposed to their ordinary people due to the socio-cultural bias. People with special needs are viewed as of less value and a burden to the society (Republic of Kenya; Special Needs Education Policy, Draft, 2008).

Enrolment in special needs education programmes is very low compared to the regular schools. It is also very low at tertiary level. Out of a total population of over 800,000 children with special needs only 10%, (about 100,000 of them), have been assessed to establish the nature of their special needs in education. On average, most

of the children with special needs go to school when they are over 8 years old, and become adults before they complete their educational programmes (Republic of Kenya; Special Needs Education Policy, Draft, 2008).

Unlike in the past when special education used to be provided in special schools and special units attached to regular schools, Kenya has adopted inclusive education through regular schools. The Kenyan government is making efforts to support learning among children with special needs by removing existing barriers that make the learning environment unfriendly to learners with special needs. The Kenya Government, for example, is giving grants to educational institutions with learners with special needs to facilitate procurement of the needed equipment and instructional materials, as well as sponsoring the training of special teachers at all levels in order to build the capacity (Republic of Kenya, 2005).

Machakos Technical Training Institute for the Blind (MTTIB) was part of and curved from Machakos regular Technical Training Institute by early 1960s' It was made to train the totally blind people in isolation. Regular (sighted) learners were introduced into the institute by the year 1988. This was after the initiative of Kitui Integrated programme for the learners with visual impairments.(i.e. inclusive primary education for the learners with visual impairments). There is no Policy or Guidelines on how to manage ITTEVI provisions challenges in Kenya up to the date of this study. That is why this research is of great value to the Machakos Inclusive Technical Training Education for the Visually Impaired in Kenya and beyond.

1.2 Statement of the Problem

The optimal and overall policy for the Kenya Government is to achieve Education for All (EFA) to give every Kenyan, (including those with special needs), the right to education and training no matter ones' physical or socio-economic status. This is based on the understanding that quality education and training contributes significantly to economic growth and the expansion of employment opportunities (Republic of Kenya, 2005). This adds much more value to as far as the education and training of people with special needs is concerned.

However, despite the notable increased enrolment, achievements and substantial allocation of resources to the sector Ministry of Education is quoted as to be facing some challenges (Republic of Kenya, 2005). Amongst the list given as the challenges mentioned by the Republic of Kenya, Ministry of Education; the challenging issues on education; Inclusive Technical Training Education for the Visually Impaired appears not to have been investigated much, hence generating a training facilitation gap in Kenya thus the justification for this study. Objectives of this study and its findings, addresses such ITTEVI gaps in Kenya and beyond.

1.3 Purpose of the Study

The main purpose of this study was to find out whether there is any; challenge of the instructional materials, teachers' attitudes, and the learners' attitudes on the provision of ITTEVI to the learners in MTTIB. It was also made to establish if there is any

challenges posed by the MTTIB environmental factors, the teachers' qualifications and **w**orking experiences on the Inclusive Technical Training Education for learners with Visual Impairments (ITTEVI) in Machakos Technical Training Institute for the Blind (MTTIB).

1.4 Objectives

The objectives of this study were:

1. To find out the challenges of instructional materials on provision of inclusive Technical Training Education for Visually Impaired Learners in MTTIB
2. To determine the challenges of teachers attitudes on provision of inclusive Technical Training Education for Visually Impaired Learners in MTTIB.
3. To determine the challenges of learners' attitudes on the provision of inclusive Technical Training Education for Visually Impaired Learners in MTTIB.
4. To establish the challenges of the MTTIB environmental factors on the provision of inclusive Technical Training Education for Visually Impaired Learners in MTTIB.

1.5 Research Questions

The present study sought to answer the following research questions:

1 What are the challenges of instructional material on the provision of ITTEVI in MTTIB?

2 What are the challenges of teachers/instructors attitude on the provision of ITTEVI in MTTIB?

3 What are the challenges of learners' attitudes on provision of ITTEVI in MTTIB?

4 What are the challenges of the MTTIB environmental factors on the provision of ITTEVI in MTTIB?

1.6 Significance of the Study

This study sought to establish the challenges of inclusive Technical training education for learners with visual impairments in Machakos Technical Training Institute for the Blind (MTTIB) Kenya. It is hoped that the study findings will be used to monitor and evaluate Technical training for the blind in inclusive settings in Kenya and beyond.. The knowledge generated by the study is expected to be used by the Kenya Government, Ministry of Education, Administration and Quality Assurance Departments to provide indicators for the blind with means of assessment on how Kenya is conducting Inclusive Technical Training Education for learners with Visual Impairments (ITTEVI). This will help in evaluating the Technical and Vocational Education and Training (TVET) as well as those vocational and rehabilitation projects of people with Special Needs in Education (SNE).

The findings of the study may also be used to develop instructional packages for enhancing quality in the inclusive technical training programmes for learners with visual impairments; adapted curriculum, specially trained teachers, adapted instructional materials as well as adapting the integrated institutions for learners with

visual impairments environments. The findings will also be used to improve the ITTEVI activities in Machakos, Kenya and beyond. This is besides identifying promising practices, develop models and propose a model of Technical teacher preparation for competent teachers of Inclusive Technical Training Education for visually impaired (ITTEVI).

Findings of this study should stimulate interest and debate on Inclusive Technical Training Education for Visually Impaired and the Special needs education teacher training education policies that would lead to informed qualities of ITTEVI in Kenya and beyond. It should equally mean to encourage those concerned with Special Needs Education (SNE) and Technical and Vocational Education Training (TVET) examine their current curricular with a view of incorporating the relevant recommendations to improve Inclusive Technical Training Education for Visually Impairment (ITTEVI) preparations.

1.7. Justification of the study

Though Republic of Kenya, Sessional Papers (No 1 and 2 of 2005) gave some of their suggestions on how to increase relevance, access and improve on quality of education and training of learners with special needs as; Integrating special education programmes in all learning and training institutions and ensuring that the institutions are responsive to the education of learners with special needs and providing instructional materials through the waiving of duty on specialized equipment and materials. It also suggested that providing incentives for local production of such

equipment as a way of reducing the cost of providing special needs education would be necessary as well.

Republic of Kenya Ministry of Education, Special Needs Education Policy, Draft (2008) still acknowledges however, that some of the main challenges relating to access and equity in the provision of education and training to children with special needs to be; lack of guidelines to support inclusive education implementation, inappropriate infrastructure and inadequate facilities and lack of equipment for the learners with special needs included in regular institutions, the current examination system which appears to be limiting and rigid and denies the majority of learners with special needs opportunities for higher education, lack of coordination among service providers, and inadequate supervision and monitoring of programmes for learners with special needs amongst others.

Another rationale for this study is the outcry and lack of realistic research on challenges of inclusive Technical Training Education for Visually Impaired (ITTEVI) in Kenya. In addition the researchers' effort is to meet one of the Special Needs Education Policy, Draft (2008) overall objective requirements that it shall aim to support research and development on SNE, documentation and dissemination of relevant information. The researcher believes that accessible, equitable, relevant and quality Inclusive Technical Training Education for Visually Impaired (ITTEVI) can help people with visual impairments access better employment to assist them improve their quality of lives, live autonomous lives and be self-reliant and independent.

Based on the above observations, the researcher is inspired to investigate inclusive Technical Training Education for the blind so that the findings can form a knowledge base which can be used to improve inclusive Technical Training Education for Visually Impaired (ITTEVI), improve the existing ones, besides producing a blue print that can be used by other institutions wishing to start an Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Kenya and beyond. The study findings will also be used to propose a model of Excellency for Inclusive Technical Training Institution for Visually (ITTEVI), in Kenya and beyond.

1.8. The Scope of the Study

The study focused on the Challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI) learners in Kenya, and was conducted in Machakos Technical Training Institute for the blind, (Machakos Bronchure, 2012). It was converted into an Inclusive Technical Training Education for Visually Impaired in 1989, and has over the years grown to the current status.

The study targeted teachers, the visually impaired learners, sighted learners, and the support staff, in the Inclusive Machakos Technical Training Institute for the visually impaired in Machakos Technical Training Institution for the Visually Impaired learners. The unit of analysis was the samples drawn from Machakos Technical Training Institute for the Blind inclusive programme population (visually impaired and sighted learners, teachers and support staff). The data was obtained by use of Interviews, Observations, questionnaires and focused discussions. The methodological scope was a case study design.

1.9. Limitations of the Study

Inclusive Technical Training Education for Visually Impaired (ITTEVI) lacks sufficient literature. Therefore, the Technical and Vocational Education and Training literature has been much useful the aspects of Inclusive Technical Training for Visually Impaired (ITTEVI). However, it should also be noted that this study had no control over the exact information the partners of Machakos Technical Training Institute for the Blind (MTTIB) gave or held.

1.10. Assumptions of the Study

The study had made the following assumptions that:

a) All MTTIB participants were willing to participate in the study.

b) Not all the Ministry of education departments are aware of the challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Kenya,

c) All the participants were honest and responded to all the items accurately.

1.11. Theoretical Framework

The study was based on two theories, namely the Gagne's (1985) theory of Instruction and the Shullman's (1986) Pedagogical Content Knowledge (PCK) theory respectively. Gagne's (1985) theory of instruction acknowledges that learning is established and made certain by management of internal conditions of the learner and

external conditions of learning which influence the learner in an educational setting, while Shulman's (1986) and Single (2009) theories advance a view that the teachers professional knowledge draws from sources of knowledge which can be identified.

PMCD (2002) and Shullman (1986) observe that pedagogical content knowledge comes from three sources, which are, the discipline perspective, learner perspective and general methodology perspective. They further identify sources of knowledge as; content knowledge, pedagogical content knowledge, knowledge of aims and purposes, knowledge of learners and knowledge of educational context settings and governance. Shulman (1986) further asserts that these sources of understanding, of which teachers' pedagogical content knowledge is the most important element, make the process of pedagogical reasoning and action possible.

In light of the Gagne's (1985) theory, the researcher observes that in each learning of technical course in an ITTEVI setting, just like in any other discipline, it involves the strengthening of a learner's, tendency to respond in a certain tactual or audial way to a given set of circumstances in the classroom or in a workshop for this matter. This remains true whether the learner is visually impaired or not.

Whereas, for example, a sighted learner's tendency to grasp and understand concepts inherent in technical courses is evoked through presentation of visual media in a particular way, and then learning is expected to take place, for a visually impaired learner to grasp and understand such concepts is evoked through presentation of

tactual media, gustatory media, olfactory media or auditory media in a specialized way for the learning to take place, (Boon 2007, Hallan's 1991 and Brolin, 1982).

No doubt, all these processes have direct bearing on the internal state of a learner and the external conditions that surround the learner. They are necessary and sufficient antecedent conditions for any learning to take place. Similarly David (2013), Kauffman (2009) and Sutherland (1992) confirm that for any learner who is visually impaired, or not acquire the tendency to act, to demonstrate, to think, to speak, or to feel in a desired way. These are the conditions that facilitate learning. Therefore; the internal and external conditions of that learner must be well planned and managed. The same applies to MTTIB Inclusive Technical Training Educational for Visually Impaired learner's settings in MTTIB in the context of this study.

In his presentation of the certain conditions that precede the learning events Gagne (1985) underlines that these conditions operate to determine the probability of one, the internal conditions of a learner, thus with special needs (visual impairments or not), represented by learners physiological and psychological readiness for learning and, two, the external conditions of learning, which are represented by external events of instruction. In addition Gagne (1985) concluded that efficient learning situation is not guaranteed outside the internal and external conditions of the learner. They are of the opinion that a teacher has a role to influence these two major premises. This is in order to facilitate occurrence of the desired learning, (Davis, 2011 and Dorothy, 2013).

In other words learning is established and made certain by management of internal conditions of the learner and external conditions of learning which influence the learner in educational setting, (in an inclusive technical training educational setting in the context of this study). Therefore in the context of this study that the fundamental tenets in this theory of instruction and learning are basically hinged on antecedent prerequisite conditions necessary in a learner and those in his environment, which facilitate learning occurrence.

The researcher is of the opinion that, if prerequisite internal conditions are present in the learners and if the appropriate external conditions are arranged and manipulated, then, the desired inclusive technical training learning for visually impaired in Machakos Technical Training Institute for the blind occur. In fact, the external events in a learning situation, as represented by teaching methods and instructional media should be verbally clear, visually and tactually strong, appropriately arranged and systematically presented to the learner. Gagne (1985) reminds that, the impact of learning is experienced through the organization and presentation of external events of instruction to a learner. This is a suggestion that, the arrangements and manipulation of instructional methods with accompaniment of visual or tactual media can increase learning. This premise is, no doubt, one of the major concerns in this study.

Turning on to Chandlers' (2010) and Shulman's (1986) supporting Gagne (1985) understanding is that, it is the pedagogical content knowledge that distinguishes a

professional teacher from any other teacher. The general methodology perspective, for example, require that a teacher become conversant with the various methods of teaching and the advantages and disadvantages of the various teaching methods employed amongst other things.

In light of Gagne's (1985) findings that; learning is established and made certain by management of internal conditions of a learner and external conditions of learning which influences the learner in an educational setting; was the theoretical basis of this investigation namely; Challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI); A case study of Machakos Technical Training Institute for the Blind (MTTIB) in Machakos County, Kenya.

The study was to investigate into the challenges of Machakos Technical Training Institute for the blind inclusive education, attitudes of those involved in the programme (teachers and learners), availability of instructional materials, challenges of MTTIB environmental factors and the challenges of teacher's qualifications and experiences. The study investigated, the degree into which MTTIB teacher's experiences expected for ITTEVI and poses challenges in the capacities and competencies needed to implement inclusive technical training education for visually impaired in Machakos Technical Training Institute for the Blind. The existing Machakos Technical Training Institute for the blind educational arrangement and its ability and willingness to create more time, put extra effort and patience for the its visually impaired learners are the factors forming the critical aspects for this study.

In summary, the challenges of MTTIB instructional materials, teacher's and learner's attitudes, MTTIB environmental factors, and the implications of the MTTIB teacher's qualifications and experiences on the desired MTTIB learners' performances in the ITTEVI in Machakos, Kenya, are key aspects in this study (Fig.1.1).

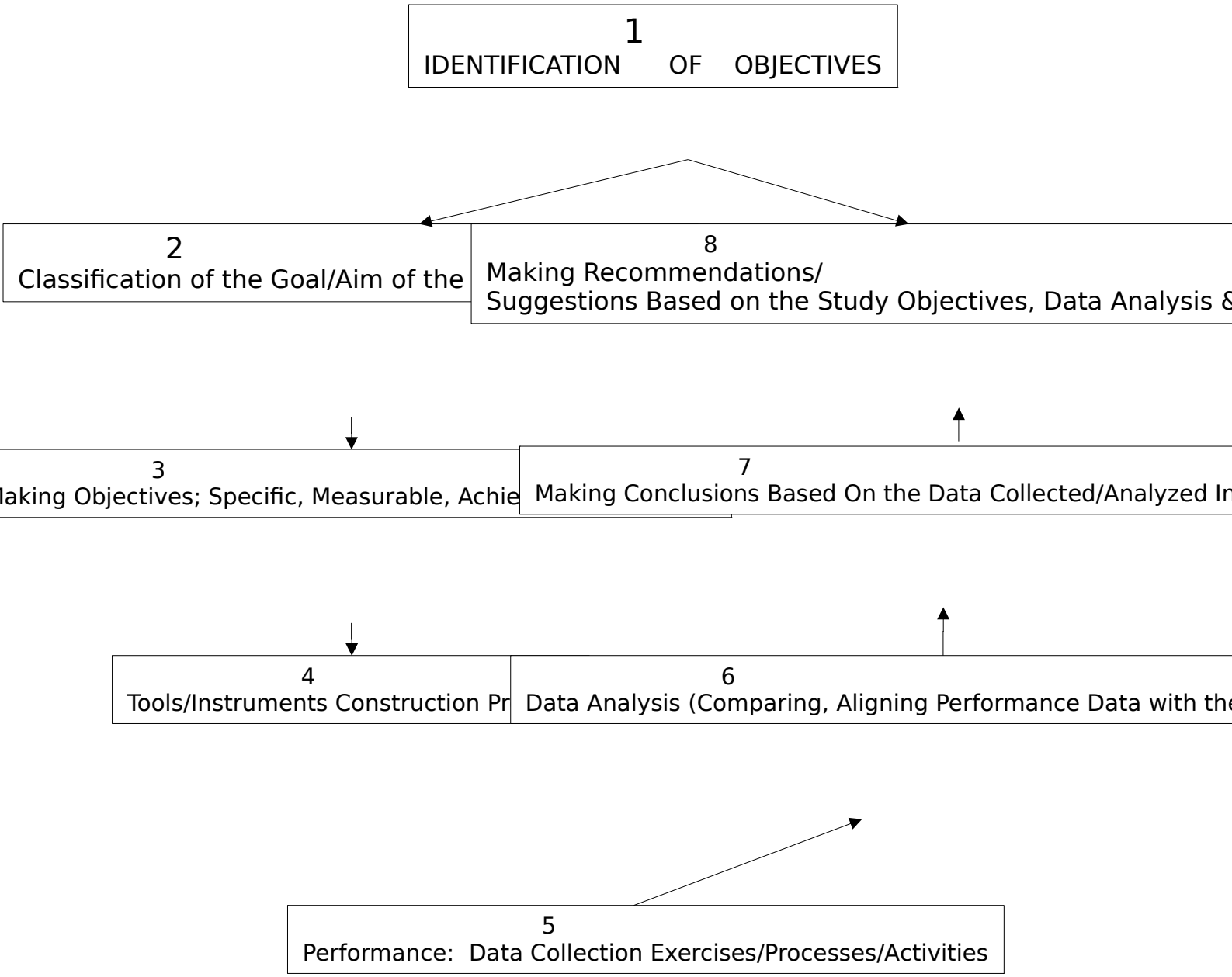

1
IDENTIFICATION OF OBJECTIVES
2
Classification of the Goal/Aim of the
8
Making Recommendations/
Suggestions Based on the Study Objectives, Data Analysis &
3
aking Objectives; Specific, Measurable, Achie
7
Making Conclusions Based On the Data Collected/Analyzed In
4
Tools/Instruments Construction Pr
6
Data Analysis (Comparing, Aligning Performance Data with the
5
Performance: Data Collection Exercises/Processes/Activities

Figure 1.1.Tylerian Model of Programs Evaluation

1.12. Conceptual Framework

The organizational, Machakos Technical Training Institute for the Blind, arrangement and willingness to give extra time, patience and effort for the implementation of inclusive Technical Training Education for Visually Impaired (ITTEVI) are the main factors that forms the main part of the conceptual frame work of this study. Thus, on the basis of such a theoretical framework, a conceptual frame work would be developed as a training model for ITTEVI in Kenya.

This study, which was evaluative in nature, was centered on the social interaction and learning aspects of the Inclusive Machakos Technical Training Institute for the Blind learners. As such, the study found it necessary to adopt and adapt an evaluative model with an aim of understanding challenges of the Machakos Inclusive Technical Training institute of learners with visual impairments. Thus, the study was based on the Tylerian approach of programme evaluation with some modification by other writers such as, Krathwohi and Payne (1971); and Okumbe (1999) in Reeves, (2003).

According to Okumbe (1999) the approach focuses on an evaluation to determine the extent to which objectives, purposes, and aims of an educational program have been

achieved. Tylerian model judges whether the program is good by “determining if, (program), goal and objectives are achieved”. Therefore, some adaptations were made to make it applicable to evaluating the Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Machakos Technical Training Institute for the Blind (MTTIB).

The study adopted and adapted the Reeves (2003) and Dressels (1968) evaluation of program steps; which provide the focus direction of evaluation processes. For example; the Reeves’ (2003) observations were considered. These observations were; studies on the needs of the learners with visual impairments, challenges of inclusive education for learners with visual impairments and Reeves (2003) observations on the visually impaired learner’s sediments on inclusive education. However, in this study the focus was only on: The Challenges of Inclusive Technical Training Education for Learners with Visual Impairments in Machakos, Kenya.

The study concurs with Reeves (2003) observations that; objectives of any study should be clarified. In this context; this study objectives were made clear that the study was on: The Machakos Technical Training Institute for the Blind, perspective of inclusive technical training educational challenges for regular learners and those with visual Impairments.

The specific considerations for objectives clarifications were the; (a) availability of specialist supportive devices and services for both regular learners and those with

visual impairments, (b) attention and support given to learners with visual impairments by teachers, sighted learners and support staff, (c) accessibility and mobility to Machakos Technical Training Institution for the Blind facilities and buildings for learners with visual impairments, (d) enhancement and modification Machakos Technical Training Institute for the Blind workshops and other related environments for learners with visual impairments, (e) availability of appropriate inclusive sports and recreational facilities for all the categories of learners, (f) enhancement of social interaction and civic rights for all the learners in the institution and (g) availability of appropriate inclusive technical training education for both regular and learners with visual impairments in the institution.

The study also acknowledges Tylers' (1964) experience that objectives should be stated in a behavioral; specific, measurable, achievable and testable manner. The measuring instruments for the objectives were made and defined in behavioral terms as illustrated in the research tools. Collection of performance data to measure the levels of challenges of inclusive technical training education in Machakos institute was realized in chapter four of presentation and data analysis, followed by a conclusion in reference to the study stated objectives. The study then determined the challenges of Inclusive Technical Training Education Challenges for Learners with Visual Impairments in Machakos Technical Training Institute for the Blind, Kenya. It is on this basis that conclusions and recommendations were made.

1.13. Operational Definition of Terms

The following terms have the following meanings in this study;

Adaptive (Assistive) devices:

These are instruments and tools that are used to increase functionality for persons with special needs (disabilities) in such areas as mobility, communication, hearing, and seeing. This is a strategy that is used to deliver services to persons with special needs (disabilities) in learning institutions, in communities and Opinions in their own homes with their families.

Attitudes:

Opinions and feelings; such as anxiety, confidence, liking, and usefulness that participants have about Inclusive Technical Training Education for Visually Impaired (ITTEVI).

Curriculum:

This is all the organized experiences that learning institutions provide to help learners learn and develop.

Challenge:

A barrier and constrains that poses difficulties in the operations of the Inclusive Technical Trade Training Education for the Visually Impaired learners in MTTIB.

Disability:

A physical, sensory, mental or other impairments including any visual, hearing, learning or physical incapability which impacts adversely on social, economic or environmental participation (Persons with Disability Act 2003)

Impairment:

A complication/Challenge leading to a nerve, part of the body or senses not function as expected

Inclusion:

This refers to changing of attitudes and environments to meet the diverse needs to facilitate participation of persons with special needs (and disabilities) on equal basis with others in society.

Inclusive Education:

This refers to the schools, Institutions and Centres of learning and educational systems that are open to all learners including those with special needs (and disabilities). This requires sourcing, planning and organizing learning environments to eliminate all barriers to learning and participation of learners with special needs (and disabilities).

Integration:

This is the system used mainly to facilitate learners with special needs attend ordinary/regular schools, institutions, etc, that provide minimal modifications to accommodate the learners with special needs (and disabilities).

Learner:

Anybody who is enrolled in an educational institution i.e. from kindergarten up-to higher institutions of learning.

Perception:

Understandings, experiences and practices of and in a given context.

Performance:

The achievement by the learners as measured in grades or any other form of evaluation at the end of the specified period of the enrolled programme in the learning institution.

Support staff:

These are personnel who are deployed to assist learners with special needs in learning institutions and include, for example, cooks, housekeepers, and drivers amongst others.

Visual Impairment:

Lack of sight, or having a sight that has some challenges, thus complications

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

In this chapter the researcher presents a general literature review relevant to challenges of inclusive technical training education for visually impaired (ITTEVI) learners. In other words, the general literature on the challenges which are faced by learners who cannot see and are taking technical courses in a technical training institute together with learners who can see and vice versa, as focused in the research questions of chapter one of this study. Textbooks, periodicals, articles, internet, research reports, and journals are some of the key sources used by the researcher to conduct the literature review.

Specifically, the following will be the topics under which literature will be discussed; General Education in Kenya, (Pre-primary through to University), Technical and Vocational Training Education, Special Needs Education, Learners with visual impairments, Integration and Inclusive Education, before moving on to the challenges of Inclusive Education and those of TVET.

2.2 Education in Kenya

Attainment of Education for All (EFA) by 2015 is a major goal and commitment of the Kenya Government in line with the right to education for all Kenyans. This is in pursuance to the Government’s commitment to international declarations, protocols and conventions as resolved in world conferences on EFA; Jomtien-Thailand. (1990)

and Dakar-Senegal (2000) as well as the Millennium Development Goals (MDGs)" (Republic of Kenya, Sessional Paper No 1 of 2005 P. 36).

In addition, the researcher gathers that in order to address challenges related to access, quality and relevance in education for all, Kenya Government finds it necessary to ensure that quality assurance services are delivered efficiently and effectively at all times and levels. It is therefore the researcher's wishes, that these Government efforts in achieving Education for all, will equally apply to Inclusive Technical Training Education for Visually Impaired (ITTEVI) as well.

With regard to Pre-primary, Primary, Secondary and University education; one observes that despite the numerous measures to achieve access, equity, relevance and quality in these sub-sectors, Kenya Government remains constrained by various factors, such as, limited teaching and learning instructional materials. The Government is also constrained by in adequate Early Childhood Development Centers, inadequate community participation and lack of a clear policy on transition from pre-primary to primary schools.

Over stretched facilities, overcrowding in schools, high Pupil-Teacher Ratios (PTRs), gender and regional disparities, low transition rates from primary to secondary to tertiary (particularly by learners with special needs and to universities) are similarly recorded as other Kenya Government constraints. Added to the same Kenya Government constraints are; the mismatch between skills acquired by university

graduates and the demands of the industry and the imbalance between the number of students studying science and arts based courses amongst other constraints not captured here (Republic of Kenya, Sessional Papers No: 1 & 2 of 2005).Having noted the Constraints the Kenya Government is experiencing in regular education sector, the researcher's study investigations effort was to similarly dig out and establish the ITTEVI provisions challenges in MTTIB Kenya as well.

2.3 Technical and Vocational Educational Training

According to the vice president for Europe-World Bank (UNESCO, 2003), two engines drive the new world economy we are steaming into an economic revolution and a technological revolution. In addition; according to U.S Census Bureau of Labor Statics (2001) and U.S Census Bureau (1999), whether one likes it or not, this new world economy-with these two revolutions as engines changes the way everything gets done. It produces new products, new markets, new services, new forms of organization, even new ways of interfacing – not to mention new ways of teaching and learning. That's an immensely positive aspect, and one which is shared by all countries, rich or poor, (UNESCO 2003 and Muyia 2002).Inclusive Technical Training Education for the Visually Impaired should be part of this effort. However, the researcher notes a glaring difference between Kerre's, (2010) abbreviated "TVET" and that of The Republic of Kenya, Ministry of Education, Science and Technology (2005).

According to the Ministry of Education, Science and Technology (Republic of Kenya 2005)."TIVET"; means Technical Industrial Vocational and Entrepreneurship

Training. Whereas, according to Kerre's (2010), TVET; is Technical and Vocational Educational Training. This study focuses on the Kerre's (2010) TVET understandings of TVET and its challenges in relation to Inclusive Technical Training Education for the Visually Impaired (ITTEVI).Hence, according to Kerre (2010, P.13, quoting UNESCO's adopted definition of Technical and Vocational Education and Training, TVET); records TVET as;

> "a comprehensive term for referring to those aspects of the educational process involving, *in addition to general education, the study of technologies and related sciences*, and the acquisition of knowledge, Practical Skills, and Attitudes relating to occupations in various sectors of economic and social life."

UNESCO,(2005, and 2008) and Kerre,(2010) further underscores (TVET) as; an integral part of general education; a means of preparing for occupational fields for effective participation in the world of work; an aspect of continuing or lifelong learning and a preparation for responsible citizenship; an instrument for promoting environmentally sound sustainable development; and a method of facilitating poverty alleviation. UNESCO (Rischard, 2003) and UNESCO (Nuru 2003: Editors) are of the opinion that: The new world economy and the importance of education in general; acknowledges that much attention has gone to the Millennium Development Goals (MDGs) and the basic education targets which they are set forth- but that not enough attention has been paid to secondary and tertiary education. He suggests a need of correcting such an imbalance and creating interest in reforming the role of science and technology, and lifelong learning (TEVT) amongst other educational sub-sectors.

This is because TEVT is a bridge between basic education and the needs of the economy, its very existence creates stronger incentives for parents to send their learners through the full basic education curriculum, and that the new world economy and the knowledge based economy paradigm it brings with it adds several more powerful new reasons for why countries, Kenya included, should rethink and push their TEVT systems amongst which ITEVI should be included.

Similarly, Robert (1992) and Serge Tomasi (in UNESCO 2003) observes that many countries have shown that a tailored technical and vocational education and training system could act as the lungs for investment and economic growth. For example, based on many empirical studies and theoretical analyses, everyone today believes that the accumulation of human capital is a key factor for economic growth, and that access to quality basic education and lifelong training are important vehicles in the strategies for the reduction of poverty and inequality, and also for the promotion of human rights. This researcher believes that those “human rights” must even be for those people with-visual impairments in the context of this study.

2.3.1. Goal and Objectives of Technical Vocational Education Training (TVET)

UNESCO (August, 2005: Report) conceptualizes TVET as a lifelong process: ‘VET for ALL,’ as it was coined calls for programmes to be comprehensive and inclusive; so as to accommodate to the needs of all learners; through flexible access to lifelong learning. ‘TVET for ALL’ assures the participation of women and girls and those marginalized and excluded from educational opportunities. In the context of this study, the marginalized and excluded from educational opportunities; are referred to be the visually impaired learners in inclusive technical training education, N’kinyangi

in UNESCO (2005), advocates for technical and vocational education and training as an important pathway for empowering youth and adults to participate in the world of work and employment. N'kinyangi (in UNESCO 2005) believes that young people and adults need life skills that will allow them to engage in sustainable livelihoods. They also need to acquire a yearning for a lifelong learning.

Schwartz's (1991) and Richard in UNESCO (2003) believes that TEVT systems are the main source of the new armies of workers which are crucial to the knowledge-based economy. These are not the graduates. Drucker (in UNEVOC 2008) also believes these workers are the computer repairers, X-ray equipment manipulators, electrical technicians, the appliance fixers, the car mechanics, the printing shop assistants, the basic nursing home personnel, and the water quality testers. Drucker (in UNEVOC, 2008) knows them as Knowledge technologists who are catered for by the TEVT system, the upper secondary system, and the lower tier of tertiary education system.

According to UNEVOC (2006) and UNEVOC (2008) appreciates that; the three systems, (levels), could also be interlinked, with the TEVT system, and TEVT system benefiting from these links and becoming the parent pauvre. TEVT systems can also become linking points and platforms for lifelong learning (associated with the concept of employability). In TEVT one finds a sub-sector system of education where distance learning finds the most ready, cost-effective and learning-promoting applications, not just for TEVT itself, but for even teaching of the TEVT teachers themselves. It also provides excellent platforms for pursuing urgent social initiatives such as-dropouts that would normally swell the ranks of gangs or criminal rings can

be taught even pointed technical skills in a short time, with outstanding results in terms of finding employment in that skill area.

Such avenues look expensive, but are in fact far less expensive to society than would have been the consequences of the alternatives. Generally, the researcher however, gathers that whether TVET or TIVET, both common objectives are; to provide and promote: “Lifelong Education and Training for Self-reliance”. (Muyia 2002, UNEVOC, 2008, and Kerre 2010). Similarly the ITTEVI provisions in MTTIB objectives are not any different from those of TVET and TIVET, (UNEVOC, 2006, UNEVOC, 2008, &Machakos Brochure, 2012) and thus, a justification for this study, in case of any challenges of ITTEVI in MTTIB.

2.4. Special Needs Education and Inclusive Technical Training Education for Visually Impaired

Special Needs Education (SNE) which is the education for the people with disabilities, (The Persons with Disability. Act, 2003 & Ministry of Education Sessional Paper, 2009) is recognized by the Kenya Government as very important in human capital development. It prepares those who are most likely to be dependants to become independent and self-reliant,(Republic of Kenya 2005). For a long time, Kenya Government has been providing special needs education in special schools and special units attached to regular schools for learners with specific special needs, before changing to inclusive education through regular schools and other institutions.

As measures to improve participation, encourage and support education of learners with special needs Kenya Government has; for example, capitation grants to learners

with special needs enrolled in regular schools and assistance has also been assured to the integrated (inclusive) learning institutions. This is made to procure the specialist equipment and instructional material for the learners. It is also a way of beginning to remove whatever barriers that make the school environments unfriendly to learners with special needs. The Government has also sponsored the training of teachers for learners with special needs at all levels including University in order to improve the capacity. ITTEVI in MTTIB is not expected to be any different (Republic of Kenya 2005).

Notwithstanding a lot needs to be done for ITTEVI, the researchers observe that the above prescribed positive Government measures be over emphasized in the inclusive technical training education for visually impaired (ITTEVI) settings. Such settings definitely require much more of the teacher's extra effort, time and patience. These may pose challenges to the teachers teaching ITTEVI teaching in MTTIB; compared to the teaching approaches in the ordinary technical training institutions in the ordinary settings for the ordinary learners.

2.5. Visual Impairments and Learning

Sitlington's (1993) and Mason (2003) observed that not all learners with visual impairments draw much attention to their visual problem challenges. Some of them, who have low vision, can read quite ordinary print, travel easily by themselves and get along with their peers. It may well be, however, that these learners will require special services, for example large print or magnifying glasses, to enable them learn how to function actively in the ITTEVI programmes in MTTIB. Consequently, the

term visually impaired for all learners whose visual impairments, even after correction, results in the need for special educational services, seems more appropriate for this ITTEVI study. However, in this study the researcher is more on the not only focuses on visually impaired (having some little vision), but also to the learners who are totally blind (cannot see at all) in MTTIB.

Mason, (2003) acknowledges that general aims and objectives of education are applicable for all learners, including those with visual impairments. Placement in a school setting, for example MTTIB in the context of this study, should depend upon the Educational, Medical, Emotional and Social needs of each visually impaired learner. Thus, an adequate programme of evaluation, (Psycho -educational assessment), is particularly important for the management of ITTEVI in MTTIB. For example, the adapted special objectives of ITTEVI for MTTIB, are expected to emphasize: Efficient use of Olfactory, Gustatory, Auditory and Tactual senses of all the learners who are totally blind. There should also be emphasis of efficient use of vision, for learners who have low vision, educational adjustment, social adjustment, vocational guidance, and counseling services for learners who have low vision, (Mason, 2003).

2.5.1. Visually Impaired Learners Development

Warren (1984) views development as a process of unfolding, expanding, as well as a process of becoming more complex and more complete. However, whereas, most children who cannot see go through a similar developmental pattern as the majority of sighted children, there are known examples of developmental lags in children with

blindness. For example, children with full sight may develop in some skill areas faster than children with blindness because they visualize objects, (Warren 1984 &Ndurumo 1993). This relates to the study because the understanding of some basic technical and vocational concepts involves most basic functional activities in learner's daily life experiences.

Visually impaired learners who lost vision after certain age are able to recall, reflect and make use of the visual knowledge based on their experiences acquired before the blindness onset. However, learners who lose sight later in life may retain visual imagery and colour ideas, and of which they can use it in learning processes. Warren (1984) and Ndonye (2012) observe that, learners with blindness may never effectively learn such basic technical skill concepts independently and unless taught. They would, for example not naturally know the right way to face when blowing noses in front of people, unless they are practically taught! In fact, this phenomenon appears to be challenging Piaget's (1973) argument (in Ndonye 2012) over a generalized theory that; every child transits into a new stage of development after achieving the previous one, and that a new stage of development is started with the knowledge of the old experiences.

2.5.2. Psychomotor Orientation and Mobility Developmental Barriers

With regards to the visually impaired learners' psychomotor orientation and mobility developmental barriers; UN (1948, 1989), UNDP (2007) and Mason (1997: 88 in Ndonye 2012), acknowledges that learner's horn blind may not be able to do fine activities needed to improve the fine hand co-ordination, which is one of the main

routes through which a learner who is blind explores the world. Learners with blindness are not motivated due to lack of visual stimulation.

Their muscles need to be strengthened through assistance or alternative types of stimulation and given orientations on their environment. The orientation skills can be linked to the development of movement, as the orientation is the ability to understand the relationship that objects have to one another, (creation of a mental pattern of the environment). Mobility i.e. walking in itself, expands learner's horizons (i.e. scopes of thinking), and infers more experiences and therefore enriching the learner's opportunities for concept formation, (Mason et al, 1997 P.28 in Ndonye, 2012).

The researcher supports UN-Habitat (2004) and Magnes (1992, P.42 in Ndonye's 2012) views that all human beings learn from experiences of real events in a real world. Learners who cannot see should be systematically and manually guided to learn the world around them (objects) so that they do not lag behind in conceptualizing their environments. February, (2000; quoting Freeman 1989: 28) in Ndonye's (2012) thinks in a very "inclusive" manner; by advising that, if a mother attempts to help a child by carefully lifting it up, the child does not only promote its spatial concepts development, but also builds its intact mother-child communication relationships.

Barkley (2006) and Warren (1984) advises that a learner with blindness walk in vacuum, its concept of the next world is just by walking towards familiar voices! They do not know how and where to move. Gargiulo (2000) and Mason (2003) caution that most of the learners with blindness may put their natural energy into

rocking or flapping, all of which can affect their learning concepts. The researcher believes visually impaired technical training learners can be trained on how to estimate using their strides towards, for example, the principal's office, workshop or any other object. This will make them acquire some basic technical training concepts such as, on how to estimate what is "far" or "near" (*Distance*).

Similarly, Kirk's (2003) and Best, (1992) research findings observe that, a delay in motor development begins at about six to eight months and throughout pre-school, and that parents and other care takers should assure that learners who are visually impaired, (no matter their age), experience free exploration in their environments for a better development. The researcher concurs with Newfoundland and Labrador Department of Education (2013) and Mason (2003, quoting Stone,1997, and Lowenfeld 1981) that there appears to be a direct connection between movement and learning, and it is through movement that an understanding of the world around it is developed. However, without the ability to move freely learner‘s knowledge of the world around them become very second-hand. He finds that visually impaired learners who are able to move independently their world is richer and larger.

2.5.3. Visual Impairments Affective and Social Developmental Barriers

Visual impairment has little direct effect on the affective (attitude, love and emotions) development, but the indirect influences it exerts can have a significant impact on learning. The Learner's process of learning need be able to integrate with the learners' behaviours as the learner grows.

SKjorten, (2000; quoting Fraiberg 1964); for example, finds out that lack of early eye contact between the mother and infant retards the bonding process between them. In fact Skjorten (2000) and Royal National Institute of the Blind (2005) demonstrates that parents who ignore or react negatively to this lack of *"eye contact"* would further delay the development of a meaningful relationship between them and their child. That is to say the bridge that a parent is supposed to naturally form between his/her child and the outside world would be delayed.

Thus according to Banduras' theory, the child's social life appears to be determined by, "Modelling", "Observation" and "Feedback", (Skjorten, 2000 quoting Crain 1992:175). The researcher observes the above discussed observations to be of great value and relevant to the MTTIB Inclusive Technical Training Education for Visually Impaired (ITTEVI) provisions in this study.

More importantly, the researcher believes that a learner's self-concept is very important and is the one that build the learner's social life and contribute to the needs for self-esteem as explained in the Maslow hierarchical basic needs. Learner's with blindness need to be able to realize their self-concept for their development. However, Warren (1984) cautions that self-concept is a complicated issue and that the influences on the self-concept are quite complex in that, Parents and teachers play great roles in the part of learner's social life.

To further explain this, the researcher presents Ndonye's (2012) findings, quoting Bandurà's theory); describing the social learning theory in three processes of reciprocity namely: the learner's (individuals' personality), the environment (under

different situations) and the learner's behaviour. The learner remains central to the reciprocity in the sense that, the pupil can influence the environment, and the environment in turn influences the learner and his/her behaviour.

Similarly, according to Ndonye (2012) environment influences the behaviour and the behaviour influences the environment. However; they further observe that individuals interpret and evaluate their own experiences and thought processes differently. The researcher acknowledges Pajares (1996) observations that, "people's self-evaluations of the results of their behaviours *"inform"* and *"alter"* both their environments and their self-beliefs which, in-turn inform and alter subsequent behaviours! Hence, the researcher believes that the MTTIB environmental factors, the teachers, learners, and other stakeholders attitudes deeply hinges on the above discussed challenges.

2.5.4. Visual Impairments, Learning Environments and Cognitive Skills

With regard to developmental barriers, sighted learners are fond of manipulating the environment, whereas, learners with visual impairments grow in their conceptual ability as they continue to use auditory and tactile information to make associations (Warner, 1999). Hand-on -experiences provides the ideal basis for concept development (Warner, 1999). This sounds true for every developing child, as learning appears to be more effective if done practically. Thus learner's environment should be enriched by providing useful objects for manipulation; however, vision being the only efficient processor of information, therefore information deprivation could lead to cognitive deficit, (Mason 2003).

Description of study results done by several researchers on the intelligence of sighted and learners who are blind reports limited information between sighted learners and those who are blind on inclusive technical training education for visually impaired. However, the learner's experience visual impairment may not affect so much what a learner is able to learn congenitally, but could affect how the visually impaired learns. In other words, blindness does only impose limitations on the individual learner. It is these limitations therefore which may result in "a delay" in the learner's cognitive development (Ferrell 1996), and Ndonye (2012).

Lastly, several studies quoted by Warren (1984) and Siegler (1991) on basic cognitive skills processes of the learners with blindness, for example, found that sighted learners performed better than the learners with blindness; Warren (1984). However, there was roughly a two year lag shown by the congenitally blind compared with the sighted participants, regardless of whether the sighted perform tactually or with vision. The adventitiously blind (those who acquired blindness after sometime), were superior to the congenitally blind (those who were born blind) (Ferrell, 1996 and Ndonye, 2012) Such scientific findings, observations and realizations are of great value to the ITTEVI teachers and learners in MTTIB for this study.

2.5.5. Inclusive Education, Language and Communication Skills

Concerning language and communication developmental barriers Ferrel (1996) and Mason (2003) find that language and communication complement each other, because language is used for communication and communication requires the usage of language! Learners with visual impairments acquire speech and language in the same

way as sighted learners do that is to say, language development of learners who are blind go through similar stages as that of the learners with sight.

Ndonye (2012) and Mason (2003) quoting Mills (1983) and Scholl (1986) agree that learners with blindness display a lag in language development, which could be due to slower physical development, limited range of experiences and lack of the visual stimulation. This tends to take them longer to attach meanings to certain words and formation of concepts. However, teachers should know that learners with blindness use similar language pattern as the sighted with a slight difference on tactile and auditory experiences. They should also be aware that both teachers and parents of these learners can use “non-verbal communication skills”, for example, tactile communication and practical application approaches, to reinforce and facilitate any spoken language or to teach any skills teachers want these children to learn whether, in the context of this study, technical training skills or not (Mason 2003).

Best (1992) and Ostad (2000) concur that, there seems to be a limited empirical evidence; that learners with blindness might have difficulties in assimilation and accommodation of new knowledge and experiences during the pre-conceptual stage. Those difficulties might be due to limited experiences with the environment, less direct access to objects particularly those which learners cannot explore tactually, and more so restricted opportunities to expand language abilities, because of the learner’s experiential background, (Ferrel 1996).

One gathers that when considering early language development a distinction can be made between the development of understanding of language or comprehension and

the development of forms of expressions or production forms. Hergarty (2011), for example, are of the opinion that by age of eight to nine years, learners should have acquired all phonemic components of language and the articulation of speech is supposed to be correct, the learner should be able to describe articles and objects with the right language, (Best, 1992:18, and. Mason 2003) seem to be suggesting that research, seems to be suggesting that learners with visual impairments follow a different sequence of development.

The researchers believes that, such a difference in sequence in the development of learners with visual impairment could be due to the visually impaired learner's interests in development, in such a way that, behaviours are learned differently and in different sequences. In other words language delay in learners with blindness is argued to stem from their inability to obscure the joint and simultaneous nature of visual and auditory events; as a result, learners with blindness miss valuable stimuli for speaking as well as loosing many other communicative opportunities. In fact, this is one of the major reasons prompting the researcher's anxiety to establish whether language and communication could be one of the inclusive technical training education for visually impaired (ITTEVI) learners challenges.

2.5.6. Piagerian Theory; And Inclusive Education for Visually Impaired

What is a meaningful learning in an inclusive technical training education for visually impaired (ITTEVI)? Piaget, for example, asserts that thinking is relative to the experiences of the environment of the learner. Thus a meaningful learning in an inclusive technical training education could be based on the learner's ability to make meaning out of the instructional devices used, Piaget (1973) in Ndonye (2012).

One notes that in most technical training courses, the learner must have an idea of basic Mathematical concepts, for example, Ndonye, (2012 quoting Jenkinson, 1997; and Heddens, 1980) argues that since mathematics has its own sign system, meaningful learning in relation to basic computational skills is a function of the learners to think iconic ally about this sign. As a result of this thinking, Ndonye, (2012, quoting Underhill, 1980) suggested three types of such meaningful mathematical learning experience levels namely: concrete, semi-concrete and the abstract experience level. In fact, Ndonye, (2012 quoting Piaget, 1973) notes that, concrete learning experiences help the learner to relate manipulative and computational processes. The learner, for example, would focus on both his/her manipulated objects and the symbolic processes (e.g. 3 + 5 =?). The (3 + 5 =?) here the symbols accompany, correlate to; and describe the "manipulations." Such experiences are much needed in an inclusive technical training practical, hence the reason why the researcher deems it relevant and necessary to conceptualize the Piagerian theory in this study of investigating what visually impaired learners face as challenges in an inclusive technical training education.

According to Ostad (1998), in the "Semi-concrete learning experiences", the learner uses no concrete objects and no pictorial representations, but just signs. The learning experiences here are believed to be visual pictorial representations. Ostad (1994) maintains that picture effects be achieved by organizing the instruction in mathematics. He however acknowledges that optimal instructional sequence is the one, which will involve a sequence of concrete, semi- concrete and abstract learning experiences. As a teacher for the learners who are blind the researcher finds the approach of using concrete instructional material, followed by semi-concrete and then

followed by an abstract level in symbol forms to facilitate the learner's understanding of mathematical concepts.

2.5.7. Real Objects and Learning of Visually Impaired

Ndonye, (2012, quoting Bruner 1974 and Vygosky, 1978) concurs with Ostad, (2000) observations that, real objects are of great significance to the learning of learners with visual impairments. Ostad (2000) observes that Mathematics teachers belief that real objects clarify and solve problems in the fundamental Mathematical concepts such as Classification, Seriation, Addition, or those of Subtraction. Learners collect pictorial information from the observable aspects of physical pictures noted on the objects there and then. However, Mason (2003) quoting Reber (1985) observes that unlike a sighted learners': "Images" or the "Pictures" in the head of a learner who is congenitally blind may be limited. This is because a judgment of such a learner is often based upon insufficient or incomplete perceptual clues.

In addition, Ndonye, (2012) argues that; due to blindness some learners develop *'mental images with limited information* ". The reason behind this is because learners who are blind construct a model of the world on unverified fragments of information. Ostad (2000) argues that functionality of the mental images focuses on the suitability of the mental images as aids for thought operations within a given field of functioning.

However, since Ostad, (2000, quoting Freiberg, 1977) confirms the attainment of object concept to also have been delayed in the development of blind children, the researcher supports that; the functionality of mental images would as well be

obviously affected by the blindness. No doubt this phenomenon would be of great interest, relevancy and impact to the teaching and learning of visually impaired learners in an inclusive technical training education. Thus, a basis for this study on Challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI)

Lastly on this topic, teachers in inclusive technical training education for visually impaired need to understand that, learners with blindness heavily rely on learning from physical experiences more than sighted learners. Ndonye, (2012) experiences, for example, that concepts of learners with blindness are tied more closely to action than symbolic representations, thus to a greater extent than sighted, learners. He also argues that learners who are blind form mental images which are reproductive and perception-bound; when manipulating concrete materials than just symbolic representations.

2.5.8. Bruner's' Theory and the Visually Impaired

Bruner's theory of "Instrumental Conceptualism" (1974) and Ostad (1994:35) agree that knowledge is created by constructing experiences through the activities connected to thinking and reflecting. They also argue that each concept of learning depends on the previous one for development. The researcher notes, for example, in teaching mathematics teachers should stimulate and lead learners to have independent experiences and that teaching should be "a perception process" of discovering, discrimination and recognition. In fact, skills should be taught at, the concrete, semi-concrete, semi-abstract and abstract levels.

Technical skills knowledge should be viewed in both “Quantitative” and “Qualitative” perspectives and its new concepts taught in an adopted and adapted slow (*tactually*) progressive manner. In the quantitative perspective technical teachers should be interested in knowing; “How much knowledge do learners have in technical education skills, and the quality of the learner’s knowledge of technical skills: is it a good or bad knowledge of the technical education skills?”

Whereas, with the *“Qualitative knowledge”* technical education teachers are advised to make sure learners learn how to interrelate what they have learned.

2.5.9. Bruner and Vygosky Theories; and the Visually Impaired

Ndonye, (2012) quoting Bruner (1974) and Vygosky (1978) theories observes that learners organize and represent their experiences in certain stages. They also believe that these modes are supplemented by subsequent systems as discussed under each category of the theory modes namely*: Enactive Stage Mode; (Learning by Doing):* A learner who is blind, for example, knows how to put on his /her shoes or how to use a pair of scissors to cut paper”.

In this stage learners act out solutions to problems. Thus, this stage is manipulative in nature, and that is why learners count fingers when adding or subtracting numbers, (Bruner, (1974: 3 13-323) and Sutherland, 1992: 61); in Ndonye, (2012) *Iconic Stage (Learning by Images and Pictures)****:*** This stage is based on the manipulation of images internalized by the learner. The ability to manipulate images at this stage means a learner is able to understand the relationship between the concepts and, therefore

increasing his/her quality dimensions of knowledge. It is a stage where visual perception is much need, (Sutherland, 1992:61) in Mason (2003).

A learner with visual impairments at this stage, therefore, remains a disadvantaged learner unless the information is transcribed into tactile or audible material. This appears to be one of the major reasons why Ostad (1994:24) expresses the need of training learners in tactile representations (devising a way of helping the learner with visual impairments gain quality dimension in the concept attainment at iconic stage).This, deeply, explains why learners who can write a multiplication table may not necessary mean s/he has understood mathematical concepts.

2.5.10. Symbolic Stage (Learning by Means of Words or Numbers).

This is the last stage of development of mathematical thinking. At this level symbolic knowledge represents information about concrete and semi-concrete situations in a symbolic fashion. Learners manipulate life experiences (symbols representing knowledge), instead of images in the iconic stage. This seems to be the highest manipulative stage in learning and increases the quality dimensions of knowledge as opposed to the quantity of knowledge. Learners therefore, need to well master the two mode stages before moving onto the symbolic stage.

Learners need to be helped to systematically move from the concrete thinking to a more abstract conceptualized mode of thought. This is on the basis that the understanding of the mathematics and its skills together, make the knowledge of mathematics. It is also important to note that a child who is blind find it easier to think mathematically when the “mathematical concept” has a meaning to his/her life!”

For example, a learner thinks mathematically with a concept which he understands better like: The amount of money he needs to buy a banana. Given, for example, that a banana costs five Kenya shillings; Peter will take five Kenya shillings in one hand to represent one banana and the other five Kenya shillings in the other hand to represent another (second) banana. For the two bananas, Peter will therefore put five and five Kenya shillings in his both hands to-gather to make Tent Kenya shillings to buy the two bananas! Here it is assumed that Peter has learned the concept of "Addition" and he now knows that 5 +5 = 10. Perhaps Peter learned this "basic mathematical concept" faster and with much ease, because it had a meaning to his Basic Need; namely," *Hungry and in need to eat something; in this context a banana"!*

Skills in mathematics must "have a meaning to the learner, if they can be used in a new and different problem solving situation and that is; if they can be generalized. That is to say, the fact that a learner can calculate his money and he is able to buy two bananas with five Kenya shillings, he can now, be able to know, or again calculate the amount of money needed to buy two pencils if they cost Two Kenya shillings each; i.e. he is able to add Ksh: 2 + Ksh: 2= Ksh:4. That is to say that, if Peter is capable of calculating and has the knowledge that the two pencils will cost him four Kenya shillings, he has learned the skill on how to associate the number and the mathematical concept of Addition and Association. Peter now can also apply the knowledge to solve a practical personal problem in his daily life, such as basic mathematical calculations in a technical training course practical, thus, in the context of this study.

The fore stated case is an analysis to state that knowledge of mathematics should be constructed by learners through own activities and that if learners with blindness understand the principles and the structures in mathematics, they should also be able to equally develop new life experiences on their own. Such knowledge and experiences will be of great value to technical training education of learners with visual impairments. In fact the researcher cherishes Holm's (2000) argument that "because knowledge cannot be handed over to learners by the teachers the learner's understanding and meaning of basic mathematical concepts (in this context, should basically be constructed from learner's own experiences."

2.5.11. Mathematical concept components in relation to ITTEVI

Mathematical concepts are a key to Technical Education and thus, ITTEVI in this study. For example, shapes measurements weights, sizes and volumes; constitute the expected task analysis skills in technical training education amongst other things. The ITTEVI learners in MTTIB must be equally competent in these. A few of the specific mathematical component concepts reviewed for the purpose of this Machakos Technical Training Institute for the Blind ITTEVI learner's expected skills are;the Concepts of Relation, Concepts of Shape, Concepts of Quantity, Concepts of Order, and Concepts of Counting.

Concepts of Relation: These forms part of counting, classification, seriation and conservation. They can also be subdivided into parts and the parts of which the researcher will focus in the visually impaired learners and those who are sighted in, the inclusive study (Ndonye, 2012). The Ostad (1994: 36) diagnostic test, for

example, records these parts as; the concepts technical training education of visually impaired in the used when describing quantities, relations between quantities themselves, or the relations between the elements in one and the same quantity namely; *Size, Length, Height, Breadth (width), Amount (referring to continuous quantity) and Number (referring to discontinuous quantity).*

Concepts of Shape: These are collective terms for most usual ***Geometric shapes*** such as, Circle (round), Square (four- sided-figure), rectangle (long-four-sided-figure), triangle (three-sided-figure) inter alia (Ostad, 2000). It is worth noting that a debate is still on as to, *"Whether learners with blindness are better at perceiving shapes than the learners with full sight?"* To illustrate this, Piaget, (1973) in Crain, W (1992), for example, remains puzzled to wonder, *"How would one abstract (develop a mental image of) a geometric shape?"* and *"Whether perception (looking at a shape) is sufficient?"* However, to the researcher's observation; sighted learners have an advantage over those with blindness, because of the eye-hand-co-ordination skills needed for the perception of the shape. The same argument forms a very exciting basis for this study of challenges of inclusive technical training education for visually impaired.

Concepts of Quantity: Which is used to describe the more detailed the number property in a quantity or, on several quantities (*Small, All and None).* According to Ostad (1994: 68),this is a group of concepts and cannot serve as a basis for ranking

things. They form part of class inclusion, whereas class inclusion is also part of classification and conservation.

Concepts of Order: Which describe the terms directly connected with the understanding of *ordinal numbers;* i.e. First, Last, In front, Between, Behind, Just behind, etc,

It specifies the mutual position of the element in relation to each other and, or in relation to a given order, Ostad (1994:70). No doubt, this is a crucial element of interest for investigation in a study of the challenges of inclusive technical training education for visually impaired learners.

Concepts of Counting: The group of counting components includes, *the Rote-type Counting, Counting by Pointing, Counting by Moving, Counting backwards, and counting by Series.* Counting is a natural part of daily life and that, just like as in sighted learners, blindness should never pose a major obstacle to counting in learners. However, *Rote-type counting,* is claimed to be the first type of counting learners learn; by just memorizing sequence of sounds; but have not yet learned corresponding by matching the number names to the objects being counted (Ostad 1994: 13). This is of course critical as far as inclusive technical education for visually impaired is concerned (Ostad 2000). Does it pose any challenges to learners in an inclusive technical training education for visually impaired?

In addition, Warrens (1994:153) finding seem to be of great interest to this study that; learner's various strategies in counting depends on age. He says that, "Touching" facilities and "pointing" at things seem to start at age four after which grouping of

things sets in. However, Warren (1994: *153*, quoting Scilian 1988*)* study identified three strategies namely, *scanning* (objects are scanned to see if there are organizing features that may be used), *count organizing* (in which similar characteristics of the objects are noted) *and partitioning* (in which objects are physically grouped in order to simplify the counting process). Holm (2000) however, affirms that strategies get more efficient as the learners grow older. It is therefore, the researcher's interest in this study, to establish whether these findings have any impact on inclusive technical training education for visually impaired.

On the *principles of counting* Geary (1994: 270) and Holm (1993:12) agree that a learner might demonstrate a good concept of counting when he/she knows that counting can occur from left to right, from right to left, or haphazardly and, as long as all items are counted, will still give the same answer. Counting in learners would take into account the following principles; *one-one* (one number given to each object), *stable order* (numbers always counted in the same manner), *cardinal* (last number counted indicates the number of objects in the set), order relevance (order in which objects are counted is irrelevant) and *the abstraction principle*-where the other principles apply to any set of objects, (Geary, 1994:14.23).

Other elements of counting as materials are such as: *Counting Backwards*, *Counting in Series* 'and *Counting in Series Hit!? Tactile representation/ or with Objects;* when the teacher wants, for example, to teach counting backwards without concrete material, the teacher can give formal instructions like: *"I am going to count sonic row of numbers backwards, (e.g.9,8,6 4,3, 2, 1). Tell me the ones I have omitted etc"*.

Ostad (1994) and Geary (1994) argue that whereas *"Counting in series"*, can be taught with tactile representations and without concrete material, the teacher can give formal instructions to the learner who is blind like: *"Now tell me the number I am going to omit in the following series; 4, 8, 10, 14, 16,* The learner who is blind should be helped to know that "0" was omitted. Similarly, whenever, *"counting in series with a tactile representation, or with objects as material,* teachers can use small sticks. The teacher can arrange and put the sticks in a series of 4, 6, 8, 10, etc. Teacher can then take away the group of "6 sticks" and then ask the learner the number omitted in the group of sticks. If the learner who is blind is able to discover the number omitted is "6", then the learner has been trained and the learner is now expected to have learned counting in series using material.

Ostad (2000) and Geary (1994) concur that; *Analysis of sets* is a method of focusing on similarities within a given class of objects, differences between members and non-members of the given class of objects and the idea of equality. Learners who are blind are expected to direct attention to characteristic properties of objects and *"describe these qualities by language "*. This method helps learners who are blind develop verbal consciousness and acquire experience which helps them in analyzing the qualities of objects, Ostad, (1994). The teacher can have, for example, several different types of fruits in a bowel as material. The child who is blind or even the seeing will be asked to find out what is in the bowel, (*the Number, the Type, and even Sizes of the fruits etc), and say it loudly.* By so doing, while the learner who is blind is ***tactuallyanalyzing*** the fruits in the bowel, the sighted will be ***visually analyzing*** it. The researcher observes that same matriculate teaching/learning processes

experiences, should be carefully observed in inclusive technical training education settings for visually impaired.

Whereas, Ostad, (1994) takes "**Seriation**" to be a general term for several activities whose main goal is ordination; Geary (1994) believes that this concerns ordinal, copying of model and the evaluation of position series. However, Holm (1993) is of the opinion that, the degree of the impact of seriation activities would greatly be influenced by the way the activities are arranged and that the stimulation of understanding series can also be done systematically or unsystematically. They further assert that the seriation activities should be in co-operated as elements in the learners' different forms of play. Teachers should be aware that learners who are blind will have a problem with series, because they do not have sufficient "all-round experiences". This is again because learners who are blind did not have opportunities to work with or form different series.

The researcher's experience is that such learners tend to perceive series of numbers as abstract and without good connection with the concrete reality that it intends to represent. The focus of the study is to; for example, establish how and whether such a concern poses any challenge to inclusive technical training education of visually impaired learners (in Machakos Technical Institute for the blind).

2.5.12. Classification Components and ITTEVI

Holm (2000) agrees with Holm (1993) understanding that classification is the way we mentally structure or group information that comes to us through our senses. *The figural collections stage, non-figural collections and the stage of classification* are the

three known stages of developing classificatory abilities, whereas (Thornton, 1983:120) in Ndonye, (2012), understands it as the tasks of finding identical elements, finding non-identical elements, simple classification, double (multiple) classification and hierarchic classification.

As much as, learners at 5-8 years of age may have difficulties in dealing with the relationship between a class and its sub classes for *example;* a learner may have difficulties in differentiating rectangles from squares; it is however important to note Piaget's, (1973) observation in Ostad (2000) that being able to perceive may not be good enough for forming classes and that this may even turn out to be a barrier in learning. *Correspondence* is both "Cardinal" and "Ordinal". Ordinal correspondence means the learner's ability to appreciate that the *"n 'th" item in a series,* corresponds to the "n 'th" *item in any other series.* However teachers should know that ordinal/cardinal correspondence does concern the learner's ability to distinguish the relations between the ordinal position of an item in a series and the cardinal values determining it. (Ostad, 2000). The same principle should and need apply in inclusive technical training education for visually impaired, thus a need for this study to investigate this challenges practicability in an ITTEVI provision.

2.5.12. Conservation Components and ITTEVI

Holm (1993:10) affirms that **Conservation Components** concerns the *"continuous"* qualities such as *water* and *sand* and the *"discontinuous"*, quantities like the sticks and the cups. The researcher observes that learners who are blind need assistance in order for them to know that a quantity property like Length, Weight, Capacity and

other Cardinal groups remain constant and invariable, irrespective of their changes in shape or the repositioning of its component units.

The researcher further notes that Holm (1993: 10) understands conservation as a method, whose aim is to stimulate the cardination property of the numbers and that Piaget's, (1973) in Ndonye's, (2012) analysis about conservation shows that reasoning in calculating is dependent on the ability to conserve. The experiments conducted by Hartwell (1985:68) in Ndonye, (2012) indicate that; conservation with both sighted and a learner who was congenitally blind show that: the performance of a 10-year-old learner who is blind and that of the eight-year-old sighted learner did not differ statistically, nor did that of nine-year-old learner who is blind and the seven-year-old sighted learner. This is to say that the learners with congenital blindness showed a delay of two years.

However, according to Warren (1984: 95) the two reasons for this could have been that the lag experienced in conservation during the operational stage may be due to carry-over lags experienced in sensory-motor period. The other possibility would be that experiences of learners with blindness are significantly restricted during the operational stage; thus hampering development of operational thought.

2.6. Integration and Inclusive Education

According to Ndonye (2012, quoting Kauffman, 1991 and Skjorten, 2000) the concepts "***integration***" and "***inclusion***" are often used to mean "***Normalization***". Hallahan and Kauffman (1997) refers to *normalization* as the process, where teachers try to full-fill learners with special needs possibilities for living and learning in the

families and together with local learners in the local school. However, Jenkinson (1997:12) thinks it as a utilization of means which areas culturally normative as possible, in order to establish and/or maintain personal behaviours and characteristics which are as culturally normative as possible.

Nevertheless, most countries have moved towards inclusive education. The Salamanca (1994: 36) report, based on the Jomtien (1990) in Ndonye's, (2012) conferences, for example, encouraged its member countries to initiate policies in special needs education access and equity. Kenya as a member country advocated the integration of learners with special needs education, currently quite a number of its schools are either practicing any of the three forms of integration namely; ***Social integration:*** which refers to the situation where all learners in a school interact with the learners with special needs in the school compound. The focus in the interaction is only at the educational social places; second is; ***Locational integration;*** which involves sharing of the same school by seeing and the learners with special needs and that both types of learners will gain experience from interaction or learning using the same curriculum, and third and last is ***the Functional integration.***

This literally means "full interaction". In functional integration all learners are given the same treatment in the school and are exposed to the same type of curriculum; Bowman in UNESCO (2008), and; Hegarty (2011, quoting; Hall. 1997:116. from Warnock, 1978).

Moving on to inclusion, Skjorten (2000: 222) believes it infers and is/should be understood as a process that focuses on adjusting the school, (and even the home, and

the society at large), so that all learners can have the opportunity to interact, play, learn, experience: the feeling of belonging, and develop in accordance to their potentials and difficulties, and thereby obtain a good quality of life within their natural environment. Additionally, Hegarty (2011: 191) argues that the shift in paradigm integration to inclusion is partly a matter of pointing out that the basis of the discussion on providing for students with special needs should not be from the position of segregation.

The word integration implies that there has been first segregation, while the concept of inclusion starts with the students and their needs. Skjorten (2000) suggests that the concept of inclusion focuses on how collective competencies can be developed with the aim of also encompassing that part of the multitude and diversity that is regarded negative. Instead of talking of a child as integrated, the concept of inclusion rather talks about the challenges that lie in keeping a group together, which implies a struggle with the processes of segregation. The researcher has adopted, for this study, both Skjorten (2000) and Hegarty's, (2011), definitions of inclusion.

2.7. Challenges of Inclusive Education

Challenges to the learners in the context of this ITTEVI study refers to the MTTIB environmental barriers, negative attitudes from other stakeholders, lack of appropriate instructional material and not getting the specialised resources amongst other necessities. Lack of MTTIB prior planning and clear conceptualization of the philosophy of inclusive education, for example, can lead to the ITTEVI learners emotional and social challenges in MTTIB.

There are areas that need be fully addressed in advance; if any inclusive educational approach is to be fully realized. Some of these areas and in the context of this study are; the Kenyan communities cultural and life orientations in the society, relevant instructional material, capacity building, examinations, curriculum adaptations, adapted physical environments and the general public awareness on the values of inclusive education amongst other aspects, (Republic of Kenya, Special Needs Education Policy Draft, 2008).

Benefits of inclusive education cannot be however, undermined, they are numerous and far reaching in the contribution towards socio-economic development of the people with special needs, ordinary persons and by extension the society. Even though, given the educational setting in Kenya as a developing country, there are a number of challenges likely to face the process of the focus on special needs education and the development of inclusive education (Republic of Kenya, Special Needs Education Policy Draft, 2008).

For instance, due to the intricacies involved in providing educational and societal needs of persons with special needs, a number of parties must be involved in the process of inclusive education. These include: teachers, school management, ordinary learners, educational policy makers, curriculum and course designers and developers, material developers, teacher trainers, relevant professionals in specific fields of specialization, the government, parents and the community at large amongst others (Hegarty, 2011, and Republic of Kenya, Ministry of Education, Special Needs Education Policy, Draft, 2008).

In addition, special needs education teachers need relevant training, because they are the immediate educators of these learners in inclusive settings (Desai, 1995). In most of the schools where inclusion is being practiced in Kenya, particularly at primary school level, teachers lack the specialized skills and knowledge in special needs education required through the instructional process. Training for these teachers should focus on both regular and learners with special needs. It should also focus on the skills in management of inclusive classrooms (environment) as a way to enhance the capacity of the schools to respond to learners' diversity. Teachers in such classrooms, for instance, should allow each leaner to pursue learning at his/her own pace; allowing the bright leaner to accelerate ahead and preventing the slow learner from being pushed because of individualized teaching, creating an individualized educational programme (IEP) approach in the class, (Desai, 1995, Hegarty, 2011 and Republic of Kenya, Special Needs Policy Draft, 2008). The researcher is of the opinion that, same approaches should apply to the ITTEVI learners in the MTTIB settings.

The school management teams should have a clear understanding of the facilities required by the learners with visual impairments, in order to make the learning process more friendly and accommodating. In many of the schools with inclusive education, there is a lack of the specialized facilities like, for example: braille equipment, and, the sight enhancement gadgets among others. Besides these adaptations, the school environment should provide appropriate tactile run ways and environments with clear colour contrast. These are useful for the learners who are visually impaired, using white canes and magnifying eye-glasses, (Desai, 1995,

Republic of Kenya, The Persons with Disability Act, 2003, and Republic of Kenya Ministry of Education, Special Needs Education Policy, Draft, 2008).

Generally, inclusive education programmes require facilities that are tailored towards the inclusion of learners with specific special needs. Finding simple and cost effective ways of overcoming the psychological, sociological, physical, etc, barriers in the learning environments of integrated learners would make inclusive education more practical and valuable (Republic of Kenya, Sessional Paper No 1 of 2005 and Republic of Kenya, Ministry of Education, Special Needs Education Policy, Draft, 2008).

The regular learners in the inclusive education programmes should be sensitized about the value and importance of children with special needs in the society and therefore the need to live and learn together despite their differences. They should also be guided on how to co-exist with the learners with special needs in the same learning environment. They should be sensitized to support their peers with needs in and out of school; they should be ready to help them regarding movement from one place to another, and assist them in class where need arises, (Hegarty 2011)

The cost of establishing, for example, special needs education programmes may be high due to the specialized equipment and facilities required. Thus, it more than often requires that inclusive education programmes establish resource partnerships between the national and local government and with other potential resource providers such as

international donors, non-governmental organizations, local businesses and industries of goodwill for financial and technical aid. This can further be enhanced through merging funding systems for inclusion and special needs education, and allocating funds to schools in relation to the number of learners with and without special needs appropriately (Republic of Kenya, Sessional Paper No. 1 of 2005 & Republic of Kenya, Ministry of Education, Special Needs Education Policy Draft, 2008)

It is important to note is that, inclusive education approach is more cost effective than regular and special education when handled separately. This is because in some situations the same resources are utilized to teach the two groups of learners, thus more learners, especially if well planned for use during the instructional process. The governments can also ensure well supported teachers in terms of remuneration due to the involving educational process in schools that focus on special educational needs of learners (Republic of Kenya, Sessional Paper No. 1 of 2005 & Republic of Kenya, Special Needs Education Policy Draft, 2008).

Hegarty (2011) observes that curriculum developers and course designers should come with content and materials that are tailored towards meeting the needs of both the regular and learners with special needs. The learning materials prepared for learners with special needs can be used to enhance learning in an inclusive educational setting. In some situations, teachers are condemned to use the regular learners' curriculum without adaptation, even when there are learners with special needs education in the same class. In such situations, the needs of learners with special needs in education are not met. However, in the case of creative teachers,

analysis and adaptation of instructional, learning materials and curriculum is done, thus reducing irrelevance and avoiding boredom for the learners with special needs in education. Due to the specialized needs of learners with special needs in education, networking between teachers in IE schools and other professionals should be encouraged in order to vitalize available resources to benefit all children.

The professionals like occupational therapists, physiotherapists, medical experts, psychiatrists and counsellors among others should be involved in the educational process where need be (Hegarty 2011, Republic of Kenya, 2008 & Republic of Kenya, 2005). In inclusive education, parental and community involvement in school activities to support learners with special needs is a noble practice. The siblings and peers also play an important role in the inclusive education process. They must be enlightened and educated on the importance of inclusive education and the benefits of their learners learning in an inclusive environment. It has been established that inclusive learning increases the chances of improved performance for the learners with SNE (Hegarty, 2011, Republic of Kenya, Ministry of Education, Special Needs Education Policy Draft 2008 & Republic of Kenya, Sessional Paper No. 1 of 2005).

Lastly on challenges of inclusion, it is worth noting that life is an inclusive society and that, everybody should appreciate each other. For example, the Vision and Mission statements of the Association for the Physically Disabled in Kenya (APDK), summarizes the need and importance of embracing an inclusive society. It encourages the building of an inclusive society where persons with different special needs enjoy equal rights and have access to affordable rehabilitation services (The Persons with

Disability Act 2003). In addition, its Mission statement focuses on enabling people with special needs to overcome their barriers and empower them socially and economically to become self-reliant and fully integrated members of their communities. These ideas, though inform of challenges, saliently summarize the central concern of this research that: Inclusive education is important for human resource development, and that, it is the driving force behind preparation of those who are most likely to be dependent to develop positive attitudes and become self-reliant.

2.8. Challenges of Technical and Vocational Education Training

UNESCO (2003), findings are that; initially Technical Education and Vocational Training has often been seen as the “Parent Pauvre” (as the system, as it were, where those go that have failed to general education stream) when in fact it is bound to play a new and far more important role in the future.

Other challenges are that the curriculum is thought inflexible and not responsive enough to the dynamism of the labour market, mismatch between the skills learned in the training institutions and skill demands from the industry, in adequate training of some teachers, weak and inadequate supervision services from the quality assurance department, inadequate old outdated and relevant physical training facilities, inadequate unavailable unaffordable training and reference materials, textbooks, (as most of them are sourced from abroad), and lack of representation of the private sector in the curriculum design and development process amongst other concerns (Republic of Kenya, Sessional Paper No. 1 of 2005 and Special Needs Education Policy, Draft, 2008). This study was however, focused on trying to find out the types of challenges MTTIB is experiencing in the ITTEVI in Kenya.

2.9. Summary

This chapter has reviewed literature on general education and its sub-sectors in Kenya, **TIVET,** special needs education, various theories on learners with special needs, challenges of inclusive education, moving on to the challenges of **TVET.**From the literature, it is clear that for success of any inclusive technical training education for visually impaired, certain specific conditions need be addressed. Some of these conditions range from clarity of the inclusive technical training education objectives, attitudes towards the programme by the teachers, learners and support technical staff, well planned organized teaching/learning activities (adoption and adaptation of the content to be covered, time allocation to the learners with special needs, possession of necessary competencies among the curriculum implementers and availability of both necessary regular and specialist resources and facilities).This study thus investigated to establish some of the challenges MTTIB face in its provisions for ITTEVI in Kenya.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0. Overview

This chapter describes the research design and research methodology that was used in this study. It consists of the description of the research design, area of the study, target population, sampling procedures, data collection instruments, data analysis techniques and lastly the ethical considerations in the study.

3.1. Research Methodology

According to Zina (2010), Heward (2006), Robson (1999) and Gall and Borg (1996) concur that Methodology refers to the system of methods or procedures used in sampling and collecting data required for a particular research. They further understand it as the application of the principles of data collection methods and procedures in any field of knowledge. For this research, a case study design was used.

3.2 Research Design

Zina (2010), Sibanda (2009), Mishara (2007), and Burns (2000) argue that a research design is basic arrangements of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy on procedures. Flagmatism philosophical paradigm, (mixed research study design), was used for this study. This study adopted a case study approach to intensively

investigate the Challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Machakos Technical Training Institute for the blind.

The investigations were on the learners, teachers and the support staff perceptions and perspectives. Interviews, Observations, Questionnaires and Focused discussions were carried out. These enabled the researcher obtain an in-depth information that describes the Challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Machakos Technical Institute for the blind, Kenya.

"*A Case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence" (Roson, 1999, P. 52).*

However, Creswell's (2009), Creswell's (2007) and Gall's (1996) argue that a case study will be more manageable and meaningful if one concentrates on just a few of the aspects. They further observe that the decision to define a unit of analysis and sample within it can help make ones data collection more manageable and yet allow one to make meaningful generalizations from ones data analysis.

The qualitative case study approach was chosen because;

"A good case study brings phenomenon to life for readers and helps them understand its meaning." (Gall, and Borg, 1996, P. 543)

One of the main characteristics of a qualitative research is its focus on the intensive study of specific instances that is cases, of a phenomenon, (Gargiulo 2012, Clerk 2008 and Goodman 1990). It also involves collecting data in order to answer the research questions concerning the status of the programme under study, (Cumming 2008 and

Salend's 2003). Robson., (1999) and Gall, and Borg, (1996) concur that a case study research determines and reports the way things are, describing behavior, attitudes, opinions, values, perceptions and characteristics as accurately as possible. The advantage of this design is that, it also has an extremely effective way of gathering data from a small number of sources.

"More importantly, it allows for the building of holistic understandings through prolonged engagement and the development of rapport and trust within a clearly defined and highly relevant context," (Zina, 2010 P. 174). Tamrat (2012), Turnbull's (2010), Zina, (2010), Creswell, (2003) and Ferguson, (1989) commonly, caution that prolonged engagement and immersion, however, can involve its own "costs" and that researchers can come to have effect on the researched and vice versa. They also observe that researcher may come across a participant who just won't give the time to any study.

3.3 Geographical Location of the study

The study was carried out in Machakos County, Machakos Technical Institute for the Blind in Machakos County, Kenya. It is about 60 Kilometers from Nairobi, borders Kajiado on the West, Makueni on the South, Kitui on the Southeast, Embu and Murang'a on the Northeast, Kiambu and Nairobi on the North. Machakos Technical Institute for the blind is inside Masaku Municipal council which is the headquarters of Machakos County. It was started as a rehabilitation centre for the Africans who became visually impaired in the Second World War and registered as a special Machakos trade training centre for the blind (MTTIB) in 1965, It was converted into

an Inclusive Technical Training Education for Visually Impaired (ITTEVI) in 1989, and it since and over the years, grown upto the current status. (Machakos Brochure, 2012).

Machakos Technical Institute for the blind was chosen for this study, because it is the only Technical Trade Training Institution for the blind in East and Central Africa practicing the Inclusive Technical Trade Training Education for Visually Impaired (ITTEVI). From this point of view the chosen institution gives a clear representation of, not only that of the Kenya's perspectives of an Institutional ITTEVI challenges, but that of the East and Central Africa and its beyond. In addition Delno, (2006), Thurnberry (2004), Kirk (2000) observe that the ideal setting for any study is one that is directly related to the researchers' interests. The researcher has keen interest in establishing the challenges of inclusive Technical Training Education for Visually Impaired (ITTEVI) in Kenya. Machakos Technical Training Institute for blind is the only inclusive technical training institution in Kenya.

Finally Woolley's (2013), Zina (2010); Sibanda (2009), Creswell (2003), Beverly's (1997) and Ysseldyke's (1995) concur that the ideal setting for any study should be easily accessible to the researcher and that which allows immediate rapport with the participants. They further observe that sometimes being familiar with the research site helps in gaining acceptance. The researcher chose this area because of its familiarity.

As a national institution, both visually impaired and sighted learners in Machakos Technical Training institution for the blind are admitted alongside other students who

are admitted to other public Technical training institutions in Kenya. Admissions are largely based on academic merit. Machakos Technical Training Institute for the blind takes the same time to graduate as those in other Technical training institutions in Kenya.

"*One notes that the "Sign Post and Service Charter for Machakos Technical Training Institute for the Blind (MTTIB)" is silent about the Inclusive Technical Training Education for the Visually Impaired (ITTEVI) learners in the institute*".

3.4 Target Population

The study targeted Machakos Technical Institute for the blind and its stakeholders. This is because, according to MTTIB brochure Historical Background (2012), it stands out as a unique Inclusive Technical training institution for Visually Impaired (ITTEVI), not only in Kenya, but also in East and Central Africa region. The MTTIB target population 168 participants; 1 Principal, 1 Deputy Principal, 8 Departmental heads, 94 learners; (76 visually impaired and 18 sighted), 54 teachers (14 specially trained to teach visually impaired, and 40 not specially trained to teach visually impaired learners). All of them were working in Machakos Technical Institute for the blind (MTTIB), Machakos County, Eastern part of Kenya.

3.5 Sample Size and Sampling Procedures

According to Bernard's (2003), Bound's (1998) and Kothari (2006) sampling is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group. However, Kombo (2006) and Blaxter's (1996) defines a sample as a

finite part of a statistical population whose properties are studied to gain information about the population.

For the purpose of this study, two sampling techniques were used: Simple random sampling and Purposive sampling techniques. Simple random sampling was used to select: 84 (eighty four = 89%) MTTIB learners of which; (sixty seven 67= 80% , visually impaired and seventeen 17 = 20 %, regular/sighted learners), 48 (forty eight =88%) MTTIB teachers of which; 10 = 21%, were specially trained for learners with visual impairments, and thirty eight, 38 = 79%, of them not specially trained for learners with visual impairments). The eight (8 = 5 %) heads of departments, Deputy Principal (1= 2 %), and (1 = 2 %) Principal were interviewed for the study.

Purposive sampling was also used to select the respondents for the observations and focused group discussions as analyzed on the interviewed sample size respondents above. Questionnaires were also administered on a sample size population of 140 (83%) of the target population as follows:-; the principal (1 = 1 %), all heads of departments (8 = 6 %), 48 (34%) teachers and 84 (60%) learners in MTTIB for this ITTEVI study.

Kombo (2006) asserts that the main factor to consider in determining the sample size should be the need to keep it manageable enough. This would enable the research to derive from it detailed data at affordable cost in reference to time, finances and human resource factors (Table.3.0).

Table 3.0. Breakdown of Sample Size

Target Group	Population	Sample	% Size
Principal	1	1	= 2%
Deputy Principal	1	1	= 2%
Heads of Department	8	8	= 5%
Teachers	54	48	= 29%
Support Staff	10	9	= 5%
Learners	94	84	= 50%
Total	**168**	**140**	**= 83%**

3.6. Research Instruments

Russell (2011), Kombo (2006), Sattler's (2006) and Schalock's (1992) observes that researchers settle on instruments that provide high accuracy, general ability and explanatory power with low cost, rapid speed and those with minimum of management demands and with high administrative convenience. Such a measurement research instrument should be any sort of data-collecting device or technique, or a device or plan of action for carrying out the measurement process. The instruments for collecting data in this study were Questionnaires,(Appendices F and G) Interview schedules,(Appendices: H and K), Observations checklist, (Appendix: M), Focused Group Discussions Guide; (Appendices: I and J), and a Cameras.

3.6.1. Interview Guide

Sewyn (2011), Zina, (2010), Colin Robson (1999), DuPaul's (1998) and Gall's (1996) support the use of interviews and stresses that when a researcher sits face to face with the respondents many issues get clarified. The advantage with this method is that other questions would automatically come up during the interview because information would crop up in the course of the interview which needs clarification.

Interviews were taken with Heads of departments, teachers and learners of Machakos Technical Training Institute for the blind (Appendix H and K). The items were structured with others being unstructured depending on the need of the data. The structured interviews were conducted to get qualitative in-depth information about Machakos Technical Training Institute for the blind inclusive education for visually impaired, while the unstructured interviews/discussions were conducted to establish the perceptions of the participants. Information sought, captured and analyzed went as far back as 1989, when Machakos Technical Training Institute for the blind (MTTIB) was established.

3.6.2. Focused Group Discussion Guide

Holmes (2006) appreciates that focus groups tend to be successful in terms of generating discussion amongst the participants, as most of the times participants encourage each other to contribute to the discussions as they feel relaxed and comfortable in the company of friends. According to veal (2006) focus group discussions involves interviewing between five to twelve participants in a group.

Dawson (2007) is of the view that consensus is neither necessary nor desired and that the interviewer assumes the role of a facilitator rather than an interviewer.

The focused group discussions were largely unstructured. The participants were given enough time to articulate their own ITTEVI perceptions and challenges. For data quality, the participants were encouraged to freely interact amongst themselves. Patton (2002) acknowledges that such a participant's interaction enhances data quality and that participants tend to enjoy this approach as it draws on human tendencies as social beings. To reduce incase of any limitations in the study, incorporation of other methods of data collection (triangulation) was done (Appendix: 1 and J).

3.6.3. A Camera

Barrie (2009), Babbie (2007) and Benard (2003) concurs that observation schedules provides the researcher with direct contact to the situation; that is, they give a real picture and snap shot in time. In this study observations established the degree to which the learners and teachers express confidence with Inclusive Technical Training Education for Visually Impaired (ITTEVI) processes. It also enabled the researcher to assess whether learners, teachers and support staff express any confidence or anxiety in Inclusive Technical Training Education for Visually Impaired (ITTEVI).

Photographs of the participants namely; the MTTIB learners, workshops, physical environments, departmental facilities and other related areas, are availed and attached as observation was carried out;

"*To Identify the Dynamics and Barriers of ITTEVI in MTTIB; Direct observations helped, specifically assess whether or not Machakos Technical Training Institute for the blind (MTTIB) is Conscious of; and has the Capacity of addressing the Challenges of Inclusive Technical Training Education for Visually Impaired (ITTEVI) in Kenya."*

3.6.4. Observation Guide

Observation checklist was used to collect information on available resources for Inclusive Technical Training for learners with Visual Impairments. Later an observation form was used to assess a few visually impaired and sighted learners, teachers as the teaching/instructions went on in the relevant technical training practical workshop lessons, (Appendix: M).

3.7. Validity of Research Instruments

Gravetter's (2012), Gravetter (2007),Morrow's (2006), Gauch (2003) and Kvale (1996) concurs with Best (1992) and Pinard (1981) that a test is valid if it measures what it claims to measure. They further argue that validity is quality attributed to proposition, or measures to the degree to which they conform to establish knowledge or truth, validity in this study therefore refers to the extent to which the instruments asked right questions in terms of accuracy. In addition, Hopkins (1998) and Keingsley (1997) observes that for a research instrument to be considered valid, the content selected and included in the questionnaire must be relevant to the variable being investigated.

The interview schedule items and observation tools were designed, developed and subjected to thorough appraisal and discussion with colleagues, supervisors and other

experts both in research and in the field of Technical and Vocational Education and Training (TVET) and Special Needs Education (SNE). The Teachers in Machakos Technical Training Institute for the blind were also consulted in identifying items which their learners could not understand. Necessary adjustments were done through piloting, before the instruments were administered. Data triangulation was considered by collecting data from different stakeholders in different times, while, methodological triangulation was apparent by using the four different methods of data collection to establish the challenges of the Machakos Technical Training Institute for the blind programme ITTEVI.

3.8. Reliability of Research Instruments

Hoge (2009), Shavelson (2008), Rani (204) and Kingsley, (1997) submit that reliability tells how well a test measures what it is supposed to measure. They suggest one way to measure reliability is to give the same people the same test on more than one occasion and then compare each person's performance on both occasions. Reliability is also the measure of the degree to which a research instrument yields results after repeated trials. In order to ascertain and effectively identify the challenges of Inclusive Technical Training Education for the Visually Impaired (ITTEVI), different methods of data collection were used; Interviews, observation, questionnaires.

3.9. Piloting of the Research Instruments

The purpose of the pilot study was to prepare for the main study and asses the clarity of the instrument and the suitability of the items and language in the following aspects; Gaining more experience in field organization skills, determining the

appropriateness and effectiveness of the research techniques and tools and gaining more practice in the use of research techniques and scoring. The instruments were piloted. Teachers and learners who participated in the pilot study were not involved/made part of the **main study sample size**. The items that were found to be inadequate were revised, adjusted accordingly and appropriately for the purpose of the quality of the study.

3.10. Data Collection Procedures

Before embarking on the data collection, authority was sought from the NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY through the Dean, School of Education, Moi University. After obtaining a permit, Principal, Machakos Technical Institute for the blind was contacted to explain the purpose of the study and given a copy of the obtained consent. (Appendices: A and B). Upon receipt of the principal's consent, the researcher personally visited Machakos Technical Training Institute for the Blind to conduct the interviews, observations and to analyze relevant. After gathering all the required data, the researcher proceeded to analyze the data.

3.11. Scoring of the Instruments

After the questionnaire, the interviewee conducted individual interviews with the respective respondents, which took forms of discussions. Later, the interviewer would set dates with the respondents for joint interviews and focus on group discussions. The interviewees would also take contact of the respondents to confirm the dates after consultation with other respondents. On the dates set, the interviewer would call to remind and confirm the respondents of the meeting before the meeting. Joint

interviews and group discussions were conducted, for all the categories of learners in the institute. Triangulation was done in most of the occasions to validate the data.

Observations were also made on the nature of the; facilities, services, experiences and social interactions of; the learners, teachers and supportive staff in MTTIB. The researcher got involved in different activities with the respondents; attending lecturers, share ring dining hall activities, visiting their residential halls and participating in their games and sports activities amongst other relevant places in Machakos Technical Training Institute for the Blind.

These observations were recorded in the researchers' journal and diaries. Photographs, used in these study appendixes, were also taken of these scenes. Generally, comprehensive summaries of these observations, discussions and challenges would be made to assist in planning the way forward. New experiences were useful in each interaction with the respondents in their empery.

For the quantitative data Scoring Criteria was as follows;

Table: 3.1. Scoring Criteria

	Positive	**Ambivalent**	**Negative**
For I Item	2.4 and below	2.5 - 3.4	3.5 – 5.0
For 6 Item	16 and below	17 - 20	103 - 150
For 30 Item	78 and below	79 - 102	103 - 150
For 36 Item	94 and below	95 - 122	123 - 180

The scales were scored negatively so that low score is in the positive perception direction and high score negative perception. For each item minimum score was 1 and maximum was 5. For 6 item scale minimum score was 6 and maximum 30. For 30 item scale minimum score = 30 and maximum score = 150. For 36 item scale minimum score = 36 and maximum score = 180.

3.12 Data Analysis

The data obtained from the interviews, observations, discussions and questionnaires, were put into; categories, perceptions and opinions of the participants on the challenges of Inclusive Technical Training Education for learners with visual Impairments (ITTEVI) in Machakos Technical Training Institute for the Blind

(MTTIB). They were analyzed using descriptions and presented in form of percentages, graphs and pie charts were necessary. The descriptive discussions, pie charts and percentages were detailed and reported by the researcher in chapter four before moving on to the subsequent Summaries, Conclusions and Recommendations in chapter five.

3.13. Ethical Considerations

Levers (2012), Henderson's (2011), Kombo's (2006) , Lokanadha's (2005) and Orbach (2003) advise that the researcher must maintain confidentiality at all times and must obtain informed consent from any participants used in the study. In addition Jwan (2010) adds that it is very challenging to act ethically when conducting research in institutions due to the fact that apart from seeking formal access from the gate keepers to conduct research within the institutions, there is need to seek further access and informed consent from the individual teachers and learners to be interviewed or observed.

In this study assent was to interview MTTIB participants was obtained from The Kenya Government (Research permit), Machakos County office, MTTIB Principal, MTTIB teachers and the MTTIB learners. Parents assent was not sought. This was informed by the fact that all the MTTIB learners were adults (above 18 years old). Other ethical aspects were as discussed below;

3.13.1. Informed consent and assent

According to Holmes (2006) to cultivate the trust, a researcher should be honest, reliable and communicate all aspects of the research process to all participants. In this context, research informed consent refers to the research participants agreeing to participate in a study based upon disclosure of all relevant information and the recipients' understanding of it. To meet this requirement, the researcher verbally engaged with the participants on the pertinent issues about the study.

The researcher visited MTTIB severally and held talks on the areas of interest in the study with all the MTTIB participants. It is believed that such talks and consultations enabled the MTTIB participants to be informed on what they were to participate contribute into the MTTIB study. With such informed consent/assent, MTTIB participants were able to make an informed decision. Participants were explicitly asked for their consent, given clear statement about why information was going to be collected and told how it will be used. The participants not willing to participate would be allowed to withdraw. There are however situations where informed consent or assent may not be possible. It is recommended that in such situations, the principle of greater public should take precedent over any other interests. The same procedure was done to get the learners participation in the focused group discussions even though assent given by the principal and their teachers. The researcher observed this meticulously during the study.

3.13.2. Confidentiality and anonymity

Newton (2001) understands confidentiality as the treatment of information from a participant in a relationship of trust without divulging the same to without permission in ways that are inconsistent with the understanding of original disclosure; while anonymity refers to the hiding of the identity of participants.

In this study, efforts were made to hide the identity of participants, sources and sites. To achieve confidentiality and anonymity, participant's names and the sites were given codes. This helped reduce the participant's fears and/or apprehensions and encouraged them to participate in the study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter consists of the data presentation, analysis and interpretation of the findings based on the purpose of the study, which was to find out, whether there is any impact of; the instructional materials, teachers' attitudes, learners' attitudes, environmental factors and, the MTTIB core curricular activities on the provision of ITTEVI in MTTIB. The study was also made to establish; if the MTTIB teachers' **w**orking experiences and qualifications have any significant impact on the Inclusive Technical Training Education for learners with Visual Impairments (ITTEVI) in Machakos Technical Training Institute for the Blind (MTTIB). The data obtained from; the interviews, observations, discussions and questionnaires, were put into; categories, perceptions and opinions of the participants on the challenges of ITTEVI in MTTIB. It was analyzed using; detailed descriptions, coded and presented in form of percentages, graphs and pie charts were necessary.

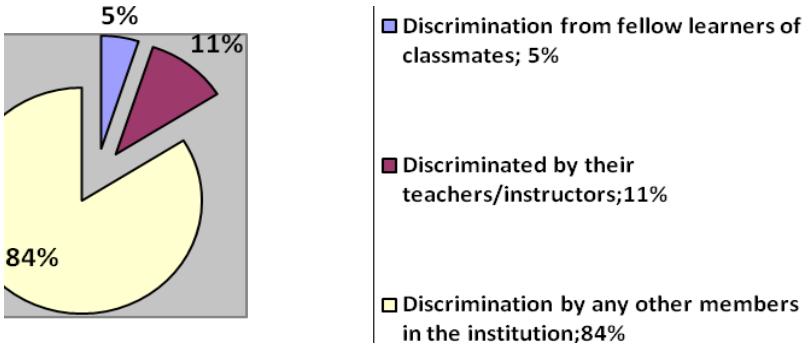
4.1. Background Information of the participants

The study sought to investigate the demographic characteristics of the respondents based on the learner's; special needs, levels of their background education before joining MTTIB and the technical training education they were perusing in MTTIB . The study was also considered the MTTIB teacher's; levels of training qualifications as well as their years of teaching experiences both as regular and specialized in the

area of visual impairments. The demographic information would assist in establishing, if the information given by the respondents would be in any way related to the characteristics of the respondent.

4.2. Teacher's and Learner's opinions on ITTEVI

In relation to the types of discrimination that the participants faced in the MTTIB, the study findings were that: 5% of learners indicated that they faced challenges caused by discrimination from fellow classmates learners, with another 11% stating that they were at one point discriminated by their teachers/instructors and another 84% of learners stating that they were discriminated by other members of supportive staff in the institution.



Source: Field Work (2015)

Figure 4.1 MTTIB Teacher's and Learner's Perceptions on ITTEVI Provision

In addition to this, the response rate for the forms of discrimination was also stated or recorded as follows: in relation to discrimination from fellow regular or visually impaired learners; the study finding was that majority of the visually impaired respondents had stated/recorded that they were bullied or stolen from by other roommates. In relation to discrimination by their teachers/instructors, majority of the visually impaired respondents raised a concern, that they were denied individually orientated attendance, of certain personalized tactual l instructions, by their teachers or classmates. Similarly, the regular learners raised concerns that, most visually impaired learners assume their support from the regular learners, thus wasting a lot of their learning time both in class/workshops and outside. In relation to discrimination by supportive members of the institution, visually impaired learners lamented that they were denied escort and less time wasting in access to the workshops, dining halls, and other MTTIB leisure learning facilities. They missed assistance in terms of direction to the right places of learning and socializing. They also experienced delayed services such as orientation to the institute compound, workshops meeting grounds, and the specialized adapted equipment in their relevant inclusive technical training (ITTEVI) courses.

"*Both visually impaired learners and the sighted sit in a classroom according to the way they want without being guided by the teacher. You may find visually impaired sited together and sighted learners sited on their own"*. (Source: Field work 2015)

4.2.1: MTTIB Teachers' Opinions on ITTEVI Provision

In an effort to identify the Impact of Teachers' attitudes on provision of ITTEVI in MTTIB; the researcher sought the opinion of the following statements. The findings of the study were recorded in Table 4.0.

Table: 4.0.MTTIB Teachers' opinions on ITTEVI provision

Statement	SA	A	U	D	SD
Teachers' attitude in teaching ITTEVI is very positive	50.4	15.1	6.5	15.1	19.4
Teachers sometimes affect learners attitude negatively thus causing some learning challenges of ITTEVI in MTTIB.	5	20.9	25.2	16.5	32.4
Some teachers given a choice would not wish to teach in a technical class/workshop with learners who are visually impaired.	4.3	8.6	7.2	51.1	28.8
There is cooperation amongst teachers in assisting visually impaired learners carry out their tasks in ITTEVI	43.2	11.5	23.7	6.5	15.1
There are many learners in the integrated workshops/classrooms causing congestion but teachers/instructors are still able to offer one-to-one instructions (IEP).	28.8	8.6	7.2	51.1	4.3
The Government policy and other related Kenya Government documents on inclusion have given adequate directions on ITTEVI.	43.9	8.6	15.1	23	8.6

Source: Field work (2015)

The findings of the study were that majority 50.4% of the respondents were of the opinion that Teachers' attitude in teaching ITTEVI is very positive. Other findings of the study were as follows: 5% of the respondents were of the opinion that teachers sometimes affect learners attitude negatively thus causing some learning challenges of ITTEVI in MTTIB, another 4.3% of response rate was that some teachers given a choice would not wish to teach in a technical class/workshop with learners who are visually impaired with another 43% of response rate indicating that There is cooperation amongst teachers in assisting visually impaired learners carry out their tasks in ITTEVI and another 28.8% of response rate agreeing to the statement that There are many learners in the integrated workshops/classrooms causing congestion but teachers/instructors are still able to offer one-to-one instructions (IEP). Finally, 43.9% of respondents in the study were of the opinion that the Government policy and other related Kenya Government documents on inclusion have given adequate directions on ITTEVI.

In relation to the findings of the study on the Impact of Teachers' attitudes on provision of ITTEVI in MTTIB, the fact that the major finding was that majority of the respondents were of the opinion that teachers' attitude in teaching ITTEVI is very positive; could be interpreted to mean that there is no challenge concerning teachers attitude with the implementation of the ITTEVI provision in MTTIB.

4.2.3. Learners' opinions on ITTEVI provision in MTTIB

In an effort to identify the Impact of Learners' attitudes on provision of ITTEVI in MTTIB; the researcher sought the opinion of the following statements. The findings of the study were recorded in Table 4.1.

Table: 4.1. MTTIB Learners' Perceptions on ITTEVI provision

Statement	SA	A	U	D	SD
There is a big relationship between learners attitude and the prompt adoption of ITTEVI in MTTIB	58.3	5.8	9.4	18	8.6
Learners attitude in teaching ITTEVI is positive	43.9	8.6	15.1	23	8.6
The number of leaner's attending lessons is higher after the establishment of ITTEVI in MTTIB	28.8	8.6	7.2	51.1	4.3
Leaner's find it hard to adopt the ITTEVI provision that has been introduced to the school system	19.4	15.1	6.5	15.1	50.4
The ability to apply ITTEVI provision is challenging since it has significant errors with lack of proper teaching materials to assist leaner's	15.8	6.5	29.5	7.9	40.3
The cause of leaner's poor attitude towards ITTEVI is due to the low attitude that teachers have on the learners	3.6	2.9	5.8	7.2	80.6

Source: Field work (2015)

The main finding of the study was that majority 58.3% of the respondents there is a big relationship between learners attitude and the prompt adoption of ITTEVI in MTTIB. Other results from the study findings were that 43.9% of the respondents were of the opinion that Learners attitude in teaching ITTEVI is positive. Another 28.8% of the respondents were of the opinion that the number of learner's attending lesions is higher after the establishment of ITTEVI in MTTIB with another 19.4% of respondents were of the opinion that learner's find it hard to adopt the ITTEVI

provision that has been introduced to the school system. Other findings were that 15.8% of the respondents were of the opinion that the ability to apply ITTEVI provision is challenging since it has significant errors with lack of proper teaching materials to assist learners and finally, 3.6% of the response rate in this study revealed that the cause of learner's poor attitude towards ITTEVI is due to the low attitude that teachers have on the learners.

The main finding of the study was that majority of the respondents were of the opinion that a big relationship between learners attitude and the prompt adoption of ITTEVI in MTTIB. This could be interpreted to mean that the learners' attitude was the core challenge with the implementation of the ITTEVI program in the institution. This could further be discussed in that majority of the learners lack positive self-esteem and self-confidence in the teaching and learning process. This could also be interpreted to mean that the learners are not fully satisfied by the ITTEVI provision introduced in their teaching and learning process. In addition to this, the learners are being faced with a challenge of accessing leaning due to lack of proper facilities and the general routine of the institution.

4.3. MTTIB Learner's Education and Their ITTEVI Perception

The researcher classified the MTTIB learners participants into different categories based on the level of their education backgrounds before admission into the institute. This was made to guide and assist the researcher in obtaining responses from all the MTTIB learners experiences based on their levels of education. The researcher was

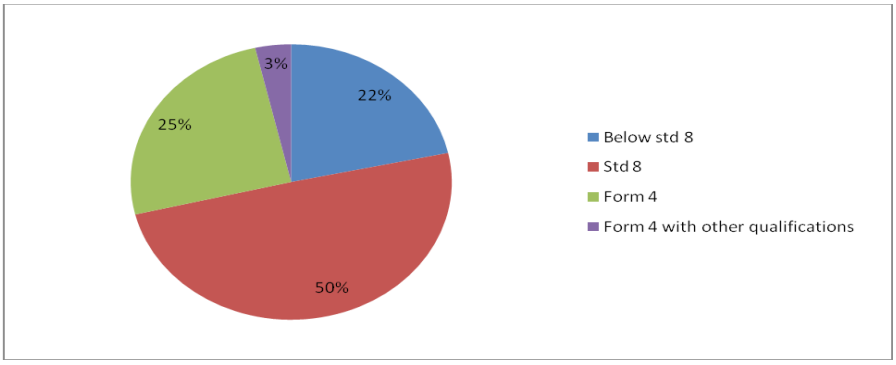
able to collect data through the use of the study instruments administered to the participants respectively. Its findings were as presented below; Table 4.2.below;

Table 4.2. MTTIB Learner's Education Their ITTEVI Perception

Education Qualifications	No. of Learners	Percentage (%)
Below Standard: 8 (Eight).	20	21.6 %
Standard: 8 (Eight).	47	49.6 %
Form: 4 (Four)	20	21.5 %
Above Form 4: (With other qualifications)	4	3.7 %
Graduate: (With other qualifications)	3	3.6%
Total	**94**	**100 %**

Source: Field Work (2015)

The study findings revealed that the highest number 47 (49.6%) of the MTTIB learners in the ITTEVI, had acquired standard 8 level of education, 20 (21.6%) below standard 8, 20 (21.5%) learners having reached form 4 as their highest level of education. 4 (3.7 %) of the learners had above form four levels of education with other qualifications, whereas only 3 (3.6%) learners of MTTIB were graduate with other qualifications as their highest education levels.



Source: Field Work (2015)

Figure 4.2: MTTIB Learner's Education Their ITTEVI Perception

NB: The researcher was able to obtain responses (data) from all MTTIB learners' levels of educational backgrounds in the institute.

4.4. MTTIB Teacher's Professional Qualifications and ITTEVI Perceptions

The researcher classified the respondents into different categories based on their levels of qualifications in educational backgrounds. This was to enable the researcher obtain responses from all the levels of the MTTIB teacher's educational experiences.

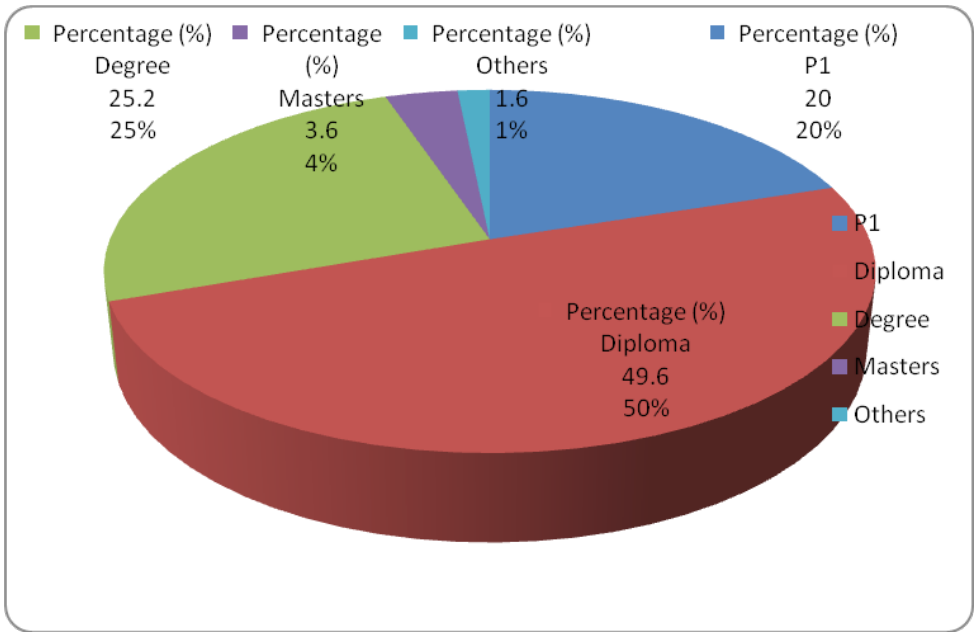
The findings were then presented in; *Table 4.3.* below;

Table4.3. MTTIB Teacher's Qualifications

Education	Population	Percentage (%)
P1	**11**	20 %
Diploma	**27**	49.6 %
Degree	**13**	25.2 %
Masters	**2**	3.6 %
Others	**1**	1.6 %
Total	**54**	**100**

Source: field Work (2015)

The study findings were that 11 (20%) of the teachers working in the institution participants had achieved P1 level of education in training, 27 (49.6%) were diploma holders, 13 (25.2%) had a degree level of training in education, while, only 2 (3.6%) of the teachers participants in MTTIB had attained a masters' level degree training in education. It was also established that, 1 (1.6%) of the MTTIB teachers participants had obtained other forms of training which was not identified in this study.



Source: Field Work (2015)

Figure 4.3 MTTIB Teacher's Qualifications

This implies that the researcher was able to adequately access participants' opinion without neglecting their level of education in relation to the study topic. This also

implied that the participants were literate and thus the data collected represented the truth of what is happening within the institution.

Similarly, in an effort to identify the Impact of Teachers' Qualifications on the Provision of ITTEVI in MTTIB; the researcher sought the opinion of the following statements. The findings of the study were recorded in Table 4.4. below;

Table 4.4: MTTIB Teacher's and learner's ITTEVI Qualifications

Statement	SA	A	U	D	SD
Teaching time given to integrated learners with visual impairment in MTTIB is inadequate.	5.6	15.8	9.4	8	61.2
Remedial (i.e. after classes) work and help is given, especially to the learners with visual impairments in MTTIB to facilitate its ITTEVI	63	20	1.1	15.5	1.4
The teaching/learning approaches in MTTIB are adapted for learners with visual impairments.	51.1	18	4.3	28.8	8.6
Qualified teachers can adapt technical training lessons/workshops to meet the needs of learners with visual impairments.	50.4	15.1	6.5	15.1	19.4
Qualified teachers can pair regular learners with visually impaired learners to support one another in their technical workshops/classes.	50	5.8	7.2	7.2	29.8
Learners are given Individualized Instructions by the teachers in MTTIB for an effective ITTEVI	74.5	12.1	5.8	4.0	3.6

Source: Field work (2015)

The study findings were that majority, 74.5% of the sighted participants were of the opinion thatlearners are given Individualized Instructions by the teachers in MTTIB for an effective ITTEVI. Other findings were that 61.2% of the participants were of the opinion that Teaching time given to integrated learners with visual impairment in MTTIB is inadequate, 63% of the respondents agreed that remedial (i.e. after classes)

work and help is given, especially to the learners with visual impairments in MTTIB to facilitate its ITTEVI, 51.1% of the respondents also stated that the teaching/learning approaches in MTTIB are adapted for learners with visual impairments with another 50.4% of the respondents believing that qualified teachers can adapt technical training lessons/workshops to meet the needs of learners with visual impairments and finally, 50% of the participants being of the opinion that qualified teachers can pair regular learners with visually impaired learners to support one another in their technical workshops/classes.

The fact that the major finding was that learners are given individualized instructions by the teachers in MTTIB for an effective ITTEVI, could be interpreted to mean that the aim of qualified teachers is to directly meet the needs of each leaner. This could also be interpreted to mean that learners are considered according to their level of comprehending lessons and their respective levels of inability. This finding could also be interpreted to mean that teachers are trained to meet learners' needs through psychological approaches such as identifying their weakness and making a better environment for them to comfortably learn.

4.5. MTTIB Teacher's Teaching Experiences and ITTEVI Perceptions

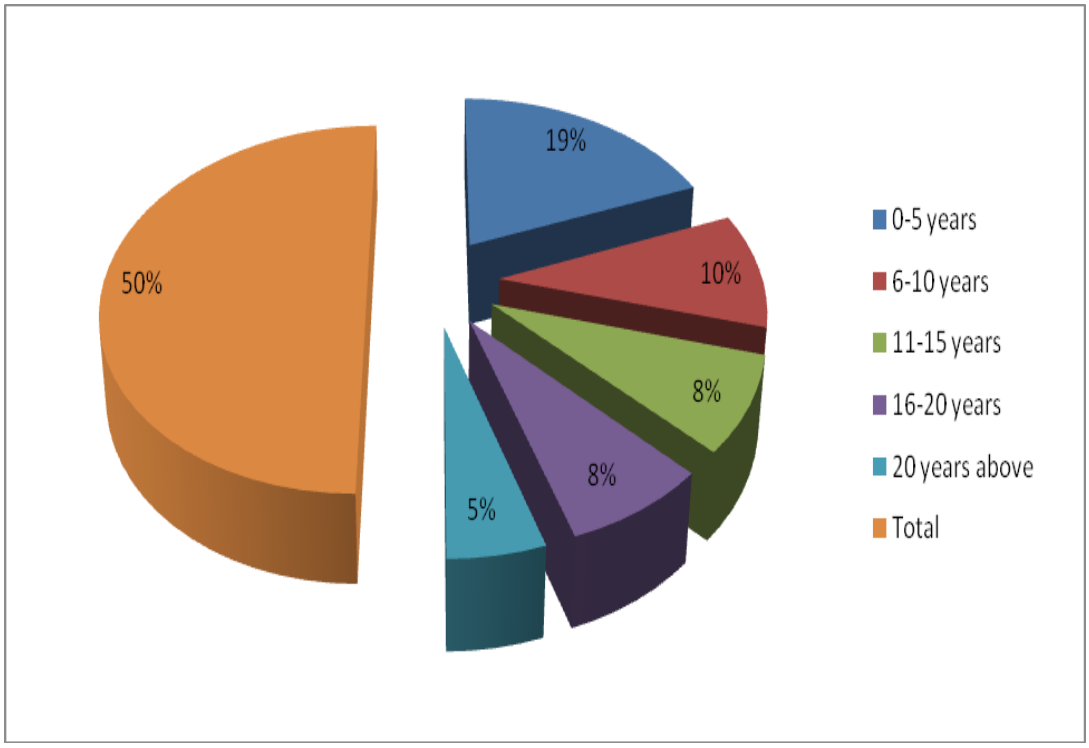
The researcher classified the MTTIB teachers respondents into different categories based on their level of work experience in the sector; this was to make sure that data was obtained in form of responses from all the levels of MTTIB teachers teaching its ITTEVI experiences. The findings of the study were as presented in; Table 4.5.below;

Table. 4.5. MTTIB Teacher's experiences

No of Years	No of Teachers	Percentage (%)
0-5 years	21	38.2 %
6-10 years	11	20.2 %
11-15 years	9	16.5 %
16-20 years	8	15.1 %
20 years above	5	10.0 %
Total	**54**	**100 %**

Source: Field work (2015)

The study findings revealed that 21 (38.2%) of the teachers had experiences of less than 5 years of teaching, while 11 (20.2%) of them had between 6 to 10 years of experience in teaching. About 9 (16.5%) of the MTTIB teacher participants had teaching experience of between 11 to 15 years, 8 (15.1%) of them had 16 to 20 years teaching experience. Finally, Only 5 (10%) of the MTTIB teachers expressed that their teaching experiences were over 20 years. This implies that a total of 33 (61.8 %) of the MTTIB teachers participants had a teaching work experience of more than 5 years (Fig. 4.4) below.



Source: Field work (2015)

Figure 4.4 MTTIB Teacher's experiences

Further, in an effort to identify the Impact of Teachers' Teaching Experience on Provision of ITEVI in MTTIB. The findings of the study were recorded in table 4.6. below.

Table: 4.6. MTTIB Teacher's Teaching Experiences

Statement	SA	A	U	D	SD
Teachers approach skills in teaching material from simple to complex in ITTEVI workshops.	61.2	15.8	9.4	8	5.6
Teachers adequately prepare for their ITTEVI lessons	63	20	1.1	15.5	1.4
Teachers present/develop some specific lessons; (e.g. progresses: gradually and step by step).	51.1		4.3	28.8	8.6
Teachers provide proper linkage of the learners' past experiences and current content in most ITTEVI technical workshop/lessons presented by teachers	50.4	15.1	6.5	15.1	19.4
Some teachers have no time to give the extra-time needed for ITTEVI by learners with visual impairments in MTTIB.	50	5.8	7.2	7.2	29.8
Some teachers are unwilling to teach in the ITTEVI workshop/classes (they feel it is somebody else's responsibility to do so and not them)	34.5	12.1	5.8	34	13.6

Source: Field work (2015)

The study findings were that majority 63% of the teachers were of the opinion that teachers adequately prepare for their ITTEVI lessons. The other findings were that 61.2% of the teachers indicated that they use skills in teaching material from simple to complex in ITTEVI workshops, with another 51.1% of participants stating that teachers present/develop some specific lessons; (e.g. progresses: gradually and step by

step). 50.4% of participants also revealed that teachers provide proper linkage of the learners' past experiences and current content in most ITTEVI technical workshop/lessons presented by teachers while 50% of participants agreeing that some teachers have no time to give the extra-time needed for ITTEVI by learners with visual impairments in MTTIB and finally, 34.5% of participants indicated that some teachers were unwilling to teach in the ITTEVI workshop/classes (they feel it is somebody else's responsibility to do so and not them).

The study findings were that majority of the participants were of the opinion that teachers adequately prepare for their ITTEVI lessons. This could be interpreted to mean that teachers have a high level of experience in conducting school based programs. This could also be interpreted to mean that teachers are qualified to give learners adequate curriculum coverage due to their ability to prepare for lessons. The finding of the study in this section could also be revealed to mean that lack of lesson preparation could lead to improper teaching and learning process since there would be lack of lesson coordination and lack of adequate curriculum coverage.

4.6. MTTIB Special Needs Education Teachers ITTEVI Perceptions

The researcher sought to establish the opinion of the participants on whether they had any training on Special Needs Education (SNE). The study findings were that 50 (92%) of MTTIB teachers participants stated that they had some training some training in Special Needs Education (SNE), while another 4 (8 %) of MTTIB teachers participants stated that they had no training on Special Needs Education (SNE) at all.

The findings of the study also indicated that, 37 (69%) of MTTIB teachers had some training in Inclusive Technical Training Education for learners with Visual Impairments (ITTEVI) while the other 17 (31%) of the teachers participants had no such a training. Majority, 53 (99%) of MTTIB teachers indicated that they had some other types of qualification experiences, which would be very useful for ITTEVI in MTTIB.

4.7. MTTIB Learners Choices of The Training Courses

The MTTIB Inclusive Technical Training courses offered are**;** A two (2) year Craft and Artisan courses: Clothing Technology, Tannery and Leatherwork Technology, Masonry, Carpentry and joinery and Garment making, while The Government Trade Test Courses offered are; Dress making, Tailoring, Shoe making, Leather work, Carpentry, Joinery and Masonry. Other courses offered in the institute are; Knitting, Rehabilitation and Communication for learners with visual impairments and Shiatsu (Japanese massage).

Based on the course allocations to the learners, the study findings revealed that 69% of learners respondents were pursuing a course of their choice, while 31% revealed that the learners were just allocated and admitted into the courses without their choices. This was attributed to lack of awareness and orientation on the nature and available technical courses to the newly admitted learners by the institute.

4.7.1 MTTIB Workshops and Practical Classes

The study findings were that there are several challenges in workshops and in the practical technical classes with integrated learners who are visually impaired. The visually impaired learners narrated that they faced challenges such as lack of enough tactually adapted teaching and learning materials. Such a response was at a rate of 55%. Another 27% of the learners participants were of the opinion that they did not have enough specially technical trained teachers for the learners with visual impairments, while 18% of them narrated that the practical lessons were challenging due to lack of specialized support, and protective devices in the workshops.

One of the learners stated that;

"*Both sighted and visually impaired learners; "use unprotected hands to prepare raw skins in a basin full of water and chemicals". Some modifications may be necessary to assist and protect us in future*".

However, majority of the participants, 72%, were of the opinion that there are inadequate and inappropriate instructional materials for teaching and learning in some departments. This should be treated as a small challenge in teaching and learning processes, since more has been achieved with the use of the MTTIB existing resources. This could also mean that without the current facilities the institution would have faced a bigger challenge in the process of learning and teaching ITTEVI. China introduced a massage training programme in MTTIB. Both Learners, who are, totally blind and those who are sighted, take the training.

4.8. MTTIB Environmental Factors

In an effort to identify the challenges of MTTIB Environmental factors on the ITTEVI provision; the researcher sought the participant's opinions on certain items. The findings were as recorded in Table 4.7 below.

Table. 4.7. Challenges of MTTIB Environmental factors on ITTEVI

Statement	SA	A	U	D	SD
MTTIB related psychosocial stress affects integrated visually impaired learner's training while in the institute (MTTIB).	58.3	5.8	9.4	18	8.6
Cultural beliefs, taboos and customs accept inclusion of learners with visual impairments in regular public institutions (MTTIB).	3.6	2.9	5.8	7.2	80.6
MTTIB related discouragement affects learners who are visually impaired in the training (MTTIB).	51.1	8.6	7.2	28.8	4.3
Visually impaired learners'Parents' educational exposure level influences learners' training motivation in the MTTIB	19.4	15.1	6.5	15.1	50.4
Many homes of learners with visual impairments are poor; hence that the financial support/fees is hard to come by; affects ITTEVI in MTTIB.	3.6	2.9	5.8	7.2	80.6
Insufficient Kenya Government support;	3.6	2.9	5.8	7.2	80.6

(Instructional Material, Human Resources, Financial, etc,) affects the quality of ITTEVI in MTTIB

Source: Field work (2015)

The major finding of the study was that majority 58.3% of participants were of the opinion that MTTIB environmental factors related psychosocial stress affects integrated visually impaired learner's training while in the institute (MTTIB). Other findings of the study were that 3.6% of participants believed that cultural beliefs, taboos and customs accept inclusion of learners with visual impairments in regular public institutions (MTTIB), with another 51.1% of participants revealing that home related discouragement affects learners who are visually impaired in the training (MTTIB) and another 19.4% of participants indicating that visually impaired learners 'Parents' educational exposure level influences learners' training motivation in the MTTIB. 3.6% of participants suggested that many homes of learners with visual impairments are poor; hence that the financial support/fees is hard to come by; affects ITTEVI in MTTIB. Finally, another 3.6% of participants were of the opinion that insufficient Kenya Government support; (Instructional Material, Human Resources, Financial, etc,) affects the quality of ITTEVI in MTTIB.

The fact that the main finding of the study was that majority of participants were of the opinion that MTTIB environmental factors related psychosocial stress affects integrated visually impaired learner's training while in the MTTIB. This could be interpreted to mean that most of the learners are involved in emotional activities

during their time away from class. This could also be interpreted to mean that learners' concentration to learn is reduced due to that fatigue. The relationship between psychosocial stress and integrated visually impaired learner's training is high, thus causing a challenge for their teaching and learning processes in MTTIB.

One of the teacher participants explained that*;*

"*Visually impaired learners are encouraged to move freely on the MTTIB compound, without their white canes, or use them, (if they so wish), after the Orientation and Mobility training programme. This free movement help the learners with visual impairments, build their self-confidence."*

4.9. MTTIB Devices and Instructional Materials

The study findings were that majority of the learners, 51%, stated that they were receiving specialized services. This implies that the institution provides options for the integrated learners (with visual impairments). These enables them experience the key technical tactile elements in the Inclusive Technical Training Education for Visually Impaired (ITTEVI). This is in consideration of their visual limitations and their levels of needs. Some of such needs are; their rate of tactual comprehension in practical lessons.

One of the learners with visual impairment explained cited one of such specialized services as;

"Specialized software fitted into the computers for the visually impaired learners to use. The software makes computers audial and talking; to the visually impaired learners, making it possible for the visually impaired learners uses the computers independently."

Learners who acquired visual impairment (blindness), through accidents or diseases are rehabilitated, trained on how to use the adapted computers, given orientation and mobility skills; after which most of them go back to their offices/places of work.

In an effort to identify the challenges of devices and Instructional Materials on the ITTEVI provision in MTTIB; the researcher sought opinions on the following items. Findings were as recorded in; Table 4.8. below.;

Table.4.8. MTTIB Learner's Opinions on ITTEVI Instructional Materials

Statement	SA	A	U	D	SD
There are adequate and appropriate instructional materials for teaching and learning in MTTIB for ITTEVI.	38.3	5.8	9.4	18	28.6
There are very many learners in the integrated workshops/classrooms causing congestion but teachers/instructors are still able to offer one-to-one instructions (IEP).	43.9	8.6	15.1	23	8.6
Inadequate teaching and learning resources available in MTTIB hinder teachers from being effective in their ITTEVI instructions.	28.8	8.6	7.2	51.1	4.3
There are adequate and appropriate instructional materials for teaching and learning in MTTIB for ITTEVI.	19.4	15.1	6.5	15.1	50.4
Inadequate adapted specified technical training instructional material for visually impaired in MTTIB, hinder teachers from being effective in their ITTEVI instructions.	58.3	5.8	9.4	18	8.6
The Government policy and other related Kenya Government documents on inclusion have given adequate directions.	33	9	10	25	23

The study found that, majority 58.3% of the learners were of the opinion that there are adequate and appropriate instructional materials for teaching and learning ITTEVI in MTTIB. Other findings were that 43.9% of learners were of the opinion that there are very many learners in the integrated workshops/practical classrooms, causing congestion. However, it was found that MTTIB teachers/instructors were still able to offer one-to-one instructions (IEP). Another 38.3% of the learners were of the opinion that there are adequate and appropriate instructional materials for teaching and learning ITTEVI in MTTIB, with another 28.8% indicating that there is inadequate teaching and learning resources available in MTTIB. According to them, that hindered MTTIB teachers from being effective in their ITTEVI instructions.

The study also revealed that 19.4% of MTTIB participants were of the opinion that there are inadequate and inappropriate devices and instructional materials for teaching and learning ITTEVI in MTTIB. Finally, 33% of the learners suggested that; the Government policy and other related Kenya Government documents on Inclusion have given adequate directions on Inclusive matters but silent on ITTEVI matters. One of the learners with visual impairments (totally blind) was happy to demonstrate to the researcher on;

"How to smoothen pieces of leather and make it soft enough to make leather shoes!".

The fact that the main finding of the study was that majority of the learners were of the opinion that there are adequate and appropriate instructional materials for teaching and learning ITTEVI in MTTIB, there is a minimal challenge in the teaching and learning processes of the visually impaired learners. This is because one observes that, still much has been achieved with the use of the resources available in the institution. This could also be interpreted to mean that, without the relevant adopted and adapted facilities, MTTIB could have faced much and many more challenges in the process of its ITTEVI teaching, Learning and management.

The management explained that;

"People who acquire blindness through accidents or diseases are rehabilitated, trained on how to use adapted computers, given orientation and mobility skills; after which most of them go back to their offices/places of work."

4. 10. Discussions

4.10.1 MTTIB Challenges of ITTEVI Devices and Instructional Materials

The study findings support Nuru et al, (2003) observations that there should be measures to; improve, encourage and support ITTEVI in MTTIB. In support of education for people with special needs in Kenya, the Kenya Government has taken some measures. It has, for example, allocated some grants for learners with special needs enrolled in regular schools. Assistance has also been assured to the integrated (inclusive) learning institutions in order to procure the specialist devices and instructional material. The Government is very keen on putting structures to remove whatever barriers that make the school environments unfriendly to learners with special needs. The Government has also continued to sponsor the training of teachers

for learners with special needs at all levels up-to University. This positive Government effort should be seen and reflected in the ITTEVI provision in MTTIB.

4.10.2 MTTIB Teachers' Perceptions on the ITTEVI provision

In relation to the findings of this study, majority of the participants were of the opinion that teachers' attitude in teaching ITTEVI in MTTIB is very positive. This could be interpreted to mean that there is no challenge concerning the MTTIB teacher's attitude on the implementation of the ITTEVI in MTTIB.

This is a finding which concurs with Mangnes (1992) experiences that all human beings learn from others experiences (teachers) of real events in a real world that surrounds us. MTTIB learners who cannot see are systematically and manually guided to learn the world around them (objects). This would assist them, so that they do not lag behind in conceptualizing their environments. The finding of the study is also related to February, (2000; quoting Freeman 1989: 28) who reveals that if a teacher attempts to help a leaner by carefully giving them knowledge, the learner does not only promote its spatial concepts development, but also builds its intact with the teaching and learning processes.

4.10.3 MTTIB Learners' Perceptions on ITTEVI provision

The main findings of the study was that majority of the MTTIB participants were of the opinion that, there is a big relationship between learners attitude and the adoption of ITTEVI in MTTIB. This could be interpreted to mean that the MTTIB learners' attitude was the core challenge in the implementation of the ITTEVI provision in MTTIB. This could further be argued to mean that majority of MTTIB learners, lack

positive self-esteem and self-confidence in their teaching and learning processes. It could also mean that MTTIB learners are not fully satisfied by their ITTEVI teaching and learning processes. In addition to these, the learners are being faced with a challenge of accessing leaning in some practical workshops, due to lack of proper ITTEVI facilities and the general MTTIB environmental factors.

The study findings are in support of Lowenfelds' (1977) and Warrens' (1984) findings that, visually impaired learners who lost vision after certain age are able to recall, reflect and make use of the visual knowledge based on their experiences acquired before the blindness onset. In MTTIB learners who lost sight later in life had retained visual imagery and colour ideas, and of which they could use in their learning processes. However, it should also be noted that, Warren (1984) revealed that learners with blindness may never effectively learn basic technical skill concepts independently. They have to be tactually taught. They would, for example, not naturally know the right way to face when blowing noses in front of people, unless they are practically taught!

In fact, this phenomenon appears to be challenging the generalized theory that; every learner transits into a new stage of development after achieving the previous one, and that a new stage of development is started with the knowledge of the old experiences. The researcher asserts that this is not true with learners who cannot see. This is appears to be one of the ITTEVI challenges in MTTIB in this study.

4.10.4 Challenges of MTTIB Environmental factors on the ITTEVI provision

The findings of the study was that majority of MTTIB participants were of the opinion that MTTIB environmental related psychosocial stress affects its integrated visually impaired learner's. This could be interpreted to mean that most of the learners are involved in managing their psychosocial stress activities during their free time away from classes. It could also be interpreted to mean that MTTIB learners' concentration in learning is destructed and reduced to managing their fatigue. Of course, the relationship between the MTTIB visually impaired learners psychosocial stress and ITTEVI training is high, thus, causing a challenge for the teaching and learning processes in the MTTIB Inclusive Technical Training Education for the Visually Impaired.

The study findings agree with Pajares (1996) observations that, environment influences the behaviour and the behaviour influences the environment. He further explains that individuals interpret and evaluate their own experiences, thought processes and challenges subjectively.

In addition, the study findings can also be reflected in Masons' (1997) findings on the visually impaired learners' psychomotor orientation and mobility developmental barriers. He, Mason (1997) acknowledges that learner's born blind may not be able to do fine activities needed to improve their fine hand co-ordination, which is one of the main routes through which a learner who is blind explores the world. Masons' (1997) further advises that, learners with blindness are not motivated due to their lack of

visual stimulation. Their muscles need to be strengthened through assistance or alternative types of stimulation and given orientations on their environment.

The orientation skills can be linked to the development of movement, as the orientation is the ability to understand the relationship that objects have to one another (creation of a mental pattern of the environment) of and in MTTIB (in the context of this study). MTTIB teachers and learners are cautious that Mobility (walking in itself), expands the MTTIB learner's horizons (scopes of thinking), and infers more experiences and therefore enriching the MTTIB learner's opportunities for concept formation.

4.10.5. Challenges of MTTIB Teachers Experiences on ITTEVI Provision

The study findings were that majority of the participants were of the opinion that MTTIB teachers adequately prepare for their ITTEVI lessons. This could also mean that MTTIB teachers have a high level of experience in preparing and conducting ITTEVI projects. It can also mean that MTTIB teachers are qualified to give learners adequate course coverage due to their skills in preparation for their ITTEVI lessons.
The MTTIB teachers seem to be aware of the Warrens' (1984), Masons' (1997) and Mills' (1983) findings that learners with blindness display a lag in language development, which could be due to slower physical development, limited range of experiences and lack of the visual stimulation.

These tend to make them take longer in attaching meanings to certain words and formation of concepts. MTTIB teachers also seem to know that learners with blindness use similar language pattern as the sighted with a slight difference on tactile and auditory experiences. They were also aware that both MTTIB teachers and

learners could also use “Non-Verbal Communication Skills.” For example, to reinforce and facilitate any skill MTTIB teachers want the MTTIB learners to learn. This is useful to technical training MTTIB learners in the context of this study, whether in Tactile communication or in Practical application approaches.

4.10.6 Challenges of MTTIB Teachers’ Qualifications on the ITTEVI Provision

The major finding was that learners are given individualized instructions by the teachers in MTTIB for an effective ITTEVI. This could be interpreted to mean that the aim of qualified teachers is to directly meet the needs of each leaner. This could also be interpreted to mean that MTTIB learners are considered according to their level of comprehending lessons and their respective levels of inability. This finding could also be interpreted to mean that MTTIB teachers are sensitized to meet their learners’ needs through psychological approaches such as identifying their weakness and adapting and making a better environment for them to comfortably learn.

The findings concur with Brolin (1985) observations about critic emerges that TEVT systems should be reorganized. This should be done in order to encompass not just learning around a detailed professional competence, but also more generic learning. Such genetic learnings are as in basic computer navigation and basic team-working skills. These will sustain employability even beyond the narrow skills that have been taught. The study submits that; TEVT and ITTEVI could be highly appreciated, if the world developed the systems in the light of accreditation of competencies,but not just by degrees.

4.11 Summary

One notes that, the MTTIB findings on ITTEVI are not any much different from many studies on the people with special needs provisions. UNESCO (2003), findings for example, are that; initially Technical Education and Vocational Training has often been seen as the "Parent Pauvre.", (as the system, as it were, where those who go there are the ones who have failed to get into general education streams), when in fact, it is bound to play a new and far more important role in the future. This is much more true for the people with visual impairments that, Technical Education and Vocational Training is bound to play a new and far important role in their future, (Hegarty, 2011).

In relation to the challenges of Instructional Materials on the provision of ITTEVI in MTTIB, the fact that the main findings of the study were that majority of the participants gave their opinion as that;

"*there are adequate and appropriate instructional materials for ITTEVI teaching and learning in MTTIB"; "We have been surviving with the few and type of facilities you can see !"* was the expression of most of the participants.

The researchers' observation was that there were some challenges in the teaching and learning ITTEVI processes. However, since according to the participants,

"*Much has been achieved with the use of the present resources in the institution."*

This was interpreted to mean that without those facilities the MTTIB could not have achieved what it has in the teaching and learning process of ITTEVI. To the participants, that was a minimal challenge, and thus a challenge of course.

According to Hegarty, (2011), and Ndonye, (2012) experiences and observations, for any success of an Inclusive Technical Training Education for Visually Impaired (ITTEVI), certain specific conditions must be understood and met early enough. Some of these conditions range from the clarity of the ITTEVI objectives, provision and adaptation of the instructional material. MTTIB should create the necessary awareness to enable its stakeholders acquire the right positive attitudes of the ITTEVI provision.

These study findings on the MTTIB teacher's attitude on its ITTEVI was that majority of the participants were of the opinion that MTTIB teachers' attitude in teaching ITTEVI is positive.

"These learners are like any other learner which we are employed and paid to teach." The MTTIB teachers reiterated.

This was interpreted to mean that the MTTIB teachers were willing to teach all the MTTIB learners for ITTEVI indiscriminately. However, this does not mean that they were not facing some challenges with the implementation of ITTEVI in MTTIB. Most of them had the attitude of;

"Doing the work they were employed to do", irrespective of the challenges.

With regards to the findings on the participants interviewed on the MTTIB learners' attitudes on its ITTEVI provision , the study found that majority of the participants were of the opinion that there was a big relationship between MTTIB learners attitude on the quality and functionality of ITTEVI in MTTIB. Most of the MTTIB sighted learners were not comfortable with the name of the institution, "Machakos Technical Training Institute for the Blind" (Appendix). Sighted learners were afraid that most people (employers) would think these learners (sighted) were in Machakos Technical Training Institute for the Blind, because they (sighted learners) were themselves blind.

Similarly, as stated earlier, the MTITB learners with visual impairments interviewed were of the opinions that the MTTIB sighted learners would have gone to regular institutions for their trainings. This was interpreted to mean that both MTTIB seeing and MTTIB visually impaired learner's attitude was a core challenge in the implementation of the ITTEVI provision in MTTIB. This was further observed and recorded in the participants individual and focused group discussions. It was evident that majority of the MTTIB learners lack high positive self-esteem and confidence in the ITTEVI teaching and learning processes.

The researcher interpreted this to mean that the MTTIB learners are not fully satisfied by some of the ITTEVI teaching and learning process in the provision. In other words this implied and would mean that MTTIB learners were being faced with a challenge of accessing conducive ITTEVI leaning due to the lack of a proper general routine of the MTTIB psychological and sociological management of the ITTEVI provision. The study confirmed that such preparations were not done in MTIB before its ITTEVI provision preparations.

The Persons with Disability Act, (2003) and The Kenya Constitution (2010). Acknowledges that, accessibility and modifications of the home environmental structures for the institutions with/of people with special needs is not an option but a requirement by Law. However, this study findings note that MTTIB did not make such preparations for its ITTEVI. The learners with visual impairments were just given an option which was not there and could not be found anywhere else.

"We have opened a Technical Training Institute for the Blind." They happily walked in, without minding its home environmental conditions. After all, "It was better the way it was, than not having it". They confirmed to the researcher.

Whatever the circumstances, Mason, (2003), Warner, (1999) and Skjorten, (2000) studies strongly warn that**;**

"Environmental barriers, the trainer's and trainee's negative attitudes affects the quality of inclusive settings for people with special needs (visual impairments in this context)." Lack of, for example, the appropriate Gloves, Goggles and other protective clothing devices in the ITTEVI, for example; Tannery, Carpentry , leather work, masonry or other related workshops, lead to the ITTEVI learners emotional and social challenges in MTTIB." The MTTIB participants confirmed.

In addition, Hegarty (2011) experiences concur with this study observations that; some of the things that could have been posing ITTEVI challenges in MTTIB are; the MTTIB environmental factors. These are, such as, some Kenyan communities cultural and life orientations about the people with special needs practised in the institute by some of its learners. In some Kenyan communities, for example, the researcher experiences that the people who are visually impaired are either neglected or over protected. They are not, for example, supposed to do hard work such as wood work or leather work and tannery as in MTTIB.

Majority of the participants interviewed in the study, were of the opinion that some family background related psychosocial stress affects ITTEVI in MTTIB. This was interpreted to mean that most of the learners are involved in some physical, social and psychological stress related challenges during their class free break times in MTTIB. This was also interpreted to mean that MTTIB learners' ability to lean was quite often affected and reduced due such related fatigues. Such related psychological stress manifestations in the visually impaired MTTIB learners was observed to be very common, thus posing a challenge to the ITTEVI teaching and learning processes in MTTTIB.

Lastly in the discussions, lack of the MTTIB teachers training on ITTEVI skills, values and the management of inclusive settings for people with visual impairments are similarly the serious issues of concern in this MTTIB Inclusive Technical Training Education for the Visually Impaired (ITTEVI) study Machakos, Kenya. In other words, the fact that this study established that none of the MTTIB teacher's got the relevant ITTEVI specialist training, was no doubt going to have main challenges on the MTTIB Inclusive Technical Training Education for the Visually Impaired teaching, learning and evaluation procedures.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter gives the study summary, recommendations moving on to the suggested future research areas.

5.2. Summary

The summary of the study findings are that;

1. MTTIB is experiencing some challenges in its effort to implement ITTEVI in Kenya. There is a need to have enough preparations before any institute ventures into an ITTEVI provision. MTTIB believes its ITTEVI is of acceptable quality given that there is no other similar institution to compare it with in East and Central Africa.

2. Machakos Technical Institute for the blind does not have enough modern specialist supportive instructional material in most of its workshops and departments. The trainers and trainees improvise most of the needed instructional material to supplement for the quality modern ones.

3. None of the Machakos Technical Training Institute for the blind teachers is trained in ITTEVI. This is because there is no other such training institute for

ITTEVI teachers in East and Central Africa. Most of the MTTIB teachers are regular technical training education teachers trained in regular technical training institutions for the learners with sight in Kenya. Most of these ITTEVI teachers train on the job in MTTIB.

4. It was an advantage for the ITTEVI in MTTIB to find that over 62% of its teachers had over six (6) years' experience in teaching. That contributed a lot to the quality and management of ITTEVI in MTTIB. They had acquired a lot of experience on how to use the specialist supportive instructional material. They were confident on how to handle learners with visual impairments in the ITTEVI in MTTIB. Only 38.2% of these teachers had less than five (5) years' experience in teaching.

5. None of the MTTIB teachers had any training on ITTEVI other than those who had long experiences in teaching the ITTEVI in MTTIB. Two (2) of them had twenty (20) years experience teaching the ITTEVI in MTTIB.

6. The fact that 63% (54) MTTIB trainee's entry qualifications into MTTIB is above Standard eight (8) and above makes it easier for the teachers to teach them. Only a small number 21.6% (15) MTTIB students entry qualifications were below the standard eight level.

7. A finding on the learner's MTTIB environmental factors was that; over 63% (69) of the learners expressed a wish that the MTTIB compound be improved. They wished that the compound pavements, workshops, dining hall and the hostels be improved for their accessibility and safety. Most of them expressed a concern on the attitudes between the regular sighted learners, teachers and the learners with visual impairments attitudes towards each other. Most of the sighted respondents expressed a concern that learners who are visually impaired, occasionally take advantage of those who can see and never appreciates the support given to them. Quite a number of the learners with visual impairments, expressed a feeling that, the learners with sight take advantage of the institution made for those who cannot see. They should go to the regular technical training institutions and leave these MTTIB vacancies for those who cannot see A few MTTIB totally blind learners expressed their expectations.

5.3. Conclusions

In conclusion, the study underlines that the benefits of ITTEVI cannot, however be undermined by any management, they are numerous and far reaching in the contribution towards Socio-economic development of both the regular learners, those with visual impairments and, the Kenyan society by extension (Republic of Kenya, The Persons with Disability Act,2003). In addition, the researcher concurs with, Desai, (1995) and The Republic of Kenya, Ministry of Education, Special Needs Education Policy, Draft,(2008) cautions that there are a number of challenges likely to face the process of not only the studied ITTEVI in MTTIB, but also the general development of inclusive education in Kenya.

However, given the origin and history of how the MTTIB institution was just curved from the neighbouring Machakos Technical Training Institute, these challenges were, but just as a result of MTTIB lack of prior planning and a clear conceptualization of the philosophy of Inclusive Technical Training Education for the Visually Impaired (ITTEVI) provisions in its inception in Kenya.

5.4. Recommendations

Based on the study, it is evident that there exists a need of qualified teachers, adapted equipment and facilities and environmental structures as gaps that need urgent actions in order to promptly adopt and develop provision of ITTEVI in MTTIB. It is evidence that in order to realize the benefits of the provision of ITTEVI in MTTIB, the institution must meet its mandates and utilize its resources within the agreed implementation strategy so that the provision of ITTEVI in MTTIB implemented holistically. Based on the findings of this study, the following points are recommended:-;

i) The institution should establish adequate instructional materials on provision of ITTEVI in MTTIB for a better teaching and learning process.

ii) The teachers' attitudes should be positive so as to one provide a unique ITTEVI service that aims at improving teaching and learning process in MTTIB

iii) The learners' attitudes on provision of ITTEVI in MTTIB should be improved through motivation and use of simple instructional materials which meets the needs of individual learners.

iv) The institution should be willing to provide the learners with a better environment both in and out of school by constantly following up learners' behaviour.

v) The administration should recruit teachers with specialization in the area of visual impairments and technical training levels of working experience.

vi) The administration should provide teachers' with low qualifications more training /refresher courses and education on lesson delivery and ITTEVI knowledge in the institution.

Generally, the school management teams should have a clear understanding of the facilities required by the learners with visual impairments, in order to make the learning process more friendly and accommodating for ITTEVI in Kenya.

Finally, it is the researchers' observation that by just finding simple and cost effective ways of overcoming the MTTIB identified ITTEVI challenges would make ITTEVI much more practical and valuable in Kenya

5.5 Suggestions for further research

Further research in the following areas would be of great value to ITTEVI provisions in Kenya in future;

1. The Effect and Performance of learners with visual impairments in an Inclusive Technical Training Education of learners with visual impairments (ITTEVI).

2. The Effect and Performance of sighted learners in an Inclusive Technical Training Education of learners with visual impairments (ITTEVI)

3. The impact of inclusive technical training education on the teaching and learning process of learners with visual impairments.

4. A comparative study of an institution conducting an Inclusive Technical Training Education *Before* the establishment and *After* the establishment of an Inclusive Technical Training Education for Learners with Special Needs in Education (SNE).

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APPENDICES

Appendix A: Research Authorization

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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

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

Our Ref: **NCST/RCD/14/013/1443**

Date: **22nd August, 2013**

Festo Malundu Ndonye
Moi University
P.O.Box 3900-30100
Eldoret.

RE: RESEARCH AUTHORIZATION

Following your application dated ***2nd August, 2013*** for authority to carry out research on ***"Challenges of inclusive Technical Training Education for learners with visual impairments in Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Machakos District** for a period ending **31st October, 2013.**

You are advised to report to **the District Commissioner and the District Education Officer, Machakos District** before embarking on the research project.

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

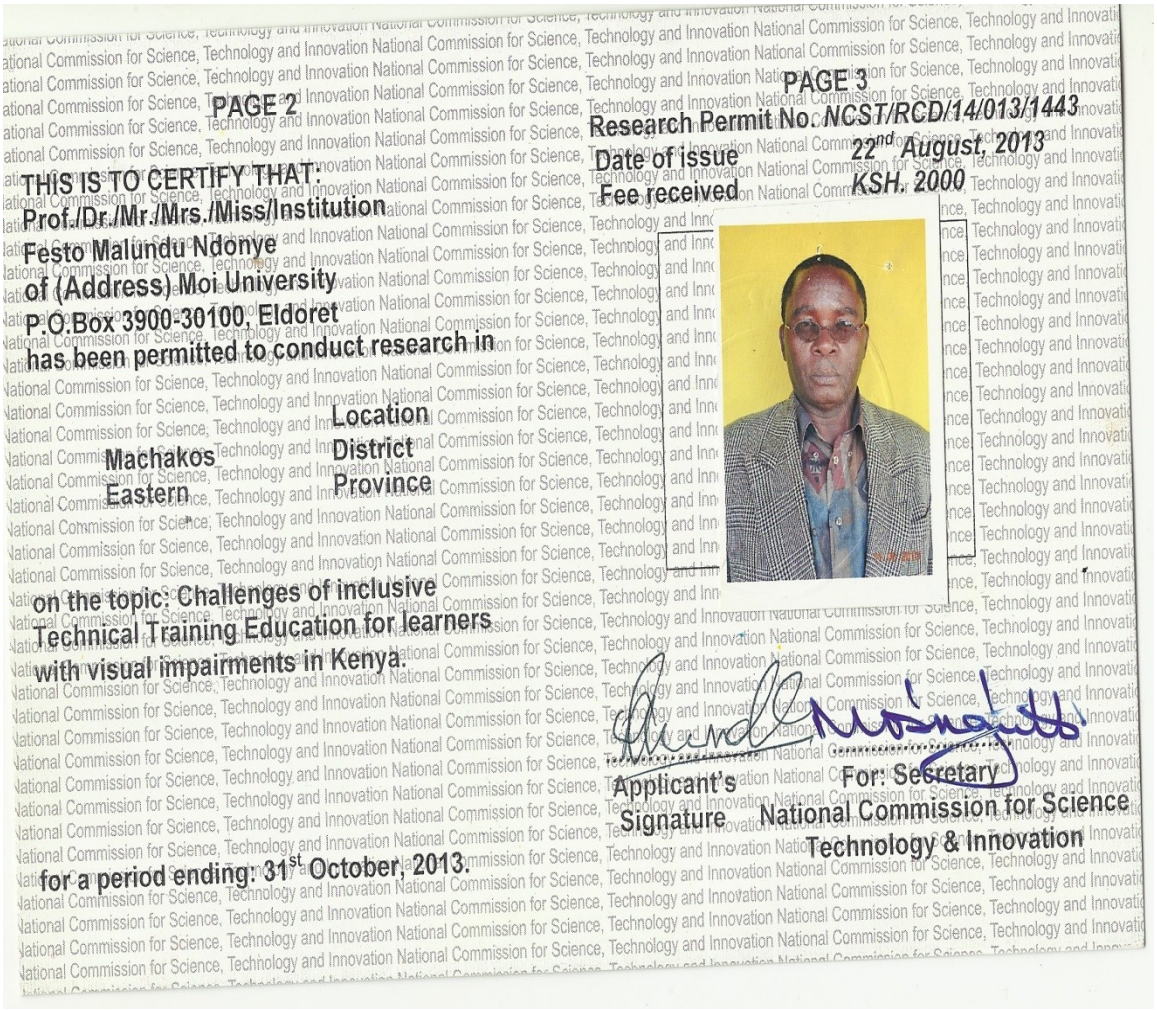
DR. M. K. RUGUTT, PhD, HSC.
DEPUTY COMMISSION SECRETARY
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Copy to:

The District Commissioner
The District Education Officer
Machakos District.

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

Appendix B: Research Permit



PAGE 2

THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Festo Malundu Ndonye
of (Address) Moi University
P.O.Box 3900-30100, Eldoret
has been permitted to conduct research in
Location
Machakos
District
Eastern
Province
on the topic: Challenges of inclusive
Technical Training Education for learners
with visual impairments in Kenya.
for a period ending: 31st October, 2013.

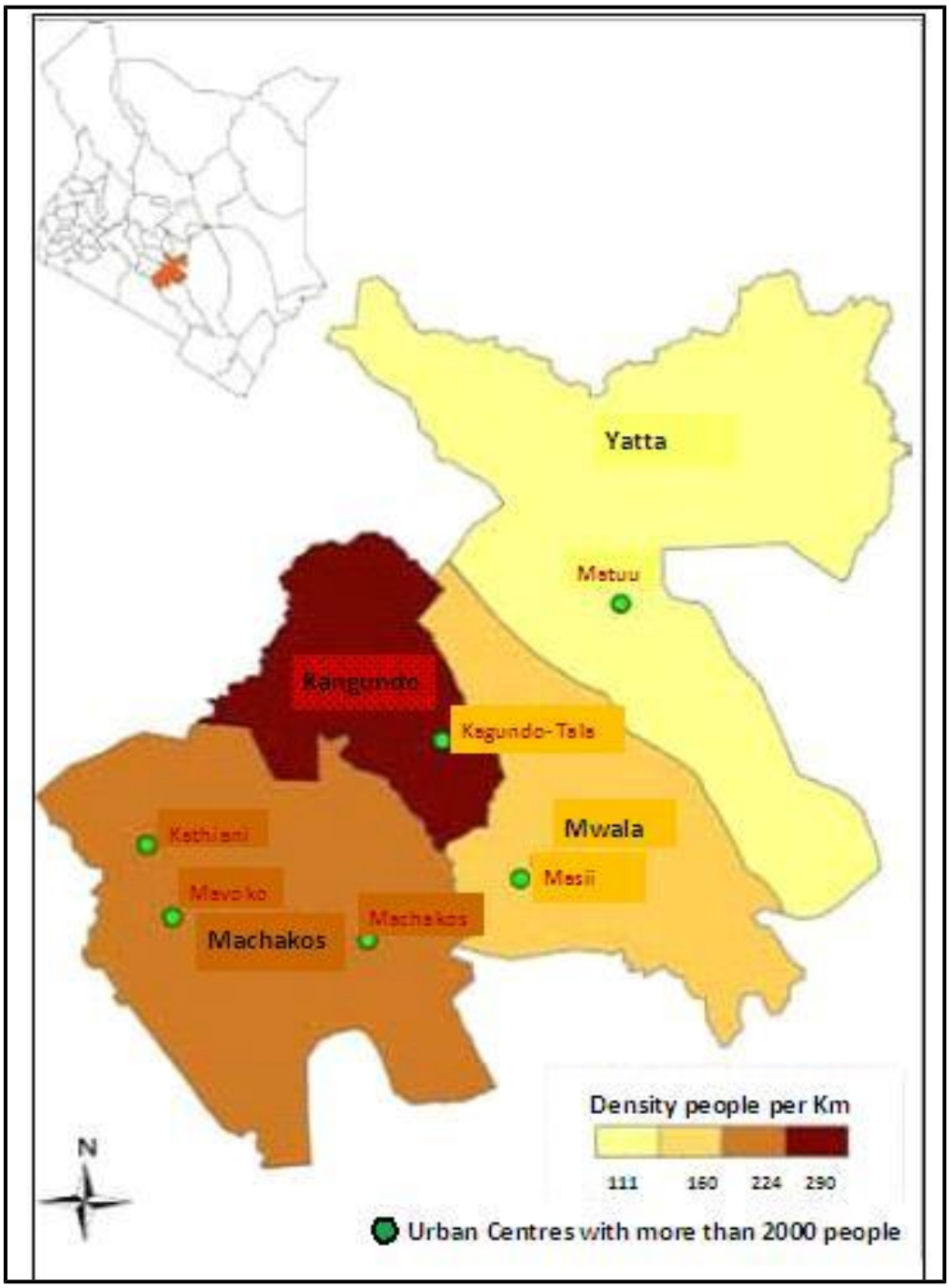
PAGE 3

Research Permit No. NCST/RCD/14/013/1443
Date of issue 22nd August, 2013
Fee received KSH. 2000

Applicant's Signature

For: Secretary
National Commission for Science
Technology & Innovation

Appendix C: Map Showing where MTTIB with ITTEVI is Located in Kenya



Appendix D: Introduction Letter To Informants

Mr. FestoMalunduNdonye

Moi University, School of Education

Department of Educational Psychology

P.O Box 3900-30100, ELDORET, KENYA

Cell Phone: +254 727 99 33 66

To----------

Dear informant/Participant,

RE: INTRODUCTION LETTER TO INFORMANTS/PARTICIPANTS

I am a Doctor of Philosophy Educational Psychology student at Moi University and currently carrying out a study on: ***Challenges of Inclusive Technical training Education for Visually Impaired in Kenya.***

The main objective is to find out what inclusive technical training education of visually impaired is facing as its challenges. You and your inclusive technical training institute for visually impaired has been selected to participate, as the case study for this research.

This study will give you a chance to express your views on the challenges of inclusive technical training education for visually impaired learners in Kenya. The results of the study will be published and reserved in the Moi University library.

The information you give and your identity will be treated with a lot of confidentiality and will only be used for the purpose of this study.

Your cooperation will be highly appreciated.

Yours faithfully,

Signedc

FestoMalunduNdonye

Appendix E: Summary Notes: MTTIB: Interviews and Discussions

SECTION: (1): Summary Notes: MTTIB Principal and Heads of Departments Interviews

According to the Principal and Departmental heads of MTTIB;

1. MTTIB has 94 learners, (a) 50 visually impaired and (b) 44 regular i.e. not visually impaired.

2. They stated the challenges being faced in MTTIB as a result of ITTEVI to be as follows;

    a) Lack/need for adapted specialist instructional material

    b) Lack/need for enough specialist trained human resource (i.e teachers and supportive staff)

    c) Need to adapt the environmental structures within the institute (i. dinning hall, workshops, classrooms and the hostels)

    d) Need for awareness on the need and expectations of ITTEVI to both regular and visually impaired learners in the institute.

3. They confirmed awareness of the following policy instruments that facilitate Inclusive education of the people with special needs in Kenya:

    a) The Persons with Disability Act, (2003),

    b) Ministry of Education Policy on Special Needs Education, (2009) and;

    c) The Constitution of Kenya, (2010).

4. Their suggestions on how to improve ITTEVI implementations in Kenya were;

    a) Provision of specialist human resources (i.e. teachers and supportive staff in Technical Training Institutions),

    b) Need for creating awareness to both Government and private sector employers on the need to hire qualified ITTEVI graduate professionals and,

    c) Improve ITTEVI facilities and, (iv) need to creating awareness to all the learners in ITTEVI provisions.

5. According to MTTIB Principal and his departments heads; the following is the practice in MTTIB for ITTEVI;

    a) The institute does not force any learner to assist or work/pair with regular or visually impaired learner. Learners should voluntarily make/choose their workmates/friends. And that there should and will be equal treatment to all learners in MTTIB.

    b) Learners with visual impairments should be given adapted facilities/services ONLY when necessary to meet their learning Objectives. Teachers and supportive staff are not forced by their employer to work in MTTIB.

    c) The employer (e.g. TSC) gives the workers option to work there or transfer to other institutions. Only those teachers who have lost sight (newly blinded teachers) are posted to both teach and get rehabilitation

services (i.e. learn how to read and write in Braille, activities of daily living, orientation and mobility skills) in MTTIB.

SECTION: 2 Summery Notes: Teachers Interviews and Discussion

According to MTTIB teachers interviewed, it was established that;

1) The specific major challenges they face once teaching ITTEVI in MTTIB are;

    a) Inadequate facilities,

    b) Need for extra time, effort and patience when handling visually impaired integrated learners,

    c) Extra-double lesson preparations i.e. Objectives for regular learners and specific objectives for the learners who are visually impaired,

    d) Speed at which the lessons are conducted: regular learners appear faster most of the time; while the learners with visual impairments experience slowness due to the tactile and low vision learning and teaching approaches.

2) Some of the necessary preparations that teachers may need to carry for an effective instructional approaches in ITTEVI workshops/classrooms are;

    a) Adapting the instructional materials, and,

    b) Having specific objectives for the learners with visual impairments (i.e. IEP)

3) It is not necessary to interfere with the Technical Training Education Syllabus in order to meet the needs of ITTEVI. Only the right specialists and equipment is needed.

4) Evaluation procedures that influence effective ITTEVI implementation in workshops/classrooms were expressed by the teachers to be as follows;

    a. **The Negative ones**: are the evaluation procedures that demand written material (i.e. where material for the visually impaired learners are not de-brailled or put into auditory material/tapes), and yet, they are expected to take the same examination paper at the same time at the same place ,

    b. **ThePositive Ones**: are where and when both the regular and visually impaired learners are put together and evaluated at the same time and the same way orally or with the necessary adapted material for the visually impaired learners.

5) **Suggestions** on most current practices that teachers and curriculum implementers need to do in MTTIB to ensure competence and successful teaching to all learners teachers suggested as: (i) getting enough specialist

teachers and supportive staff, (ii), enough adapted specialist instructional material and, (iii), creating enough awareness for a positive attitude in all MTTIB learners and stakeholders .

SECTION: 3 Summary Notes: Discussions with All learners on co-curriculum

With regards to the co-curriculum activities in MTTIB, it was established that All MTTIB learners participate freely in its Games, Sports and other Recreational activities according to their choice. In most cases; and for a long time, their games master has been a teacher who is visually impaired. Visually impaired learners feel and take this to be an added advantage to them.

SECTION: 4 Summary Notes: Interview and Discussions with visually impaired Learners

According to the MTTIB visually impaired learners;

a) MTTIB does not have enough adapted devices and services for learners who are visually impaired;

b) Learners with visual impairments " **feel discriminated"** by some teachers who are too fast for them and do not give adapted material to them. They (learners with visual impairments) feel regular learners (i.e. learners who see), feel unhappy to be associated with an "**Institute For the Blind."** They i.e. learners with visual impairments, experience that "*some regular learners are not willing to assist them when they are in need***"they are taking too much of our time**." Regular learners complain in silence.

c) Learners with visual impairments observe that most of the MTTIB areas are not accessibility friendly and that orientation and mobility remains a challenge

as a great challenge for them in the institute (especially the double decker beds in the dormitories, some workshops and pavements).

d) Games and sports are fairly adapted, for example, most balls have bells in them and that a visually impaired teacher is their games master is an added advantage.

e) MTTIB learners with visual impairments appreciate the ITTEVI concept despite its resources challenges. "**It makes us feel almost equal to the sighed regular students amongst us."** They openly and happily said to the researcher.

f) MTTIB learners with visual impairments acknowledges the instructional challenges in the ITTEVI, but hopes that will one day come to an end, (i.e. improved).

g) The visually impaired learners suggestions on how to improve ITTEVI were; a need of more adapted instructional material, more specialist supportive staff, much more adapted environmental facilities and a positive attitude towards ITTEVI in Kenya.

SECTION: 5 Summary Notes: Interviews and Discussions Regular Learners

The regular MTTIB learners observed that;

a) Most instructional material/devices in MTTIB are not readily adapted for the learners with visual impairments.

b) Regular learners feel not very much accepted by the learners who are visually impaired in MTTIB

c) MTTIB regular learners experience that MTTIB learners who visually impaired make them not get enough appropriate ITTEVI services. “The regular learners should be in their institutions.” Visually impaired learners complain about the regular learners in MTTIB. Regular learners say that visually impaired learners need them (sighted) when they the help. From the sighted.

d) Regular MTTIB learners claim that, they would have covered much work and faster; if it were not for those who are visually impaired.

e) Regular learners argue that.\, in case of any success in games and others co-curricular activities, “It is only the visually impaired learners who are recognized and rewarded. The sighted are forgotten and kept at the background. They claim; “Everybody talks of Machakos Technical Training Institute for the Blind.”!! And the learners who are blind. Nobody mentions about the sighted learners who have worked very hard with those who can see to achieve the success mentioned!!!! Sighted learners lament.

f) Most regular learners in the ITTEVI of MTTIB fear that the word "**For The Blind"** in the name of their institution "Machakos Technical Training Institute ***For the Blind***." May make many employers not hire them-(*thinking the sighted learners are blind*), after graduation. !!

g) Most sighted learners feel ITTEVI slows their training progress due to the learners who visually impaired in their classes/workshops.

h) MTTIB regular learner's suggestions on how to overcome the ITTEVI challenges (i.e. enhancing Quality and the ITTEVI Effectiveness) in Kenya; observed a need to liberate the Machakos Technical Training Institute For the Blind (MTTIB) by renaming it as the "Machakos Inclusive Technical Training Institute. (MITTI)."

SECTION: 6 Summary Notes: Facilities, Adaptations and Accessibility in MTTIB:

a) Library Photo Plates

b) Lecture Rooms-Photo Plates

c) Workshops- Photo Plates

d) Dining Hall- Photo Plates

e) Environmental structures- Photo Plates

SECTION: (7): Observations: MTTIB Special Resource Provisions: Summary Notes

a) Braille machines- Photos

b) .Magnifiers-Photos

c) .Whites canes- Photos

d) Workshop/classrooms equipment-Photos

e) Audio-instructional material-.Photos

f) Specialist workshop/classroom technical assistants- Photos.

Appendix: F Questionnaire for Learners

SECTIN: (1). BACKGROUND INFORMATION

1. Indicate your highest level of school education;

   i) Below Standard 8 ( )

   ii) Standard 8 ( )

   iii) Form 4 ( )

   iv) Form 4 with other qualifications ( )

5 Above Form 4 with other qualifications ( )

2. Are you pursuing a course of your choice or were you allocated by the institute?

3. Do you experience any discrimination from any of the following?

   a) Fellow learners, classmates Yes/No.

   If "Yes", what kind of discrimination do you face? ----------
   ……

   b) Teachers/instructors?

   If Yes, what kind of discrimination do you face? ----------Any other members in the institution?

   If Yes, what kind of discrimination? ----------

   Are there any specialist services (i.e. adapted services) given to you in the Institute to facilitate your learning? ---------- If Yes, What are they? ----------

4. Do you experience challenges in your workshop/practical technical classes?

If yes, which ones? state ----------

5. Other comments/Suggestions you wish to make about inclusive technical training education for visually impaired? If “Yes,” State ----------

SECTION: 2 MTTIB Instructional Materials Challenges on provision

Kindly rate the responses below by ticking in the box;

{Key: SA-Strongly Agreed, A-Agree, U-Undecided, D-Disagree, SD-Strongly Disagree}

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
7	There are adequate and appropriate instructional materials for teaching and learning in MTTIB for ITTEVI.					
8	There are very many learners in the integrated workshops/classrooms causing congestion but teachers/instructors are still able to offer one-to-one instructions (IEP).					
9	Inadequate teaching and learning resources available in MTTIB hinder teachers from being effective in their ITTEVI instructions.					
10	There are adequate and appropriate instructional materials for teaching and learning in MTTIB for ITTEVI.					
11	In adequate adapted specified technical training instructional material for visually impaired in MTTIB, hinder teachers from being effective in their ITTEVI instructions.					
12	The Government policy and other related Kenya Government documents on inclusion have given adequate directions.					

SECTION: 3 MTTIB Teachers' Perceptions on ITTEVI provision

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
13	Teachers' attitude in teaching ITTEVI is very positive.					
14	Teachers and learners attitude are some the challenges of ITTEVI in MTTIB.					
15	Some teachers given a choice would not wish to teach in a technical class/workshop with learners who are visually impaired.					
16	There is cooperation amongst teachers in assisting visually impaired learners carry out their tasks in ITTEVI					
17	There are very many learners in the integrated workshops/classrooms causing congestion but teachers/instructors are still able to offer one-to-one instructions (IEP).					
18	The Government policy and other related Kenya Government documents on inclusion have given adequate directions on ITTEVI.					

SECTION: 4 MTTIB Learners' perceptions on ITTEVI provision

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
19	There is a big relationship between learners attitude and the prompt adoption of ITTEVI in MTTIB					
20	Learner's attitude in ITTEVI is positive					
21	The number of learner's attending lesions is higher after the establishment of ITTEVI in MTTIB					
22	Learner's find it hard to adopt the ITTEVI provision that has been introduced to the school system					
23	The ability to apply ITTEVI provision is challenging since it has significant errors with lack of proper teaching materials to assist learner's					
24	The cause of learner's poor attitude towards ITTEVI is due to the low attitude that teachers have on the learners					

SECTION: 5 MTTIB Environmental factors on ITTEVI provision

	STATEMENT	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
25	MTIB related psychosocial stress affects integrated visually impaired learner's training while in the institute.					
26	Cultural beliefs, taboos and customs accept inclusion of learners with visual impairments in regular public institutions.					
27	MTTIB related discouragement affects learners who are visually impaired in the training (MTTIB).					
28	Visually impaired learners 'Parents' educational exposure level influences learners' training motivation in the MTTIB.					
29	Many homes of learners with visual impairments are poor; hence that the financial support/fees is hard to come by; affects ITTEVI in MTTIB.					
30	Insufficient Kenya Government support; (Instructional Material, Human Resources, Financial, etc,) affects the quality of ITTEVI in MTTIB.					

SECTION: 6 MTTIB Teachers' Working Experience on ITTEVI Provision

	STATEMENT	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
31	There is a significant relationship between and the provision of ITTEVI Learners in MTTIB					
32	The Impact of the co-curriculum activities is positive on provision of ITTEVI Learners in MTTIB					
33	The institution has not been able to effectively conduct leaning in relation to ITTEVI provisions due to lack of enough materials for co-curriculum activities					

Appendix G: Questionnaire for HODs and Teachers

SECTION: 1 Background Information

1. Indicate your highest professional qualification level in education;

   a) P1 ( )

   b) Dip ( )

   c) Degree ( )

   d) Masters ( )

   e) Others ( )

2. Indicate your teaching experience;

   i) 0-5 years ( )

   ii) 6-10 years ( )

   iii) 11-15 years ( )

   iv) 16-20 years ( )

   v). 20 years above ( )

3. Indicate your teaching experience in MTTIB;

   i) 0-5 years ( )

   ii) 6-10 years ( )

   iii) 11-15 years ( )

   iv) 16-20 years ( )

   v). 20 years above ( )

4. Do you have any training in Special Needs Education (SNE)? Yes/No.

5. If “YES” in “4”, what is your highest level of training qualification in SNE?

6. Do you have any training in Inclusive Technical Training Education for learners with Visual Impairments (ITTEVI)? Yes/ No

7. If “YES” in “5 (above)”, what is your highest level of training qualification?

8. Other professional Qualifications and Experiences.

Explain .....
.....

SECTION: 2 MTTIB Instructional Materials challenges on ITTEVI provision

Rate the responses below by ticking in the box.

{SA-Strongly Agree, A-Agree, U-Undecided, D-Disagree, SD-Strongly Disagree}

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
9	Teachers in MTTIB are able to adapt instructional materials for their ITTEVI learners.					
10	Teachers make use of appropriate (i.e. adapted) instructional resources e.g. Tactile charts, Audible aids, Large prints, etc for the learners who are visually impaired in MTTIB.					
11	There is cooperation amongst teachers in assisting visually impaired learners carry out their tasks in MTTIB.					
12	There are adequate and appropriate instructional materials for teaching and learning in MTTIB for ITTEVI.					
13	There are very many learners in the integrated workshops/classrooms causing congestion but teachers/instructors are still able to offer one-to-one instructions (IEP)					
13	The Government policy and other related Kenya Government documents on inclusion have given adequate directions on ITTEVI.					

SECTION: 3 MTTIB Teachers' Perceptions on ITTEVI provision

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
15	The IEP attention by teachers to the learners who are visually impaired in their Technical workshop/classes is practiced.					
16	Teachers' attitude in teaching ITTEVI is positive.					
17	There is cooperation amongst teachers in assisting visually impaired learners carry out their tasks in ITTEVI.					
18	The MTTIB motivated teachers on ITTEVI (i.e. willing to assist learners who are visually impaired) motivate the ITTEVI learners who compete very well with regular learners in MTTIB.					
19	Some teachers believe some technical skills will never be taught in an ITTEVI, or learned by learners who are visually impaired in MTTIB					
20	Some teachers in MTTIB are unwilling to teach in the ITTEVI workshop/classes (they feel it is somebody else's responsibility to do so and not them)					

SECTION: 4 MTTIB Learners' opinions on ITTEVI provision

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
21	Learners' attitude on ITTEVI is positive					
22	Attitude of the regular learners towards learners with visual impairments; affects the ITTEVI in MTTIB					
23	Attitude of the learners with visual impairments towards regular learners affects ITTEVI in MTTIB.					
24	Perception of teachers by learners with visual impairment affects ITTEVI in MTTIB.					
25	Perception of the visually impaired teachers by learners who are not visually impaired affects ITTEVI in MTTIB.					
26	MTTIB learners believe the Kenya Government support to ITTEVI (Instructional Material, Human Resources, Financial, etc,) is insufficient.					

SECTION: 5 Impact of Environment on the provision of ITTEVI in MTTIB

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
27	Home related psychosocial stress affects integrated visually impaired learner's training while in the institute (MTTIB).					
28	Cultural beliefs, taboos and customs accept inclusion of learners with visual impairments in regular public institutions.					
29	Home related discouragement affects learners who are visually impaired in the training (MTTIB.					
30	Home related poverty affects integrated learners who are integrated in the institute (MTTIB.					
31	Visually impaired learners 'Parents' educational exposure level influences learners' training motivation in the MTTIB.					
32	Many parents of learners with visual impairments overprotect their children hence denying them access to the ITTEVI services in MTTIB.					

SECTION: 6 MTTIB Teachers' Working Experience on ITTEVI Provision

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
33	Teachers approach skills in teaching material from simple to complex in ITTEVI workshops.					
34	Teachers adequately prepare for their ITTEVI lessons					
35	Teachers present/develop some specific lessons; (e.g. progresses: gradually and step by step).					
36	Teachers provide proper linkage of the learners' past experiences and current content in most ITTEVI technical workshop/lessons presented by teachers.					
37	Some teachers have no time to give the extra-time needed for ITTEVI by learners with visual impairments in MTTIB.					
38	Some teachers are unwilling to teach in the ITTEVI workshop/classes (they feel it is somebody else's responsibility to do so and not them)					

SECTION: 7 MTTIB Teachers' Qualifications on ITTEVI the Provision

	RATE THE CHALLENGES IN ITTEVI	**SA 1**	**A 2**	**U 3**	**D 4**	**SD 5**
39	Teaching time given to integrated learners with visual impairment in MTTIB is inadequate.					
40	Remedial (i.e. after classes) work and help is given, especially to the learners with visual impairments in MTTIB to facilitate its ITTEVI.					
41	The teaching/learning approaches in MTTIB can be adapted for learners with visual impairments.					
42	Qualified teachers can adapt technical training lessons/workshops to meet the needs of learners with visual impairments.					
43	Qualified teachers can pair regular learners with visually impaired learners to support one another in their technical workshops/classes.					
44	Learners are given Individualized Instructions by the teachers in MTTIB for an effective ITTEVI.					

Appendix H: Interview Guide for Teachers (and HODs).

1. What is the number of learners in your department with;

   a) Visual impairments

   b) Sighted

   c) Other special needs in education----------

2. What challenges do learners with visual impairments cause in your department?

3. Are you aware of any existing policy on ITTEVI and its provisions?

4. What suggestions can you give on the implementation of ITTEVI in Kenya?

5. Do you have any ITTEVI departmental requirements/policy? Yes, or No.

6. If “Yes”, what are they?

7. What in your opinion are the major challenges to ITTEVI in MTTIB?

State.……

8. What is some of the preparations you feel MTTIB teachers need to do to overcome the challenges noted above?

Appendix: I: Focused Group Discussions Guide for Visually Impaired Learners

1. Availability of Devices and Services/Adapted for learners with visual impairments.
2. Discrimination of learners with visual impairments/not visually impaired.
3. Accessibility and Mobility of the learners with visual impairments in MTTIB
4. Availability of Adapted Games and Sports for learners with visual impairments.
5. Both MTTIB Visually impaired and Regular ITTEVI learners Appropriateness
6. Both MTTIB Visually impaired and Regular ITTEVI learners Instructional Challenges.
7. Suggestions on how to Enhance Quality and an Effective ITTEVI in MTTIB**.**
8. The Government policy and other related Kenya Government documents on inclusion have given adequate directions on ITTEVI.
9. In your opinion, do you think MTTIB teachers are capable of overcoming the ITTEVI competence challenges they may be facing? If, Yes, State how;-------
10. In your view, have MTTIB stakeholders adapted the Instructional material, environmental factors and the co-curriculum issues competently enough, for an effective and enhanced quality of ITTEVI in MTTIB? State----------
11. What is your observation as far as the; classroom/workshops sitting arrangements, instructional material adaptations, accessibility, orientation and mobility facilitations for ITTEVI in MTTIB are concerned?
12. In your opinion, what do you think are the main challenges to ITTEVI in MTTIB?

Appendix J: Focused Group Discussions Guide for learners who are not visually impaired

1. Availability of adapted Devices and Services for learners with visual impairments
2. Discrimination of learners with visual impairments/not visually impaired
3. ITTEVI: Accessibility, Orientation and Mobility challenges in MTTIB.
4. Recreational Activities, Games and Sports for ALL learners in MTTIB
5. Consequences of ITTEVI in MTTIB to learners who are visually impaired/regular.
6. Instructional Challenges in ITTEVI to learners who are visually impaired/regular.
7. Suggestions on how to Enhance Quality and an Effective ITTEVI in MTTIB.

Appendix K: Interview Guide for MTTIB Principal

Background Information

1. Indicate your highest professional qualification level in education;

   a) P1

   b) Dip

   c) Degree

   d) Masters

   e) Others

2. Indicate your teaching experience;

   i). 0-5 years

   ii). 6-10 years

   iii).11-15 years

   iv).16-20 years

   v). 20 years above

3. Indicate the courses you offer in MTTIB.

   i) Masonry ( )

   ii) Carpentry ( )

   iii) Tailoring ( )

   iv) Secretarial ( )

   v) Knitting ( )

vi) Others ----------

4. Do you have any training in Special Needs Education (SNE)? Yes/No.----------

5. If “YES” in “4”, what is your highest level of training qualification in SNE?

   ……

6. Do you have any training in Inclusive Technical Training Education for learners with Visual Impairments (ITTEVI)? Yes/ No……...

7. If “YES” in “6 (above)”, what is your highest level of training qualification?

   ……

8. Other professional Qualifications and Experiences. Explain ....

9. What is the number of learners in your institute with;

   a) Visual impairments ----------

   b) Sighted ----------

   c) Other special needs in education----------

10. What challenges do learners with visual impairments face in your institution?.....

11. Are you aware of any existing policy on ITTEVI and its provisions?.....

12. Are there any of your Institute policies regarding inclusive technical training education for the visually impaired learners? Yes, or No. If yes, what are
    they? .....
    .....

13. What suggestions can you give on the implementation of Inclusive Technical Training Education for learners who are visually impaired in Kenya?
    ……

14. In your opinion, what are the major challenges MTTIB teachers face on evaluating the different learners because of their ITTEVI setting? .....
    .....

15. What are some of the Evaluating strategies that need to be put/applied in MTTIB; for an effective quality evaluation of its ITTEVI teaching and learning strategies?
    State.....

16. In your opinion, what are some of the MTTIB factors inhibiting teachers' workshop/classroom competence and effectiveness for ITTEVI? State
    ……..……

Appendix M: Observation Check List

SECTION: 1 Adaptation of Facilities for Learners with Visual Impairments

a) **Library**: (Tactile material, low vision material, audio material, adaptations, accessibility, etc.)

b) **Lecture rooms**: (accessibility, audio material, low vision material, tactile material, etc)

c) **Workshops**: (Tactile material, low vision material, audio material, adaptations, accessibility, etc.)

d) **Dining hall**: (Tactile material, orientation and mobility, adaptations, accessibility, etc)

e) **Halls of Residence**: (Tactile material, orientation and mobility, adaptations, accessibility, etc)

SCTION: 2 Special Resources/Provisions for Learners with Visual Impairments

a) Braille machines

b) Magnifiers for those with low vision

c) White canes for mobility and orientation

d) Adapted workshop equipment for learners who are visually impaired

e) Additional time for learners who are visually impaired

f) Audio instructional material for learners with visual impairments

g) Specialist technical workshop assistants for learners with visual impairments

h) Explanation of any other ITTEVI resource provision in the MTTIB.

Appendix: N. Machakos Technical Training Institute for the Blind; Sign Post.

Source: Field work (2015)

APPENDIX: O. Machakos Technical Training Institute for the Blind: Service Charter.