SCHOOL ENVIRONMENTAL ADAPTATIONS FOR THE INCLUSION OF STUDENTS WITH VISUAL IMPAIRMENT: AT A SELECTED SECONDARY SCHOOL IN KOROGWE DISTRICT –TANGA, TANZANIA

By

ANSILA G. NYAKI

A dissertation Submitted to the University of Zambia in Partial Fulfilment of the Requirements for the Award of the Master of Education in Special Education

THE UNIVERSITY OF ZAMBIA

LUSAKA

© 2024

COPYRIGHT

All rights reserved. No part of this dissertation may be reproduced, stored in any retrieval system, or transmitted in any form or using electronic recording, photocopying or otherwise without written authority from the author or the University of Zambia.

©ANSILA G. NYAKI, 2024

DECLARATION

I, **Ansila G. Nyaki,** declare that this dissertation represents my work, and it has not previously been submitted by any other person for a degree at the University of Zambia or any other University. Furthermore, it does not incorporate any published work or material from other researchers without being acknowledged.

Signature……

Date……

CERTIFICATE OF APPROVAL

This dissertation by Ansila G. Nyaki has been approved as a partial fulfilment of the requirements for the award of the Master of Education in Special Education Degree by the University of Zambia.

Examiners

Name……. Signature……

Date……

Name……. Signature……

Date……

Name……. Signature…….

Date……

Chairperson of Board of Examiners

Name……. Signature…….

Date……

Supervisor

Name……. Signature…….

Date……

ABSTRACT

This study explored the school environmental adaptations for including students with visual impairments at a selected inclusive secondary school in Tanzania. Three objectives guided this study: to determine the physical and ecological adaptations made by schools to support the inclusion of students with visual impairments; to explore classroom environment adaptations deliberated for inclusion of students with visual impairments; and the social interaction of students with visual impairments in the school environment. The study employed a qualitative approach, using an exploratory case study design. A purposive sampling procedure was used to select fifteen (15) participants. Data was collected through semi-structured interviews, observations, and focus group discussions. Thematic analysis was employed to analyse the data.

The study revealed that there are accessible buildings that accommodate all students, regardless of their diversity. Although orientation and mobility applied to SWVI, they faced challenges because they were not oriented to some school environments, like pathways and places with a new trench. Furthermore, the study revealed the availability of teaching and learning materials, but few work, and the rest do not. Therefore, providing enough learning and teaching materials were needed for SWVI in order to simplify their learning process. Nevertheless, the study indicated that there are few teachers know how to teach an inclusive class still others lacks basic foundation of teaching an inclusive class. Additionally, the study revealed that including SwVI with their peers in extracurricular activities is good; it helps eliminate harmful attitudes towards SwVI and enhances student peer learning.

Similarly, the study concluded and recommended that no careful consideration was given to arranging the classes; students were placed randomly without consideration for sitting in front of the class. The SWVI should have been given priority in sitting in front, and some teachers needed to care about that situation. Further, the teachers and other members found in the school environment should use clear language and avoid using visual references to avoid the stigmatisation and segregation of students with Visual impairment. Therefore, the government, through the Ministry of Education and Vocational Training (MoEVT), and different stakeholders need to work together and show commitment to inclusive education by providing enough relevant materials for students with Visual impairment. Moreover, teachers should educate peers about visual impairments and promote empathy and understanding.

Keywords: Environmental Adaptation, Impairment, Inclusion, Inclusive education, Visual Impairment

DEDICATION

I owe all of my accomplishments to my parents, Mr and Mrs Gabriel Nyaki, your support, encouragement, and tolerance of me throughout my early years. They were there to hold my hand during the rough days of my academic. To my lovely fiancé and best friend, Maximilian, your love and prayers for me made me strong in this master's degree pursuit at the University of Zambia. Further, your patience when I was away for this pursuit reminded me to be focused and zealous.

To my aunt Leocadia Nyaki, the love, prayer, and encouragement support you have shown during the journey of my master's studies have been valuable and gave me the strength to do it, even when I felt like losing the courage to do so. Throughout my master's program, my brother Ernest Msisiri has provided me with invaluable love, encouragement, and friendly support; your affection has given me the willpower to persevere through times when I felt like giving up.

ACKNOWLEDGEMENTS

First and foremost, I am humbly grateful to my heavenly Father, God Almighty, via Jesus Christ, for His kindness, guardianship, and encouragement from the very first day of this honourable academic adventure I have undertaken at the University of Zambia. Without the solitary influence of His mighty hand, this accomplishment would not have been possible.

I humbly give my sincere gratitude and acknowledgement for the hard work of my supervisor, Dr Magdalene Simalalo Daka (PhD) of the University of Zambia, who tirelessly guided me from the proposal writing to the full dissertation. I appreciate the love and time she invested on guiding me in building this work, that gave me confidence and freedom to relay on her whenever I needed her help. May God be with her in whatever she does and grant her success.

My thanks to a host of the scholarship at the Archbishop Mihayo University College of Tabora (AMUCTA), the Institute that sponsored my studies while I was at the University of Zambia. The financial assistance I received from this prestigious university made my aspiration to obtain this level of study possible. May God continue raising the AMUCTA to ever-higher levels domestically and internationally.

I extended that all the teaching staff at the department of EPSSE, for the support, encouragement and being positive to accept my research work from the proposal to the report stage. I also sincerely thank all of my wonderful study participants and I appreciate your contributed.

I am grateful to my colleagues for their academic and emotional support: Dr Julius Nyaombo, Ms Judith Mzuanda, Mr Lawi Chiza, Mr Derogatius Kidaha, and Mr Denis Likwelile. Furthermore, I would like to thank my wonderful classmates, Mr Jackson Manase and Ms Magreth Nkuba, for their company and support during this honourable journey. In conclusion, I want to thank my parents, fiancé, and siblings. This accomplishment is, in reality, unequivocal evidence of the love and support you gave me during my education.

Table of Contents

COPYRIGHT i
DECLARATION ii
CERTIFICATE OF APPROVAL iii
ABSTRACT iv
DEDICATION v
ACKNOWLEDGEMENTS vi
CHAPTER ONE: INTRODUCTION 1
1.0 Overview 1
1.1 Background to the Study 1
1.1.1 The concept of visual impairment 1
1.1.2 Inclusive Education in Other Countries. 2
1.1.3 Inclusive Education in Tanzania 3
1.1.3 Inclusion of students with visual impairments (SWVI) in secondary schools 5
1.1.4 School environmental adaptations for SWVI in inclusive schools 6
1.2 Statement of the Problem 8
1.2.1 Purpose of the Study. 8
1.2.2 Specific Research Objectives. 9
1.2.3 Research questions 9
1.3 Significance of the Study 9
1.4 Delimitation 10
1.5 Limitations 10
1.6 Theoretical Framework 10
1.7 Conceptual Framework. 11
1.8 Operational Definition of Key Terms. 13
1.9 Summary 14
CHAPTER TWO: LITERATURE REVIEW 15
2.0 Overview 15
2.1 Historical background of education for students with visual impairments in Tanzania 15
2.1.1 History of Inclusive Education in Tanzania 16

2.2 The physical environmental adaptations made by the school to support the inclusion 16
2.2.1 Inclusive Ground Environment for SWVI 16
2.2.2 Architectural Design for Inclusive Schools 18
2.2.3 Orientation and Mobility 20
2.3 The classroom environment adaptations deliberated for the inclusion of SWVI 20
2.3.1 Learning Strategies 23
2.3.2 Assistive technology 25
2.4 The interaction of students with visual impairments with the school environment in secondary schools 28
2.4.1 Attitude of the Peers. 28
2.4.2 Independents skills 29
2. 6 Summary of the Chapter 31
CHAPTER THREE: METHODOLOGY 32
3.0 Overview 32
3.1. Research Paradigm 32
3.2 Research design 33
3.3 Population of the study 33
3.6 Research instruments 35
3.6.1 Semi-structured Interview Guide 36
3.6.2 Focus Group Discussion Guide 36
3.7 Data Collection Procedures 37
3.7.1 Semi- Structured Interview 38
3.7.2 Focus Group Discussions 38
3.8 Data Analysis 38
3.8.1 Familiarization with the Data 38
3.8.2 Generating Initial Codes 39
3.8.3 Searching for Themes 39
3.8.4 Reviewing Themes 40
3.8.5 Defining and Naming Themes 40
3.10 Ethical Consideration 42
3.10.1 Seeking permission 42
3.10.2 Informed consent 43
3.10.3 Anonymity and Confidentiality 43

3.10.4 Volunteerism 43
3.11 Summary 43
CHAPTER FOUR: PRESENTATION OF FINDINGS 45
4.0 Overview 45
4.1 Physical environmental adaptations made by the school to support the inclusion of SwVI. 45
4.1.1 Accessible buildings 46
4.1.2 Inclusive ground for SwVI 49
4.1.3 Orientation and Mobility Training 52
4.2 Classroom environment adaptations applied to support the learning process for SwVI 53
4.2.1 Accessible learning and teaching materials 54
4.2.2 Strategies of learning and teaching process 58
4.2.3 Classroom arrangements 62
4.3 The interaction of students with visual impairments with the school social environment. 63
4.3.1 Interactions between learners with visual impairments and sighted Peers 63
4.3. 2 Segregation 64
4.3.3 Stigmatization 64
4.3.4 Independent Skills 66
4.4 Summary of the Chapter 67
CHAPTER FIVE: DISCUSSION OF FINDINGS 68
5.0 Overview 68
5.1 Physical environmental adaptations made by the school to support the inclusion of students with visual impairments. 68
5.2 Classroom environment adaptations were applied to support the learning process for students with visual impairments. 71
5.3 The interaction of students with visual impairments with the school environment. 74
5.4 Summary of the Chapter 77
CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 78
6 .0 Overview 78
6.1 Implications of theoretical and conceptual frameworks drawn from the study 78
6.2 The summary of key findings 79
6.3 Conclusions from the Key Findings 80
6.4 Recommendations 81

6.5 Recommendations for further research 82
APPENDICES 95
APPENDIX 1: FOCUS GROUP DISCUSSION FOR STUDENTS WITH VISUAL IMPAIRMENT 95
APPENDIX 2: SEM- STRUCTURE INTERVIEW WITH SPECIAL EDUCATION TEACHERS FOR STUDENTS WITH VISUAL IMPAIRMENT. 96
APPENDIX 3: SEM-STRUCTURE INTERVIEW WITH RESOURCE ROOM TEACHERS IN THE INCLUSIVE SCHOOL. 98
APPENDIX 4: SEM-STRUCTURE INTERVIEW WITH THE HEAD TEACHER OF THE INCLUSIVE SCHOOL. 100
APPENDIX 5: OBSERVATION CHECKLIST IN THE SCHOOL ENVIRONMENT 102
APPENDIX 6: INFORMED CONSENT 105
APPENDIX 7: ETHICAL CLEARANCE 107
APPENDIX 8: PERMISSION LETTERS TO CONDUCT RESEARCH FROM THE RESEARCH SITE 111

LIST OF TABLES

Table 1. Characteristics of participants, heads of school/departments, RRT and Teachers 34
Table 2. Characteristics of Participants SWVI 34

LIST OF FIGURES

Figure 1: Conceptual Framework 12
Figure 2: Some of the staircases found in the school 48
Figure 3. Braille books format 55
Figure 4: SwVI assistive technology materials 58

LIST OF ABBREVIATION AND ACRONYM

EFA	-	Education for All
MoEVT	-	Ministry of Education and Vocational Training
MoEST	-	Ministry of Education, Science and Technology
PWDs	-	People with Disabilities
SE	-	Special Education
SNE	-	Special Needs Education
LWDs	-	Students with Disabilities
SWVI	-	Students with Visual Impairment
UK	-	United Kingdom
UN	-	United Nations
UNCRPD	-	United Nations Convention on the Rights of Persons with Disabilities
URT	-	United Republic of Tanzania
VI	-	Visual Impairment
WHO	-	World Health Organization
RRT	-	Resource Room Teacher
T1, T2, T3	-	Teachers
FGDs	-	Focus Group Discussions
NCFBTE	-	National Curriculum Framework for Basic and Teacher Education
ESPs	-	Education Strategic Plan

CHAPTER ONE: INTRODUCTION

1.0 Overview

This introduction chapter presents the background to the study, statement of the problem, purpose of the study, specific objectives, research question, significance of the study, delimitation of the study, limitations of the study, theoretical framework, conceptual framework work, operational definitions of the critical terms, and summary of the chapter.

1.1 Background to the Study

1.1.1 The concept of visual impairment

Visual impairment (VI) is a condition of reduced visual performance that cannot be remedied by refractive correction (spectacles or contact lenses), surgery, or medical methods (Naipal & Rampersad, 2018). Additionally, WHO (2019) impairment is any loss or abnormality in an anatomical structure or a physiological function. Visual impairment is the limitation of the actions and functions of the visual system.

Furthermore, World Health Organization (2019), classified visual impairments into low vision and blindness whereas blindness is defined as a visual acuity of less than 3/60 or corresponding visual field loss in the better eye with the best possible correction, Low vision is defined to a visual acuity of less than 6/12 but equal to or better than 3/60 in the better eye with the best correction. Under these two main categories, some subsections focus on low vision and blindness (WHO, 2015). Therefore, low visual acuity means vision between 20/70 and 20/400 with the best possible correction or a visual field of 20 degrees or less. Blindness is a visual acuity worse than 20/400 with the best possible correction or a visual field of 10 degrees or less (Chain et al., 2018). Legal blindness of 20/200 or worse with the best possible correction or a visual field of 20 degrees or less. A visual acuity of 20/70 to 20/400 (inclusive) is considered moderate visual impairment or low vision. Also, the International Classification of Diseases (ICD-10) shows three categories of visual impairment as follows: mild vision impairment (visual acuity worse than 6/12 to 6/18), moderate vision impairment (visual acuity worse than 6/18 to 6/60), and severe vision impairment (visual acuity worse than 6/60 to 3/60) (Toeh et al., 2021).

The revised 2010 estimate showed that the number of blind children worldwide has declined to 1.26 million, compared with the previous estimate of 1.4 million in 1999. However, in Sub-Saharan Africa, the number of blind children has increased by 31% to 419,000. Children who are blind in this region are likely to have a high mortality rate, but those who survive contribute an unequal number of blind years of disability (Gilbelt et al., 2017).

1.1.2 Inclusive Education in Other Countries.

In Rwanda, disability is strongly related, and the numbers of citizens with disabilities rise with age. Until the age of 34, for example, less than 4% of the population lives with a disability. In contrast, in the 45–49 age groups, the population share of persons with disabilities reaches 9%. From age 60 to 80 and above, the prevalence increases from 16% to 25% of Rwanda's residents with disabilities (Republic of Rwanda 2012). The current Rwanda education sector, for example, increasingly hinges its design of inclusive education policies and strategies on the cultural values of 'Uburezi Budaheza' or 'non-exclusionary services' and ingrown initiatives such as 'Imboni z'Uburezi' or 'community eye on quality education' (Republic of Rwanda, 2018). The strategy seems to explain the slow but steady increase of youths with disabilities in primary and secondary education.

In Ghana, the country has attempted to expand education for its population to include minority groups such as persons with disabilities (PWDs). Between 1945 and 1948, for example, schools for school-aged children with visual impairments were established (Ametepee & Anastasiou, 2015). It has adopted two Individualize Education Policy (IEP) approaches. The first approach is an explicit declaration of government policy commitment to increase access to education for all, emphasising minority groups such as girls, women, and PWDs in all Education Strategic Plans (ESPs) (Ministry of Education, 2003). The second approach is the employment of poverty alleviation strategies such as the capitation grant, which offers free primary school education for all; the school feeding program; and the free school uniform program, which provides children from low-income families with uniforms to ensure that no one is excluded from education due to hunger and lack of uniforms (Nkrumah & Sinha, 2020a, 2020b).

In Kenya, inclusive has become a guiding concepts, campaigning for the right of every students with disability to be enrolled in regular class- rooms alongside classmates without impairments

(MoE, 2018). According to the Kenya Disability Act of 2003 and the United Convention on the Rights of Persons with Disabilities, learning institutions are mandated to provide equitable access to educational opportunities for learners with disabilities. Currently, less than 1% of PWDs are in higher education, and their success rate is far lower than that of their non-disabled peers (Owino, 2020). Access to education is hampered by barriers encountered both within and without institutions of higher learning. The main impediments to implementing education for learners with exceptional needs include a lack of clear directions on the implementation of an all-inclusive education policy, a lack of reliable information on individuals with disabilities, insufficient facilities and the necessary expertise and skills in assessing and handling learners with disabilities (Republic of Kenya 2009). Despite the fact that Kenya has long supported the concept of inclusion, a number of reports disclose that school managers, the public and education are still unfamiliar with the subject.

In Egypt, Children with disabilities still face numerous obstacles to inclusion in various areas of society (Hussein 2016). In spite of the fact that Egypt has signed and ratified the UN convention on the rights of persons with disabilities, which dictates that all children regardless of their disabilities are to be included, inclusion in practice leaves much to be desired (Youm, 2019). In 2018 by presidential decree the year 2018 was named the year of people with disabilities and a new disability law was issued. As a result of the recently approved Disability Law in Egypt, it has become mandatory for sports and recreational clubs to facilitate membership for persons with disabilities and also to facilitate participation in sporting activities at such clubs (Youm, 2019). Additionally, one of the biggest obstacles facing the inclusion of children with disabilities is the prevailing negative attitude towards disability. It appears that the stereotypical attitude still prevails and as previously highlighted, the general attitude towards children with disabilities is negative.

1.1.3 Inclusive Education in Tanzania

In Tanzania, inclusive education has emphasized several stages of development, and conflicting debates amongst education practitioners and policymakers have resulted in difficult learning situations experienced by students with disabilities. According to the National Basic Education Statistics, a total of 4.178 (0,3%) students with disabilities are enrolled in pre-primary education,

55.458 (2,5%) in primary education, and 10.325 (0,4%) in secondary education (URT, 2020). The introduction of the inclusive education strategy in 2010 formed an agenda that required both students with disabilities and students without disabilities to learn together in a regular classroom, to be taught by the same teacher, and to be assessed in the same examination, despite the absence of specific guidelines for such inclusion.

However, the push towards inclusive education in Tanzania has been attributed to various international protocols that were signed by the country and some acts and policies that the government ratified, such as the Jomtien World Declaration on Education for All (1990), which highlights the commitment to a child-centred pedagogy and where individual differences are welcomed as challenges rather than problems, UNESCO Salamanca Statement and Framework for Action (1994) which reinforces the obligation for schools to accommodate all children regardless of their disabilities, the Dakar World Education Conference (2000) which establishes a framework for the inclusion of children with various educational challenges and article 24 of the UN Convention on the Rights of Persons with Disabilities (2006) which requires members of the UN to organize and provide education to persons with disabilities (Possi & Millinga, 2017).

At the national level, various acts and policies ratified by the country established a foundation for implementing inclusive education. Some of these acts and policies, which include the National Policy on Disability (2004), the Education and Training Policy of 2014, the disability rights of 2014, the Act on Disability of 2010, and the National Curriculum Framework for Basic and Teacher Education (NCFBTE) of 2019, advocate equal access to schooling for all people regardless of their differences (URT, 2004; URT, 2010; URT, 2014). For example, the Tanzania Child Development Policy aims to protect children's rights, as expressed in the UN Convention on the Rights of the Child. The policy recognizes that measures must be taken to ensure that all children of school-going age are enrolled. It further emphasizes that it is the responsibility of the Ministry of Education and Vocational Training to make education opportunities available to those who are above primary school age, who have dropped out or have been taken out of school, and those who never went to school (Ngussa et al., 2017).

1.1.3 Inclusion of students with visual impairments (SWVI) in secondary schools

According to Krischer (2019), inclusion is a universal human right. Inclusion aims to embrace all people, irrespective of race, gender, disability, medical need, or other needs. It is about giving equal access and opportunities and eliminating discrimination and intolerance (removing barriers). Inclusion was presented as a promising new pedagogical approach at the World Conference on Special Needs Education in Salamanca (UNESCO, 1994). Building on the Salamanca declaration, the global movement of 'Education for All' (UNESCO, 2000) states that including all children in regular schools is the most effective way to counter discriminatory attitudes and achieve the goal of inclusive education. Therefore, inclusion in education is used to educate all students with many different disabilities in one class regardless of their disabilities.

One possible educational placement for students with visual impairments is inclusion; the practice of providing a learner-friendly environment for all should be considered (Mitiku et al., 2014). In this respect, school support services are crucial in ensuring the recognition and appropriate responses to the needs of all students and providing continuous competent advice (Metatla, 2017). The educational stakeholders should create an environment in which all students can accomplish their best learning. Students often have widely unequal capabilities, learning styles, ways of expressing themselves, and modes of interacting with their physical and social environments (Mitiku et al., 2014). Being part of an inclusive school, SWVI must enjoy the good intentions of Education for All (EFA). If well provided and implemented, inclusive education is a good way of achieving EFA (UNESCO, 1994). Inclusion education can be effective if a flexible approach to supporting learners with VI is implemented. In contrast, in inclusive environments, teachers and staff find creative ways to help students with VI in inclusive schools (Kirschner, 2015). However, in Tanzania, the inclusion of SWVI in secondary schools' practices occurs in all regions; hence, this study depended only on the Korogwe district under the Tanga region, Tanzania, where there are 248 secondary schools in a Region and 27 schools in a district but one public secondary school include SWVI in a whole region. (MOEST 2021)

1.1.4 School environmental adaptations for SWVI in inclusive schools

The school environment includes three aspects: the physical environment especially in school building and grounds, how is it helping students with diverse in learning and interact with others, the classroom environment (strategies and sizes of the class), and the members found in the school (Malik, 2018). The school building and the ground: SWVI faces different challenges when walking around the building (Kisanga, 2018). School environmental adaptations for SWVI are essential to creating an inclusive and accessible learning environment. These adaptations aim to facilitate the educational experience and ensure that SWVI can fully participate in the educational process. In inclusive schools, the building and playground should consider the needs of each learner. For example, in this regard, adaptations can be made to staircases, toilets, clear pathways, and clear building signs that support learners with disabilities, particularly students with visual impairments. Also, it is essential to assess the colour of work surfaces in order to contrast sensitivity of SWVI and can improve visibility. Moreover, the floors in every room used by learners with visual impairments for potential hazards and to familiarise the students with the school surroundings (Kiomoka, 2014)

The adequacy of the general classroom environment and specific vision aids and equipment for SWVI becomes challenging for students in inclusive schools (Kapur, 2017). Equipment for SWVI in inclusive schools should be available to enhance their learning achievement (Cherylee et al., 2013). Furthermore, inclusive classrooms are supposed to be big enough to accommodate all learners. According to Rostovtseva and Läänemet (2015), variation in the snooping environment, well-arranged classes, and different strategies allow learners with visual impairments to learn easily. By doing so, students with VI (those with low vision) should be placed in front of the class to be close to the teacher and the chalkboard. They should have enough learning materials, such as Braille textbooks, Braille writers, Perkins Braille machines, computers, talking calculators, and talking books (Nuru, 2019). The environment in inclusive schools should be considered to ensure the learning process for SWVI in inclusive schools (Kisanga, 2017). Therefore, there are disparity between regular and inclusive schools' environments regarding infrastructure, curriculum and teaching methods, specialized learning support services, social interaction, and legal framework. Inclusive schools in Tanzania still suffer from some environmental challenges that face SWVI.

Uromi and Mazagwa (2014) reveal that adjustments in teaching strategies, learning materials, and other assistive devices are necessary in inclusive schools. This can be connected to Universal Design for Learning (UDL), a set of principles and techniques used by a teacher in the classroom while being creative in designing instructional materials to meet the educational needs of all students (Courey et al., 2013). It implies that the school environment should accommodate all students, regardless of their differences. It should have been designed to allow all students to participate in learning processes through different activities with a flexible curriculum that caters to students with various backgrounds, cultures, learning needs, and abilities. Based on the three principles of the UDL, which are representation, action and expression, and engagement, a teacher can plan a lesson that meets the needs of all students in an inclusive classroom (Johnson & Muzata, 2019). According to Millinga (2016) stigmatization, isolation and segregation have been taken as one of the challenges face students with disabilities in inclusive schools. Further, Muzata (2019) revealed that society uses negative terms to refer to persons with disabilities, which opens up discrimination, stigmatisation, and inadequate treatment in many spheres of their lives.

The government of Tanzania, like other countries worldwide, was encouraged by global efforts such as Education for All (EFA), the Millennium Development Goals (MDGs), and the Salamanca Statement, among others, to adopt a school learning environment that would allow all students, regardless of their differences (physical, economic, social, and psychological), to learn together in inclusive schools. Tanzania is among the active nations that have ratified and included various international policies and conventions regarding inclusive education at different levels (Tungaraza, 2014). The aims were to improve education services, increase accessibility for students with special needs, especially children with VI, and create opportunities and access to quality secondary education (MoEVT, 2009; MoEST, 2017).

Despite the government commitment in Tanzania, such as the education and training policy of 2014, the disability rights of 2014, the Act on Disability of 2010, and the National Curriculum Framework for Basic and Teacher Education (NCFBTE) of 2019, which advocate equal access to schooling for all people regardless of their differences (URT, 2004; URT, 2010; URT, 2014), there is a gap between the policies, strategies, and implementation. Studies in Tanzania by Lyakurwa (2018), Kiomoka (2014), Tungaraza (2017), and Kisanga (2017) reveal some

challenges faced by SWVI, such as unappropriated method ologies, inaccessible physical buildings, a lack of assessment devices, and negative attitudes. Further, Msoka et al. (2022) revealed that limited knowledge of disability and the irrelevance of the support provided may prohibit the students' full participation and persistence in learning. It also prevents teachers from providing the most suitable approach to enhancing students' learning access and ability. Given the importance of inclusion in education for students with disabilities, this study explored the environmental adaptations made in one inclusive secondary school in Tanga Region-Tanzania to support effective learning to SWVI.

1.2 Statement of the Problem

The Education and Training Policy of 2014, the Act on Disability of 2010 and the National Curriculum Framework for Basic and Teacher Education of 2019 in Tanzania emphasise the need for school environmental adaptations such as physical infrastructure to be accessible to students with disabilities and provision of specialised equipment such as Braille materials, audio resources, screen readers, magnification devices and adaptive computer technology to assist SWVI to access educational materials and fully participate in classroom activities. What is not known are the school's environmental adaptations for including SWVI in a selected inclusive secondary school. Despite this emphasis from various policies and acts, still, studies reported different challenges that SWVI generally face in their inclusion at diverse levels of education in Tanzania (Msoka et al., 2022; Lyakurwa, 2018; Kiomoka, 2014; Tungaraza, 2017; Kisanga, 2017). If this study is not undertaken, it would be missed opportunity to explore the schools' environmental adaptations for the inclusion of SWVI in a selected inclusive secondary school in Korogwe District. Therefore, this study sought to fill this gap.

1.2.1 Purpose of the Study.

This study aimed to explore the school environmental adaptations for including students with visual impairments at the selected inclusive secondary school in Korogwe Dstrict, Tanga Region, Tanzania.

1.2.2 Specific Research Objectives.

1. To determine the physical environmental adaptations made by the school to support students with visual impairments.
2. To explore classroom environment adaptations made to include students with visual impairments.
3. To establish how the social interaction of students with visual impairments in the school environment.

1.2.3 Research questions

1. What physical environmental adaptations do schools make to support students with visual impairments?
2. What classroom environment adaptations are applied to support the learning process for students with visual impairments?
3. How do the students with visual impairments interact with the school environment?

1.3 Significance of the Study

The findings from this study are hoped to emphasise adaptations of the school environment for SWVI. The outcomes of this study may influence secondary schools to develop appropriate strategies, including SWVI, that facilitate learners' academic performance. This study was expected to inform teachers to obtain in-depth knowledge on how they can assist SWVI.

Furthermore, the findings of this study are expected to influence the government and society on the issues of the environment for inclusive education and how it should be adapted to meet the needs of the students. Additionally, the study can be a source of awareness for educators and administrators in understanding the positive impact of environmental adaptations on SWVI. Teachers may also benefit from the study by understanding required environmental standards for SWVI in inclusive schools. Additionally, it is hoped that the study's findings may be a valuable resource for policy and curriculum developers of inclusive education in this school.

1.4 Delimitation

This study was conducted in one selected inclusive secondary school in Korogwe district, Tanga region in Tanzania. This school was purposely chosen as it was the only inclusive secondary school that had enrolled SWVI in the region at the time. The study was selected based on the narrowed phenomena and the school's environmental adaptations, including SWVI.

1.5 Limitations

The study faced some barriers; one was the unavailability of some participants, especially SWVI, during data collection because it was the recommence of a semester. This encounter was resolved by scheduling appointments when all participants were available. Similarly, a language barrier was encountered, especially in focus group discussions (FGDs) with SWVI and some staff members struggling to express their views comfortably using English. Moreover, this did not compromise the quality of the findings, as all participants were allowed to express their views, even in Kiswahili, when English posed difficulties. Furthermore, the main focus of the study was only limited to one category of PWDs, that is, people with visual impairment; the findings may not be generated to other categories of disability.

1.6 Theoretical Framework

This study was guided by the social model of disability, whose foremost pioneer is Mike Oliver, who founded it in 1983 (Rieser, 2002). The social model of disability emphasises the differences between disabilities and impairments; the model states that society imposes barriers (physical, architectural, attitudinal) that disable individuals with impairments, preventing their full participation in society (Barnes & Oliver, 1998; Levitt, 2017)

It advocates for equal rights, inclusion, and the removal of barriers to ensure that individuals with disability who were once disabled by society can participate fully in all aspects of culture (Goering, 2015). Moreover, the model suggests the creation of accessible environments, products, and services to eliminate physical and environmental barriers. The social model argues that society, through its attitudes, prejudices, and policies, creates disability by excluding people with impairments and limiting their opportunities for participation and inclusion. This can

include physical barriers, discriminatory attitudes, and inaccessible communication (Owens, 2015).

Schools must adapt their environment to cater for the needs of SWVI. The social model does an excellent job of emphasising how children with disabilities could run into issues with the educational system. However, the inclusive education approach contends that these issues should not be just attributed to the impairments of the learners (Goering, 2015). This model further dispels the notion that the students with visual impairments are blame for their difficulties. Establishing a particular school for these learners is impossible since it would further isolate them from their peers and families and would not be financially advantageous (Canlı & Ozyurda, 2020).

The model emphasised that restrooms should be designed to accommodate students with different mobility needs. This includes spacious stalls, grab bars and accessible sinks. These adaptations ensure that students with disabilities can independently use restroom facilities, promoting their dignity and autonomy (UNESCO, 2017). Further, it embraces inclusive pedagogical approaches that value diversity and aim to create a supportive learning environment for all students. Incorporate diverse perspectives and experiences into the lesson content.

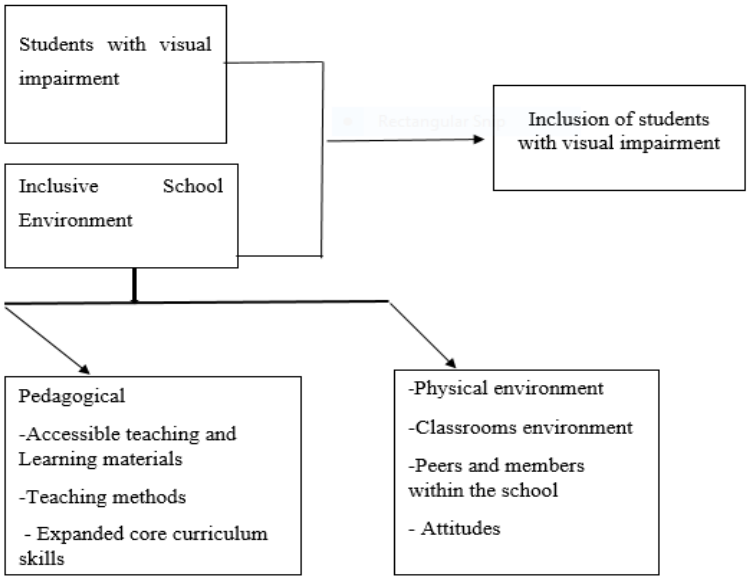
The model was considered relevant to the study because it supports the ideas of inclusive education and encourages the removal of barriers that hinder SWVI from accessing a high-quality atmosphere for secondary education. For instance, the accessibility of infrastructure that accommodates all students and the availability of teaching and learning materials that meet the needs of all learners. Therefore, the social model of disability is a reminder of the importance of implementing inclusive education by emphasising the removal of barriers that would hinder the provision of inclusive education to all students regardless of their diversity in secondary schools.

1.7 Conceptual Framework.

In this study, the collaborative process of adapting the school learning environment for SWVI in inclusive secondary schools is crucial. It involves the main elements to meet the educational needs of all learners. Three components were envisioned to be an interactive process: include SWVI, inclusive school environment and inclusion of SWVI in the inclusive secondary school.

When these elements are in place, a supportive environment would advantage the SWVI. The following diagram, labelled Fig. 1, illustrates how these elements should work together, inviting all stakeholders to participate in the process.

Figure 1: Conceptual Framework



From the preceding diagram: the implementation of effective inclusive education would occur if there were SWVI and an environment that supports the whole process of their learning. In this conceptual model, inclusive schooling were practically done when there are enough specialised learning services that support SWVI in the inclusive secondary schools, the use of appropriate methods during the learning process, and the adaptations of the physical environment, for example, buildings and grounds that can help the students to move from one place to another. Furthermore, the expanded core curriculum, which focuses on skills crucial for SWVI to be familiar with the environment and interact with others, must be applied in inclusive secondary schools.

1.8 Operational Definition of Key Terms.

- **School Environment:** School environment refers to the set of relationships among members of a school community that are determined by structural, personal, and functional factors of the educational institution that provide distinctiveness to schools (Lawrence, 2012). In this study, the school environment is the presence of all basic needs for students with VI in inclusive secondary schools and the way of supporting learners with visual impairments in inclusive secondary schools without any discrimination, humiliation, segregation, or isolation because of their disabilities.

- **School environmental adaptation for SWVI** involves making physical, instructional, and social adjustments to the educational environment to ensure that students with VI can access and participate effectively in the learning process. These adaptations are essential to promoting inclusivity and providing equal educational opportunities.

- **Classroom environment adaptations:** are the changes to the physical, social or temporal environment of a classroom to help students to learn and succeed.

- **Social interaction:** refers to the process by which individuals interact and communicate with each other, exchanging information , ideas and emotions

- **Inclusion:** It gives equal access and opportunities and eliminates discrimination and intolerance (removing barriers).

- **Impairment:** According to Muzata (2021:8), impairment is "an abnormality which may be structural or psychological and caused by a disease, accident or injury." This study adopted the exact definition.
- **Inclusive education:** This is an approach to schooling in which learners with many disabilities and learning needs are educated in classes with non-disabled peers (Kirschner, 2015). In this study, inclusive education is not only placing students with disabilities in a regular classroom with their peers without disabilities but also adapting the education setting, teaching and learning methodologies and assessment modes in correspondence to the individual educational needs of students with disabilities.

- **People with disabilities:** The UN (2014) defines this term as people limited to full social participation due to long-term physical, mental, intellectual, or sensory impairments. This study retained the exact definition.
- **Visual impairment:** According to Muzata (2021:37), visual impairment is a "sensory problem involving difficulties in seeing objects." This study defines visual impairment as damage to or loss of one or more anatomic structures that interfere with one's seeing mechanism. The definition includes both blind people and people with low vision

1.9 Summary

The discussion in this chapter has laid the foundation for the subsequent chapters, which were delving deeper into the literature review, methodology, data analysis and findings of the study. The next chapter were review the existing literature on school environment adaptation for the inclusion of SWVI in an inclusive secondary school, providing a critical analysis of the key concepts, theories and empirical studies related to the research topic.

CHAPTER TWO: LITERATURE REVIEW

2.0 Overview

The chapter provides a historical overview of Tanzania's education system for visual impairment students. The literature review was guided by the specific research objectives of this study. The chapter also presents an empirical overview of the environment for students with visual impairment in inclusive secondary schools and a summary of the chapter.

2.1 Historical background of education for students with visual impairments in Tanzania

Special education (SE) in Tanzania may be traced back to the 1950s when missionaries established the nation's first school for blind students in Dodoma (Kisanga, 2018). PWDs in Tanzania benefited from the 1948 Universal Declaration of Human Rights since formal education was available. Only religious and charitable groups provided education to PWDs in Tanzania before and during the initial years following independence (Possi & Milinga, 2017). In 1963 the government joined efforts to offer education to PWDs when it first established an integrated school for children with VI called Uhuru P rimary school.(Possi and Milinga 2017). As a result, the Tanzanian government constructed numerous inclusive primary schools for SwVI, including Ikungi Inclusive Primary School in Singida region (1968), Pongwe Inclusive Primary School in Tanga region (1968), Hombolo Inclusive Primary School in Dodoma (1970), and Mwanihala inergrated Primary School in Shinyanga region (1973) (Tungaraza, 2012).

It is important to note that the progress in education for visual impairment students in Tanzania was not a solitary effort. Mpwapwa Secondary School, located in the Dodoma district, was the first secondary school in Tanzania to accept SwVI (Tungaraza, 2012). This was made possible by the concerted efforts of both the government and humanitarian organisations. A few years after independence, they worked together to ensure that people with VI could receive an education. These initiatives and others significantly support the ongoing expansion of educational opportunities for PWDS, especially those with VI, in Tanzania (Possi & Milinga, 2017).

2.1.1 History of Inclusive Education in Tanzania

Education for PWDS, including those with VI, began in the 1950s and continued until the late 1990s in special schools and inclusive schools (Tungaraza, 2012; Possi & Milinga, 2017). The inclusion movement was still in its early stages. There were joint initiatives for inclusive education in the 1990s. The most effective effort that encouraged many nations to adopt the inclusion principle was the Salamanca Declaration of 1994. To evaluate its viability in the Tanzanian setting, the first inclusive education project was carried out in 1998 (Matonya, 2016). With these initiatives, inclusive education was formally implemented in Tanzania. However, no laws or regulations had yet been passed to make the provision of inclusive education in Tanzania legitimate. It was not until 2004 that the Tanzanian government adopted the first disability policy, which declared that a favourable environment would allow for inclusive education (URT, 2004). People with impairments, especially those with VI, are currently overrepresented at all educational levels.

2.2 The physical environmental adaptations made by the school to support the inclusion of SWVI

Physical environmental adaptations should be created so students can adapt quickly and enhance their learning and participation of all students with visual impairment in inclusive schools (Mwakyeja, 2013). Under this theme, the following subthemes are discussed:

2.2.1 Inclusive Ground Environment for SWVI

A ground is the environment surrounding and affecting a system or equipment**.** The learning environment should be user-friendly for inclusion to accommodate all students in inclusive schools (Miyauchi, 2020). The ground environment contains many things, such as gardens and sports grounds. Therefore, orientation and mobility skills should be applied for learners with visual impairment to socialise with the environment (Opie, 2018).

A study by Joshua (2013) on the Challenges of Inclusion of Learners with Visual Impairments to School Management in Namibia slightly pinpointed issues about physical environmental barriers to SWVI. The study's findings show the unfriendly school environment for students with VI.

The fence cordoned off the corridor leading into the hostel. At the wall's entrance, there were metal bars about fifteen centimetres high from the floor. The students with visual impairments are at risk of colliding with bicycles or objects left lying in the corridor. Management should also ensure that hindrances such as stairs, high corridors, and iron bars are adapted or alternatives are provided. For adaptations to be made, management needs financial resources to secure.

From Kenya perspectives on the influence of the school environment on the inclusion of students with visual impairments in regular public primary schools (Okello, 2024). The findings recommended that environmental adaptations attained by the school towards the inclusion of learners with VI are supported by arguments that inclusion makes them feel welcomed, confident, and friendly. Furthermore, school physical facilities are essential tools to facilitate and stimulate learning progress. Similar to the study by Mazijn (2013), which revealed that the successful integration of learners with diversity into inclusive schools necessitates the execution of structural modifications to establish an inclusive learning environment that accommodates the needs of students with diversities, this should be taken into consideration, especially the physical facilities, which must be well addressed.

From South Africa's perspective on the Challenges experienced by learners with visual impairments in mainstream South African township primary schools (Morelle & Tabane, 2019). The findings of the study indicate that the inclusion of learners with disabilities in inclusive schools is not an easy task; hence, different factors undermine them, such as a lack of knowledge among the teachers, an unadjusted environment, and a non-user-friendly schooling environment for students with learning disabilities, especially those with VI. This segment provides a context in which the current study is located as a school environmental adaptation to include SWVI in inclusive secondary schools. Similarly, Hewett et al. (2017) recommend that many schools make accommodations on an individual basis (individually-focused model approach) rather than ensuring learning is accessible to all through modifying the school environment to meet the needs of the students. As the costs of making individual accommodations will be passed directly to the VI provider, we anticipate such changes would bring about difficulties in the shorter term. In the long term, it may act as a catalyst for improving access and support for students with disabilities, especially those with VI. Contrary to this study, the current study will explore the

school environmental adaptations in inclusion students with visual impairment in inclusive secondary schools.

Hewett et al. (2017) conducted a case study from the UK using the longitudinal qualitative approach. The study revealed the barriers that undermine the students with visual impairment in the inclusive ground schools that follow: constructed stairs in the buildings, creation of pathways in the ground from one building to another in the grounds, and the way toilets are constructed environments water ditches. In the UK, they cater for a medical model of disability, which can act as a barrier to students who may not wish to identify themselves as disabled instead of applying the social model of disability. It is based on the medical model of disability rather than the social model. In the curriculum, the barriers students' encounters do not indicate how to create an inclusive ground environment for learners with visual impairments in inclusive schools. hence, the current study is based on the social model of disability.

2.2.2 Architectural Design for Inclusive Schools

The school buildings contain all the constructions within the school compound, such as Corridors and sidewalks, water ditches, staircases, halls, toilets, apartments, a library and a resource room. Buildings should enable all school community members to enter, move around, and participate in all aspects of school life to the best of their abilities and interests (Malik, 2018). Inclusion considers schools from the students' perspective and seeks ways to provide them with choice, dignity, and self-esteem by designing inclusive learning environments. The issues considered are essential for new building schemes and adaptations to existing buildings. As a school becomes more inclusive, several general considerations need to be considered, such as the fact that modifications in school space are needed in fields such as landscapes, architecture, and interior spaces (Triatmodjo, 2020), similarly with the expectation of the current study.

Page et al. (2021), including students with disabilities in innovative learning environments: a model for inclusive practices. The findings of this study reveal that inclusive school buildings should have sufficient lighting from different controllable sources to reduce the amount of glare, which can seriously affect the visual capabilities of children with VI. Stair edges must visually

contrast with the flooring, and the surface treatment of flooring with dark stripes across the direction of travel can aid people with low vision. Similarly, according to the study by Malik (2018), Lighting should be placed in a manner that makes signage prominent. Circulation spaces such as corridors and lobbies should either be clear from obstructions and hazardous projections like furniture and columns or show ample colour contrast with the surroundings.

Itani (2022), the findings suggest that winding pathways should be avoided, and different surface materials should be used for different pathways, as it creates a sense of the spatial uniqueness of each zone. A healthy mix of ramps and stairs is helpful for people with VI, but they should be visually contrasting, and glass doors should be used intelligently. Doors made of other materials should also contrast with the surrounding environment. Outdoor landscapes should also be designed using these measures, where pathways should appear distinctive using unique materials and landscape arrangements. Similarly, the study by Mantlow (2023) revealed that with significant support, the school should run the garden program and arrange it well to avoid some barriers for students with VI. Further, Gallardo et al. (2013) found that activities in the garden are hands-on and founded on the principle of experience. It would be good if all students participated in the garden activities. The school should create a garden sports field that accommodates all learners and allows them to participate in different activities done by other sighted learners. Contrary to this study, the current study will explore the school environment adaptation in inclusion students with visual impairment especially the physical environment made by the certain school.

From South Africa, a case study (Adu & Mpu, 2020) on the challenges of inclusive education and its implementation in schools. The study recommended that poor physical infrastructure in schools is one of the significant problems experienced by SWVI. The construction of school buildings, even those constructed under the new government, does not consider the needs of learners with physical disabilities and other disabilities. Feelings of neglect by and dissatisfaction with educators: It was observed that the type of education received by learners with disabilities is of inferior quality; in fact, they did not consider themselves to be receiving any education (Avramidis, 2012).

2.2.3 Orientation and Mobility

Simui (2018) reports challenges faced by SWVI in inclusive secondary schools, including negative attitudes, inaccessible learning environments, and the absence of orientation and mobility. In contrast to Kirschner's (2015) study, our research takes a qualitative approach with a case study design. Its primary aim is to investigate how schools adapt their environments to include learners with VI in inclusive secondary schools, a unique contribution to orientation and mobility.

In the UK, a study by Papadopoulos et al. (2020) on the title of environmental information for inclusion in orientation and mobility maps was identified by travellers with blindness. The study's findings reveal that no previous study has identified the user requirements of individuals with blindness for information to be included on audio-tactile maps. Thus, the findings of this study will be significant for designers of O&M aids for individuals with blindness. Moreover, the findings can be helpful to O&M specialists, rehabilitation specialists, and teachers who design and construct O&M aids for their students with blindness. When using the terms “orientation and mobility aids” or “navigational aids,” we do not refer to aids such as long canes, sighted guides, and guide dogs. We refer to any aid (mainly tactile and audio-tactile maps) in which tactile or audio information is used to present spatial information that is capable of helping the user with blindness form a spatial cognitive map and, in general, learn a space to be able to move within it safely and successfully. Similarly, the study by Yudhiastuti and Azizah (2019) documented that orientation and mobility can help a visually impaired person know his or her position and move. The mobility orientation programme is individualised, so it must be tailored to the needs of students. In the preparatory phase, the teacher first assesses the ability and needs of students' orientation and mobility.

2.3 The classroom environment adaptations deliberated for the inclusion of SWVI

The learning environment was the core to the thriving of inclusive education; if the environment in which learning occurs does not support SWVI, their learning would automatically be interrupted. An inclusive learning environment should be different from an ordinary learning

environment because an inclusive classroom contains students with various learning needs and abilities.

Chiner et al. (2012) suggest that inclusive classrooms should have enough space to accommodate students with disabilities. Different strategies enable learners with VI to learn smoothly in well-arranged classrooms and an adapted listening environment. Low-vision students should sit appropriately in class to see prints clearly on the chalkboard. Thus, this necessitated the researcher to conduct the current study. Teachers would use techniques and principles in classroom situations and creativity to design their students' instructional materials. All students, regardless of their abilities, are accommodated in society. A friendly environment allows students to participate in the learning process and several activities based on representation, action, expression, and engagement principles. In an inclusive classroom, a teacher may plan a lesson that would meet learners' individual needs. Multiple representations may help meet the needs of diverse learners with the same concept in different ways. SWVI would be represented through touching, audio text, and verbal touching. Multiple ways of presenting lessons enable more learners to participate in learning because they will understand the concept (Smith et al., 2011). In this study, the researcher will explore the classroom adaptation applied to support the learning process for students with visual impairments.

Karuhawe and Possi (2021) conducted a study from one secondary school that hoisted SWVI. Findings in this study suggest that a policy on rewarding teachers for designing specific teaching and learning strategies in inclusive secondary schools should be formulated. It should target several strategies qualifying for rewards in terms of their efficiency in facilitating lesson understanding for students with VI, the application of the strategy, and the type of reward to be offered. Moreover, the situation of non-specialized teachers in designing and applying instructional teaching and learning strategies in inclusive classrooms should be investigated. It would provide knowledge on how general teachers can be assisted in approaching the learning of students with visual impairment to overcome the challenges of the ground environment through different techniques. Using the observational guide in the current study would help the researcher to get information on school environmental adaptations for SWVI. Furthermore, Mwakyeja (2013) recommends that a lack of policies and guidelines for how inclusive education should be implemented affects the overall process of preparing conducive school environments

for inclusive practices, such as the training of teachers, which emphasises the importance of academic records of a student to help the teacher understand the educational needs of a student. If the specific needs of SWVI are unmet, either due to the reasons found in this study or any other reasons, then teaching students with visual impairments in inclusive settings has no meaning, and the realisation of the EFA goal remains far from reality.

A study conducted by Muzata et al. (2019) in Zambia on curriculum adaptations for learners with special needs depicts facts helpful to this study. Adaptations include classroom environmental adaptations, presentation of material, pace of activities, alternative methods, material adaptation, assistance to learners, and adapting the assessment process. Muzata underscores that curriculum adaptation is a significant consideration for implementing the curriculum for students with special needs and providing access to the curriculum. Without curriculum adaptation, learners with special needs would find it difficult to access the curriculum, thus creating inequality in education provision. Furthermore, a study by Malata et al. (2022): Lesson preparation for inclusive teaching of learners with disabilities in Zambia. The survey findings presented academic and social barriers like scarcity of teaching and learning resources, information inaccessibility, and curriculum challenges. The current study, explores the school environmental adaptations to learners with visual impairment, including the classroom environment as a part of the school environment.

Zangi and Penda (2021) revealed barriers to inclusive education for learners with visual impairment in an inclusive classroom setting: the experiences of teachers and visually impaired learners in Sefula, Mongu, Zambia. The findings were positive and negative about the inclusive settings; some participants felt good about having inclusive classes or schools. However, some barriers to an inclusive setting failed to be addressed, like poor infrastructure, poor teaching methods, a lack of learning resources, a lack of teachers trained in special education, and negative attitudes from teachers. There were insufficient teaching and learning resources, a shortage of teachers, exceptionally specially trained teachers, and unfavourable physical environments. Also, negative attitudes, staff unpreparedness, and rigid curricula are among the challenges faced by visually impaired learners in an inclusive classroom setting. Thus, the current study endeavoured to explore the environmental adaptations introduced in Korogwe district to support learning of SWVI.

2.3.1 Learning Strategies

Environment concerns with learning strategies like lesson preparation in inclusive education significantly improve the successful formal teaching and learning process. Due to that, the proper selection and arrangement of teaching items or materials are required. Kisanga (2018) reveals the significance of equipping teachers at various levels of education with skills on how to prepare and deliver instructions which regard the individual educational needs of all students. Kisanga (2018) further recommends that these training programmes on inclusive pedagogies should be compulsory for all teacher-trainees in colleges and universities. This can be integrated into the teacher education curriculum at all levels of education for pre-service teachers, and the training can be in the form of special seminars or workshops for in-service teachers.

Similarly, the study on inclusive education by Kirschner (2015) reported on the challenging learning environment faced by students with disabilities in inclusive schools. Phrased still some secondary schools' environment not support students with diverse especially those with visual impairment. However, creating and maintaining order, structure, and safety necessary for a secure learning environment to SWVI. Classrooms, like all other social situations, involve differently routine activities but the important thing is teaching and learning process. Teachers should find accessible strategies to teach students with visual impairment in an inclusive classroom, but also they should strive to find creative, constructive ways to handle potential disruptions. Furthermore, effective management in the classroom is not only about accommodating students' learning needs but also helping them regulate their behaviour. Therefore, the current study explores the strategies used by teachers in the inclusive classroom to include all students regardless their diversity.

Additionally, Muzata et al. (2019), learning in inclusive classes presents obstacles similar to those in inclusive secondary schools. Students have to deal with pedagogical issues, such as issues with lecturers' or teachers' methods for instructing students who have VI. When teachers in inclusive schools use visual resources without considering SWVI, it is one of the major hurdles that students must overcome. Students had difficulties adapting to the curriculum, making it challenging to meet their educational needs. One of the difficulties mentioned, for instance, was the type of material taught, such as statistics or mathematics-related material.

SWVI stated that they typically faced learning challenges. The nature of the taught material, like statistics or mathematics-related material, was cited as a barrier. Due to a lack of qualified teachers and learning resources, students with visual impairments believe they are typically at a disadvantage. In this current study, the researcher used three methods to find how the learning pedagogies used by teachers in the inclusive classroom were appropriate to SWVI.

Kisanga (2018) revealed some exclusionary practices among teachers. These include the rejection of students with special needs, including those with visual impairment, by school authorities, exclusionary language during learning and teaching practices, disinclination to provide their teaching notes, and inappropriate teaching methods that exclude these students from the learning and teaching process. The study also revealed that the language used during teaching was one of the types of exclusionary practice. Teachers were reported to use language that excluded students with VI in the classrooms, especially in subjects that demanded drawings or computation, such as biology, geography, and mathematics. Teachers delivered these subjects regardless of the needs of students with VI; teachers in Tanzania spend more time writing notes than explaining the subject matter, possibly because of the shortage of learning and teaching materials or to complete the syllabus in time before examinations. Teachers' positive, inclusive practices were reported more in primary schools than in secondary schools; this implies that there is still a gap in learning strategies in secondary school especially the lowness of considering students with visual impairment. This study's findings also correspond with previous studies, which reported teachers' inability to accommodate diverse needs or to effect curriculum adaptation for students with VI or others with special needs. (Reed & Curtis, 2012; Tungaraza, 2012; Mwakyeja, 2013). Furthermore, teachers' poor understanding of inclusion and lack of support from the heads of schools lead to be unsuccessful organizing the strategies that accommodate all students. This can hinder teachers' creativity regarding teaching pedagogies, classroom structures, and access to appropriate resources to meet students' diverse needs.

Morelle and Tabane (2019) reported that the learners' environment and the school context may influence their experience. On the other hand, teachers should be observed over a long period in the classroom to establish whether they promote positive inclusion. Future research may consider the factors influencing the implementation of inclusive education in inclusive schools. Similarly, the study by Temesgen (2018) examines the challenges that learners with visual

impairment disabilities face in primary schools in Ethiopia. The study recommends that the context in which learning occurs is inflexible curriculum, environmental inaccessibility, negative attitudes that stem from both teachers and parents and inappropriate assessment procedures, which are some of the factors that can impede the effective school participation of students with visual impairments. Hence, the inaccessibility of the learning environment is also one of the variables that can interfere with the learning of students who use whiteboards. Nevertheless, students with visual impairments can participate in unrestricted general school activities if the social and physical environment is accessible. Students with visual impairments will not be included unless their unique educational needs for access are addressed by specially trained personnel in an appropriate environment.

2.3.2 Assistive technology

A study by Kiomoka (2014) investigated the challenges children with visual impairments face in learning and participation in inclusive primary schools. The study utilised a qualitative approach, and purposive sampling was adopted to select one school out of 31 participants. The data were collected through semi-structured interviews and non-participant observation. The study revealed that teaching and learning materials were another challenge facing students with VI in inclusive schools. There were few resources like Braille textbooks, Perkins Braille machines, pens, computers, CCTVs, talking calculators, and books. The investigator observed a few learners with VI who had Perkins Braille machines. Such challenges are common in developing countries such as Tanzania. Alternatively, the study recommends that classes were overcrowded with large numbers of students, which made controlling the class difficult for the teachers. The number of learners in the class ranged from 54 and above; this is one of the most significant barriers to inclusive education. Hence, having many learners in the class creates an unfavourable learning environment for the learners with VI. Thus, the researcher must conduct the current study.

According to Eligi & Mwantimwa (2017), the study of ICT accessibility and usability to support the learning of visually impaired students in Tanzania employed a mixed-methods approach and used a survey design with 36 respondents. The study suggests that computer operating systems and typical word-processing applications usually have various accessibility options. These

adjustments are essential for the visually impaired students' learning process. Also, braille was one of the most required assistive technology facilities to support the learning process of visually impaired students. The visually impaired students can significantly benefit from the Braille embosser, as they can print out Braille using an embosser. Moreover, tape recorders and note-taking devices enhance the learning process among visually impaired students as they are used for recording and listening to lecture notes. These devices support recording lecture notes, class discussions, and visual presentations. Therefore, assistive device facilities for visually impaired students support communication, improve access to educational materials, and serve as curriculum tools for developing concepts in subject areas and producing learning materials in alternative formats. The internet was also considered the most required, as it facilitated learning among visually impaired students. Indeed, the Internet provides a wide range of learning opportunities because of its multiple-functional online environment and the resources it provides. Similarly, according to Simalalo and Hambulo (2020), assistive technology is vital for all students with disabilities, particularly those with visual impairments. Students without assistive technology continue to use traditional technology, such as braille, which has challenges such as bulkiness, high cost, and lengthy production times.

In Tanzania, the case study of Kisanga et al. (2020) concerns the role of assistive technology devices in fostering the participation and learning of students with visual impairments in higher education institutions in Tanzania. The study used a mixed approach; the research design is a descriptive and thematic analysis. The data collection tools were an open-ended questionnaire survey and a semi-structured interview, and the participants were selected purposefully. The study suggests that learners with VI require various assistive technology devices for their learning and mobility needs, enabling them to write and read proficiently and become self-reliant. Students with VI understood assistive technology devices well, although their knowledge was limited to those available at their schools. Exposing them to other essential modern assistive technology devices was necessary. Limited knowledge has also prevented students with VI in the institution under review from using electronic note-takers offered to them more than seven years ago because neither the students nor the faculty could use the devices. A shortage of assistive technology tools also makes it difficult for learners to access their education. Furthermore, students were more familiar with computers with free, open-source screen readers and Braille machines than with other devices, such as the Braille Note Touch. I also suggest that

the budget allocated to inclusive secondary school education does not consider the specific needs of students with VI and others with special education requirements. As educators, policymakers, and researchers in the field of special education and assistive technology, your influence in improving the budget allocation for special education is significant and can make a real difference in the lives of these students.

In Rwanda, a case study of the impact of assistive technology on the education performance of learners with visual impairments was conducted at the University of Rwanda's College of Education (Amurani, 2019). This study recommends a lack of a legal framework and policy to guide the teaching of such technology and a lack of skilled teachers to provide such essential services to learners. The global society's desire to digitalise and bring technology into many facets of life has made technology crucial in our time and more urgent for visually impaired students, who risk being left behind if policy guidance and technology-making for all are not developed and implemented. The study emphasises technology that addresses unique needs issues as a requirement, especially for the visually impaired. Students with visual impairments compete comparatively with those without special needs in education and the job market. Learners with VI have hardly used contemporary assistive technologies such as the screen reader, the portable note taker, the digital book reader, or Braille books.

A study by William (2023), titled Evaluation of Science and Mathematics Books Used for Students with Visual Impairments in Inclusive Classrooms in Tanzania, found that students must have specialised services and books to meet their unique needs. Lack of learning materials is another problem constraining their learning. Therefore, many learners struggle to get a chair to sit on, which becomes more difficult for a student with any disability who cannot run fast to get a chair. Moreover, materials in appropriate media like Braille and specialised equipment and technology assure equal access to the core and specialised curricula, enabling them to compete most effectively with their peers in school and society. If a student with a visual impairment does not have access to social and physical information because of his or her visual impairment, he or she is not included practically. This underlines the importance of equal access to education for all, regardless of their abilities.

2.4 The interaction of students with visual impairments with the school environment in secondary schools.

An inclusive learning environment allows and supports the potential learning of all students, regardless of the learning differences and diversities these students possess in the class (Simon et al., 2010). The qualitative study by Ediyanto et al. (2017) on the perspective of Widyaiswara in the Centre for Development and Empowerment of teachers and education personnel in kindergartens and special education. The findings documented that, for children with special needs, achievement in the form of self-improvement is done step by step. Stages are applied to language, communication, social interaction, and academic skills. The schools should further develop the potential and vocational abilities of children with special needs. The goal is for SWVI to be more independent. Schools can work with companies employing special needs children for vocational purposes.

2.4.1 Attitude of the Peers.

Parey (2021), Exploring positive and negative teachers' attitudes towards inclusion of children with disabilities in schools in Trinidad: implications for teacher education. The findings indicate the need for professional development for in-service teachers and the urgency for a compulsory pre-service program for new teachers. It was also revealed that most people have negative attitudes about children with disabilities being better off in special schools. Other than the exclusionary nature of special schools, there is a disparity between the curriculum for special and regular schools, which leads to a disadvantage for persons with disabilities. Similarly, the study by Muzata (2019) revealed that society uses negative terms to refer to persons with disabilities, which opens up discrimination, stigmatisation, and inadequate treatment in many spheres of their lives. Thus, the researcher must conduct the current study.

In Kenya, the study by Okello (2024) examined the influence of the school environment on the inclusion of learners with visual impairments in regular public primary schools. The study established that the school environment significantly influenced the inclusion of learners with visual impairment and accounted for 18.4% of the variation in the inclusion of learners with visual impairment in regular primary schools. From the findings, it was concluded that the school environment ($r = .433$, $p < .05$) has a significant positive and moderate influence on the

inclusion of visually impaired learners in regular public primary schools. The study recommends that school administration mobilise more teaching and learning resources for learners with visual impairments. On the contrary, the study by Millinga (2016) documented that unrealistically, as this may appear, isolation and despair have been taken as one of the initiatives that students with disabilities take in inclusive schools following various learning challenges. Thus, it influences the current.

2.4.2 Independents skills

The study by Gothberg et al. (2015) revealed the importance of educators' creativity in teaching non-academic skills during the instructional day. Opportunities for this may occur in service-learning situations, during elective hours, in job exploration courses, or during student participation in a part-time job or volunteer opportunities after school. The study also found that when both academic and non-academic preparation are taught in secondary settings, students are more likely to transition into other levels of education and careers successfully. Moreover, the study by Hershenson (2012) encourages students to communicate their needs, preferences, and goals, involving them in the decision-making process regarding their education, which enhances their independence and self-determination.

In Namibia, a study by Joshua et al. (2022). The findings of the study reveal that members of the school management are faced with challenges ranging from negative attitudes towards inclusion of learners with visual impairments, unwelcoming infrastructure, large classes, and lack of skills and instructional resources, curriculum restrictions, lack of targeted measures to ensure social and academic inclusion. Further, it found that some teachers felt that learners with visual impairments were not adequately included in social programs. It seems teachers are concerned more about the academic inclusion of learners with visual impairments. Other studies support the finding that learners with visual impairments are often excluded from sports and other social activities (Dakwa, 2014; Zulch-Knouwds, 2010)—this is necessary for the current study.

From Tanzania, a case by Millinga (2016). The finding revealed that it was found that there was weak peer cooperation between students with disabilities and those without disabilities. In

exploring the social environment of students with disabilities, most of the students without disabilities were not willing to assist their peers with disabilities. Instead, those who had minor cases of disabilities took the lead in supporting their peers with severe cases of disabilities, a kind of birds of a feather flock together. Similarly, the qualitative study done by Elisha (2019) revealed that lack of enough training for educators has influenced the participation of students with visual impairment negatively; this is because educators who are not well trained in the area of special needs education and in facilitating VI skills programme cannot be effective in the facilitation of literacy skills to learner who are visually impaired. Further, the study by Ralejoe (2021) mentioned the benefits of physical activity as promoting good health by relieving stress, maintaining proper body weight, and improving physical and mental capabilities. Those with VI who did not participate in physical activity stated that the games played in their school were vision-based and competitive and could harm them. Furthermore, their peers were reluctant to incorporate them into their competitive teams.

2.5 Knowledge Gap

More research needs to be done about students with visual impairment in Tanzania. Based on the literature review, many studies have focused more on exploring the challenges facing students with Visual impairment at the primary level and different perceptions and views of principals, teachers, parents, caregivers and government officials towards inclusion, forgetting the voice of students with visual impairments who are among the affected ones in the inclusive school environment. As shown above, few of the reviewed studies focused directly on students with visual impairments to seek their views, perceptions, and experiences regarding the challenges they face in learning and participation in inclusive schools. Furthermore, drawing from the current study's context, few empirical studies have been conducted on inclusive education at the secondary school level in Tanzania. Thus, to cover the existing knowledge gap, it was essential for the current study to explore the school's environmental adaptations to include students with visual impairment in secondary schools in Tanzania.

2. 6 Summary of the Chapter

This chapter discussed the historical background of education for students with visual impairments in Tanzania. It reviewed relevant literature on the contribution of the school environment to the inclusion of learners with visual impairments in inclusive secondary schools. The reviewed literature is directly linked to the three themes derived from the research objectives. The next chapter presents the methodology used in the study.

CHAPTER THREE: METHODOLOGY

3.0 Overview

This chapter delves into the methodology used in the study to explore the school's environmental adaptations to include students with VI in a selected inclusive secondary school. It provides a comprehensive overview of the research approach, design, population, sample size, sampling procedures, research instruments, and data collection procedures. The chapter also discusses the trustworthiness of data, data analysis, and ethical considerations and concludes with a summary of the chapter.

3.1. Research Paradigm

The constructivist paradigm philosophy guided this study to view knowledge and reality as constructed by individuals and societies through their experiences, interactions and perceptions. In this study was widely applied in qualitative research, as it focuses on the understanding and interpreting social phenomena. The researcher played a crucial role in understanding the specific contexts in which people live and work to understand the historical and cultural settings of the participants. Different scholars define qualitative research as a research problem based on trends in the field or the need to explain why something occurs and the exploration of meanings attached to a phenomenon by individuals (Creswell, 2012; Creswell, 2014; Creswell, 2018; William, 2021). The approach utilises various empirical materials, such as case studies, life experiences, and stories, that show the routines and problems that individuals struggle with by focusing on their in-depth meaning and motivations, which numbers cannot define. Describing a trend means that the research problem can be best answered by a study in which the researcher seeks to establish the overall tendency of individual responses and to note how this tendency varies among people (Taherdoost, 2022). Therefore, the study finds out about the adaptations of the school environment for the inclusion of learners with visual impairments at an inclusive secondary school in Tanzania. Moreover, the study recognises that their backgrounds shape their interpretation and acknowledges how their interpretation flows from their personal, cultural, and historical experiences.

3.2 Research design

The research design employed in the study was an exploratory case study. According to Howard and Berg (2017), an exploratory case study research approach produces a thorough grasp of a difficult subject in its actual setting. As an illustration, consider the issue the school environment adaptation to accommodate students with visual impairments at a selected inclusive secondary school in the Korogwe district. The chosen research design enhanced the findings of this study since it offered a number of benefits, such as making it possible to look for connections between the study's context, individuals, and research topic and giving flexibility in gathering data using a variety of low-cost approaches. In addition, it gave the researcher early insight into whether the subject matter was worthwhile for the time and money allocated to the study. Additionally, it allowed a researcher to watch the phenomenon being studied in the field, allowing for further research.

3.3 Population of the study

A population is a group of individuals of the same species living and interbreeding within a given area (Tuff, 2012; Cohen et al., 2018). This study was conducted at an inclusive secondary school in Tanga, Tanzania. The target population includes the head of the school, the head of the special education department, teachers, and students with VI. The study selected an inclusive secondary school in one region because it is an old school, and the case study design chosen allows the study to use a single case unit. Furthermore, the target study participants had sufficient experience to provide rich, in-depth information on the study under the phenomenon.

3.4 Sample Size

A sample size is a group of subjects selected from the general population and considered representative of the actual population for that specific study (Matthew & Rossa, 2010). In this study, the sample consisted of 15 participants, of which 9 were students with VI, one headmistress, three teachers, one resource room teacher, and one head of the special education department. The actual sample size was determined through the data saturation point. Furthermore, Cohen et al. (2018) and Gay et al. (2012) suggest no static rule on the sample size

in qualitative research; the size should be determined by the redundancy of information and the sample's representativeness.

3.4.1 Characteristics of the sample

The study interviewed the head of the school, the head of the department of special education, the resource room teacher, and three teachers. The alphabetical codes maintained the data's confidentiality and hid the participants' real names. Therefore, HOS represents the head of the school, HOD represents the head of the department, RRT represents the resource room teacher, T1, T2, and T3 represent teachers, and SWVI represents students with VI in an FGD.s

Table 1. Characteristics of participants, heads of school/departments, RRT and Teachers

Codes	**Gender**	**Age group**	**Qualification**	**Work experience**
HOS	Female	50 – 60	Masters	Five years
HOD	Male	3O- 40	Degree	Six years
RRT	Male	40-50	Degree	Four years
T1	Male	30-40	Masters	Three years
T2	Female	30-40	Degree	Two years
T3	Male (blind)	40-50	Diploma	Three years

Table 2. Characteristics of Participants SWVI

Codes	**Gender**	**Age group**	**Type of VI**	**Level of study**
SWVI1	Female	11-15	Blind	Form two
SWVI2	Female	15-20	Blind	Form five
SWV3	Female	11-15	Blind	Form one
SWVI4	Female	11-20	Low vision(albinism)	Form six
SWVI5	Female	11-15	Low vision	Form three
SWVI6	Female	15-20	Blind	Form five
SWVI7	Female	11-15	Low vision (albinism)	Form two
SWVI8	Female	11-15	Low vision	Form four
SWVI 9	Female	11-15	Low vision	Form one

3.5 Sampling Techniques

Sampling from the population is often more practical and allows data to be collected faster and at a lower cost than attempting to reach every member of the population (Wynne et al., 2019). Therefore, this study adopted the purposive sampling technique because it allows the researcher to get a great deal of information on the study of the specific research questions and select participants who will provide detailed information about this study (Gill, 2020).

Under purposive sampling, the researcher applied the criterion sampling technique to select a sample from SWVI, special needs teachers, resource room teachers, and teachers. First, the researcher selects teachers, those who had taken a subject(s) that consisted of SwVI and those with more than two years' experience in teaching in the inclusive school but also those teachers with the same disability and they are also teaching. Second, the resource room teachers who were selected are those dealing with the resources for students with visual impairment only. Third students who were selected are those with low vision and total blind in order to get in-depth information from them about their real life. Further are those being able to demonstrate how the school environment benefited them in terms of infrastructure, materials, and socialisation. Four head teachers because he or she the one top leader of the schools to get information from him or her about the environmental adaptations done by the school to include SWVI. Lastly RRT was also selected to be participant of this study in order to get information about material support for SWVI.

3.6 Research instruments

For successful collection of qualitative data, research instruments must be capable of capturing participants' diverse perspectives, thoughts, and views on the phenomenon in their own words (Gay, Mills, & Airasian, 2012). To collect data from the study site, the researchers employed interview guides, focus group discussions, and an observation checklist. The three research instruments were employed to ensure data triangulation, which aids in providing a better and deeper understanding of the phenomena being studied. The study used interview guides for in-person and phone interviews, as well as a Focus Group Discussion (FGD) guide and a direct observation checklist. The tools were chosen because the project's exploratory case study

research design required extensive information from a natural context. The researcher created study instruments that required in-depth data collection on the research problem, which contributed to the trustworthiness of the findings. The study collected data through interviews with instructors, the HoD, the head teacher, and the recourse room teacher. The study also employed an FGD guide to get information from students with VI, as well as a direct observation checklist to collect data both inside and outside of classrooms that accommodated students with VI. The instruments or tools that were used in this investigation are described below.

3.6.1 Semi-structured Interview Guide

An interview guide is a set of guidelines that promote meaningful contact through a conversation in which one person learns from another (Gay et al., 2012). This study employed a semi-structured interview guide to gather information from head teachers, HoDs, resource room instructors, and teachers. The researcher did one phone interview with the head teacher and five in-person interviews with three teachers, one HoD, and one RRT. Each interview lasted 20 to 45 minutes. The interviewees preferred interview locations that allowed them to express themselves freely and privately. Interviews assisted the researcher in developing an organized approach, providing participants with similar experiences, and making it easier to obtain responses in the same format. Interviews minimized the potential of biases during participant conversations and allowed researchers to get critical data that would have been difficult to collect using the observation approach (Creswell, 2014).

3.6.2 Focus Group Discussion Guide

The FGD guide is a tool for collecting data in the field using the FGD method. FGD obtains data through interviews with persons who share traits related to the phenomenon under research, often four to six or less than ten (Creswell, 2012; Masha,2022). It is a type of interview in which a group of individuals are questioned about their views, beliefs, and attitudes regarding a topic or idea. Focus group interviews enabled the researcher learn about the group's feelings, perceptions, and opinions. FGD is significantly more commonly employed when information collection time is constrained (Creswell, 2012). In this study, the researcher conducted a focus group discussion

with student VI. The discussion lasted minutes and fifty seconds. The FGD included students with VI who needed assistance understanding spoken English. The researcher employed code mixing language to improve communication between the researcher and the students with VI. The dialogue was captured using a digital audio recorder.

3.6.3 Observation Checklist

The observation checklist is a tool for collecting data via observation. Observation is a method of data collection in which the researcher takes field notes and records the behaviors and activities of participants in their natural environments using an observation checklist (Creswell, 2014; Creswell & Creswell, 2018). The benefit of observation is that it is easier to administer, and the results are more reliable because the researcher is present to document what is happening. The observation is a 32 widely regarded method of conducting research. Observation has drawbacks; some events are difficult to perceive or watch, and it can be costly to administer at times. To ensure triangulation, the researcher used devices other than observations to reduce the impact of these problems on the quality of the data acquired. This study collected data from three classes that accommodated kids with VI using an observation checklist. The researcher saw two form one students with VI, one form three student with VI, and two from form six students with VI. Outside of class, the researcher utilized observational checklists to see how building, gardens, and sports fields were developed. The researcher conducted observations throughout a one-hour and 20-minute class session and two hours in the classroom's outdoor surroundings.

3.7 Data Collection Procedures

The data collection procedure is the process through which the researcher sets the stage for the discussion of issues involved in collecting data, and the collection steps include setting the boundaries for the study through an appropriate instrument to the study (Creswell& Creswell, 2018). Before the beginning of data collection at the research location, the researcher sought permission from the university administration boards, who provided a go-ahead notice for the researcher to interact with the research subjects. Therefore, the researcher also gets approval from the relevant regional municipality, district municipality, and school administration before the start of data collection at the research site.

3.7.1 Semi- Structured Interview

First, the researcher interviewed the head of the school, the head of the department, the resource room teacher, and the teachers. Then, a focus group discussion with SwVI followed. Finally; the researcher observed the different parts of the school environment, especially the physical compound, classroom environment (strategies and materials used in the classroom), and activities are done by students with VI.

3.7.2 Focus Group Discussions

The researcher called each participant via mobile phone during data collection to secure an interview appointment. Still, only some interviews were held at the school during working hours. Discussions in groups with SwVI were held at school since it was easy to get them there because it is a boarding school. Therefore, the researcher and participant teachers agreed on a favourable place to meet after working hours for interviews. Furthermore, the researcher used notebooks and tape recorders to take notes and record relevant data from the research during interviews, FGDs, and observation guides.

3.8 Data Analysis

Qualitative data analysis describes, classifies, and interconnects phenomena with the researcher's concepts (Henderson et al., 2020). Transcripts from semi-structured interviews and field notes from observational patterns were used to organise the data in this study to be analysed. Analyses began with scrutinising each instance and looking for reliable or unreliable patterns across cases (Smith, 2011). Furthermore, the study used the triangulation method to strengthen the reliability of the findings (Henderson et al., 2016). The data was analysed thematically using the steps suggested by Braun and Clarke (2012), as explained in the following paragraphs.

3.8.1 Familiarization with the Data

It helped the researcher to determine the type and number of themes that emerged from the data. Indeed, this stage was crucial as it guided further steps that the researcher used to analyse the

data appropriately. All the oral diaries and interviews were transcribed to show how the participants reacted to the issues raised in this study. Then, repeated careful reading of the transcripts was made to read them as ‘things in themselves’ (Chamberlain, 2015).

3.8.2 Generating Initial Codes

Data coding was applied using the three unique procedures of open, axial, and selective coding to aid in differentiating thematic groups. According to Braun & Clarke (2012), open is a preliminary attempt to categorise data into various categories. The initial open coding stage allowed the researcher to review the entire data set before classifying and coding it. The data collected was first examined separately to reflect the specific, in-depth layers of each participant's experiences. Second, the researcher changed the data's theme categorisation and created links between the data using axial coding techniques. The researcher's primary attention throughout this coding stage was the relationships between the data and the emergent themes. According to Bryman (2012), axial coding is the second phase of data analysis and aids in the researcher's ability to concentrate on the actual data by labelling it for themes. In addition, Braun and Clarke (2012) emphasised that the primary goal of axial coding is to establish connections between categories and subcategories. Finally, selective coding was used to organise and classify the data into various groups.

3.8.3 Searching for Themes

In this phase, the researcher started to shift data from codes to themes. The primary purpose of this phase is to find patterns and relationships between and across the entire data set (Chamberlain, 2015). The codes were analysed by considering how different codes could be combined to form an overarching theme (Braun & Clarke, 2006). A list of the codes was prepared on a separate piece of paper, and then they were organised into theme piles, which reflect the relationship between codes and themes. Because of the explorative nature of the study, the researcher re-read all the transcripts before clustering codes and recognised the subjects that stood as themes.

3.8.4 Reviewing Themes

In this study, all the themes (master themes, main themes, and sub-themes) were intentionally brought together, as it was aimed at refining those initially grouped themes and the presentation of those themes in a more systematic way. Braun and Clarke (2006) suggest that themes must be checked for internal homogeneity (coherence and consistency) and external heterogeneity (distinctions between themes). Many themes or sub-themes were merged with other (primary) themes or discarded during the review process. For instance, accessible buildings and strategies for teaching and learning.

3.8.5 Defining and Naming Themes

In this step, a researcher expressed the distinctiveness and details of each theme when characterising it. The researcher developed compelling, original themes. This stage entails the extensive analytical labour necessary for theme analysis and the critical shaping up of analysis into its fine-grained detail (Ahan & Tarhan, 2015). The researcher in this study ensured a clear boundary between themes. Each theme contained enough excerpts to support it, with a clear interpretation focused on responding to the research questions.

3.8.6 Producing the Report

In contrast to quantitative researchers, qualitative researchers only finish the data analysis after writing up their findings. Writing and analysis are deeply intertwined in qualitative research, from informal note-taking and memo-writing to more formal analysis and report-writing procedures. Data analysis and report writing are intertwined operations carried out concurrently, according to Braun and Clarke (2017). During this stage, the researcher thoughtfully but meaningfully organised themes in a developing logical story based on the studied facts. The researcher skilfully and logically created a data report connecting the study questions.

3.9 Trustworthiness

According to a set of guidelines researchers use to assess a qualitative study, trustworthiness in research is a critical component (Amankwaa, 2016). A substitute for the typically used

quantitative research metrics of reliability and validity is trustworthiness (Pilot &Beck, 2014). Four trustworthiness criteria suggested by Guba and Lincoln (1994) and quoted in Bryman (2012) were used to assess the quality of this investigation. These are credibility, dependability, transferability, and confirmability.

3.9.1 Credibility

This criterion focuses on whether the conclusions or facts are accurate regarding the study participants' social contexts (Bryman, 2012; Amankwaa, 2016). The researcher assured the credibility of the data by applying a member validation technique where each participant was given back an account (transcript) of what they had said to the researcher in an interview. The researcher involved colleagues to go through the work. Furthermore, the researcher engaged the supervisor as an expert to examine the research instrument used during data collection and the transcripts after data collection from the field. The researcher used semi-structured interviews, focus group discussions, and observation guides for triangulation.

3.9.2 Dependability

According to Connolly (2016), the dependability criterion examines how consistently the research findings hold up over time. This criterion was applied in this study by making it obvious what steps the researcher adopted during the investigation, such as how carefully they chose their subjects. Additionally, the researcher safeguarded recor dings of the entire study process, such as tape recorders, fieldwork notes, and interview transcripts.

3.9. 3 Transferability

Bryman (2012) and Pilot &Beck (2014)), refer to how much the research findings can be applied to different situations or topics. Because this study uses a qualitative research methodology, it cannot be generalised. However, readers are not limited in adapting the research's findings to situations they judge comparable to the studies (Ary et al., 2010). As a result, the researcher was provided with thorough descriptions of the phenomenon by gathering data using various approaches. In addition, the researcher was given enough time during interviews to produce precise information about the phenomenon.

3.9.4 Conformability

According to Bryman (2012) and Amankwaa (2016), confirmability measures how much a study's findings are impacted by the opinions of its participants as opposed to the researcher's biases. The researcher assured conformability through reflexivity. This is an internal review of a distinct connection between the research findings, recommendations, and conclusions to satisfy this criterion. In addition, to demonstrate the veracity of the findings, the researcher presented verbatim extracts while reporting the study findings.

3.10 Ethical Consideration

Ethical considerations in research are guidelines and the foundation that guides your research designs and practices. A researcher's commitment to these principles is unwavering, always adhering to a specific code of conduct when collecting data from people. Ethical permission was not just a formality but an essential step, as without it, a researcher would be denied access to a research site and the suggested participants (Okeke et al., 2022). Bryman (2012) underscored that harm-free research conduct should take the utmost care in addressing the issue of confidentiality. The study followed the principles of conducting social science research, including seeking permission, informed consent, anonymity and privacy, and volunteerism (Bryman, 2018).

3.10.1 Seeking permission

In acknowledging the importance of research ethics in the research process, the researcher was given approval and permission from the University of Zambia to collect data. Then, Archbishop Mihayo University College of Tabora wrote a letter to introduce the researcher and seek permission from the administrative secretary of regional education. From there, the secretary wrote a letter to the district administrative secretary. Then, the district secretary wrote a letter to seek permission from the study school. The secretary was granted permission to exercise for the targeted population.

3.10.2 Informed consent

To guarantee this, the researcher formally requested participants' participation in the study by giving them informed permission papers. Participants received an information sheet about the nature of the research, the ramifications of their involvement, and protecting their privacy and confidentiality (Creswell 2012: Bryman 2018).

3.10.3 Anonymity and Confidentiality

According to Okeke et al. (2022), confidentiality and anonymity dictate that the names of participants should only be known to the researcher. The researcher must uphold participant privacy when conducting interviews and focus group discussions. The researcher ensured that the study's participant names were anonymous and that the information gathered from them was kept private and used exclusively for research.

3.10.4 Volunteerism

In research, volunteerism refers to a person's willingness to participate and contribute data regarding the research problem. During the study, participants are free to accept or decline participation. The researcher must remain receptive to the research problem and allow participants to choose whether or not to engage (Bryman, 2018). The researcher in this study assured volunteerism by providing participants with informed permission forms and information regarding voluntary involvement. A week before the start of the data-gathering process, the researcher gave the informed permission forms. Furthermore, the researcher secured all materials from prying eyes, including field notes, interview transcripts, and audio recordings. Not to mention, the researcher prioritised humanity during the research process.

3.11 Summary

This chapter describes the research methodology that would be used to investigate the school environment adaptations for learners with visual impairments at an inclusive secondary school in Tanzania. The chapter also covered demographics, sample size, sampling methods, and the research instrument used in this study. It also covered the type of research approach and research

design. Finally, the chapter also covered ethical issues and the methods used for data gathering and analysis.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.0 Overview

This chapter presents findings from one secondary school in Tanga, Tanzania, on school environmental adaptations for including SwVI. Data was collected using a semi-structured interview, focus group discussion, and observation guide among students from Form 1 to Form 6, regular teachers, and teachers with specialisations in special needs education in one public, inclusive secondary school. The data collected concerning the following research questions:

1. What physical environmental adaptations do schools make to support students with visual impairments?
2. What classroom environment adaptations are applied to support the learning process for students with visual impairments?
3. How do the students with visual impairments interact with the school environment?

To protect the respondents' anonymity, the names of the participants were not used; instead, letters and numbers were used to represent the participants, and the quotes obtained during the interview sessions were structured. Also, the age of the participants was not mentioned. Moreover, the data were coded to get a reasonable interpretation of the studied phenomenon. Following the analysis of the raw data, various themes emerged. The findings are presented in the context of the specific objectives of the study and in addition to the theme that emerged from the field.

4.1 Physical environmental adaptations made by the school to support the inclusion of SwVI.

Participants interviewed for this objective described different physical adaptations made by schools that helped support the inclusion of SwVI. It was further found that environmental adaptations were made to support the inclusion of SwVI. The researcher interviewed six teachers and discussed with nine visually impaired students in an intended secondary school. All the participants from the school indicated that they participated and shared their narratives about the physical environment created by the school to support the inclusion of SwVI. It culminated in

forming distinctive themes, including accessible buildings, inclusive grounds, and orientation and mobility.

4.1.1 Accessible buildings

The study found that the adaptations and modifications were done effectively and helped prepare all the students for academic life. The school modifications made the SwVI feel comfortable, improving their learning process like other sighted students. From the participants' narrations, these modifications include toilets and hostels, braille signage, staircases, hallways, and corridors. This was confirmed by one participant, who said,

> *The school environments we have here consider students with visual impairments. We create ramps and elevators in large areas to help students move from one place to another without obstacles. (HoD, male, January 2024)*

The same perception was revealed by T3, who noted:

> *From my side, the school has indeed made adaptations in many areas of this school, especially in the buildings, which were constructed to accommodate all students. (T3, Male, January 2024)*

The same question was asked to the students with visual impairments during a discussion with the researcher. They came up with their different views and concerns about accessible buildings. The perception revealed by FGDs in SwVI 2, who noted:

> *It is good because the school modification of the compound was done effectively so we could move without obstacles. (SwVI 2, February 2024)*

It was observed in the school environment that the environment was constructed in a way that at least met the needs of the learners. For example, stairs, hallways, and corridors were well-built.

4.1.1.1 Staircases

The school management constructed accessible buildings that accommodated all learners, regardless of their diversities. They reduce the number of staircases and apply orientation and mobility to all SWVI who still need to become familiar with the school environment. One of the participants from the staff argued that;

> *To some extent, the school has modified the environment by reducing the number of stairs in the buildings and creating ramps and elevators. First, in our school, the environment that we make is like walkways, elevators, ramps, and pavement that help the students move alone without depending on someone else. (HOS, Female, March 2024)*

Similarly, the views expressed by RRT explained that

> *The environment in this school promotes inclusivity because it was created in a way that can accommodate all learners; there is an accessible building, and we are constructing it in a way that helps each student regardless of their diversity. (RRT, Male, February 2024)*

4.1.1.2 Hallways and Corridors

Participants also had reports about hallways and corridors. The buildings in the school should contain corridors, especially in the classrooms, dining halls, hostels, and administrative blocks. This was confirmed by SWVI, who said that:

> *..... hallways and corridors were well constructed; we were always encouraged to use white cane during movement. So, if you do not have a white cane, you might encounter an obstacle while moving. (SwVI 3, February 2024).*

While the school has tried to modify the physical environment, much work must be done to ensure all learners can fully participate in school life. The researcher observed that some environments did not adequately consider students with visual impairments. For instance, the few staircases in the school could pose challenges to visually impaired students if orientation and mobility were not effectively applied. This highlights the need for further improvements to ensure all students can achieve their educational goals.

Figure 2: Some of the staircases found in the school

Source: From the field, 2024

4.1.1.3 Toilets and Apartments

Staff participants reported positively that the toilets and apartments they constructed are accessible to the learners with VI. One of the participants confirmed that the toilets and hostels were first big and well-spaced, and the light coming from windows was adjusted. Still, SWVI were encouraged to get their diapers if they needed to be potty trained during toileting routines. Braille words are written on the walls to identify the toilets, rooms, and bathrooms.

> *..... In our school, we consider the presence of enough toilets and apartments to accommodate SwVI. We also constructed seat toilets and low-flushing toilets. We used the braille words because we do not*

> *have a special toilet system design that guides SWVI, like using voice commands. (T1, Male, January 2024)*

SWVI gave negative feedback about the toilets and apartments not being accessible. However, staff members thought the facilities were supportive and sustainable for SWVI. This shows a difference in opinion between students and staff on how well the facilities meet the needs of SWVI. One of the participants narrated that:

> *The toilets needed better construction, with floor cracks and a faulty water pipe installation. Furthermore, the hostels must be more adequately organised, being situated outside the dormitories in a manner that needs coherence and attention to detail (SwVI 1, Female, February 2024).*

The researcher further observed that the toilets and apartments need to support the inclusion of the SwVI. Though there are enough toilets and hostels, the way they are constructed is very far from the classrooms and hostels, and the walkway still needs to be identified. The positive thing was that the SwVI was given priority to sleep down under bunk beds, but no braille signage could assist them in getting information. Moreover, the beds need to be arranged better, and there needs to be more space in each room.

4.1.2 Inclusive ground for SwVI

The surroundings and other factors need to be considered in an inclusive school. For the inclusion to be more applicable, the open ground must also be considered. For example, gardens for followers surrounded the school and sports grounds, and stones for decorations around the school. To serve all students in inclusive schools, the areas stated beforehand should be inclusively designed. The head of the school confirms that:

> *... because we give them orientation and mobility about the environment's appearance, but we tried to make the sports ground accessible to all learners. We have more than one sports ground for*

games like netball, football, and volleyball. (HOS, Female, March 2024)

This view was supported by RRT, who noted that:

The school created sports grounds; therefore, all students were encouraged to do aerobics to make their bodies healthy. Those grounds included all learners because they were constructed so that all learners could participate. (RRT, Male, February 2024)

It was further established that SwVI was uncomfortable with the school compound that surrounded them because it seemed like the environment was constructed to only partially fit the needs of the learners. Some of these areas are the sports grounds, gardens, and stones that decorate the school.

4.1.2.1 Sports ground

Participant FGDs for SwVI said they were uncomfortable with school sports because they encountered a few challenges when using them. One of the SwVIs narrated that:

The number of sports fields in the current school has increased so that all learners can socialise by playing any game, but SwVI still faces a few challenges. Therefore, more modification was needed to avoid the difficulties encountered by students with VI during aerobics. (SwVI 2, February 2024).

Similarly, SWVI 3 said that:

The school should make sure that all sports grounds are well identified and constructed because even students with visual impairments have the right to do aerobics like others. (SwVI 3, February 2024)

Consequently, to diminish the challenges associated with sports grounds, as narrated by FGD SwVI 2 and FGD SwVI 3, SwVI suggested that the school should deliberate on making more modifications so that the students with VI can socialise with their peers during aerobics without any barriers. In his own words, the student said:

> *Regarding SwVI playing games like other students, the school should make more adaptations on the grounds so that we can participate effectively in aerobics. For example, holes in the middle of the ground and some pieces of wood near the sports field (SwVI 4, February 2024).*

The observation guide from the sports ground also revealed the same barriers as those of the non-supportive ground to SwVI.

4.1.2.2 Gardens and Stones

During the interview with teachers and focus group discussions with SWVI, some participants confirmed that they liked having gardens and stones for decorating the school so they could see it gorgeously. However, the students with VI complained that those gardens and stones were good but not arranged well. Therefore, sometimes, they become challenges. One of the students narrated that:

> *The stones and gardens surrounding the school should be well organised to remove unnecessary obstacles for students with low vision and total blindness. (SwVI 6, February 2024).*

Another participant student voiced:

> *... though orientation and mobility occur several times, the arrangements of things in the school compound should be addressed more so that we can move from one place to another and socialise with our friends (SwVI, February 2024).*

Similarly, some teachers make gardens and arrange the stones along the pathways to make the school attractive. However, these stones sometimes become barriers, and the cleaners do not care about organising them daily. Therefore, students with VI experience these challenges when they move from one place to another. This was described by one of the teachers during the interview:

> *It is essential to make modifications to the school compound. As you can see outside, we have a lot of gardens and trenches in our school compound. Those things sometimes become challenges for students with VI if there is no care for them. So the school management should take note of it and see how they can decorate a school in a good way, apart from putting the stones in. (T 3, male, January 2024)*

The observation technique also revealed that most of the compound is surrounded by trees, gardens, and stones that make the school more attractive. However, diversity is not conducive to students.

4.1.3 Orientation and Mobility Training

All participants indicated that orientation and mobility should be applied at the beginning of the academic year so that the students with VI are aware of the school environment and can interact with it. It is believed that during the vacation, the school constructs and modifies some parts of the school environment. Therefore, the school somehow changed the modality; that way, orientation and mobility were needed several times. During the interview and focus group discussion, the participant indicated that in school X, the management and department of special education were making sure that orientation and mobility were given to all school members about how to treat and care for students with diversity, especially those with VI. This was confirmed by one of the staff members who narrated that:

> *We train and orient the new students and teachers on socialising with these students with VI. This is because we want to avoid the issue of isolation and segregation. (RRT, Male, February 2024)*

Additionally, a similar view comes from the teacher, who notes that:

> *We teach the strategies of orientation and mobility to all students and teachers, regardless of their diversity, and to students with VI, we orient them to be independent in different activities in the school and outside the school, especially manual activities like washing clothes, watering the garden, and preparing food. (T 3, Male, January 2024)*

In addition to these helpful provisions regarding orientation and mobility, at the time of data collection, SwVI narrated that although orientation and mobility applied to them, they still faced challenges because they were not oriented to the school environment, like pathways and places with a new trench. It was only in those official environments, like classes, hostels, toilets, the dining hall, and the resource room, but in areas like the playground or other courses found in the school, that services were not catered to. This was reported by one of the SwVIs, who reported that:

> *We still need help moving from one place to another because we need to familiarise ourselves with the environment. Though orientation and mobility were done initially, more effort should be made as we become more familiar with the environment daily, especially during modifications. (SwVI 1, February 2024)*

It was further observed that the students were still struggling with the unfamiliar environment in School X. The school tried to ensure that orientation and mobility were applied to all the students with and without VI and the other school members. Hence, more effort was needed.

4.2 Classroom environment adaptations applied to support the learning process for SwVI

The study was interested in probing the classroom environment adaptations applied to support the learning process for SwVI. It was construed from the findings that the classroom environment was minimal but did not meet the needs of the learners with different diversities. The narratives of this specific objective were more vividly pronounced among students with visual impairments, special education teachers, resource room teachers, and the head of the

school. Under this objective, the study developed the following themes: accessible learning and teaching materials, strategies or methodologies used in the teaching and learning process, and classroom arrangements.

4.2.1 Accessible learning and teaching materials

The Individuals with Disability Education Act (IDEA) focuses explicitly on accessible formats of printed instructional materials and includes the timely provision of the four formats: braille, large print, audio, and digital text or technologies. Findings from this theme reveal the materials used by SwVI: Braille books, audio and large print, and assistive technology or digital text. These materials were used depending on the nature of the VI a student had; both should be adapted depending on the degree of disability and what they can manage to use.

4.2.1.1 Braille books

Participant RRT responded that some students depended on touch sense to navigate different teaching and learning materials. Therefore, braille-printed books were the correct format, facilitating access to teaching and learning materials and assessment tasks. Narrations from the participants revealed that braille used in printed books was braille grade two (contracted braille), commonly used by SwVI. This was confirmed by one participant who noted, *"We have the braille books for blind students from the Tanzania Institute of Education (TIE), like the other books for sighted students" (RRT, male, February 2023).* For example, the braille books found in school X have the same content as those used by the sighted students.

Figure 3. Braille books format

Source: From the field, 2024

The books were prepared using Braille in grade two because the students are in secondary school. It is believable that they learned braille in grades one and two in primary school and were more capable in all two braille grades. However, one of the teachers narrated that:

> *Although there are books from the TIE for blind people, we also rely on other sources to find notes for teaching students, and we embossed those notes into braille formats to simplify the learning process for SwVI. (T 1, Male, January 2024)*

Furthermore, the braille books from TIE are good, but we need to learn from other books because they are not written in braille format. One of the participants from the students with VI narrated that:

> *We have braille books from TIE in braille format, but more is needed to gain knowledge in secondary school. More information is required; we must learn from other sources until teachers find braille. (SwVI1, February 2024)*

4.2.1.2 Large prints

This study indicated that low-vision students were provided significant print texts, while others used magnifiers during learning. Moreover, almost all participants stated that one font size was provided. Font sizes commonly used ranged from 14 to 18. A statement from HOD revealed that:

> *Students with low vision Large printing texts were considered, and their sizes ranged from 14, 16, or 18. In reading textbooks, they always use magnifiers; it depends on their low vision. (HOD, male, January 2024)*

A participant teacher commented on the same perception:

> *To this point, we give them either 16 or 18, sometimes 20 font sizes for all with low vision, to meet each student's goals, learn better than others, and make simple changes to them during the reading process. (T 2, Male, January 2024)*

However, also, participants from the students with VI commented that:

> *Some teachers provided significant printing texts, but others needed to remember that in the class, some students with low vision need more consideration in a prepared task or notes. There are a few magnifiers that help us read the printed text. (SwVI3, February 2024)*

The researcher further observed that the braille books for SwVI were relayed only on TIE, while no other company reduced books for students with VI in a braille format. Moreover, for those using the large print format, a few teachers remember to consider them, especially those with knowledge of special education; the rest sometimes do not.

4.2.1.3 Assistive technologies

Commencing the analysis of the data generated, it was revealed that assistive technology was critical and somehow considered in school X. All participants further reported that assistive technology is found in the school to assist SwVI, though more is needed. It was stated in an interview by the head of the department (HOD) that:

> *The assistive devices or technology like CCTV cameras, optical readers, software, talking calculators, and tape recorders are there; we already give them to students, but others still need to because they are new. We want to check if we are working or not (HOD, male, January 2024)*

Forgoing interpretations slightly match the statements from the focus group discussion with SwVI. One of the participants notes:

> *Out of our six Perkins, only two or three are operational, leaving the rest non-functional. This scarcity is further highlighted by the fact that we have only four magnifiers for students with low vision, a number that falls short of the actual student count. Compounding this issue is the lack of knowledge among many teachers about VI materials, such as braille software. (SwVI 1, February 2024)*

Besides, all the participants expressed that providing assistive technology is available, but at least more effort is needed. Similarly, the investigator of this study noted that the government emphasises the issue of inclusivity and tries its best to distribute the learning and teaching materials, especially to the oldest schools, like the one used in this study. The main challenge for this learner is that teachers lack the knowledge of using VI materials during the teaching and learning process. As SwVI 5 responded, “Other challenges are that many teachers lack the knowledge of using VI materials. For example, the use of braille software”.

Figure 4: SwVI assistive technology materials

Perkin

Hand frames

Abacus

Magnifiers

Source: From the field, 2024

4.2.2 Strategies of learning and teaching process

The findings established that most participants, including staff, supported the idea that good teaching and learning should be applied to fit the needs of all learners, regardless of their diversity. The Education Policy 2014 emphasises that the school should tailor its teaching and learning strategies depending on the degree and type of disability. Your role as educators, policymakers, and researchers is crucial.

4.2.2.1 Collaboration

This study's participants confirmed that they collaborated with the special education teachers to ensure that all learners improved in their learning and scored well. It was reported by the head of the school, who reported that:

> *The staff collaborates effectively to ensure this student is accommodated well. I always emphasise that they cooperate; some face challenges during the teaching process and other activities involving learners with visual impairments. (HOS, Female, March 2024)*

A similar response was also echoed by participant T1, who stated that:

> *We developed some strategies for collaborating with all members of school staff and non-staff to ensure that the students with visual impairments were accommodated well in the classroom, like other sighted students. (T1, Male, January 2024).*

The narration above two illuminated the commitment to inclusive education as a cornerstone of our approach. It emphasises the strategies of collaboration among staff members to ensure that the needs of all learners, including those with visual impairments, are met during the learning and teaching process.

4.2.2.2 Methodology Use

The study revealed that some teachers' teaching methods were particularly beneficial for SwVI. They utilised multisensory teaching methods, provided accessible materials, used flexible language, listening and audio records, incorporated accessible tools and equal treatment, not special treatment as well as empowering them with the necessary resources. One of the participants from SwVI explained that:

> *Teachers' methodology during teaching development is adaptive and beneficial to all learners, regardless of their diversity. They were*

> *considering the use of tactile resources. However, considering students with VI were absent to a few teachers who were unaware of disability students and had never met them before. (SwVI 3, February 2024).*

Another student in a focus group discussion narrated:

> *…. always teachers encourage cooperative learning in the classroom used during teaching. They used multi-sensory teaching methods so that everyone could enjoy the session. (SwVI 2, February 2024).*

The findings indicated that participants from the staff decided that they were using an appropriate method that accommodated all learners. It was confirmed by one of the teachers who reported that:

> *The methodology used by teachers, including me, was appropriate for all learners in the classroom, mainly when we used the individualised plan methods. We emphasise that all teachers use a flexible approach for all learners and prioritise them by placing them in front of the class during the teaching process (T 3, Male, January 2024).*

During the observation technique, the investigator obtained that teachers with a foundation in special education comprehend how to apply the method that accommodates all learners. In contrast, for those without a foundation in disability, more training is needed so that they can treat students equally.

4.2.2.3 Lesson plan

The study's findings revealed that few teachers consider students with VI when preparing the lesson plan for an inclusive class. Those who prepare ensure that the lesson plan they prepare is related to the types and diversity of the learners. The participants from students with VI explained that the teachers prepare a lesson plan that does not accommodate them. While the

views of the staff disagree with this statement, they reported that the lesson plan they prepare is flexible for all learners. This was confirmed by one teacher, who noted:

> *We prepare a flexible lesson plan for all students, including me and all teachers who can accommodate students with visual impairments in an inclusive classroom. First, we understand the type of learners in a class and specific schools and their disability category, whether low vision or total blindness. Then, we plan the lesson to fit all learners (T 3, Male, January 2024).*

Although teachers indicated that they try their best to ensure that all of them prepare a lesson plan that is flexible for all learners, students with diverse backgrounds have different challenges in the classroom. As one of the participants narrated,

> *Yes, because other teachers do not prepare tactile teaching aids; they use vision aids only during teaching, so as blind and low-vision students, we cannot manage to see what he or she explains. While teaching others, they are not repeating the statements, even if you ask them to. Moreover, we are not given extra time to do the task; they need us to complete it on time like others (SwVI 1, February 2024).*

Similar opinion of SwVI, who notes:

> *Indeed, the lesson plans prepared by teachers do not accommodate us anymore regarding teaching and assignments; moreover, some teachers even separate us into different classes and teach at different times, not in the same room with others (SwVI 3, February 2024).*

Thus, during the observation technique, the researcher obtained that teachers were using the proper methods during the teaching process. These are multisensory methods, tactile methods, and cooperative learning methods. However, teachers considered SWVI when preparing lesson plans, especially those with an essential foundation for teaching SWVI in an inclusive classroom.

4.2.3 Classroom arrangements

In this study, greater attention was paid to the classroom arrangements for accommodating students with visual impairments during the learning and teaching process. The participants in this study explain that, to assure inclusivity in the classroom, more modifications to the class should be well addressed. One of the participants, a staff member, said, “The classes were arranged systematically from one building to another. Inside, we arrange the tables and chairs in three lines to remove obstacles to SWVI when they need to move from one place to another” (RRT, February 2024). Similar to that statement, one of the staff members also commented that:

> *The classroom is arranged to accommodate all students, regardless of their diversity. It is large and well-spaced to allow fresh oxygen to take place, and the blackboards constructed consider those learners with low vision and total blindness. (T3, male, January 2024)*

The statements from staff participants are pretty different from those from SwVI about the classroom arrangement, showing that there was no careful consideration given to how the classes were arranged; the students were not managing to move due to obstacles in some classes. Furthermore, some classes, such as v and vi, lack space. The participant from the SwVI confirmed this:

> *In our school, some of the classes, such as V and VI, were not well arranged and spaced, which is not significant compared to the number of students enrolled in those classes. (SwVI 2, female, February 2024)*

The researcher used the observation method and noticed that the class arrangement was not considered for some classes. The tables and chairs are not well arranged, so students with visual impairments can move freely. Some classes accommodate more than 45 students, which leads to a high number of tables and chairs; hence, an appropriate arrangement of the classes is required. Further, some chairs and tables are broken in the class and have not been removed but are still in the class; this has become a barrier.

4.3 The interaction of students with visual impairments with the school social environment.

This component of the findings is critical to inclusion. They can either make or break efforts towards inclusive education. The third objective was to explore how the SwVI interacts with the school environment and how they participate in different parts of the school compound, including secondary school. The data were elicited through interviews, focus group discussions, and observation methods. Revelations under this objective yielded four themes: interaction between students with VI and sighted peers, stigmatisation, Segregation and independent skills.

4.3.1 Interactions between learners with visual impairments and sighted Peers

This came to light when the researcher tried to determine if students with vision impairments typically engaged in extracurricular activities. Data from the interview showed that both sighted and VI students lacked social skills. *''We do not interact with other friends because some segregate us and we are unfamiliar with some of the environment (SWVI February 2024).''* For example, it was stated that some sighted students did not want to interact with students with VI. ''*Indeed, some of our students here do not want to share materials with visually impaired students due to their own beliefs. Also, they do not interact with them during outside activities (HOS, Female, March 2024).''*

As a result, they rarely engaged in extracurricular activities with other sighted pupils. One of the respondents among learners with VI had this to say:

> *I do not play because I do not enjoy it, but rather because of the sighted students. As often happens, some sighted students push us around and expel us because they believe we are foolish and different from them (SwVI 2, February 2024).*

Similar to the opinion of SWVI 3, who explains that:

> *We like to interact with our fellow sighted peers. However, the main problem is that they do not want to be with us and segregate us from extracurricular and classroom activities. They believe we cannot do*

anything because they lack knowledge about students with diverse backgrounds. The students and some teachers are unaware of us; they do not treat us like other sighted students (SwVI 3, Female, February 2024).

4.3. 2 Segregation

The views from the teachers about the interaction of students with VI and the sighted peers were no longer prescient for now. With the effort done by the school department of special education to educate the sighted peers to know that the SwVI is like them, the difference from them was that the VI student could not be sighted like them. However, they have the same right to do different activities, so isolating and segregating them is not good. One of the participants, a staff member, narrated that:

Before, the sighted students isolated and segregated the students with VI. Currently, we try to educate them that even VI students have the right to education and extracurricular activities like them, so it is not good to segregate and isolate them. A good personality is assisting, loving, caring for, and teaching them where necessary (HOD, male, January 2024).

The observation technique also revealed that most students with visual impairments walked alone, rarely mixing up with fellow sighted learners during break time. However, efforts are being made to change this. Even in the classroom, there was not much interaction between them. The interaction was mainly seen when sighted peers read for them, and sometimes teachers separated them into other classes.

4.3.3 Stigmatization

Most respondents reported that stigmatisation is a significant challenge for students with VI in their learning and participation in school. Findings further revealed that stigmatisation was higher among learners with VI than among any other groups in the school community. This stigmatisation, often accompanied by name-calling or labelling, can lead to feelings of isolation

and low self-esteem. For example, ‘you blind, running away from them, and sometimes bullying. One of the respondents among students with VI claimed that:

> *You can ask sighted students to clarify a specific task for you, but they can respond with “I do not know” while you hear them assisting their fellows who can see. Then I ask myself why. Is it because of my blindness or what? (SwVI 1, Female, February 2024).*

Another participant from SwVI narrated that:

> *One day, as I was leaving the hostel, I heard my sighted peers chatting. I called them and said, "Hey guys, is it time for class yet?" Believe me or not... I swear they all fled without exchanging a single word with me! Even worse, they threw a large stone in my path before fleeing! (SwVI 3, February 2024).*

Similarly, participants among teachers agreed. One of them restated that:

> *It is a problem that we as special education teachers are still struggling with; some sighted peers can even tell them that they will not read for them as their fathers did not take them here to read for the blind ones. Furthermore, teachers with no foundation in special education still segregate these students in the classroom and other activities; others even separate them during the teaching process. (T 1, Male, January 2024)*

Furthermore, the data obtained through observation indicated insufficient knowledge on how to treat students with diversity in school X. More effort was needed to improve the collaboration strategies among the staff members and the sighted students. In addition, the orientation and mobility should be improved since the researcher found that some teachers still separate the students with VI during the teaching and learning process. In contrast, others do not consider them in the classroom and extracurricular activities.

4.3.4 Independent Skills

On the other hand, the researcher was also interested in determining whether the students of school X were independent in everything or depending on someone else. When the participants were asked if teachers collaborate to teach students with VI, most staff members agreed that they always ensure that the students with VI are independent in academic and extracurricular activities. One of the interviewed teachers with VI remarked, "I am also a VI teacher; I taught myself to be independent the time I was in school; the knowledge I have is the same that I apply to my students, that being independent is better than depending on someone else." (T 3, Male, January 2024).

This is similar to the opinion of the head of the school and the special education teacher, who explained that:

> *We encourage all students with visual impairments to be independent, walk alone, and do their activities instead of looking for someone to be there after. (HOS, Female, March 2024).*

In addition, view;

> *We teach the strategies of orientation and mobility to all students and teachers, regardless of their diversity, and to students with VI, we orient them to be independent in different activities in the school and outside the school, especially manual activities like washing clothes, watering the garden, and preparing food. (T 1, Male, January 2024)*

Moreover, Comments from T 1 suggest that orientation and mobility make the students independent. He remarked, "We emphasise the learners with VI to be independent in doing the text assignment or any academic work and manual activities like washing clothes and watering the gardens instead of depending on someone else to do these activities for them."The narration from FGDs with students with VI, SwVI 2, and SwVI 3 reported that they are visually impaired, but because of the supportive services found in the school and the skills that were applied to them by the teachers, they have become independent. They commented that "the materials and

skills that we were taught in this school help me to be independent rather than asking for help from sighted people several times." (SwVI 2, February 2024) and was similar to SwVI 3, who narrated, "*The use of white cans during movement. I was not depending on someone, but I always liked to use white cans in familiar and unfamiliar environments. This is because of the orientation we have been given by the teacher and the different skills that were applied, like washing our clothes alone and doing our academic activities because there were supportive materials." (SwVI 3, February 2024).*

Through observation techniques, the researcher in this study found that it is true that the teachers in school X orient the different skills to students with visual impairments to make them independent. Students could move alone from one place to another by using a white cane and participating alone in academic activities. The challenge was that some materials were not found in the school, which led the students to depend on someone else. Additionally, students are independent in washing their clothes and bathing; they can even go to water gardens and prepare food like tea. This shows that teachers are aware of applying the skills to students with VI so that they can benefit them after graduating.

4.4 Summary of the Chapter

From the first objective the chapter presents on the physical environmental adaptations made by schools to support the inclusion of students with visual impairments, it was discovered that some of the physical environment still needs more modifications to accommodate all learners. Further findings from the second question about the classroom environment adaptations applied to support the learning process for students with visual impairments. Participants presented that the strategies and methodologies used during the teaching and learning process were not flexible for SwVI, and the materials for students with VI were insufficient. Lastly, the third question examined how students with visual impairments interact with the school environment. The interaction was analysed through the way the SwVI interacts with the sighted peers, segregation and the skills students have and have been taught. The next chapter discusses the findings of the study.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0 Overview

This chapter discusses the study's key findings presented in the previous chapter. The findings are presented according to themes derived from the study objectives, which sought to determine physical environmental adaptations made by schools to support the inclusion of students with visual impairments, explore classroom environment adaptations deliberated for inclusion of students with visual impairments, and establish the social interaction of students with visual impairments in the school environment. Furthermore, the discussion is conducted based on the findings of each theme related to the research objectives.

5.1 Physical environmental adaptations made by the school to support the inclusion of students with visual impairments.

The findings identify the physical environment adaptation that was made in an inclusive secondary school. Thus, the findings answered the study question on what physical environmental adaptations the school made to support students with visual impairment. The study revealed that accessible buildings, inclusive grounds, and orientation and mobility. Nevertheless, despite the presence of accessible buildings and application of orientation and mobility skill, that accommodate all students, regardless of their diversity still SWVI need help to accessing the movement from one place to another and being familiar with the currently environment. Thus, the challenges limited students' access the school environment especial when supposed to develop their own skills like independent skills on extracurricular. One of the challenges was the need for the school owner to modify the school environment for the aim of meeting the needs of all learners. Therefore, students with VI were affected in participation and into different activities done within the school due to limited access of moving from one area to another because of the unnecessary obstacles found in the school environment. UNESCO Statement and Framework for Action (1994), reinforces the obligation for schools to accommodate all children regardless of their disabilities, including them in their inclusive school improves their learning and social relations.

However, participants narrated that although the buildings were constructed to accommodate all learners in terms of decreasing the number of building staircases and trenches, it was also needed that orientation and mobility take place effectively. Moreover, the findings showed that corridors and pathways in the inclusive school were more important. Further, the study revealed that implementing structural changes to create a welcoming educational atmosphere that meets the requirements of students with diversity is necessary to effectively target kids with diversity in inclusive schools. Nevertheless, the study was supported by the social model of disability adopted, which advocates for equal rights, inclusion, and removing barriers to ensure that disabled individuals can participate fully in all aspects of society (Goering, 2015). Therefore, the study shows that the participants had positive views on the school environment towards SwVI, as adopted by the conceptual framework of this study.

Other participants stated that, despite being assured that the school buildings were enough for SWVI and reduced the number of staircases in buildings; more effort was still needed since few buildings still have staircases in the school compound. The study discovered that a small number of teachers in the school lack a solid foundation in special education. Similar findings were made by Page et al. (2021), who discovered that flooring with dark stripes running across the direction of travel can help those with low eyesight. This confirms the applicability of one of the factors for promoting inclusive education. The rehabilitation of physical environment conditions helps improve the physical capability of the students with VI. However, UNESCO (2015) also highlighted the significance of the educational rights of children, saying that all children can learn with care and protection in a child-friendly, inclusive setting.

Although the results of the current study appeared to be consistent with numerous other studies that have raised the bar for school environmental adaptations to include students with VI, the discovery of accessible buildings revealed that the few buildings, particularly the classrooms, were not sufficiently spaced, and the colours and lighting used in the hostel classes were not suitable for SwVI. This insight was consistent with research by Malik (2018), which found that lighting should be positioned to highlight signage. Corridors, lobbies, and classrooms are examples of circulation areas that are supposed to be free of hazards or impediments.

Furthermore, the results show that the structures' colour scheme was not given any thought. It was underlined that classrooms and bathrooms must be made to accommodate students with diversity. By guaranteeing that students with visual impairments can utilize restrooms on their own, these modifications uphold their autonomy and dignity. Furthermore, by establishing a secure learning environment that welcomes all students regardless of their differences, the social model of disability highlighted the application of inclusive education. In contrast to Itani (2022) study, this suggested that looping pathways must be avoided and various surface materials should be used for different pathways.

The study indicated that there are enough toilets and apartments to accommodate all students. A few obstacles were encountered, such as the toilets, which were built without considering SWVI. Participants from the SWVI stated that hostels and restrooms should be well-built and structured, as well as designed in such a way that all students benefit. Not only that, but the presence of a few buildings with staircases and unclear passageways used for movement by students with VI, the construction of stairs in the buildings, the creation of pathways in the ground from one building to another in the grounds, and the way toilets and water ditches were constructed were also barriers that SwVI faced in inclusive schools.

Furthermore, the study revealed that the school's grounds were not visible in various locations, such as sports fields, pathways, and gardens. The majority of staff members said that the school grounds were excellent and clear. In addition, the sports grounds were vast enough to accommodate all students, regardless of diversity, despite the fact that there were a few impediments. This was validated by the students, VI, and the researcher during the observation checklist, who discovered that the ground in the school had been improved, but significant effort was required. The school operated the garden program and organized it carefully in order to remove certain barriers for students with VI. The study shows that orientation and mobility were applied but not several times it can happen once in a semester. This study was supported by the social model of disability, which emphasised more on physical accessibility and accessible infrastructural that accommodates all students. When designing pathways and spaces within the school compound, using stones strategically can provide tactile markers for students with visual impairments, aiding in way finding and navigation.

However, the study found that school pathways and pavements were cleared, but not in all school areas. Other places needed more modification, so as we covered those few barriers, the majority of participants, who are teachers and students with VI, confirmed that, in a high percentage, the school considered the presence of pathways and pavement that should be used by all students regardless of their diversities. During observation, the researcher noted that although the school had constructed the paths and pavements in the more critical areas, more effort was still needed in those remaining areas. Similarly, the study by Maemba (2017) found that the school environment was not supportive of ensuring the implementation of inclusive education since they lacked proper structures like pavement to help ease movement for students with VI when using white canes.

Generally, the preceding discussion is based on findings on physical environmental adaptations made by the school to support the inclusion of SWVI, as findings revealed that the adaptations were made in the school compound to accommodate the students with VI according to the mission of disability policies. Despite the adaptation done in the school, the findings revealed a few challenges faced by the SWVI, like some buildings still having staircases. Therefore, further modifications should be made.

5.2 Classroom environment adaptations were applied to support the learning process for students with visual impairments.

The study established that enough supportive materials were found in the classroom. However, the most accessible materials for learning and teaching were provided across the broad spectrum of students with visual impairments. The few available service provisions include free access to braille books, significant printing papers, and assistive technologies. Information obtained from participants and an on-the-spot observational checklist check showed that the school had enough braille books from TIE for blind students, and braille grade two was used. However, it was not enough to prepare the knowledge given to students since the braille books depended on one company. Participants stated that we have braille books from TIE in braille format, but they are not enough to get knowledge in secondary education; more information is needed, and we lack knowledge from other sources. The study established that despite the one source of braille books available in the school, teachers were struggling to find other knowledge from other sources

before the class session so that they could impart enough knowledge to the learners. The current study findings were similar to those of the study by William (2023), which established that for the students to use the books and develop competencies in the subjects, there should be a need to have different braille books from different sources. Furthermore, Students with VI, for their part, maintained that they over-relied on the less modern technologies, such as Braille format audios, magnifying machines, audiobooks and publications, and talking calculators.

The current study shows that the use of assistive technology for SwVI during the teaching and learning process in the inclusive school. The findings revealed that students with VI require a variety of assistive technology devices to provide for their learning and mobility needs, in addition to enabling them to write and read proficiently and become self-reliant. The Disabilities Act of 2010 ensures that individuals with disabilities have equal opportunities in various aspects of life. Assistive technology plays a crucial role in fulfilling the objectives of this act by providing tools and devices that empower individuals with disabilities to participate fully in society. The participants stated that assistive devices or technology like CCTV cameras, optical readers, software, talking calculators, and tape recorders were found in the school. Contrary to the study of Kiomoka (2014), there were few resources like Braille textbooks, Perkins Braille machines, pens, computers, CCTVs, talking calculators, and books. Similarly, the researcher of the current study noted that the government emphasises the issue of inclusivity and tries its best to distribute the learning and teaching materials, especially to the oldest schools.

The study further established that most participants, including staff members, reported that teaching and learning strategies should be well addressed to accommodate all learners, regardless of their diversities. This was supported by the education policy of 2014, Simalalo & Gasa (2022), which emphasises that the school should develop strategies for the teaching and learning process depending on the degree of disability available and the type of disability. The study reveals that teachers at various levels of education needed to be equipped with strategies to prepare and deliver instructions that would accommodate students with diverse needs through compulsory training for all teachers in inclusive settings on teaching pedagogies that accommodate diverse needs. However, there are challenges facing all students academically, economically and socially; those are typically barriers that hinder the learning process of

students with visual impairment. For example, in classrooms, few teachers and peers used to exclude students with visual impairment.

Both teachers and students with VI admitted that the methodology used by some teachers did not include all students, especially those teachers with insufficient knowledge of special education. During the focus group discussion (FGD), the participants narrated that only some teachers use the teaching method that everyone could observe without getting the idea that there are students with visual impairments who cannot see objects. The findings revealed that few teachers were used language that excluded students with VI in the classrooms, especially in subjects that demanded drawings and computation, such as biology, geography, and mathematics. Participants narrated that few teachers were used the teaching methodology that are not flexible to all students in the classroom. The findings indicate that these challenges happen because a few teachers lack the foundation to teach learners with different diversity. In addition, the social model of disability embraces inclusive pedagogical approaches that value diversity and aim to create a supportive learning environment for all students.

Also, findings revealed that the classroom arrangements were not noticeably different; the classes needed to be arranged so that every student could be accommodated well as a member of a certain level of education, regardless of their disabilities. The findings showed that the classes were not spaced enough and that the way things like desks, tables, and blackboards were placed presented challenges to the students with VI. For instance, students with VI narrate that 'the students with VI were not taken into consideration during the learning and teaching process, were not given priority to sit in front, and some teachers did not care about that situation'. Similarly, the study by Chiner et al. (2012) revealed that different strategies enable learners with VI to learn smoothly in well-arranged classrooms and an adapted listening environment. Low-vision students will sit appropriately in class to see prints clearly on the chalkboard. Therefore, effective seating arrangement was important in the inclusive classroom to enhance teaching and learning process to be effectively.

Further, the study by Whitburn (2014) revealed a delicate balance for teachers in regular classrooms between providing too little or too much support to students with VI, which can alienate them either way. Few teachers were not considering the classroom arrangements,

through observation checklist the researchers obtained that the classes are arranged randomly, not arranged in a lines. Due to that students with visual impairment face challenges especial when they move from one side to another without using white cane.

Generally, adaptations to the classroom environment were applied to support the learning process for SWVI. Findings revealed that while there are enough materials for students with VI in the learning and teaching process, there is a pressing need for more. The main challenges are that some teachers lack the foundation to teach in an inclusive classroom and have inadequate knowledge of using accommodative pedagogy during the teaching process. This highlights the importance of resource allocation to ensure students with VI have the necessary materials for their learning process.

5.3 The interaction of students with visual impairments with the school environment.

A close relationship among learners is significant for profitable learning. This study's findings revealed poor social interaction between sighted learners and learners with VI. In extracurricular activities, for example, some of the sighted learners were not willing to play with their fellows with VI, and even if they did, they just ended up harming them. Such findings resembled those of Pray (2023), who documented that most people have negative attitudes about children with disabilities being better off in special schools. Other than the exclusionary nature of special schools, there is a disparity between the curriculum for special and regular schools, which leads to a disadvantage for persons with disabilities. The findings showed that some educators and peers may have limited knowledge about visual impairments, leading to misconceptions and stereotypes. The lack of understanding can result in negative attitudes and behaviours toward students with VI and learners with visual impairments who do not join their fellow sighted in their extracurricular activities. Furthermore, the study revealed that the special education department was educating the sighted peers about the interaction of students with VI and giving them the knowledge to understand that the SwVI was like them; the difference was that they could not see objects, but in terms of other activities, they were able to do them. In line with this social model of disability, not support, inclusive education policy aimed to treat students equally regardless of their multiplicities.

The study demonstrated that exclusion constitutes the denial of rights and responsibilities of an individual expressed in oppression, which shaped the personal and collective experiences and expectations of people with disabilities (PWD). This was in accordance with the current United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) protocols. The UNCRPD requires governments to respond effectively in order to identify and eliminate barriers to accessibility and guarantee that people with disabilities fully participate in all aspects of society.

The findings showed that students with VI experienced stigmatisation in the inclusive school from their fellow sighted peers as well as from some of the teachers. Based on the findings, stigmatisation was one of the challenges faced by students with VI. However, a study found that society utilizes negative phrases to refer to people with disabilities, which leads to discrimination, stigmatization, and insufficient treatment in many aspects of their lives. Furthermore, the study found that teachers and sighted classmates labelled and categorised students as blind, using phrases like 'you blind'. This could be due to a lack of knowledge and abilities in social interaction among professors and sighted students. Similarly, the study by Okolo (2016) documented that teachers and peers may lack understanding of the needs and abilities of students with visual impairments, leading to inadvertent stigmatisation. Education and awareness programs are crucial to addressing this issue. When stigmatisation is persistent, it causes psychological as well as social harm to the learners, and if that is the case, then their learning process is also greatly affected. Further, the researcher of this study noted that more effort was needed to improve the collaboration strategies among the staff members and the sighted students on how to socialise with SwVI. The study also discovered that stigmatisation might lead to social isolation for students with visual impairments, as peers may regard them as different or less capable. This issue can be mitigated by creating inclusive social environments and encouraging students to be empathetic.

Moreover, the findings from the current study discovered that orientation and mobility in the secondary school were applied to all members found in the school compound. The sighted peers and teachers were given an orientation on how to treat the students equally. This was confirmed by the participant from the staff member who accepted that they were training and orienting the new students and teachers on how to socialise with these students with VI. Espoused by

Yudhiastuti and Azizah (2019) and Simalalo (2017), orientation and mobility can help a visually impaired person know his or her position and move. The mobility orientation program is individualised, so it must be tailored to the needs of students. In the preparatory phase, the teacher first assesses the ability and needs of students' orientation and mobility. The study found that there is a need to train all students and staff in O&M skills to be able to offer a service whenever required to do so. Contrary to the study by Papadopoulos et al. (2020), given the extent of O&M training, the emphasis laid on specific skills, unfortunate experiences, and collisions with obstacles and previous injuries during movements, the design of O&M aids that meets all students' needs.

It was further reported by the participant from staff that they were assured that they applied the independent skills to students with VI. The participant confirmed that 'we orient all students with visual impairments to be independent and walk alone, as well as do their activities alone, instead of looking for someone to be there after'. The findings revealed that every student with a need was given a skill called self-development ability. In self-development activities, students with special needs are taught to communicate and socialise. Students with special needs are also provided with vocational or skill training. The social model of disabilities, as adopted in this study, emphasised that inclusive schools can empower students with visual impairments by fostering self-advocacy skills and promoting a sense of agency. Encouraging students to communicate their needs, preferences, and goals and involving them in the decision-making process regarding their education enhances their independence and self-determination. The study by Gothberg et al. (2015) revealed that educators must be creative in teaching non-academic skills during the instructional day. Opportunities may occur in service-learning situations, during elective hours, in job exploration courses, or during student participation in a part-time job or volunteer opportunities after school. Furthermore, the findings of this study revealed that when both academic and non-academic preparation are taught in secondary settings, students are more likely to transition into other levels of education and careers successfully.

The interaction of students with visual impairments with the school environment revealed that orientation and mobility were effectively used to assist SWVIs in interacting with the school environment. However, SWVIs were still faced with discrimination from few-sighted peers and

teachers. Due to their misguided beliefs, these individuals often isolate and discriminate against the learners, underestimating their abilities and potential.

5.4 Summary of the Chapter

This chapter discussed the study's findings on the environmental adaptation of inclusion students with visual impairments in secondary school. The discussion of the findings was centred on the critical findings established in this study, aligning with the research objectives. The researcher has discussed the findings of the literature review, theoretical framework, and conceptual framework. Some studies were similar to the previous ones, and some seemed to differ. The chapter also relates the findings to national and international strategies and policies. Moreover, this chapter has analysed the findings on ideal practices, underscoring the importance of these findings in achieving the research objectives.

CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6 .0 Overview

This chapter summarises the study's key findings, conclusions, and recommendations. The findings resulted from exploring school environmental adaptations for including students with VI in a selected inclusive secondary school in Tanzania. This chapter is organised into five subsections: implications of theoretical and conceptual frameworks drawn from the study, the summary of key findings, conclusions from key findings, practice recommendations, and recommendations for further studies.

6.1 Implications of theoretical and conceptual frameworks drawn from the study

The social model of disability by Mike Oliver (1983) was adopted in this study to respond to the research questions on the school environmental adaptations to the inclusion of students with VI in a selected inclusive secondary school in Tanzania. The model emphasises the need for society to eliminate barriers (physical, architectural, and attitudinal) that disable individuals with impairments, preventing their full participation. It advocates for equal rights, inclusion, and removing barriers to ensure that disabled individuals with disabilities can participate fully in all aspects of society. Thus, students with VI learn better without barriers in inclusive schools.

Furthermore, in the inclusive setting, the school environment for SWVI was well adopted to help the students learn better like other sighted students. At this point, the conceptual framework comes in, whereby the school environment is required to be more inclusive of SWVI to allow the inclusion to take place. The conceptual framework demands students with visual impairments, an inclusive school environment, and the inclusion of students with VI. SWVI was included since modifications to the school environment were also done to include these students with VI. For example, areas like the methodologies used while teaching the inclusive class, physical areas (buildings and outside grounds), teaching materials, and the expanded core curriculum. From the findings of this study, it was noted that students' peers and members within the school also play a significant role in the inclusive school environment for SWVI, especially in extracurricular activities.

6.2 The summary of key findings

The school's environmental adaptation was effectively done since there are accessible buildings that accommodate all students, regardless of their diversity. The university management constructed a flexible physical environment for all learners in the school to help them access the learning process like their peers. Although participants reported that reasonable support buildings were available for SwVI, few still had the staircases. In that case, orientation and mobility were needed to be applied effectively. Additionally, despite having the O&M, the SwVI narrated that although orientation and mobility applied to them, they faced challenges because they were not oriented to the school environment, like pathways and places with a new trench. Moreover, the SWVI were uncomfortable with the sports ground due to some barriers faced in the aerobic session.

Implementing effective teaching and learning strategies for SwVI is premised on collaboration among the teachers and members within the school. Participants in this study confirmed that they collaborated with the special education teachers to ensure that all learners improved in their learning and scored well. Although it was reported that the collaboration and teaching methodology used by teachers were beneficial to SWVI, researchers in the observation noted that those teachers without a foundation in disability do not treat students in the same way. More training and workshops were needed so that student can be treated in the same way.

Further, the findings revealed that the braille materials used were embossed as braille grade two and large printed for those students with low vision with sizes 14, 16, or 18. Nevertheless, the findings of this study identified that there was assistive technology, but few of it was working. Moreover, for the achievement of inclusion, greater attention was paid to the classroom arrangements to accommodate students with visual impairments during the learning and teaching process. The findings in this study revealed that no careful consideration was given to arranging the classes; the students were placed randomly without consideration for sitting in front of the classes.

Furthermore, the findings show that SWVI did not interact with the sighted in extracurricular activities since they were isolated and segregated by their fellow students, although orientation and mobility were applied. The researcher through observation checklist revealed that most

students with visual impairments walked alone, rarely mixing up with their fellow sighted learners during break time. Moreover, even in the classroom, they did not interact much. Besides the challenges the SWVI encountered, teachers emphasised that students with VI should be independent. The participant confirmed this, and the staff members agreed that they always ensure that the students with VI are independent in academic and extracurricular activities. Further, the findings in this study revealed that the SWVI were isolated and segregated by some teachers and students without VI. Not only that, but the stigmatisation was higher when the peers were stared at by labelling the students with VI, like calling them 'you blind', and sometimes they were running away from them. This challenged SWVI to participate in different academic and manual activities.

6.3 Conclusions from the Key Findings

Including SwVI with their peers in extracurricular activities is an excellent move to eliminate negative attitudes towards SwVI and enhance peer learning among students, including SwVI. This advocates that as more SwVI are encouraged to interact in different activities with their peers, social integration strengthens, creating a society with welcoming attitudes and eliminating the negative attitude toward SWVI. Further, accessible school environmental adaptations revealed in this study entail that there are enough buildings, and modifications were made to accommodate all learners regardless of their diversity. Furthermore, orientation and mobility were applied effectively, though more effort was needed, especially if any changes were made within the school compound.

It should be acknowledged that SwVI are not similar. Each student with VI is unique and different from the others; thus, the learning and teaching materials should be different sizes depending on the degree of disability they have. Based on the findings, the participant found that braille used in printed books was braille grade two (contracted braille), commonly used by SwVI. Large print text was used for those with low vision and those with a size range of 14 to 18. Further, participants in this study reported that assistive technology was available, but the main challenge was that few of them were working. Therefore, more effort was needed to develop advanced technology for SWVI.

The study revealed that some of the teachers' teaching methods benefited SwVI. Few teachers know how to teach an inclusive class. They did not consider the presence of students with VI because they had little knowledge about disabilities and had never met them. Additionally, the lesson plan was flexible for teachers with special education foundations. However, too few are still not trained to teach in an inclusive classroom.

Further, the findings in this study show that no careful consideration was given to arranging the classes; the students were placed randomly without consideration for sitting in front of the class. Some classes do not have enough space; for example, classes V and VI were not significant compared to the number of students enrolled in those classes. The SWVI was not given priority in sitting in front, and some teachers did not care about that situation.

6.4 Recommendations

The school and other stakeholders must pay much attention to school environmental adaptations to accommodate SWVI and foster their learning in an inclusive setting. Therefore, the study has the following recommendations:

1. The government, through the Ministry of Education and Vocational Training (MoEVT), and different stakeholders need to work together and show commitment to providing inclusive education by providing enough relevant materials for students with Visual impairment**.**
2. The government should increase the recruitment of more specialised teachers in inclusive education and ensure that the curriculum developed is flexible to meet the needs of each learner at all levels of education.
3. These learning materials should be acquired to allow SwVI unlimited access to many advanced assistive technologies, like computers with pertinent programs for SwVI and note-takers.
4. Special training programs should be constantly organised for teachers and SWVI to orient them on how to operate different assistive technologies in the teaching and learning process for SWVI**.**

5. Teachers should educate typical peers about visual impairments and promote empathy and understanding.

6.5 Recommendations for further research

1. Since this study employed a qualitative approach, it would be interesting to see if a parallel study using quantitative or mixed approaches involving more extensive samples could be conducted.
2. Similar studies can be carried out in other inclusive secondary schools in other regions so that the findings can be compared and generalisations can be made.
3. This study explores school environmental adaptations to include students with VI in secondary schools, including students who are blind and those with low vision; thus, further studies could be done on other categories of disability, like hearing impairment.
4. This study was done at one inclusive secondary school; further investigation could be done at other levels of education.

REFERENCES

Ackah-Jnr, F. R., & Danso, J. B. (2019). Examining the physical environment of Ghanaian inclusive schools: How accessible, suitable and appropriate is such an environment for inclusive education? *International Journal of Inclusive Education*, s*23*(2), 188-208.

Adebisi, R. O., Liman, N. A., & Longpoe, P. K. (2015). Using Assistive Technology in Teaching Children with Learning Disabilities in the 21st Century. *Journal of Education and Practice*, *6*(24), 14-20.

Addison, L., & Williams, D. (2023). Predicting student retention in higher education institutions (HEIs). *Higher Education, Skills and Work-Based Learning, 13(5), 865-885.*

Ametepee, L. K. & Anastasiou, D. (2015). Special and inclusive education in Ghana: Status, progress, challenges, and implications. International Journal of Educational Development, 41(2015), pp. 143–152. https://doi.org/10.1016/J.IJEDUDEV. 2015.02.007

Amurani, B. (2019). Impact of assistive technology on education performance of learners with visual impairment at the University of Rwanda College of Education. *Unpublished master thesis at the University of Rwanda*.

Ary, D., Jacobs, L. C., & Sorensen, C. (2010). *Introduction to Research in Education, 8th Edition.* USA: Wadsworth, Cengage Learning. doi:https://doi.org/10.1080/0969594X2018.1441807

Axelsen, M., Redmond, P., Heinrich, E., & Henderson, M. (2020). The evolving field of learning analytics research in higher education: From data analysis to theory generation, an agenda for future research. *Australasian Journal of Educational Technology*, *36*(2), 1-7.

Bhalusesa, E. (2016). *Inclusion of Students with Visual Impairment in a Regular University Setting: Experiences, Challenges, and Coping Mechanisms.* Dar es Salaam. http://*journals.udsm.ac.tz/index.php/ped/article/download*/2525/2588

Bryman, A. (2012). *Social Research Methods, 4th Edition.* New York: Oxford University Press Inc. Cohen, L., Manion, L., & Keith Morrison, p. 8. E. (2018). *Research Method in Education.* New York, NY 10017: Routledge.

Canlı, S., & Ozyurda, F. (2020). A multi-modal exercise intervention that improves cognitive function and physical performance, elderly with mobility-related disability: a randomised controlled trial. *The Journal of sports medicine and physical fitness 60(7), 60*(7). https://doi.org/10.23736/S002

Cascio, M. A., & Racine, E. (2018). Person-oriented research ethics: integrating relational and everyday ethics in research. *Accountability in research*, *25*(3), 170-197.

Cascio, M. A., & Racine, E. (2018). Person-oriented research ethics: integrating relational and everyday ethics in research. *Accountability in research*, *25*(3), 170-197.

Chan, T., Friedman, D. S., Bradley, C., & Massof, R. (2018). Estimates of incidence and prevalence of visual impairment, low vision, and blindness in the United States. *JAMA ophthalmology*, *136*(1), 12-19.

Cherylee, M. B., Tanya, L. P., & Anne, P. (2013). Adequacy of the Regular Early Education Classroom Environment for Students with Visual Impairment. *Journal of Special Education, 46*(4), 223–232. https://doi.org/10.11177/002.

Chiner, E. and Cardona, M.C. 2013. Inclusive education in Spain: How do skills, resources, and supports affect regular education teachers' perceptions of inclusion? International *Journal of Inclusive Education, 17(5): 526-541.*

Connolly, M. L. (2016). Understanding Research: Trustworthiness in Qualitative Research. *MEDSURG NURSING, 25*(6), 435–436.

Courey, S. J., Tappe, P., Siker, J., & LePage, P. (2013). Improved lesson planning with Universal Design for Learning (UDL). Teacher Education and Special Education: *The Journal of the Teacher Education Division of the Council for Exceptional Children*, 36(1), 7-27

Creswell, J. W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research, 4th Edition.* USA: Pearson Education, Inc.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches, 4th Edition.* USA: SAGE Publications, Inc.

Davies, D., Jindal, D., Collier, C., Digby, R., Penny, H., & Howea, A. (2013). Creative learning environments in education—A systematic literature review. *Thinking Skills and Creativity journal homepage: http://www.elsevier.com/locate/tsc*, pp. 80–91.

Dawson, C. (2009). *Introduction to Research Methods: A Practical Guide for Anyone Undertaking a Research Project, 4th Edition.* UK: How to Content.

Domingo, M. C. (2012). An overview of the Internet of Things for people with disabilities. *journal of Network and Computer Applications*, *35*(2), 584-596.

Ediyanto, E., Atika, I. N., Kawai, N., & Prabowo, E. (2017). Inclusive education in Indonesia from the perspective of Widyaiswara in the Centre for Development and Empowerment of teachers and education personnel of kindergartens and special education. *Indonesian Journal of Disability Studies*, *4*(2), 104-116.

Gay, L. R., Mills, G. E., & Airasian, P. (2012). *Educational Research: Competencies for Analysis and Applications, 10th Edition.* USA: Pearson Education, Inc.

Gill, P., & Baillie, J. (2018). Interviews and focus groups in qualitative research: an update for the digital age. *British Dental Journal*, *225*(7), 668-672.

Gill, S. L. (2020). Qualitative sampling methods. *Journal of Human Lactation*, *36*(4), 579

Goering, S. (2015). Rethinking disability: the social model of disability and chronic disease. *Springer Science Business Media New York.*, Pp. 134–138. https://doi.org/ 10.1007/1217

Gothberg, J. E., Peterson, L. Y., Peak, M., & Sedaghat, J. M. (2015). Successful transition of students with disabilities to 21st-century college and careers: Using triangulation and gap analysis to address nonacademic skills. *Teaching Exceptional Children, 47*(6), 344–351.

Griffin-Shirley, N., & Clifford, L. (2015). Understanding the Misconceptions and Stereotypes about Blindness Held by Preservice Teachers. *Journal of Visual Impairment & Blindness*, 109(6), 489–497.

Gülbahar, S. (2017). *An investigation on life centre units' design criteria in inclusive education environments: A case study on SERÇEV Accessible Vocational High School* (Master's thesis, Sosyal Bilimler Enstitüsü).

Hershenson, D. B. (2012). Promoting Self-Determination in Students with Developmental Disabilities. Guilford Press.

Heward, W. L. (2013). *Exceptional Children: An Introduction to Special Education (10th ed.*). USA: Pearson Education Inc.

Hewett, R., Douglas, G., McLinden, M., & Keil, S. (2017). Developing an inclusive learning environment for students with visual impairment in higher education: progressive mutual accommodation and learner experiences in the United Kingdom. *European Journal of Special Needs Education*. https://doi.org/10.1080/0885

Hewett, R., Keil, S., & Douglas, *G. (2015). Experiences of blind and partially sighted young people as they transition into Higher Education. University of Birmingham*. *https://www.researchgate.net*/publication/343691426

Horton, J.K. (2011). Education of pupils with visual impairments in ordinary schools UNESCO. *Hellen Keller International.*

Hooijer, E. L., Van Der Merwe, M., & Fourie, J. (2021). Symbolic representations as teachers reflect on inclusive education in South Africa. African Journal of Teacher Education, 10(1), 127-152.

Itani, H. M. (2022). The Relationship Between School Architecture and Self-Efficacy Of Students With Special Needs In Some Schools In Lebanon-The Reciprocal Architectural Design Method. *Architecture and Planning Journal (APJ)*, *28*(2), 4.

Johnson, E., & Muzata, K. K. (2019). Inclusive Education: Implementing Universal Design for Learning. In *Selected Readings in Education* (Vol. 2, pp. 1-22). Lusaka: Marvel Publishers.

Kamaghe, J. S., Luhanga, E. T., & Michael, K. (2020). The challenges of adopting M-learning assistive technologies for visually impaired learners in higher learning institutions in Tanzania.

Kapur, A. (2017). Challenges Experienced by Visually Impaired Students in Education. *International Journal of Professional Studies, p. 4*.

Karuhawe, C. D., & Possi, M. A. (2021). Teaching Strategies Deployed by Teachers in Improving Academic Performance of Students with Visual Impairment in Inclusive Secondary Schools in Tanzania. *Papers in Education and Development*, *39*(1).

Kayagula, B. (2019). Implement an inclusive education programme in public primary schools in Uvinza district council in Tanzania (Doctoral dissertation, Mzumbe University). MOEST (Ministry of Education, Science and Technology) (2017). Education Basic Statistics. Government Press

Khetani, M., Graham J.E. and Alvord, C. 2013. Community participation patterns among visually impaired learners who have received part early intervention services. *Child Care Health Development, 8(39): 490-499.*

Kiomoka, D. J. (2014). *Children with Visual Impairments in Tanzania: An investigation of the Challenges Children with Visual Impairments face in Learning and Participation in Inclusive Primary schools: M.* A thesis, Hedmark University College.

Kirschner, S. (2015). Inclusive Education. *SAGE; Encyclopedia of Classroom Management*.

Kisanga, E., S., Kisanga, H., & D. (2020). The role of assistive technology devices in fostering the participation and learning of students with visual impairment in higher education institutions in Tanzania. *Disability and Rehabilitate.*

Kisanga, S. E. (2017). Educational Barriers of Students with Sensory Impairment and Their Coping Strategies in Tanzania Higher Education Institutions *(PhD Thesis).* Nottingham, UK: Nottingham Trent University.

Kisanga, S. E. (2019). ‘‘It is not Our Fault. We are the Victims of the Education System’’:Assessment of the Accessibility of Examinations and Information for Students with Visual Impairment in Tanzania. *The Journal of the International Association of Special Education, 19*(01), 15-26.

Kisanga, S. E., & Richards, B. (2018). Teaching Pedagogies in Tanzanian Inclusive Educational Settings: Do They Respond to Diverse Needs? Voices from Students with Visual Impairment. *British Journal of Visual Impairment, 36*(3), 216-226.

Krischler, M., W., J. J., & Ineke, M. (2019). What is meant by inclusion? On the effects of different definitions on attitudes toward inclusive education. *European Journal of Special Needs Education*. https://doi.org/DOI.10.1080/0885627

Levitt, M., & J. (2017). They are exploring how the social model of disability can be re-invigorated in response to Mike Oliver. *Disability and society*. https://doi.org/10.1080/0968

Linake, M., Maphosa, C., & Mthethwa-Kunene, K. E. (2022). The Synergy Between Paradigms and Research Approaches. In E. O. Adu, & C. I. Okeke, *Fundamentals of Research in Humanities, Social Sciences and Science Education* (pp. 89–98). South Africa: Van Schaik Publishers.

Maemba, L. S. (2017). *An Evaluation Of Primary Schools' Preparedness To Integrate Learners With Visual Impairments Into Inclusive Education In Bomet County, Kenya* (Doctoral dissertation).

Malata, L., N., Muzata,K., & K. (2022). Lesson preparation for inclusive teaching of learners with disabilities from grades 1 to 7 at Kankumba Primary. *International Journal of Educational Innovation and Research, 1*(2). https://doi.org/10.31949/2224

Malik, A. M., Rashid, M., Awan, M. Y., & Alvi, I. B. (2018). The Role of Architecture in Identifying Obstacles and Spatial Solutions to Inclusive Education. *UMT Education Review*, *1*(2), 39-58.

Mantlow, K. D. (2023). *Nurses with Physical Disabilities Experiences During Pre-licensure Education* (Doctoral dissertation, UMass Chan Medical School).

Matonya, M. (2016). *Accessibility and Participation in Tanzanian Higher Education from the Perspectives of Women with Disabilities (PhD Dissertation). The University of Jyväskylä.* https://jyx.jyu.fi/bitstream/handle/123456789/51931/978-951-39-6844-1_vaitos03122016.pdf?sequence=2

Mazijn, B., Ciroth, A., Ugaya, C., & Valdivia, S. (2013). Education in ' life cycle sustainability assessment': caring for all 3 P's in one. In *Engineering Education for Sustainable Development*. University of Cambridge.

Metatla, O. (2017). Uncovering Challenges and Opportunities of Including Children with Visual Impairments in Mainstream Schools. *Inclusion, Education, Visual Impairments, Qualitative Methods, and Assistive Technology*. https://doi.org/doi.org/10.14236/ewic/HCI2017.102

Mitiku, W., Alemu, Y., & Mengsitu, S. (2014). Challenges and Opportunities to Implement Inclusive Education. *Special Needs Education, University of Gondar, Ethiopia, 1*(2).

Miyauchi, H. (2020). A Systematic Review on Inclusive Education of Students with Visual Impairment. *Division of Disability Sciences, University of Tsukuba, 10*(346). https://doi.org/ 10.3390

MOEST (Ministry of Education) (2020). Education Basic Statistics. Government Press

MOEST (Ministry of Education, Science and Technology) (2021). Education Basic Statistics. Government Press.

MoEST. (2017). *National Strategy for Inclusive Education (2018-2022).* The Author. http://www.rodra.co.za/images/countries/tanzania/policies/National%20Strategy%20for%20Inclusive%20Education_version%20for%20signing.pd

Morelle, M., & Tabane. (2019). Challenges experienced by learners with visual impairments in South African township mainstream primary schools. *South Africa Journal of Education, 39*(3). https://doi.org/10.1570/saje.v39

Mpu, Y., & Adu, E. O. (2020). Collaborative Virtual Learning in Education in STEM Education. *Management*, *8*(4), 315–324.

Msoka, P., Possi, M. A., & Rushahu, B. G. (2022). Assessment of Teaching Approaches Employed by Teachers in Teaching Students with Visual Impairment in Tanzania Inclusive Secondary Schools. *Huria: Journal of the Open University of Tanzania*, *29*(2).

Muzata, K. K., Simalalo, M., Kasonde_Ng'andu, S., Mahlo, D., Banja, M. K., & Mtonga, T. (2019). Perceptions of Students with Visual Impairments towards their Inclusion in the Faculty of Education at the University of Zambia: A Phenomenological study. *Multidisciplinary Journal of Language and Social Sciences Education, 2*(2).

Mwakyeja, B. M. (2013). *Teaching Students with Visual Impairments in Inclusive Classrooms: A Case Study of One Secondary School in Tanzania (MA Thesis).* The University of Oslo. https://www.duo.uio.no/bitstream/handle/10852/36642/MasterxsxThesis.pdf?sequence=1

Mwakyeja, B. M. (2013). *Teaching students with visual impairments in inclusive classrooms: A case study of one secondary school in Tanzania* (Master's thesis).

Naipal, S., & Rampersad, N. (2018). A review of visual impairment. *Journal of African Visual and Health Eye. OASIS*. https://doi.org/10:4102

Nasiforo, M. B. (2015). *Academic Impediments Students with Visual Impairments Encounter in the Colleges of the University of Rwanda (PhD Thesis).* Nairobi, Kenya: Kenyatta University.

Nuru, A. (2019). *Testing practices in inclusive primary schools: Experience of pupils with disabilities in Tanzania (Master's dissertation).* The University of Dodoma, Dodoma. http://hdl.handle.net/20.500.12661/1926 Downloaded from UDOM Institutional Repository at The University of Dodoma, an open-access institutional repository.

Okeke, C. C., Omodan, B. I., & Dube, B. (2022). Ethical Issues in Humanities, Social Sciences and Science Education. In E. O. Adu, & C. I. Okeke, *Fundamentals of Research in Humanities, Social Sciences and Science Education* (pp. 169-180). South Africa: Van Schaik Publishers.

Okello, L. M. (2024). Influence of school environment on inclusion of learners with visual impairment in regular public primary schools in Nyatike sub-county, Migori County, Kenya.

Papadopoulos, K., Charitakis, K., Koustriava, E., Kouroupetroglou, G., Stylianidis, E., Müller, K., & Sakalli Gumus, S. (2020). Environmental information for inclusion in orientation and mobility maps, identified by travellers with blindness: The cases of city centres and neighbourhoods/residential areas. *British Journal of Visual Impairment*, *38*(3), 333-346.

Parey, B. (2021). Exploring positive and negative teachers' attitudes towards inclusion of children with disabilities in schools in Trinidad: implications for teacher education. International Journal of Inclusive Education, 27(14), 1544-1558.156. doi:10.1177/0264619614523279

Parveen, H., & Showkat, N. (2017). Research ethics. E-PG Pathshala.

Possi, M. K., & Milinga, J. R. (2017). Special and Inclusive Education in Tanzania: Reminiscing the Past, Building the Future. Educational Process. 55-73. https://doi.org/http://dx.doi.org/10.22521/edupij.2017.64.4

Reed, M., & Curtis, K. (2012). Experiences of students with visual impairments in Canadian higher education. *Journal of Visual Impairment & Blindness*, *106*(7), 414-425.

Republic of Rwanda (2018). Special Needs and Inclusive Education Policy (2019–2024). Kigali, RW: Ministry of Education.

Rieser, R. (2012). *Implementing inclusive education: A Commonwealth guide to implementing Article 24 of the UN Convention on the Rights of Persons with Disabilities*. Commonwealth Secretariat.

Robertson, J., & Hatton, D. (2014). *Social Inclusion and the Experiences of Visually Impaired Students in Mainstream Schools*.

Rostovtseva, M., & Läänemet, U. (2015). Developing Supportive Learning Environments. *Psychology Research, January 2015, Vol. 5, No. 1, 32-41, 5*(1), 32-41. https://doi.org/10.17265/2159-5542/2015.01.004

Simalalo, M. (2017). Assessing the expanded core curriculum for learners with visual impairments in special schools. *Unpublished doctoral dissertation]*. *UNISA, Pretoria, South Africa*.

Simalalo, M., & Hambulo, F. (2020). The Learning Conditions Experienced by Students with Visual Impairments at the University of Zambia.

Simalalo, M., Gasa, V. G., & Muzata, K. K. (2022). Teacher Preparation in Zambia's Expanded Core Curriculum: Challenges and Opportunities. *African Journal of Teacher Education*, *11*(1), 166-189.

Simui, F., Kasonde-Ngandu, S., Cheyeka, A. M., & Makoe, M. (2019). Lived Disablers to Academic Success of the Visually Impaired at the University of Zambia, Sub-Saharan Africa. *Journal of Student Affairs in Africa*, *7*(2), 25-40. https://doi.org/https://doi.org/10.24085/jsaa.v7i2.3824

Simui, F., Muzata, K. K., Sakakombe, L., & Mtonga, T. (2021). Disablers to Academic Success of Learners with Special Education in Selected Higher Education Institutions in Zambia. *Zambian Journal of Educational Management, Administration and Leadership (ZIEMAL)*, *1*(1).

Smith, J. (2011). Qualitative Data Analysis: The Framework Approach. Nurse Res. Doi: 10.7748/nr2011.01.18.2.52.c8284.

Taherdoost, H. (2022). What are different research approaches? Comprehensive Review of Qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science & Engineering Research*, *5*(1), 53-63.

Temesgen, Z. (2018). School Challenges of Students with Visual Disabilities. *International Journal of Special Education*, *33*(3), 510–523.

Teoh, L. J., Solebo, A. L., Rahi, J. S., Abbott, J., Abdullah, W., Adams, G., ... & Lomas, T. (2021). Visual impairment, severe visual impairment, and blindness in children in Britain (BCVIS2): a national observational study. *The Lancet Child & Adolescent Health*, *5*(3), 190-200.

Triatmodjo, S. (2020). Designing a design thinking model in interior design teaching and learning. *Journal of Urban Society's Arts*, *7*(2), 53-64.

Tungaraza, D. F. (2012). Six Years of Special Needs Education in Tanzania: Celebrating Audacity, Commitment and Resilience. *A Journal of Contemporary Research, 9*(1), 86-109.

Tungaraza, F. D. (2014). The arduous march toward inclusive education in Tanzania: Head teachers' and teachers' perspectives. *Africa Today, 61*(2), 109-123.

Tungaraza, F. D. (2018). Sixty years of special needs education in Tanzania: Celebrating audacity, commitment and resilience. Papers in Education and Development, (31).

Ugwuanyi, C. S. (2022). Research Designs: Meaning, Rationales and Types. In E. O. Adu, & C. I. Okeke, *Fundamentals of Research in Humanities, Social Sciences and Science Education* (pp. 99-106). South Africa: Van Schaik Publishers.

UN, (2014). *The Convention on the Rights of the Person with Disability: Training Guide, Professional Training Series No. 19.* New York and Geneva: United Nations. https://www.ohchr.org/Documents/Publications/CRPD_TrainingGuide_PTS19_EN%20Accessible.pdf

UNESCO. (1994). The Salamanca Statement and Framework for Action on Special Needs Education. *World Conference on Special Needs Education: Access and Quality.* Salamanca, Spain: UNESCO.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2017). Embracing Diversity: Toolkit for Creating Inclusive Learning-Friendly Environments. UNESCO.

Uromi, M. S., & Mazagwa, I. M. (2014). Challenges Facing People with Disabilities and Possible Solutions in Tanzania. *Journal of Educational Policy and Entrepreneurial Research (JEPER), 1*(2), 158-165.

URT. (2004). *National Policy on Disabilities:* Tanzania: Ministry of Labour, Youth Development and Sports.

URT. (2010). *The Person with Disability Act.* Tanzania. https://www.tanzania.go.tz/egov_uploads/documents/The_Persons_with_Disabilities_Act,_2010_(Act_No_sw.pdf

URT. (2014). *The Education and Training Policy.* Tanzania: The United Republic of Tanzania.

URT. (2016). *Pre-Primary, Primary and Secondary Education Statistics in Brief.* Dodoma: President's Office Regional Administration and Local Government.

URT. (2020). *Pre-Primary, Primary, Secondary, Adult and Non-Formal Education Statistics.* Dodoma: President's Office Regional Administration and Local Government.

Wahab, M. H. A., Talib, A. A., Kadir, H. A., Johari, A., Noraziah, A., Sidek, R. M., & Mutalib, A. A. (2011). Smart cane: Assistive cane for visually impaired people. *arXiv preprint arXiv:1110.5156*.

Whitburn, B. (2014). *'A perfect teaching strategy': Secondary students with vision impairment voice their experiences of inclusive teacher pedagogy. British Journal of Visual Impairment, 32(2), 148–*

WHO. (2019). World Report on Vision. *World Health Organization*.

Wynne, J. J., Howarth, F. G., Sommer, S., & Dickson, B. G. (2019). Fifty years of cave arthropod sampling: techniques and best practices.

Yin, R. K., (2014). Case Study Research: Design and Methods. USA: SAGE Publications

Yudhiastuti, A., & Azizah, N. (2019, April). Implementation of Contextual Approach in Learning Orientation and Mobility in Visual Impairment Students in SLB PGRI Sentolo. In *International Conference on Special and Inclusive Education (ICSIE 2018)* (pp. 55-60). Atlantis Press.

APPENDICES

APPENDIX 1: FOCUS GROUP DISCUSSION FOR STUDENTS WITH VISUAL IMPAIRMENT

Name of the School: …….

Date: ……

Nature of the group of SwVI involved: ……. [Form,1,2,3,4,5,6 Year]

Time: Starting Time …… Ending Time ……

Objective 1: To determine physical environmental adaptations attained by the school to support the inclusion of SwVI.

1. How does the current physical environment impact your daily experience in school?
2. What specific physical environmental adaptations might be necessary, in your opinion, to better support students with visual impairments in an inclusive secondary school?
3. What specific adaptations do you believe would make your school more accessible and inclusive?

Objective 2: To explore classroom environment adaptations deliberated for including SwVI.

4. What challenges do students with visual impairments face in the classroom?
5. What adaptations or accommodations are currently in the classroom setting, and how effective are they?
6. What additional adaptations could be implemented to improve the classroom environment for these students?
7. Have any necessary assistive technology or materials ready, such as Braille documents, large print, or screen-reading software, to ensure the inclusion of participants with visual impairments. If yes, list them……

Objective 3: To establish the social interaction of students with visual impairments in the school environment.

8. What positive experiences have you had in your inclusive secondary school related to your visual impairment?
9. What support services have been most helpful to you in your inclusive school?
10. What challenges or obstacles have you faced in your school environment due to your visual impairment?

Thank you for your time

APPENDIX 2: SEM- STRUCTURE INTERVIEW WITH SPECIAL EDUCATION TEACHERS FOR STUDENTS WITH VISUAL IMPAIRMENT.

Name of the school ……

Date: ……

Time: Starting time ……. Ending time…….

Objective 1: To determine physical environmental adaptations attained by the school to support the inclusion of SwVI.

1. Can you describe your school's current physical environment for students with visual impairments?
2. Have any specific adaptations or modifications been made to address these challenges? If so, please describe them.
3. How do you collaborate with other educators, staff, and specialists to ensure the inclusivity of the physical environment?

Objective 2: To explore classroom environment adaptations deliberated for including SwVI.

4. How do you usually plan your lessons to accommodate students with visual impairments, and what specific adaptations have you made to the classroom environment?
5. Can you share some strategies or practices you have found effective in creating an inclusive classroom for students with visual impairments?
6. What modifications or adaptations have you made to teaching materials or technology to ensure they are accessible to visually impaired students?

Objective 3: To establish the social interaction of students with visual impairments in the school environment.

7. Can you describe students' experiences with visual impairments in the school environment? What challenges have they faced?
8. What inclusive practices and accommodations have been implemented to support students with visual impairments?

9. What strategies have effectively improved communication between teachers, support staff, and students with visual impairments?
10. Based on your experiences, what areas need improvement to create a more inclusive and supportive environment for students with visual impairments?

Thank you for your time

APPENDIX 3: SEM-STRUCTURE INTERVIEW WITH RESOURCE ROOM TEACHERS IN THE INCLUSIVE SCHOOL.

Name of the school ……

Date: ……

Time: Starting time ……. Ending time……

Objective 1: To determine physical environmental adaptations attained by the school to support the inclusion of SwVI.

1. What physical adaptations have been made within the school to support students with visual impairments?
2. How does the school environment promote inclusivity for students with visual impairments?
3. Are any specific programs or strategies in place to encourage interaction and collaboration between students with and without visual impairments?
4. Have teachers and staff received training on working with students with visual impairments? If so, what kind of training?

Objective 2: To explore classroom environment adaptations deliberated for including SwVI.

5. What kinds of students with visual impairments have you encountered in your resource room?
6. What adaptations or accommodations have you found to be effective in promoting the inclusion of students with visual impairments in the exploration classroom environment?
7. How do you collaborate with classroom teachers to successfully include students with visual impairments?

Objective 3: To establish the social interaction of students with visual impairments in the school environment.

8. Could you describe the students with visual impairments you have worked with in the inclusive secondary school environment? How many students do you typically support?

9. Based on your experiences, what recommendations do you have for improving the support and experiences of students with visual impairments in inclusive secondary schools?
10. Have you sought student feedback regarding their experiences in the inclusive school environment?

Thank you for your time

APPENDIX 4: SEM-STRUCTURE INTERVIEW WITH THE HEAD TEACHER OF THE INCLUSIVE SCHOOL.

Name of the school ……

Date: ……

Time: Starting time ……. Ending time……

Objective 1: To determine physical environmental adaptations attained by the school to support the inclusion of SwVI.

1. How do you envision creating an inclusive school environment that caters to the diverse needs of students, including those with visual impairments?
2. Could you describe some physical adaptations and modifications that you believe are essential for making a secondary school more accessible and inclusive for students with visual impairments?
3. How would you promote and foster stakeholder collaboration to support students with visual impairments?

Objective 2: To explore classroom environment adaptations deliberated for including SwVI.

4. How would you ensure that the progress and needs of students with visual impairments are effectively monitored and assessed to allow for individualised support?
5. How do you ensure that instructional materials are accessible to visually impaired students?
6. Are there any specific guidelines or policies for teachers to follow when accommodating these students? If yes, explain how this policy guides learners with visual impairment.
7. What feedback or observations have you received from these students regarding their classroom experiences?

Objective 3: To establish the social interaction of students with visual impairments in the school environment in inclusive secondary schools.

8. Could you share some insights into students' experiences with visual impairments in our school, especially their interactions with peers and teachers?
9. What professional development opportunities do we provide our teachers and staff to enhance their ability to support students with visual impairments?
10. How do we encourage and support the independence and self-advocacy of students with visual impairments in our school?

Thank you for your time

APPENDIX 5: OBSERVATION CHECKLIST IN THE SCHOOL ENVIRONMENT

General Information

Date and time of observation: _____

Name of the lecturer being observed: _____

Course name and number: _____

Location of the observation: _____

Observer's name and contact information: _____

List of Items to be Observed

- **Classroom Environment:**

Visit several classrooms and make the following observations:

- Adequate lighting
- Tactile and visual contrast: Assess whether there is sufficient contrast between walls, floors, and furniture to aid orientation for students with low vision.
- Accessible seating: Check for designated, easily accessible seats for visually impaired students.
- Desk/table arrangement: Observe whether desks and tables are organised to allow easy navigation and minimise obstacles.
- Visual aids: Evaluate the presence and accessibility of visual aids like whiteboards, screens, and projectors.
- Braille signage: Look for Braille signage outside and inside classrooms, including room numbers and names.
- Material used in the teaching process
- Strategies used by teachers in the teaching and learning process
- Students participate in group work.
- How lessons moderated (times).
- Social interaction (in the classroom and outside, attitudes)
- Orientation and mobility

- **Hallways and Corridors**:

Inspect the hallways and corridors for:

- Handrails: Check if handrails are available and properly installed to assist with navigation.
- Tactile markers: Assess the presence of tactile markers or strips to guide students.
- Unobstructed pathways: Ensure pathways are clear of obstacles or loose objects that may pose tripping hazards.

- **Restrooms:**

Examine the accessibility of restrooms, focusing on:

- Braille signage: Look for Braille signage indicating restroom facilities.
- Grab bars: Ensure that restrooms have grab bars for support.
- Adequate space: Check for sufficient room for mobility and use of assistive devices.

- **Library and Resource Rooms:**

Observe the library and resource rooms to identify the following:

- Accessible shelves and resources: Ensure that materials are within reach or accessible for visually impaired students.
- Assistive technology: Confirm the availability of assistive technology such as screen readers or magnification software.

- **Common Areas and Cafeteria:**

Check the common areas for:

- Clear pathways: Ensure clear paths to food service areas and seating.
- Tactile signage: Assess the presence of tactile signage for restrooms, exits, and other essential locations.
- Seating options: Evaluate seating availability with sufficient spacing for guide dogs or mobility devices.

- **Outdoor Areas:**

- Evaluate outdoor spaces, such as playgrounds or recreational areas, for accessibility and safety features like tactile paths and sensory gardens.

APPENDIX 6: INFORMED CONSENT

THE UNIVERSITY OF ZAMBIA,
SCHOOL OF EDUCATION
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, SOCIOLOGY, AND SPECIAL EDUCATION

Dear Sir/Madam,

REF: REQUEST FOR CONSENT AS A RESEARCH PARTICIPANT

I am Nyaki Ansila Gabriel, a student at The University of Zambia pursuing a Master of Education in Special Education. I am requesting that you take part in my research as a participant. The research is about School Environmental Adaptations for The Inclusion of Students with Visual Impairment: A Case of One Selected Secondary School in Korogwe District –Tanga, Tanzania. Your participation will help me come up with information regarding the abovementioned matter. The information you will share with me remains confidential and only for academic purposes. Your consent to this request will go a long way.

Yours Faithfully,

…… (Sign) Ansila Gabriel Nyaki –Researcher/Student

Consent by Participant

I have been invited to participate in research about School Environmental Adaptations for The Inclusion of Students with Visual Impairment: A Case of One Selected Secondary School in Korogwe District –Tanga, Tanzania. I have read the preceding information, or it has been read to me. I have had the opportunity to ask questions about

it, and any questions I have been asked have been answered satisfactorily. I consent voluntarily to participate in this study.

Name of Participant ……. Signature of Participant ……

Date ……

Day/month/year

APPENDIX 7: ETHICAL CLEARANCE

THE UNIVERSITY OF ZAMBIA
DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777 **Fax**: (+260)-211-290 258/253 952 | E-**mail**: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464
REF NO. HSSREC-2023- OCT - 053

22nd November, 2023

Ms. Ansila Gabriel Nyaki
The University of Zambia
P.O. Box 32379
LUSAKA

Dear Ms. Nyaki

RE: "SCHOOL ENVIRONMENTAL ADAPTIONS FOR THE INCLUSION OF STUDENTS WITH VISUAL IMPAIRMENT IN ONE SELECTED SECONDARY SCHOOL IN KOROGWE DISTRICT TANGA - TANZANIA".

Reference is made to your submission of the protocol captioned above.

The HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. HSSREC-2023- OCT-053
Approval and Expiry Date	Approval Date: 22nd November, 2023	Expiry Date: 21st November, 2024
Protocol Version and Date	Version - Nil.	21st November, 2024
Information Sheet, Consent Forms and Dates	☐ English.	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil
Other Study Documents	- Questionnaire - Interview Guide	
Number of Participants Approved for Study		

Conditions of Approval

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.
- All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to HSSREC within 5 working days.
- All recruitment materials must be approved by HSSREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review

process. Documents received within 30 days after expiry will be labelled "late submissions" and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.

- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.

- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.

- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.

- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.

- A reprint of this letter shall be done at a fee.

- All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,

Dr. J.I. Ziwa

DR. J. I. Ziwa
CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE - IRB

cc: Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Assistant Registrar (Research), Directorate of Research and Graduate Studies

APPENDIX 8: PERMISSION LETTERS TO CONDUCT RESEARCH FROM THE RESEARCH SITE

ARCHBISHOP MIHAYO UNIVERSITY COLLEGE OF TABORA

(A Constituent College of St Augustine University of Tanzania)

P. O. BOX 801 TABORA - TANZANIA

Website: www.amucta.ac.tz E-mail:amucta@amucta.ac.tz

Tell:+255 734 966 674

05th December, 2023

Ref. No. AMC/AD/28/VOL.1/148

Regional Administrative Secretary (RAS),
P.O. Box 5095
TANGA

RE: PERMISSION TO COLLECT RESEARCH DATA

I, hereby, introduce **ANSILA GABRIEL NYAKI** with the registration number **2022006775** who is a *bona fide* student at the University of Zambia. As part of requirement for fulfilment of the award of degree of Master of Education Special Education, she is required to produce a fieldwork report. Her topic is "***School Environmental adaptions for the Inclusion of students with Visual Impairment: A case of one selected secondary in Korogwe District Tanga – Tanzania***".
Any assistance accorded to her for this endeavor will be appreciated.

Yours faithfully,

AMUCTA
Archbishop Mihayo University College of Tabora
P.O. Box 801
TABORA - TANZANIA

Rev. Prof. Juvenalis Asantemungu
Deputy Principal for Academic Affairs

THE UNITED RERUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

Phone: 027 2642421

Fax: 027 2647752
E-mail: ras.tanga@tamisemi.go.tz

Regional Commissioner's Office
81 Jamhuri Road
P. O. Box 5095
21180 **TANGA**

In reply please quote:
Ref. No.**DA.228/258/07/161**

2nd January, 2024

District Administrative Secretary,
KOROGWE

RE: **PERMISSON TO COLLECT RESEARCH DATA**

Reference is made to the heading above.

2. We have received a letter with **Ref. No.AMC/AD/28/VOL.1/148** of 5th December, 2023 From Deputy Principal for Academic Affairs requesting our Office to grant permission for research in favour of **Miss Ansila Gabriel Nyaki.**

3. I am pleased to introduce **Miss Ansila Gabriel Nyaki** a Student at the University of Zambia who is required to collect research Data as part of requirement for fulfilment of the award of degree of Maser of Education Special Education, she is required to produce a fieldwork report. Her topic is; ***"School Environmental adaption for the Inclusion of students with Visual Impairment: A case of one selected secondary School in Korogwe District-Tanga".***

4. Kindly, be informed that the permission to conduct this research has been granted. Please accord her for any needed assistance so that this research study to be successfully conducted.

Thank you for your continued cooperation.

Laizer, J. S
For: **REGIONAL ADMINISTRATIVE SECRETARY**
TANGA

Copy: Rigional Administrative Secretary
TANGA.

" **Miss Ansila Gabriel Nyaki**
P.O BOX 801
TABORA.

THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

Phone: 027 2650002
027 2650011
Fax: 027 2650020
In reply please quote:
Email.das.korogwe@tanga.go.tz
Ref No. AB.206/282/01A/149

District Commissioner's,
Office,
11 Street Members,
S.L.P 532,
21681 KOROGWE,
TANGA.
10 January, 2023.

Town Director,
Korogwe Council,
P.O.BOX 615,
KOROGWE.

RE: PERMISSION TO COLLECT RESEARCH DATA FOR MISS. ANSILA GABRIEL NYAKI.

Kindly refer the above heading.

We have received a letter with **Ref. No. DA.228/258/07/161** dated on **2nd January, 2024** from the Regional Commissioner's Office who granted permission for research in favour of **Miss. Ansila Gabriel Nyaki**.

I introduce **Miss. Ansila Gabriel Nyaki** a Student at the University of Zambia who is required to collect research Data as part of a requirement for the fulfillment of the award of Masters of Education Special Education degree, which she is required to produce a fieldwork report. Her topic is; **"School Environment adaption for the Inclusion of students with Visual Impairment: A case of one selected secondary school in Korogwe District Tanga"**.

Kindly, be informed that the permission to collect research data has been granted. The research data will be conducted at Korogwe Girls Secondary School. The period of the research is three **(3)** days starting on **15th January, 2024** upto **17th January, 2024**.

Please support her with any needed assistance in order to make this research data a success.

Thanks for your cooperation.

Mwanaidi A. Rajabu
DISTRICT ADMINISTRATIVE SECRETARY
KOROGWE

Copy: Regional Administrative Secretary,
TANGA.

District Commissioner's Office,
KOROGWE. - (*To see it in file)*

Division Officer,
KOROGWE.

Miss. Ansila Gabriel Nyaki,
P.O.BOX 801,
TABORA. – *(Researcher)*

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA MJI WA KOROGWE

Mtaa wa majengo, Barabara ya Moshi, S. L. P. 615 Korogwe – Tanga, Simu: 027 -2650050
Nukushi: 027 – 2650075, Barua Pepe: info@korogwerc.go.tz, Tovuti: www.korogwetc.go.tz

Unapojibu tafadhali taja:

Kumb.Na. Kumb. Na.HMK/E. 1/45/10 **Tarehe.**
10/01/2024

Mkuu wa Shule,
Shule ya Sekondari ya Wasichana Korogwe,
S.L.P. 155,
Korogwe.

YAH: KUMTAMBULISHA NDUGU ANSILA GABRIEL NYAKI.

Tafadhali husika na mada tajwa hapo juu.

2. Mtajwa hapo juu ni Mtanzania anayesoma Shahada ya Uzamili katika Chuo Kikuu cha Zambia kilichopo nchini Zambia. Anatakiwa kukusanya taarifa za utafiti ikiwa ni moja ya matakwa ya kutunukiwa shahada ya Uzamili ya Elimu kwa wenye mahitaji maalu(**Masters of Education in Special Education**) anayosoma. Mada aliyopangiwa kufanyia utafiti ni **"School Environment adaptation for the Inclusion of students with Visual Impairment: A case of one selected secondary school in Korogwe District Tanga"**, shule aliyopangiwa kukusanya taarifa ni Shule ya Sekondari ya Wasichana Korogwe.

3. Kwa barua hii naomba umpokee na kumpatia ushirikiano ili aweze kukamilisha zoezi lake kwa ufanisi. Muda aliyopangiwa kufanya utafiti shuleni kwako ni kuanzia tarehe 15 Januari, 2024 hadi tarehe 17 Januari, 2024.

4. Ni matarajio yangu kwamba utampokea na kumpa ushirikiano ili aweze kukamilisha utafiti wake kikamilifu.

Valentine Christopher
Kny MKURUGENZI WA MJI

Nakala: Mkurugenzi,
Halmashauri ya Mji Korogwe. – Aione kwenye jalada