EXPLORING EXPERIENCES OF SPECIAL EDUCATION TRAINEE TEACHERS ON BRAILLE READING SKILLS: A STUDY OF A PRIVATE UNIVERSITY IN TANZANIA

By

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THE UNIVERSITY OF ZAMBIA

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DECLARATION

I, Magreth Paul Nkuba**,** of student number **2022006776** do hereby declare that this is my own work which has never been previously submitted for master's degree at this or any other university and that all the work of other persons has been properly acknowledged

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CERTIFICATE OF APPROVAL

This dissertation of Magreth Paul Nkuba has been approved as a partial fulfilment of the requirements for the award of the Master degree of Education in Special Education by the University of Zambia.

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DEDICATION

The dissertation is dedicated to my beloved mother Mary Kasukumpa, my father Paul Nkuba, my Grand-father Mr. Vicent Kasukumpa and my Grand-mother Regina Mathew for their financial support, encouragement, patience and perseverance during the course of my long study.

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ABSTRACT

This study examined the experience of Special Education Trainee Teachers in Braille reading skills, with particular focus on factors contributing to the lag of Braille reading skills to Special Education Trainee Teachers at private teacher training university in Tanzania. The study addressed the following four objectives, namely;(i); Explore special education trainee teachers experience in Braille reading skills (ii); strategies and support systems lecturers use in teaching Braille reading to trainee special teachers (iii); challenges special education Trainee Teachers experience in learning Braille Reading and (iv); assessing the extent to which Braille literacy has been integrated into special education teacher trainee curriculum. Embedded design using quantitative and qualitative techniques was employed. Questionnaires, semi-structured interview and observation checklist were used to collect data from respondents. The sample consisted of 40 respondents drawn from one private University distributed as: 35 third year special education trainee teachers and 5 lecturers. Respondents were selected using simple random and purposive sampling technique. The data was analysed using descriptive calculations whereby, percentage and frequency was obtained and presented on tables and qualitative data were analysed in form of themes direct quotation was analysed.

The study revealed a significant challenge with mastering Braille reading skills, attributed to three main factors: lack of specific strategies, motivation from university learning materials, and insufficient Braille literacy integration into the curriculum. The result particularly showed that about 54.29% of responses indicated that, there was no specific strategy lecturers uses when teaching, 82.85% of the findings shows that there were a lot of challenges Special Education Trainee Teachers encounter when learning different Braille reading skills and 74.3% of responses shows that to low extent Braille literacy skills has been integrated into the curriculum. However, the test results revealed that 54.28% of the Special Education Trainee Teachers failed to master overall reading skills like word sign, contracted and uncontracted Braille unfamiliar words when reading comprehension skills test. This failure is said to be the result the major three mentioned factors. The findings suggest improvements in pre-service training, teaching materials, and curriculum through using the updated and specific strategies to import knowledge among trainee teacher also motivation and session to be practical and physical based for the student's teacher.

Key words: Braille reading, experiences, Braille literacy, Special Education Trainee Teachers.

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LIST OF ABBREVIATIONS

AFB American Foundation for the Blind

BEDSN Bachelor of Education with Special Need

DBT Duxbury Braille Translator

DSNE Department of Special Need Education

EBAE English Braille American Edition

HI Hearing Impairment

MoEST Ministry of Education, Science and Technology

MoEVT Ministry of Education and Vocational Training

SETTs Special Education Trainee Teachers

SNE Special Needs Education

SWDs Students with Disabilities

TCU Tanzania Commission for Universities

TIE Tanzania Institute of Education

UDSM University of Dar es Salaam

UEB Unified English Braille

UNESCO United Nations Educational, Scientific and Cultural Organization

URT United Republic of Tanzania

VI Visual Impairment

WHO World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents the background of the study, the statement of the problem, the purpose, objectives, significance of the study, delimitations, limitations, conceptual framework, operational definition of key terms used in the study, then the summary of the chapter.

1.1 Background to the Study

According to Winslow and Best's (2019) report, based on the Salamanca Statement (1994), children with special educational needs and disabilities should have access to education with the accessibility of skilled and competent special and general teachers. Furthermore, The United Nations (UN) Convention on the Rights of Persons with Disabilities, Article 24 (Convention on the Rights of Persons with Disabilities, 2008), states that people with disabilities should receive the support needed to achieve an effective education and that effective individual support should be provided to maximize academic and social development (World Health Organization, 2021; Ned et al., 2022). United Nations Agenda 2030 Goal 4.5 demands equal access to all levels of education and vocational training for the vulnerable, including persons with visual impairment and children in vulnerable situations (Assembly, 2015; 2019). As a result of those international policies, Manner et al. (2020) report an increased prevalence of special education training colleges and universities that offer programs for producing skilled and competent teachers.

1.1.1 The Concept of Braille

Reading and writing ability are essential to the foundation of education. It is thought that people who can read and write learn well in life (Dimitrova, 2015). Reading skills are the abilities and competencies required to understand and interpret written text. These skills encompass a range of cognitive and linguistic processes that enable individuals to comprehend and make sense of written material (William, 2016). for visually impaired people, Braille reading remains an essential skill for literacy development (Ministry of Education Science and Technology (MOEST), 2016; 2021). By definition, Braille reading is the ability to determine and understand the meaning of dots in accurate time and speed (American Foundation for the Blind, 2016). Without Braille, educating learners with Visual Impairment can be a challenging experience (Mwakyeja, 2013).

The braille system was developed by Louis Braille in the early 1800s. Braille is a series of characters or "cells" that are made up of six raised dot patterns, arranged in a rectangle containing two columns of three dots to each (United Nations Educational Scientific and Cultural Organization (UNESCO),2013). These dots can be felt with the fingertips, allowing blind readers to perceive and interpret written content. Braille replaces ink print which sighted individuals use to communicate with teachers at school (American Foundation of the Blind, 2016). Using Braille, a learner with visual impairments acquires education at school. Thus, the importance of Braille experiences among trainee teachers cannot be underscored. Globally, Braille remains the major and important means of communication for those who are both totally blind and partially blind (Tungaraza, 2014; Taylor 2022). The study by Mwakyeja (2013) shows that age matters in mastering skills in reading Braille. The age at which Braille is learned may affect the speed of reading and writing. By utilizing a variety of effective teaching methodologies, special educators must ensure that both students and other teachers possess reading proficiency. In Tanzania, the policy requires students with visual impairment to be guided and taught by skilled and competent special teachers with knowledge and skills in Braille (United Republic of Tanzania, 2014).

(World Health Organization, 2021) report that several factors are attributed to the limited knowledge of Braille for children with visual impairments and their teachers. One of the factors that has been observed is that they are not provided with material during learning. Nadeem (2015) found that the ability to read Braille matters with experience, readiness, and skills to master both contracted and non-contracted Braille. So, learning to read Braille is similar to learning to read print, though there are few differences between them. Braille can be read on paper or from a refreshable Braille display from the computer. In addition, the use of Assistive Technology in reading Braille offers electronic means to increase reading experience, speed, and efficiency (American Foundation for the Blind 2015; Bickford, 2012). When learning to read Braille it needs the mastering of skills such as finger positioning, hand movement, lightness of touch, and use of Braille display. Stanfa (2015) and Farrand et al. (2022) added that Braille is a complicated form of reading and writing for different users. Special trainee teachers encounter problems while reading Braille. However, to improve their competence and skills in Braille reading, the researcher finds out the main cause for their failure in reading among them.

1.1.2 Historical Overview of Special Education Teacher Training in Tanzania

In Tanzania training special education teacher programme began in the 1950s at Buigili school for the blind, where on job training of in -service teachers were done. Studies were based on Braille reading and writing under British missionaries. As schools increased, more teachers were trained, but training was limited to a single specific disability visual impairment (Tungaraza ,2014). Teachers teaching learners with other disabilities were not involved in the training. However, it was later realized that the Buigiri programme was not producing enough teachers and the government of Tanzania under the Ministry of education decided to establish other college for Training teachers (Tibatigeza, 2017).

Bagandanshwa (2004) cited by Tungaraza (2018) revealed that public colleges training teacher for special education in Tanzania started in 1972s after independence. The first special education teacher training course was introduced at Dar es Salaam Teachers College in 1978. In the early 1980s, the government established several teachers training colleges that offered special education as a specialization, which included Mtwara Teachers College, Tabora Teachers College, Patandi and Mirembe Teachers College (Tungaraza, 2010). Currently, there are few universities and teacher training colleges in Tanzania that offer special education teacher training programs as a professional career. However, some colleges such as Tabora teachers' college and Sekomu University have stopped offering the training while other institutions like University of Dodoma (UDOM) and University of Tabora (AMUCTA) are still pioneers in providing the training for special Teacher (MoEVT, 2019).

Special education training programs has been designed by the Ministry of Education and Vocation Training, Curriculum Development Policy, Disability Policy and Act of 2010 with cooperation of various stakeholders for the sake of producing teachers who are capable and skilled with experiences on working with children who have a wide range of disabilities and special needs, including physical disabilities, mental retardation, hearing impairments, and visual impairments (Kapinga, 2012). For special education trainee teacher who teach students with visual impairments mastering of Braille skills is a foundation in teaching students in accommodating these students. Since then, trainee teachers have been learning Braille literacy as a course in specialization (Tungaraza, 2018). Recently different universities and colleges have started training special education teachers on visual impairment following the influence from different international convention of persons with disability to acquire quality education with a guide of trained

personnel. The Tanzania Curriculum Development Committee and Tanzania Society for the Blind launched a Braille Literacy Project with the goal of improving Braille literacy among trained teachers and students in Tanzania. The project included advocacy efforts to raise awareness on the importance of Braille literacy, production and distribution of Braille textbooks and other materials, and training for in-service teachers. However, the experience in Braille reading skills to trainee special teacher is unknown (Possi & Mlinga, 2014).

1.1.3 Concept of Braille reading experiences for Special Education Teacher Training

Braille has been introduced as one of the courses in training trainee Teachers in different colleges and universities in Tanzania. To meet the needs of students with visual impairment, special education teachers are required to have adequate knowledge in mathematics, Swahili, and English Braille for all Braille grades within three years of study (Possi, 2017).

However, it must be mentioned that Braille's reading and writing are peculiar. When writing Braille, a common instrument called a "hand frame" and Perkins are used. Writing is done from the right to the left while reading is done from the left to the right, this creates confusion for beginner Braille readers (Altarawneh, 2021). The American Foundation of the Blind (AFB) (2010) reports that Braille writing and reading confusion causes many Braille readers to get mixed up and affects the learning process. Mastering different skills of Braille literacy among teachers has a positive impact on visually impaired students' academic performance who depend much on Braille (Dimitrova, 2015). According to Tanzania Commission for Universities guidelines, a program for training teachers in all specializations and departments is almost three years which for the special teacher to master both subjects and their specialization whether in visual Impairment (VI) or Hearing Impairment (HI) is thought to be difficult (Meena, 2009).

For special education trainee teachers under the specialization of (VI), it is seen to be unclear to master well both Swahili, English, and mathematics Braille based on the curriculum for student teachers in Tanzania. Many other factors make Braille reading difficult. Case, when reading a single dot on top of a cell, it stands for the letter (a) the same single dot when placed in the middle of a cell at the end of a word; represents a punctuation mark 'comma' yet, the same single dot at the bottom of the cell but in between a word, it would mean a punctuation mark 'apostrophe' the sample dot if is introduced with number sign it means '1'. Braille uses several abbreviations these abbreviations are called contractions and also confuse most readers (Kisanga, 2020). Contractions

are intended to reduce the huge nature of Braille due to that for the beginner it is confusing to master both contracted and uncontracted (2020).

Teachers trained in different colleges and universities seem to have difficulties mastering Braille reading. Though they are assessed when they go to the field, they encounter challenges, especially in reading and transcribing what the learner has written. The study by Muzata & Ndonyo (2019) shows that due to limited time for field practice periods, trainee teachers of special education lack enough competencies and skills in Braille and sign language. So, there is a need for more practice not only on content but skills experience, and values for teaching students with special education needs.

Several studies, (Susanti, 2018); (Mulenga and Muzata, 2019); and (Tibatigeza,2022) showed that the Braille reading experience for students and teachers with visual impairment is quite different when compared with a student without visual impairment who learned to read and write braille with direct visual ability. Most of the teachers and students who learn Braille with their normal sight have low knowledge because they interact with it in old age. Matuto et al. (2019) point out that the Braille reading problem experienced by most visually impaired students and in-service teachers is a result of a shortage of accessibility, profitability, durability, and usability of the required devices.

There is limited literature available on the concept of Braille reading skills upgrading especially for trainee teachers of special education and most studies have explained the challenges of Braille reading and writing for visually impaired students and little is discussed on the teachers' side. Nevertheless, studies have explored more on developing students' Braille reading skills while little has been studied on the experiences and efficacy of these approaches to teachers. Therefore, it was crucial to study and investigate trainee teachers' experiences in the mastering of Braille reading skills.

1.2 Statement of the Problem

Braille is a medium of communication for students with Visual Impairments. The academic achievements of students with Visual Impairments are significantly influenced by the competence of teachers in Braille. The study by Kisanga (2020), revealed that trainee teachers in special education are trained to cope and to have skills in reading and writing Braille. To facilitate learning for learners with visual impairments who rely on Braille to access the school curriculum, trainee

teachers in special education programs at various institutions in Tanzania are instructed in the reading and writing of English Swahili and Mathematics Braille (TIE,2019; Mkama, 2022 &Tibatigeza,2022). Nevertheless, the trainee teachers are proficient in writing Braille; however, they encounter challenges with reading the same Tungaraza (2018). It is unclear what causes the delay in gaining competence in Braille reading among teachers and if this issue is not addressed well would hurt the academic performance of the students with visual impairment who depend on Braille. Since their teacher lacks some essential skills in reading Braille (Mkama, 2020). This study therefore studied the experiences in Braille reading skills, with particular emphasis on the factors contributing to the delay in mastering Braille reading skills for the SETTs at a private teacher training university in Tanzania.

1.3 The Purpose of the Study

The overall purpose of this study was to explore factors contributing to the lag of mastering Braille reading skills among Special Education Trainee Teachers at private teacher training university in Tanzania.

1.4 Specific Objectives

1. To assess special education trainee teachers, experience in mastering Braille reading skills.
2. To find out strategies and support systems lecturers use in teaching Braille reading skills to Special Education Trainee Teachers.
3. Analyse challenges special education Trainee Teachers experience in learning Braille Reading.
4. Assess the extent to which Braille literacy has been integrated into special education teacher trainee curriculum.

1.5 Research Questions

1. What is the experience of Special Education Trainee Teachers (SETTs) in Braille reading skills?
2. What strategies do lecturers use in teaching Braille reading skills to trainee special teachers?
3. What are the challenges Special Education Trainee Teacher experience in learning Braille reading?

4. To what degree has Braille literacy been integrated with the special education teacher trainee curriculum?

1.6 Significance of the Study

It is hoped that the findings in this study help to improve the Braille reading experience among Special Education Trainee Teachers at higher learning institutions. The findings give an insight to the university management team of special education in the study area on the effective approach to be used in teaching Braille reading and other forms of Braille. Moreover, the findings provide the real situation of Braille skills to trainee teachers at the university. In addition, to that the findings of this study may be used by policy planners and curriculum developers to update policies, curricula and Acts based on updating training special teachers' curricula. Finally, the study suggests the use of a practical rather than theoretical approach, and the integration of updated technology and software programs as a teaching tool for the enhancement of, skills, and competence among student teachers.

1.7 Delimitation

The study was conducted at a private university in Tanzania. This university was purposefully chosen as it is the only private university in Tanzania that offers face-to-face degree programs in special education and enrols special education trainee teachers in the degree programs offered. Since this study seeks to establish the Braille reading experience of trainees' special education teachers in higher education, the selected university enables the goal to be easily achieved. Again, this study was confined to lecturers and trainee special education teachers, because they were the ones who were directly involved in the process of determining the cause of the lag of the Braille reading experience to trainee special education teachers in higher education specifically on the study area.

1.8 Limitations

Since the main focus of the study was only on one category of special trainee education teachers for visual impaired students, at higher learning institution the findings would not be generalized to other categories like for hearing impairment teacher to be.

1.9 Theoretical Framework

The present study was guided by the work of Kolb's experiential learning theory (1984). He defined learning as the process whereby knowledge is created through the transformation of

experience. Knowledge results from the combination of grasping and transforming experiences. Kolb's model combines two scopes that is abstract-concrete dimension which deals with tangible objects when grasping new experience and the Active-reflective measurement ranges from direct participation to detached observation when transforming experience. Kolb's work resulted in a model that includes a stage learning cycle in which the learner can experience all four phases; concrete experience, reflective observation, abstract conceptualization, and active experimentation. In the concrete experience stages, the individual is in direct experience with a new encounter or interprets existing experience. In the reflective experience stage, the learner reflects on the new knowledge and is in a state of understanding whether the learning is right or wrong. This leads the learner to a new idea or a modification of a concept that already exists and modifies the new idea which is referred to as the abstract conceptualization. In the final stage, the learner applies to the world which stimulates learning termed active experimentation.

Kolb's experiential learning theory can be applied to trainee teachers' experience in mastering reading Braille by enhancing their learning and skill development. Kolb's theory is based on the idea that learning is a cyclical process involving four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Here's how each stage can be applied to trainee teachers learning Braille:

Concrete Experience: Trainee teachers can start by engaging in direct experiences with Braille, such as tactile exploration of Braille characters and texts. They should interact with Braille materials, observe Braille readers, and practice reading basic Braille sentences. This hands-on experience helps them develop a foundation in Braille literacy.

Reflective Observation: Trainee teachers have to engage in reflective observation by actively reflecting on their experiences with Braille. They have to discuss and analyze their encounters with Braille, observe and listen to feedback from experienced Braille users, and reflect on their strengths and areas for improvement. Reflection can be done individually or in group settings, allowing trainees to gain insights and identify strategies for enhancing their Braille reading skills. Abstract Conceptualization: Trainee teachers should engage in abstract conceptualization by transforming their concrete experiences and reflections into meaningful understanding and knowledge about Braille reading. They can study Braille rules, principles, and strategies, explore different Braille

codes and systems, and analyze the structure and patterns of Braille texts. This stage helps them develop a theoretical framework and conceptual understanding of Braille literacy.

Active Experimentation: Trainee teachers have to engage in active experimentation by applying their newly acquired knowledge and skills in practical situations. They can practice reading Braille texts with increasing complexity, work with Braille readers or blind students, and seek opportunities to teach Braille reading to others. This stage allows them to refine their Braille reading abilities and skills test different approaches, and adapt their strategies based on the feedback and outcomes they receive.

The Experiential Learning Theory is seen to be appropriate for this study. The theory focuses on the experience of an individual on a kind of skills, as the main driving force in learning, as knowledge is constructed through the transformative reflection on one's experience. It suggests that each individual has to Train in Braille reading skills and literacy, in general, to be competent in reading Braille aspects such as Phonemic awareness - reading fluently -using vocabulary use of AT and other supportive instructions. The theory was used to support the view that mastering Braille skills is not just a process but a process of observing, reflecting and practicing. Also, the theory was used to link the lag in mastering the Braille reading skills as associated with the failure of SETTs to active Experimentation and reflection of what they have been taught.

1.10 Conceptual Framework

A conceptual framework is a collection of concepts or models which inform a research study. It relates a study to the existing ideas or principles. The conceptual framework (Fig.1) developed by the researcher shows that mastering Braille reading skills and experiences is determined by the interaction of three different variables. Achievement in Braille reading skills and experience (dependent variable) of special education trainee teachers depends on influential factors (intervening variables) to influence positively or negatively the reading skills training program (independent variable) and its implementation.

The independent variable is the Braille reading skills for special education trainee teachers. The examination of the independent variables is based on mastering different reading skills and their components. It was expected that the training of special trainee teachers on knowledge and pedagogy of Braille reading skills might lead to improvement in reading Braille.

Intervening Variables.

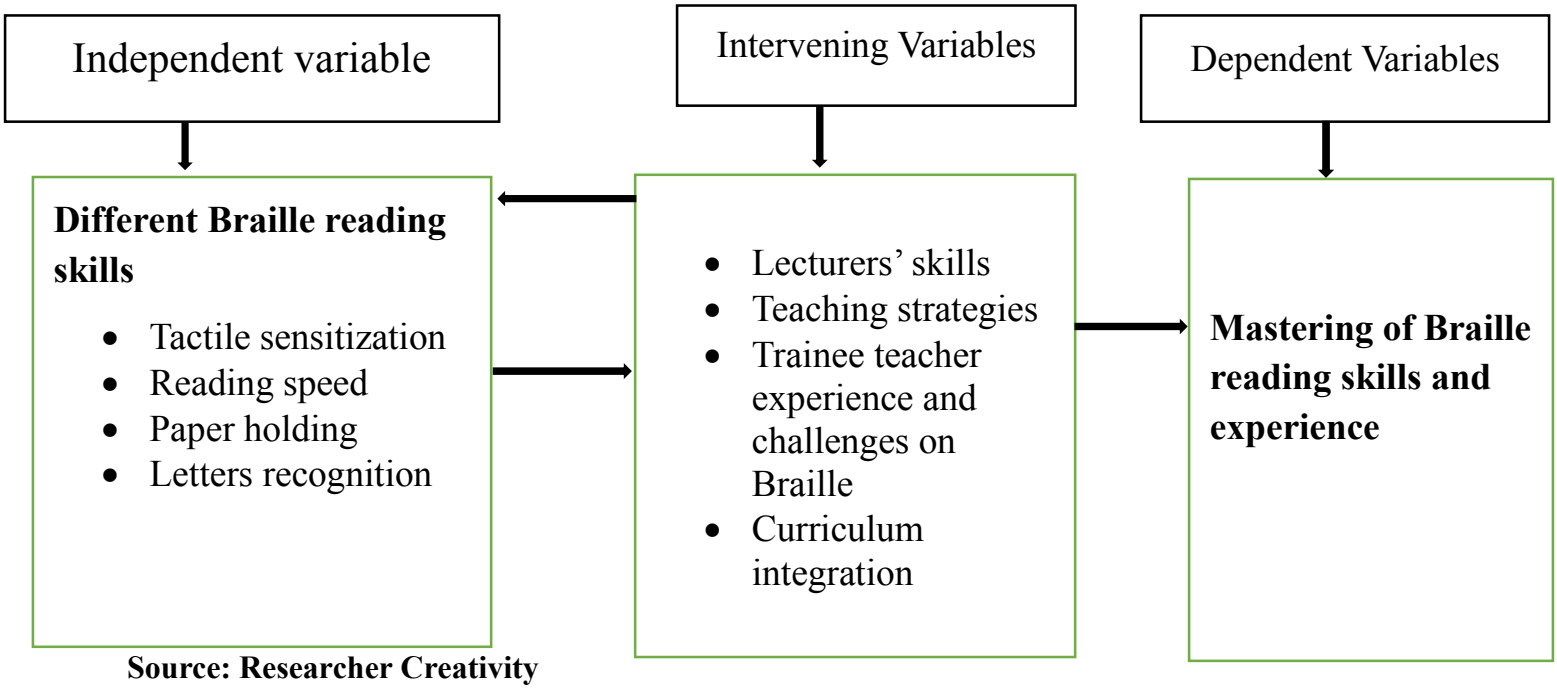
These were variables that provide a causal link between other variables (independent and dependent variables). Intervening variables are expected to influence the independent variable positively or negatively in the process of attaining the objectives of the program. The intervening variables of this study were Curriculum integration, lecturers' knowledge, teaching strategies of the training, availability of teaching material used during training and support system from the University. These intervening variables were expected to determine the outcome of the program. This means that they could be an achievement of the program's predetermined objectives if the influential factors have a positive interaction with the independent variable. In this study, the intervening variable has a negative impact to influence the mastering of Braille reading skills to Special Education Trainee Teachers.

Dependent variables are the outcomes of the interaction between the independent variable(s) and the intervening variables. If independent variables will positively be linked with intervening variables, the Braille reading skills will be improved. On the other hand, if the same factors are negatively interacted or mistreated results in a lag in Braille reading, which will also be reflected.

Therefore, the findings, show that Special Education Trainee Teachers had serious problems mastering different Braille reading skills which have also demonstrated on the conceptual framework that the failure to have positive intervention between the independent and intervening variables resulted in the problem when it comes to the mastering of different reading skills.

This also can be linked to the theoretical framework that, mastering Braille reading skills is not just one process but a process of observing, reflecting and practicing different reading skills that can be linked to the interaction of independent, intervening and dependent variables. The lag of mastering different Braille reading skills among SETTs was associated with different factors like failure to active Experimentation and reflection of what they have been taught can be a failure of interaction between the three variables addressed in the conceptual framework.

Figure1.1 Conceptual Framework to predict mastering of Braille reading skills to Special Education Trainee Teachers



Source: Researcher Creativity

1.11 Definition of Terms

Braille: Is a system of reading and writing designed for individuals who are blind or visually impaired. It utilizes a series of raised dots that can be felt with the fingertips. The dots are arranged in specific patterns called Braille cells, with each cell representing a different letter, number, punctuation mark, or even a whole word.

Braille Reading: Braille reading refers to the process of visually impaired individuals deciphering and understanding written information through the tactile sense of touch.

Braille Reading Experience: Braille reading experience encompasses the accumulated skills, proficiency, and familiarity an individual develops through the act of reading Braille materials over time.

Special Teachers Trainee in VI: Special teachers' trainees are individuals who are undergoing professional training or education to become specialized teachers for students with visual impairments.

Visual Impairment: Is a condition that affect a person or a student ability to see. It ranges from mild to severe and can be caused by different factors including age.

Braille Literacy: Refers to the ability to read and write different word and sentences using Braille, a tactile system for people who are visually impaired. It involves understanding of the patterns of raised dots that present letter, number and symbol

1. 12 Ethical Consideration

Okeke, Omodan, & Dube (2022) describe research ethics as the "moral principles that guide research" (pp. 169). Research ethics provide a guiding principle for the free and successful conduct of research if they are observed well by a researcher. In this study, the researcher pursued ethical approval from the University of Zambia, then the letter was presented to a private university management before the commencement of the data collection. The researcher used an invented name to refer to research participants and a research site. Again, the researcher protects all research records including interview transcripts, audial recodes, and questionnaire notes, from unauthorized people. Finally, informed consent for the respondents to participate in the study was presented and the researcher ensured the confidentiality of the findings by using the alphabet and numbers instead of names and the information was confidential kept to present the respondents. Creswell (2013) states that the researcher has to protect the participants at all costs by ensuring that the information provided does not cause any harm to anyone under any condition the researcher follows the re-equipment of ethical guidelines to ensure confidentiality of the data from the respondents.

1.13 Summary

Chapter 1 discusses the background to the study, statement of the problem, purpose and significance of the study, objectives of the study and research questions. The study also presents delimitation, limitation of the study, theoretical framework and operational definitions of terms as used in the study. Chapter two consists of literature reviews based on the objectives and chapter three represent the methodology applied in the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents literature related to the research problem and objectives. To inform and justify the research questions which are the focus of this research. The review of the literature was organized under several sections. To put the study in context, the main section of the chapter includes the reviews of different work which relates to the research objectives.

2.1 An Overview of Braille and Braille Reading

The American Printing House for the Blind (1987) describes Braille as the best-known medium for teaching reading and writing for students with visual impairment. When teaching visually impaired students, the appropriate way is the use of Braille, assistive technology and a conducive environment this is also, associated with the skills and experience of the course instructors or teachers. American Foundation for the Blind (AFB 2010) mentions different forms of Braille including uncontracted Braille: this is a most basic form where each letter is presented by a single dot pattern and is always used by beginners. Contracted Braille is the most common form for reading and writing it uses contraction, word sign and short forms to represent common letters, words and phrases making it more efficient and compact. Also, there are Nemeth deals with mathematics and also music and Swahili Braille. Susanti (2018) revealed that English Braille has 189 contractions and short-form words that ensure the abbreviation of numerous words and consist of a system of embossed signs, also there are more than 184 symbols for the Braille reader to learn reading and writing.

2.2 Braille Reading Skills and Experience of Special Education Trainee Teachers

Braille reading involves learning to recognize and differentiate between different Braille characters, and symbols, and understanding Braille Grade Levels which range from Grade 1 to 3. Braille Grade 1, represents each letter of the alphabet with a single Braille character, Braille Grade 2 includes contractions and abbreviations for common words and letter combinations and Braille Grade 3 involves specialized symbols and shorthand notations (American Foundation for the Blind, 2016; Sui, 2016). When reading Braille frequently, the flow of liquid over the page reflects a good reader of Braille. Compounding posture with touch and local functions is a

problem for new Braille learners, who become confused by placing their hands behind their place and the same stroke (Kiomoka, 2014; McCall & McLinden 2011; Markelz et. al., 2023).

Mulenga & Muzata (2020) scholars in their study on grade 2 and 4 Braille reading literacy skills revealed that, in assessing Braille skills reading experience in students with visual impairment, the major criteria used are tactile Sensation, Training and Proficiency reading speed, spatial awareness physical considerations' availability of Braille Materials also age matters on Braille literacy, Accuracy letter recognition, and word formation, or punctuation these criteria are required for the student who has the good reading experience and the one expects to be a good Braille reader. However, most of the students have difficulty following reading criteria, especially in reading Braille. These skills also should be acquired by special education trainee teachers, which is still in an incomprehensible packet on how they become competent in these skills.

Papadimitriou and Argyropoulos (2020) in tracing the effectiveness of Braille reading patterns in Braille, the study observed that the Braille reading experience is related to tracking. Skilled tracking minimizes errors and promotes efficient reading, Reference Regular Practices, tactile Sensitivity, finger Dexterity, Agility and Reading Comprehension all of these features are associated with handedness inventory skills. Most of the learners seem to have a problem with tracking words. Despite the discussed skills for a good Braille reader, none of these studies had pinpointed these characteristics for special trainee teachers rather than concentrating on learners with visual impairments who learn Braille.

The American Foundation for the Blind (2010) stated that for one to read Braille effectively, the right index fingertip should be more sensitive to pass on the details of information to the brain for interpretation. In this case, the left index fingertip must help in leading the right finger to the next line.

Like other specializations, Braille reading needs experience of understanding dots and their meaning, it is easy to sense or to see the dots but difficult to know what it means. UNESCO (2013) reports that Braille reading skills vary depending on the specific training program, the individual's prior knowledge, skills, and the resources available to them. However, with proper training, people who learn Braille reading have a chance to become proficient in reading and teaching Braille, empowering visually impaired students to develop their literacy skills and

succeed academically. The report by the European Blind Union and the European Commission by Woodin and Helbrunn (2018) on Braille teaching and literacy the report discusses findings from a two-year project that ran between 2016 and 2017 and investigated the situation in Braille teaching and literacy in nine European countries. The report revealed that before introducing Braille, it's essential to develop prerequisite skills, which include tactile discrimination, fine motor skills, finger dexterity, and hand-eye coordination. Activities such as finger exercises, tracking lines, and exploring textured materials help prepare children and young people to learn Braille. The beginner Braille reader must acquire the reading skills associated with the actual reading process. A visually impaired person or anyone who learns to read Braille must develop the skills associated with reading using their fingers. All students who learn to use Braille must acquire skills like finger dexterity, hand and finger movement, page-turning and light finger movement (URT, 2014).

(Mulenga & Muzata, 2020; UNESCO, 2013; TIE 2019; Papadimitriou and Argyropoulos, 2020). Others on Braille format and Assessment to experienced Braille reader AFB, 2016; Kapinga, 2018, and Stanfa,2015 these studies were conducted by involving the voice of learners with visual impairment, in-service teachers of VI students while the experience of special education trainee teachers remain unestablished.

Even though the reviewed studies in this part in one way or discussed views of Braille reading skills regarding special education trainee teacher experiences in Braille reading skills assessed to them, a wide gap still exists since none of them focused on investigating special education trainee teachers' experiences on Braille reading in a higher learning institution. Most of the studies focused on Braille reading skills for visually impaired learners, therefore, the current study deems to fill this knowledge gap.

2.3 Strategies and support system used in teaching Braille reading to Special Education Trainee Teachers

Although there is widespread consensus that Braille is a critical skill for future teachers to have if they plan to work with students with visual impairments, there are a variety of methods by which the literary Braille code is taught to pre-service teachers in their colleges and Universities different authors had proposed and shows different strategies to be used.

Possi and Milinga (2017); Tibatigeza (2018); Wamunyi (2017) reports that university and colleges offer literary Braille instruction in several ways, like an online class face-to-face course and a series of courses spread over several semesters. a course that combines Braille instruction with general literacy strategies (that is, how to teach Braille reading and writing). Although the methods for training teachers of students with visual impairments differ from university to university, the goal of Braille instruction in such programs is to create beginning teachers who are knowledgeable in the literary Braille code and can read accurately.

University lectures are vested with guidelines on how teaching and learning activities. Most universities, lecturers are responsible for planning strategies to use in teaching, assessing, and evaluating their students' Braille skills. These differences in teaching, approach to Braille instruction by university and colleges are often related to an individual state's unique guidelines for teacher certification and a university's particular requirements for its teacher preparation program (McCall & McLinden 2011). Siu (2016); and Croak et al. (2024) proposes the use of individualized pedagogical and evidence-based methods when teaching the complex skills in Braille literacy. Also Van Leendert et al. (2022) shows that online teaching classes affect the mastering of Braille reading skills as much is concern with theoretical approach on Braille reading.

The study by AbuShokeedem (2021) argued that one of the most important strategies in teaching Braille literacy, training students with visual impairments is through the use of assistive technology, ongoing short courses and programs, and other approaches. This study shows that teaching Braille reading requires time, readiness, and a skilled Braille educator. The report by the European Blind Union and the European Commission by Woodin and Helbrunn (2018) report that in Braille teaching, reading, and literacy, different approaches have to be used by both parents, teachers, and students with visual impairments, which include: Tactile models: can be made using materials such as foam, clay, or raised line drawings. Similar proposed strategies were revealed in the study by Savaiano et al. (2014) adding vocabulary instruction. Unlike Woodin and Helbrunn (2018) and Savaiano et al. (2014) study which report on the strategies to be used in teaching visual impaired learners Braille reading, the current study examines lecturers' strategies and supportive system used in teaching Braille reading in higher learning institutions in Tanzania.

However, the report from Word Health Organization (2020); and the United Nations Educational Scientific Cultural Organization (2014) on the supportive system for reading Braille indicates that

a supportive system for reading Braille to students with visual impairment and their teachers typically involves a combination of hardware and software solutions designed to assist individuals with visual impairments in reading Braille text. Some of the components of a supportive system for reading Braille were reported as follows; Braille Display, Duxbury Braille Translator, digital talking book players and refreshable Braille Displays: A Braille display is a hardware device that is connected to a computer or mobile device and displays the text in Braille, allowing users to read the content with their fingertips; Screen Reader Software-Screen reader software is a vital component of a Braille reading system. Some supportive systems for reading Braille also include a tactile graphics display. Also, Studies by Stanfa and Johnson (2015); Shokat et al. (2020); and Dixon (2021) report that, due to the advancement of technology, Braille reading can be taught by using different software program into phones and computer Mobile Apps. These were mostly proposed to be used when teaching students with visual impairment

Also, Alden (2016); and Ivy and Hatton (2017) using a multiple baseline design studied Procedural Adaptations for the Use of Constant Time Delay to Teach Highly Motivating Words to Begin Braille Readers of Multiple disabilities the study revealed that to enhance Braille reading skills and experience for the early Braille reader time delay is a promising strategy for teaching highly motivating worlds to early Braille readers as replication is required to establish constant time delay as an evidence-based practice for braille literacy. Furthermore, the qualitative study by LaRose& Hamid (2021) in Pakistan based on the effectiveness of Braille readings Training in virtual Classrooms due to Pandemic COVID-19 in Pakistan purposive sampling and a sample size of nine Braille specialists was used, the study adds the idea that Braille reading intervention strategies are necessary to be used effectively to overcome the educational crisis, especially for the Braille users.

Despite the study by LaRose and Hamid (2021); Alden (2016); Hatton (2017); Shokat, Riaz, Susanti and Yati (2018); Rizvi and Kwon (2020); Dixon, 2021 slightly discussed issues relating to strategies in teaching Braille reading, their experience regarding lectures strategies and supportive system in teaching reading Braille to University under study were not examined and explored specifically for trainee teacher most relay on visually impaired students, hence the current study found a gap were the present study concentrated on. Therefore, teaching strategies to trainee teachers in higher learning institutions cannot be well understood if teaching strategies and system support provided by lecturers are left behind. In such a situation, this section reviews different studies on strategies and support for teaching Braille reading.

2.4 Challenges Special Education Trainee Teacher Experience in Braille Reading

Challenges special education trainee teachers experience can be associated with individual special education teacher factors, institutional interventions in Braille, peers' attitudes, and community influences. MoEST (2018), in its "Impact Evaluation" report, analyses some factors, including: instructional time for early grade lessons is below official guidelines; high rates of educators' absence from the lecture room when they are present in school and timetable to teach, which reduces instructional time for students and shortage of textbooks and supplementary Braille reading books. Moreover, the report by Equip-Tanzania (2015) shows that most of the students in early Braille grade lessons have nothing to read and write with a Braille paper, but textbooks are used infrequently, and supplementary Braille reading books are rarely available in some colleges. It was realized that there is a shortage of more than three-quarters of supplementary Braille reading books for students and teachers to practice their reading skills, which hinders the learning process. Another challenge is that educators rarely focus on what they know about Braille and have little concern for the course content. TIE (2014) reports that effective development of Braille literacy skills among student teachers of special education needs the use of assistive technology and a practical-based model.

Tungaraza (2018) conducted a study on the challenges facing special education trainee teachers in Tanzanian colleges and universities. The study findings revealed that there were serious problems with Braille materials, educators, and other support systems in the study area. The investigated factors that contributed to the production of incompetent student teachers in Braille literacy, including shortages of teaching and learning resources, were also identified as factors that student teachers experience when learning. Some teaching and learning strategies have failed due to different factors, but one of the factors is the level, of skills among teacher-educators (Chitiyo, 2015). Furthermore, the survey study conducted by TCU (2022) reports that the students who are enrolled in the program of special education encounter challenges when they are introduced to Braille. This is because most of these student teachers had little knowledge about it and the strategies used by teachers did not address the issues of experience of students. It seems that the strategies used when teaching do not concentrate on when these student teachers interact with Braille. In addition to that, the study done by Mkama (2020) at one of the public colleges revealed that student teachers face challenges when experiencing Braille literacy due to a lack of

commitment, strategies used by their educators in teaching, and age matters during the learning of new skills.

The identified studies in general look at challenges experienced by student teachers of special education in learning Braille literacy. Tungaraza (2010) revealed that inadequately trained personnel and limited time on the curriculum used for training teachers have resulted in the production of special teachers who lack skills and competencies in Braille reading and writing, sign language and other skills that affect teachers to effectively provide services to special students. However, most of these studies have been conducted in public universities and do not specifically address the issue of Braille reading skills at a private university.

A quantitative descriptive study by Khalid et al. (2022) on prospective special education teachers' perception of learning Braille at the university level with a purposive sample of 110 special education teachers at the higher education level the study revealed that Braille learning consumes more time, reading Braille grade two is more difficult than writing and most of the educators use the same strategies in all level in teaching Braille that became a problem to new learners.

However, a qualitative exploration study with a sample of (21) pre-service teachers conducted by Ashraf (2020); and Iqbal and Amjad (2022), on the effectiveness of Braille reading training in a virtual classroom, the study revealed that more difficulty in reading Braille in grades two as compared to Braille writing, which is a result of lack of effective curriculum integration on training strategies. These studies view challenges in a general way (hereby, this study under this objective aims at looking at Braille reading only).

2.5 Special Education Teacher Trainee Curriculum Integration in the Braille literacy

The curriculum for training teachers is essential in impacting knowledge and skills among in-service and fresh-from-school trainees if used accordingly (Ministry of Education Science and Technology, 2019). For teachers who specialize in teaching visually impaired students Braille reading, writing, mathematics, Swahili and English are taught among special education trainee teachers for almost two years for a certificate and three years for a diploma (United Republic of Tanzania, 2019). The Tanzania Institute of Education (TIE) is responsible for curriculum design and development for primary, secondary and colleges of teacher education, (Kapinga, 2012). In

cases where universities offer this program, they have their guideline from Tanzania Commission or Universities which most use in designing what to teach as a course by preparing a course outline as an instrument used during teaching and learning activities. Most of the course outline differs from one university to another in terms of terms and semesters to be used, in addition to that, a course outline is driven from the Tanzania Commission or Universities guidebook and modified by the department from the school it belongs to Matonya (2016); Tungaraza (2014). Different scholars from different parts of the world have tried to look at the concept of Curriculum about Braille literacy. The study by Argopoulos et al. (2019) on Undergraduate student's education programs regarding Braille literacy: A transnational comparative study done in Europe the study revealed that though there is an increased enhancement in curriculum to use Assistive Technology in teaching Braille literacy skills, there is a need to increase the number of semesters trained course in universities. Most Universities offer the course of Braille in one semester (six months) (thus due to limited time, a problem in Braille reading experience arises among undergraduate teachers. Braille needs time resources and clear instruction from the curriculum and instructor, out of that it creates a challenge for students to master well the skills.

Some studies have shown that the integration of Braille into the curriculum is a core function of the course, Tibatigeza (2022); Tungaraza (2019) and URT (2014). The authors further showed that Braille is integrated into the university curriculum, but it is difficult for student teachers to master due to having more than two other courses within the course that is, Swahili, English, and Mathematics whereby on both courses a teacher has to master reading and writing within 3 years of study. Also, the report by MoEST (2018) adds that since Braille is a new study area and difficult due to little foundation for most people, curriculum adaptation should be done for educators when teaching this course. This also was addressed by Simalalo et al. (2021) on the issues of teacher preparation in expanded core curricula that some Expanded Core Curriculum were taught in segmented patterns without a curriculum guide and learners did not learn all the skills

Effective curriculum integration affected Braille's literacy skills. The thesis report by Matiekesa (2015) studied exploring in-service teacher's knowledge of Teaching literacy using Braille to grade R Visually impaired learners, the study revealed that most of the colleges where special teachers are trained, focus on teaching Braille concepts by instructing their learners to say Braille dots orally and less emphasis had been put on phonic, letter and sound thus becomes a challenge when they are assigned to a school with visual impaired students. Most teachers use theoretically based thus

affecting and creating a challenging environment for students to master different Braille skills. D'Andrea (2012) in a study to determine the extent to which teachers of students with visual impairment receive training in reading Braille and the use of Assistive Technology, the findings were that about 50% of teachers who were trained to read Braille using Assistive Technology had a problem in reading Braille especial when given hard copy to transcribe, the speed in reading and sometimes alphabet recognition on the dots is a challenge this is associated with curriculum training of the Braille course to be limited with time. These studies concentrate on the integration of technology Braille and curriculum among training courses.

Argyropoulos et al. (2019) investigated the reflections of 95 undergraduate special education students on their training programs regarding Braille in their role as future special education teachers at two European universities based on two departments of special education. The study showed that there is a need for further training in the Braille code in conjunction with its literacy and scientific notation with skilled and competent personnel. Furthermore, the study by Muzata and Ndonyo (2019) on the practices-based model as a proposed training package for special education trainee teachers in Zambia revealed that limited time of almost two months for practice in the field at university has resulted in special education trainee teachers lacking competencies in sign language and Braille skills.

Little is known about the integration of Braille literacy into the curriculum to teacher educator preparation and professionalism. The study by Namamba and Rao (2017) on the Preparation and professional development of teacher educators in Tanzania's current practices and prospects revealed that the curriculum for the professional development of teacher educators in Tanzania is limited and characterized by few professional development activities that also receive little attention in research and educational literature thus make a pragmatic challenge in training another teacher in the field and to cope with the curriculum. The study by Mangoi (2021) on the extent of curriculum in lecture strategies used to teach Braille course for undergraduate students argues that there is limited time and skilled personnel who are involved during the preparation of course content and nothing about curriculum is followed by instructors, thus affect the learning process.

However, Altarawneh et al. (2021) contended that the effect of the training program was not clear and significant on attitudes towards Braille and this is due to the short period of the training program, thus resulting in teacher reading and writing Braille compared to the expectation. Amato

(2002) carried out a study on standards for competence in Braille Literacy skills in teacher preparation programs, the study reviewed that most university students have achieved a minimum entry-level competence in Braille, the Content of the Braille course and the amount of time selected for each Braille literacy topic varied among university. Also, about 96% of participants reported that teaching literary Braille code was taught in the first semester in almost half program, thus resulting in incompetent Braille literacy for special students' teachers. However, it differs in focus with this study which seeks to address the issues of the extent of Braille literacy integration into the curriculum.

2.6 Chapter Summary

The researcher has reviewed various literature related to the present study. The chapter has reviewed literature based on the key objectives of the study and research question and it has shown the research gap which has prompted the researcher to conduct this study. Many of these studies did not investigate SETTs Braille reading skills and experience (lag on Braille reading revealed a knowledge gap which the study fills. The next chapter presents the methodology of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter provides a full explanation of the chosen research approach, design, study location, target population, sampling techniques, sample size, reliability and validity of the data collection instrument, and ethical considerations.

3.1 Research Approach

The study uses a mixed approach (quantitative and qualitative strategies) in data collection and analysis. This is the research approach whereby the researcher integrates two approaches into a single study. Mixed approach helps researchers to gain a more comprehensive understanding of a research problem as recommended by (Boeren, 2018; Creswell & Creswell, 2018; Omari, 2011; Jack et al., 2012; Farghaly, 2018). Qualitative methods provide rich insights and context, while quantitative methods provide numerical data and statistical analyses. The study employed a mixed methods approach because the researcher desired to integrate statistical and thematic data, from which a researcher could make accurate with increasing credibility

3.2 Research Design

A research design is a plan of how a scholar is going to conduct research (Creswell, 2018). The researcher used embedded design which uses both quantitative and qualitative research techniques. The design was used because it provides a deeper understanding of quantitative data by incorporating qualitative insight and also tries to answer the why question on the qualitative data collected. It was also used because it allows a researcher to collect quantitative and qualitative data simultaneously as proposed by (Creswell, 2014; Mugenda & Mugenda, 2003). The researcher utilizes embedded design to gather numerical and in-depth first-hand information from respondents and participants which was used to formulate conclusions of the research questions from which recommendations were made on the information necessary to investigate the gap in the factors for lag on mastering Braille reading skills and the current experiences of special education trainee teachers on Braille reading to fulfil the study's purpose.

3.3 Area of Study

This study was conducted in Tanzania at a private university. This University enrolls students from different high schools in a special education program as a bachelor's degree career. It offers special education degrees for different specializations, and the programs are full-time. The selection of this study area was because it is the only private university that offers a face-to-face program of special education in Tanzania so it makes it easy accessibility of the respondents and participants, and also little has been done on the case of Braille reading experiences for trainee special education teachers in private university.

3.4 Target Population

According to Creswell (2012); and Mugenda and Mugenda (2012), the target population is a group of individuals that the researcher intends to conduct research in and draw conclusions from. The group targeted by the researcher was of a definite class of people who were picked because the researcher believed that they could respond to questions as they had the knowledge to do so. The study used 35 third-year Special education trainee teachers studying Bachelor of Education with Special Needs and 5 lecturers teaching special needs education in the Department of Special Needs Education in the private University. Therefore, having some homogeneous characteristics, the sample size was drawn from student-trainee teachers and lecturers from the same department because they had experience with the subject matter.

3.5. Description of the Sample

The study assessed different features of respondents from the targeted population including sample size, and sampling procedures.

3.5.1 Sample size

Sample size refers to the number of individual units, participants, or data points included in a research study, Creswell (2018). It is a critical component of research design, as it has significantly impact on the validity and reliability of the study's results (Rosner, 2010). The sample size of the study was made up of; forty (39) total sample size, wherein thirty-five (35) were special education trainee teachers obtained using Krejcie and Morgan (1970) table of sample size determination from the table. Since the total population of SETTs is 39 the table address to use a sample size of 35 from 39 also five (5) lecturers were purposively selected from the department of special education that’s make a total number of (40) participants.

3.5.2 Sampling Techniques

The present study applied simple random and purposive sampling technique. According to Kothari and Garg (2014), sampling is the process of choosing a suitable sample or representative segment of the population in order to ascertain the characteristics of the entire population. Creswell (2013), argued that a sample's suitability for a study depends on how well it responds to the study's research questions. Probability sampling was employed, particularly simple random technique was used, during the selection of third year Special Education Trainee Teachers whereby table of random numbers were used to select individual based on their assigned numbers. purposively sampling technique was used in selection of lecturers based on specific characteristics, knowledge, experience on teaching Braille. SETTs were chosen by using printed numbers. The possibility of bias was reduced by using basic, simple random sampling.

3.6 Research Instruments

Research instruments are paraphernalia used to collect data (Kothari, 2010). The researcher uses primary data collection instruments, and the data were collected directly from the respondents. The instruments used in this study was questionnaires guide, observation-checklist and semi structured interviews.

3.6.1 Semi-structured Interview Guide

The researcher used semi-structured interview questions during data collection. A semi-structured interview is a qualitative research method commonly used in social sciences to gather information from participants in a structured yet flexible manner (Creswell, 2014; Mugenda & Mugenda, 2012). This instrument was used for the lecturers during data collection for the aim of gathering in-depth data. All participants were presented with the same questions in the same order which made it easier to compare and analyze the answers as advised.

3.6.2 Questionnaire Guide

Semi-structured questioners were used because they save time and are easy to manage and it allow the collection of qualitative and quantitative data at the same time. According to Creswell (2018), questionnaires save time on the side of the researcher and accuracy of responses from respondents. The researcher used a questionnaire to collect data; closed-ended and open-ended questions were used to get specific, unique information and a specific category of in-depth

responses from respondents. Questions were prepared and distributed to the special education trainees' teachers. Aim at obtaining information about the experience on Braille reading skills, challenges encountered when learning reading Braille, the strategies used by lecturers when teaching Braille reading, and the integration of curriculum in Braille literacy. The closed-ended questions helped the researcher collect numerical data and measure participants' attitudes, opinions, and self-reported levels of confidence in Braille reading instruction, and open-ended questions additional context and allowed participants to elaborate on their responses. The reasons for choosing a questionnaire were that it is less costly, convenient, and not biased as suggested by different authors (Creswell, 2013; 2015; 2018; Kumar, 2011).

3.6.3 Observation Checklist

In this study, the researcher uses the non-participant observation instrument in data collection to supplement the information collected through questionnaires for special education trainee teachers. The researcher was restricted to observe only the selected skills planned at that day for observation reading time, and a checklist sheet for the criteria for the skills to be observed was used in the study. (Creswell & Plano, 2011; Kothari, 2010; Walter, 2010) Argue that the strength of this instrument is that researchers have access to more of the things that are happening naturally. Since those being observed were not aware of being observed to know that someone was observing their actions, the problems associated with participant observation, such as concealment and hypocrisy, were avoided.

3.7 Data Collection Procedures

Before the beginning of data collection at the research site, the researcher sought permission from the Directorate of Research and Graduate Studies of the University of Zambia and then was presented to the Deputy Principal for Academic Affairs of the private University College Education for the respective university administration boards to obtain permission for collecting data and to interact with the research subjects. The researcher starts with observation among the respondents on how they read Braille to capture their skills regarding the lag of Braille reading skills. Then, a Questionnaire with SETTs follows to capture their views on how they experience Braille reading, strategies used by their lecturers to teach, challenges they counter and curriculum integration on Braille literacy. At last, the researcher conducted interviews with

lectures to get information to supplement what SETTs answered in questionnaires. During the process of data collection, interviews, questionnaires and observation of lecturers and SETTs were held during school hours to promote participants' full cooperation. Meanwhile, the researcher used observation checklist paper during observation data collection in the field and notebooks to take notes of relevant data of the research during interviews, following the participants' agreement conversations from interviews were audio-recorded.

3.7.1 Pilot Study

Data quality cleaning is the process of data profiling to discover inconsistencies and other anomalies in the data as well as performing data cleansing, for example, removing outliers to improve data quality Creswell, 2011; Cohen, 2017; Kumar, 2011. A pilot study was conducted at a private University questionnaire paper, interview questions and the observation checklist were tested. This was done by asking 15second year special education trainee teachers to give out their comments on the questionnaire sheet and also were given a test on reading for observation and finally, three (3) lecturers were interviewed. The purpose of the pilot study was to determine if the research instruments would produce the type of response for which they had been developed. The researcher discovered that the interview questions were mixed up and were not categorized according to research objectives. Also, some questions were asked two times with different words but with similar answers. Additionally, in questionnaires the researcher discovered that some questions were ambiguous, making it difficult for the special education trainee teachers to understand. For example, "explore your experience on mastering Braille reading skills but tick on whether good, bad, average or null" Afterwards, the researcher had to set a well linked scale values for the response as good, average and poor and paraphrase the questions for easy understanding by the respondents on interview guide. Thus, the pilot study was useful in determining whether changes were needed to the interview and questionnaire questions before beginning the actual data collection. Consistency of the study was ensured by administering one type of questionnaire for all SETTs and interview guides for lecturers at the University.

3.8 Trustworthiness of the Study

Since in quantitative trustworthiness include terms validity, reliability and generalization in qualitative data use the term trustworthiness, which means set of principles used by researchers to

determine the quality of a qualitative data (Bryman, 2012). It provides an alternative measure to reliability and validity commonly used in quantitative research. The quality of the qualitative part of this study was guided by four criteria of trustworthiness as proposed by Guba and Lincoln (1994; as cited in Bryman, 2012).

3.8.1 Credibility

This criterion deals with the truthfulness of the findings or data in relation to the participants who are involved in a study with their social context (Bryman, 2012; Connolly, 2016; Kumar, 2011). To ensure the confidence of truth of the data collected, multiple sources of data collection and analysis were adopted, including observations, questionnaire and interviews. This process helped the researcher to make interpretations which align with respondents' experiences and perspectives. Extensive use of quotations from the interview transcript and questionnaire was another strategy that was used to enhance the credibility of the study.

3.8.2 Dependability

Dependability criterion looks at the consistency of the research findings over time (Bryman, 2012; Connolly, 2016). In this study, this criterion was implemented through the use of purposive sampling technique and peer examination. Moreover, the researcher keeps safe records of the whole process of research of interview transcripts, fieldwork notes and tape recorders.

3.8. 3 Confirmability

Confirmability measures the degree to which the findings of the study originate from participants' views rather than the researcher's biases (Bryman, 2012; Connolly, 2016). To take consideration on this criterion, the researcher ensured that there was clear connectivity between the research findings, endorsements and assumptions. Besides, the researcher shows verbatim transcription excerpts at reporting of findings of the study to indicate the validity of the findings. Also, uses peer debriefing and member checking.

3.9 Data Analysis

Data analysis is the process that involves tabulation, editing, coding and classifying of collected data (Braun & Clarke, 2012; Cohen et al., 2018). Data collected in the study were analysed both quantitative and qualitative. Whereby, quantitative data from questionnaires and observation (checklist) were analysed using descriptive statistics analysis, the analysis and result were presented in frequency and percentage tables. Thematic analysis was used to extract meaningful insights from qualitative data, focusing on similarities and differences to identify themes to understand shared experiences and meanings on the data collected from semi structured interview guide. The data were coded and analysed on the basis of the objectives of the study.

3. 10 Summary

This chapter presented the research methodology which the researcher applies to explore the special education trainee teachers experience on Braille reading skills at a private university in Tanzania. The chapter also discussed the type of research approach and research designs, population, sample size, sampling techniques and the research instrument that was adopted in this study. Finally, the chapter discussed data collection procedures, data analysis as well as the way validity of data was assured.

CHAPTER FOUR

DATA PRESENTATION

4.0 Overview

This chapter in the first place gives an outline of participants' general information in terms of gender, qualification, Age, experience and knowledge of respondents. It also takes into account the presentation of the major findings that emerge from the study in line with the objectives that seek to: (i); Explore special education trainee teachers' Braille reading experiences, (ii); Strategies used by lecturers in teaching Braille, (iii); The challenges SETTs face when learning and (iv); The extent of curriculum integration explanation for both respondents. The chapter further recasts the key findings in line with the above (4) objectives and some findings from the demographic information. Actual participant's responses based on open-ended questions and interview guide have been represented in the form of quotations. The findings are also presented using statistical tables and reflective notes to support the provided responses.

4.1 Demographic information of the Respondents

4.1 Gender and age of Respondents

The study involved both males and females' gender of respondents who had taken part in this study had their information indicated for the purpose of analysis.

Table 1 Gender and age of SETTs

Item	*Male*	*Female*		
	frequency	*Frequency*	*Total Frequency*	*Total Percent (%)*
Age				
20-24	11	8	19	54
25-30	6	3	9	25.71
30-34	2	2	4	11.43
35-40	2	1	3	8.57
Total	21	14	35	100

The findings from Table 4.1 Indicate that 57.14 percent of the respondents were males and the other 42.86 percent of the respondents were females. The findings of the study showed that there

were more male participants than female participants in the study. This indicates that the majority of respondents who participated in this research were male. Also, the findings on the age distribution of the respondents reveal that 54.28 percent of respondents belonged to the age of between 20-24, whereby 25.71 percent belonged to the age of 25-29, then 11.43% were aged between 30-34 and 8.57 percentage was age between 35-40 years the findings reveals that the majority of SETTs belong to the age group of 20-24.

4.2 Duration of Experience in Braille Reading

This section presents, third-year Special Education Trainee Teachers and the time they experience Braille reading as presented in **Table 2** below which illustrates the length of years SETTs have interacted with Braille.

Table 2: Distribution of respondents' duration on reading Braille

Years	**No SETTs**	**Percentage (%)**
1-2	29	82.86
3-4	6	17.14
5-7	0	0
Total	35	100

In Table 2 the findings revealed that 82.86% of respondents had experienced Braille reading for almost 1-2 years, 17.14% experienced Braille for 3-4 years and 0% experience Braille reading for 5-7 years. This study revealed that the majority of respondents had experienced Braille reading for a short period almost between 1-2 years thus affect the process in reading.

4.3 Place for interposition with Braille

This section presents the areas and location specifically different Special Education Trainee Teachers interact with Braille reading skills, from different level of learning the information is presented in the table below.

Table 3: Distribution of place for interposition with Braille for respondents

Place	Numbers of respondents	Percentage (%)
Primary school	4	11.43
Secondary school	1	2.86
Collage	1	2.86
University	29	82.86
Total	35	100

Result from the respondents indicate that 82.86 %of SETTs interact with Braille reading skills for the first time at university level, 11.43% at primary level, 2.86% at secondary and 2.86 collage level thus might limit the mastering of Braille reading skills. The late interaction with Braille affects the level in mastering different reading skills because the early the interaction had positive effect on being competent to different skills

4.4 Lecturers Qualification

All the participants in the study had received formal training in special education (under the specialization of Visual impairment at a degree and a master's level some opted for other fields but within the same department. Two lecturers shifted from the program of Visual impairment as a career to Specific learning disability due to a shortage of experts, they also teach Braille as one of their courses at the university. The findings revealed that out of the 5-lecturer interviews (2) had first degrees, second and PhD in Special Education under the specialization of visual impairment, while (2) had only a degree in the specialization of VI but masters in another specialization within the department of special education and one (1) had a first degree, second in Special Education under the specialization of visual impairment but a doctor of philosophy in psychology.

Table 4; Qualification of Lecturer

PhD (Doctorate)	Masters	Degree
2	1	2

4.5 Duration in Working in the Field of Braille

A researcher needs to find out how long the lecturers had been in the teaching service specifically in Braille, they were asked the number of years in active service. The findings revealed that two (2) lecturers had worked as special education lecturers in the field of VI especially on Braille for five (5) years, while two (2) their work duration was (3) years and the last respondent had worked for almost 2 years. This demonstrated that the lecturers' participants had worked in the field of Special Education in the program of VI with Braille for a reasonable duration and had personal experiences teaching Braille reading skills. Some lecturers reported that they had experience in teaching Braille from diploma to university level and some, their experience in teaching Braille started at the university level. The level of knowledge and experience among lecturers was of greater value to influence the competence of SETTs in Braille Hence, lecturers were expected to have the right knowledge and extensive experience in teaching Braille skills to support the learning process of their students.

Table; 4.5 Working experience

YEARS OF EXPERIENCE	NO OF LECTURERS	PERCENTAGE
2	1	20
3	2	40
5	2	40

4.2 Special Education Trainee Teachers Experience in Braille Reading Skills.

In order to obtain information on the SETTs Braille reading skills questionnaire were held each SETTs was given a checklist with different skills that have to master and guided to indicate the level of understanding on the critical Braille reading skills prepared. By using this method respondent were free to indicate their level of understanding on the mentioned characteristics. **Table 6** indicate the level of understanding of Braille reading skills for SETTs. This information helped the researcher to understand the level of reading skills to the respondents.

Table 6: Special Education Trainee Teachers Braille Reading Skills

Experiences on Braille reading skills	Good/ F	Percentage (%)	Average or fair/ F	Percentage (%)	poor/ F	Percentage (%)	Total (%)
Accuracy letter recognitions	16	45.71	4	11.43	15	42.86	100
Punctuation recognitions	12	34.29	3	8.57	20	57.24	100
Reading Comprehension	5	14.29	4	11.43	26	74.29	100
Word formation and sentence reading	6	17.14	8	22.86	21	60	100
Alphabet reading	25	71.43	6	17.14	4	11.43	100
Tracking lines and finger dexterity	5	14.29	12	34.29	18	51.42	100
Tactile discrimination	3	8.57	10	28.57	22	62.86	100
Proficiency reading speed	6	17.14	4	11.43	25	71.43	100
Recognition of contracted and uncontracted Braille	9	25.71	6	17.14	20	57.14	100
Total	87	27.62%	57	18.1%	171	54.28%	100%

Source; From field data, January 2024

Data presented in Table 6 reveals that the majority of participants 54.28 percentage rated their experience in mastering Braille reading skills as poor, where as 27.62 percent of respondents said were good at reading Braille in general SETTs, and 18.1 percent said they were at an average ability level.

4.3: Strategies and Support Systems Lecturers use in Teaching Braille Reading to Trainee Special Teachers

The aim of this objective was to know if there are any specific strategies lecturers uses when teaching Braille reading skills. The respondents were asked to answer the question asked by ticking on yes or no as follows;

Table 4.7: Availability of Teaching Braille reading strategies

Responses	Yes	No
Frequencies	16	19
Percentage (%)	45.71	54.29

Source; From field data, January 2024

Data presented in Table 7 reveals that 45.71 percent of responses indicated that lectures use specific strategies when teaching, while 54.29 percent of responses showed that there was no specific strategy course used by instructors when teaching.

Also, when respondents were asked to mention those specific strategies, lecturers use when teaching Braille reading skills the responses was as follows:

> "SETTs 14... *lecture uses practice-based mode as a strategy whereby he gives us a lot of assignment to do practically, especially in writing in case of reading assignment we are given few tasks."*

Responses indicated that the lecturer uses a participatory method.

> "SETTs 12… *Lecturers always uses participatory method and student-based during learning activities. The lecturer also emphasizes tactile sensitization activity to make us sensitive when reading Braille, they encourage us to cooperate with our fellow students especially the visually impaired so as we can learn more."*

Some approach was mentioned by more than one respondent SETTS 2,4,7,30 reported that:

> *"……. they use a different strategy to teach us not a specific strategy sometimes they use a Multisensory approach (combining touch, sound especially on a computer, and Letter-by-letter instruction when teaching so every lecturer uses different strategy"*

From the study, the findings indicate that there are no specific strategies lecturers use when teaching SETTs to master Braille reading skills each lecturer uses a different strategy based on his knowledge.

4.3.1: Supportive system

When asked if course lecturers and the university as a whole provide any supportive systems, SETTs responded as follows:

Table:4. 8 Availability of supportive system

Response	Frequency	Percentage (%)
Yes	16	45.72
No	19	54.28
Total	35	100

Source; From field data, January 2024

The study findings in Table 8 reveal that 45.72 percent of responses indicate that there was provision of a support system when learning Braille reading skills, and 54.28 percent indicate that there was no support system provided by the University in terms of learning Braille reading skills.

When asked to name different support systems, individuals who answered "yes" on the questionnaire indicated that lecturers tend to use software programs in the University computers to teach, and the program used is Duxbury Braille Translator (DBT). The following also were some of the responses from two respondents:

"SETTs 1,22 …*We are provided with seminal based on Braille and one of our lecturers also prefers using Braille display model, Screen reader and tactile Graphic Display when it comes to Braille reading on software program not hard copy Braille document."*

When asked how they learned Braille without a supporting system, the majority of those who said no including SETTs 4 provided the following responses:

SETTs 11,13,14 and 29 said that *"When it comes to software programs at university the computers are much concentrating on reading programs from normal to Braille for our fellow students who are blind and also DBT is not much known and used to us rather than lecturers especially when they prepare exams they teach as theoretically through giving us some detailed about the program but time for real practical is very limited."*

Also, SETTs no 5,6 and 9 added that

"……. project prepared by lecturers on the course of Braille is not much practical implemented lather than when we go there, we learn much on how to operate machines like embosser and Perkins and few is concerned on reading skills."

4.4 Challenges Special Education Trainee Teachers Face When Learning Braille Reading Skills

Additionally, the study seeks to identify the specific obstacles faced by special education trainee teachers as they acquired knowledge of various Braille reading skills. Participants were asked to indicate whether they faced challenges or not. Their responses were as follows

Table: 9: Availability of challenges

Responses	Frequencies	Percentage (%)
Yes	29	82.85
No	6	17.15
Total	35	100

Source; From field data, January 2024

Data presented in Table 9 reveals that 82.85 percent of responses showed that they encountered a lot of challenges when learning Braille and about 17.15 percent indicated that they had no challenges. Some of the challenges encountered were as follows:

Shortage of Braille expertise the special education trainee teachers report that there is a shortage of full-time Braille expertise which makes it a challenge for them to learn Braille reading skills in a real practical way. As a result, they are not competent in reading skills. SETTs 2 reported that

"We have a shortage of professionals when it comes to Braille matters also the available expertise their almost busy with different activities"

Poor Braille early knowledge and low experience in reading Braille skills

SETTs responses indicate that they have problems mastering different reading skills especially when it comes to reading skills such as tactile sensitization, tracking lines, finger dexterity and

tactile discrimination resulting in problems when reading speed this was associated with lack and poor early intervention with Braille.

SETT 5 reported that

> *"I have been interacting with Braille for a short time which caused me to mix Braille code, challenge on reading grade two, abbreviation, short-form word, tactile discrimination, and sometimes mixing short-form words found in Swahili Braille and that of English, resulting in stacking when reading Braille in accuracy way".*
>
> SETT 6 added *"We are coming from different schools and colleges some of us we never interacted with Braille issues until at the university level due to that is a challenge for us to be competent in to year we experience Braille"*

Insufficient learning exercise, practice feedback and learning material

SETTs responses showed that they have challenges mastering Braille reading skills due to insufficient learning exercises given by the course instructor, poor feedback and sometimes less feedback given after marking the assignment.

SETT 2, 33 and 34

> *"University under the department of special education have Shortage of learning material for practice like Braille paper books and another instrument like Perkins and little exercises we a given affect the learning process*"

4.5 Extent of Braille literacy integrated into the special teacher trainee curriculum

This objective aimed at finding out the extent of curriculum integration to Braille literacy. SETTS were required to tick a verification of Braille literacy integration on their curriculum. SETTS rated the extent of some basic things to be integrated into their curriculum The results presented show that to a low extent Braille literacy concept has been integrated into the curriculum was observed as a cause of problems when it comes to mastering different Braille reading skills as associated with the curriculum and course outline.

Table 10 below shows the degree of integration.0; Extent of Braille literacy integrated in the special teacher trainee curriculum

Statement	Very greater extent	Percentage (%)	Greater	Percentage (%)	Some extent	Percentage (%)	Little extent	Percentage (%)	Very little extent	Percentage (%)
1.To what extent curriculum have reflected to strategies used in learning Braille	2	5.72	4	11.43	3	8.57	19	54.29	7	20
2. To what extent the curriculum provides opportunities for practical application and hands-on experience with Braille literacy.	5	14.8	3	8.5	2	5.7	15	42.8	10	28.5
3. To what extent do curriculum reflect with the course content provided in Braille literacy skills and amount of time dedicated to teaching Braille literacy in this program is sufficient.	4	11.4	2	5.7	1	2.8	17	4.68	11	31.5
Total	10.7		8.6		6.4		47.1		27.2	

Data shown in Table 10 shows that 47 percent of respondents conformed that, to a little extent Braille literacy has been integrated into the curriculum, which facilitates in poor mastering of skills, while 27.2 percent of respondents' response shows that to a very small extent, Braille literacy has been integrated to curriculum, 10.7 percentage of responses shows that to a very greater extent, Braille literacy skills has been integrated, however, 8.6 percentage of responses indicate that for greater extent Braille literacy has been integrated to the curriculum and 6.4 percentage of responses shows that for some extent Braille literacy has been integrated to the curriculum.

4.6: Data from Observation

The researcher also employed a non-participant observation method to witness and capture the way special education trainee teacher follows the aspects when reading Braille activities as they take place in the natural setting (sampled characteristics at a private university). This was done during lesson hours when lecturers provided tasks for SETTs to do during class hours, and observations in the lecture hall were conducted with minimal lesson interference for 4 weeks. Every lesson was observed for 45 minutes on different days. The data observed by a researcher based on the behaviour of SETTs in reading Braille are presented in percentages as follows;

Table 11; A study of behaviour of trainee teachers in Braille reading skills

	Experience on Braille reading skills	Good	Average	Bad
A	Punctuation recognitions	10	10	15
B	Reading Comprehension	5	9	21
C	Word formation and sentence reading	8	12	12
D	Alphabet reading	20	9	6
E	Tracking lines and finger dexterity	8	10	17
F	Tactile discrimination	8	7	20
G	Proficiency reading speed	7	8	20
H	Recognition of contracted and uncontracted Braille	5	10	20
	TOTAL	71= (23.6%)	75= (24.8%)	131= (51.6%)

Source: Data from the field, January, 2024

The finding from the field shows in Table 11 that, 23.6 percent of respondents who observed characteristics were able to master well Braille reading skills or characteristics, 24.8 percent of respondents had average ability to master the skills when observed during reading, and 51.6 percent had serious problem in mastering all observed characteristics. The study revealed that there is a serious problem with reading skills for the majority of respondents observed from all the class hours. The researcher selects three skills to observe in each lesson based on the study need

4.7 DATA FROM LECTURERS (INTERVIEW)

To obtain first-hand information on the study titled Special Education Trainee Teachers Experiences on Braille Reading Skills interview were held at a private university based on three objectives. By using this method of data collection lecturers were able to give in-depth information about their student-teacher experience on Braille reading skills. The following are the responses based on the research objectives.

4.7.1 Strategies Used When Teaching Braille Reading

This part of the study sought to know different strategies used by lecturers when teaching Braille reading skills among special education trainee teachers different lecturers explained the way they teach their SETTs when asked about the strategies used when teaching Braille reading. All the participants reported that, since most SETTs when joined the VI program most of them have no early experience in Braille not only in reading but also in writing as we are forced to use different strategies or approaches to input the knowledge. Lecturers had a lot to say;

Lecturer (A) had the following to say:

> *"I normally use lecture and collaboration between themselves when I introduce the concept of Braille, then student Centred in term of giving a lot of assignment from the book to translate from normal to Braille and sometimes from Braille to normal but most are writing-oriented tasks."*

Another Lecturer (B) also expressed a similar view when stressing that collaboration and student-based strategies are used when teaching SETTs. This is what one of the lecturers said: that

"I most prefer practical based as a strategy when teaching giving a lot of tasks for them to do also sometimes, I use visually impaired students to teach their fellow and guide them on how to read Braille."

Another lecturer (C) also argues that

"Since most of these SETTs had no prior knowledge of Braille, I always use the challenge method to teach them how to read Braille proficiently this method is done when I prepare tasks and give them in groups to read in the form of translating from Braille to normal where one member from the group read and the second group look on what their friends read if its real to what has been written on the Braille paper and some time I let them make as a game for competition."

Not only that also lecturer "D and B" added that

"We use different strategies based on our understanding, the concepts of specific strategies we use in teaching e use different methods based on our student's needs, our skills and available resources."

Another lecturer (E) reported that

"Braille reading goes hand in hand with Braille writing for me I use Assistive technology especially computer software programs to make my students master the skills when reading Braille so no specific strategy I use."

The findings also reveal that due to different experiences of Braille between the instructors even the teaching strategies vary and range from one lecturer to another However, this was an indication that their knowledge was different and limited. Lecturer.

Lecturer 'A' put it as follows:

"In the field of Braille, we learn from different universities in and outside the country thus making us as an instructor use different strategies when teaching our students example for me, I prefer using tactile mode this is to make their fingers to be more sensitive when reading and also, I use Vocabulary model to make them competent in understanding the vocabulary in Braille when transcribing them (reading)."

Lecturer "D" added that

"I most prefer using, the tactile approach, multisensory approach repetitive and reinforcement approach when teaching the skills in reading Braille sometimes even in writing I also use participatory method between a student with visual impairment and a normal student teacher to cooperate and share ideas about Braille."

From the responses of lecturers, it is evident that when teaching Braille reading skills different strategies are used by lecturers to help their student teacher though most of the strategies used are not in Practical form so no specific method has been put forward but every lecturer uses the method that is simple for him or her and for their SETTs class. The findings show that the strategies used by lecturers were tactile approach, multisensory approach and student centred.

On the same objective when asked about the support system they use to equip knowledge to their student with Braille reading skills the response was as follows. In general, they report that the university under the Department of Special Education Needs has its resource room whereby the soft program has been installed in the computer Based on Braille.

One of the lecturers (A) had the following to say

"A major support system I do use is using computer software system like Duxbury Braille Translator to influence my student to read Braille."

Another lecturer (B) also reported that

"I prefer using seminal from various workshop programs especially based on the Braille reading competitions example the workshop conducted in October 2023 under the Ministry of Education each year I send my students to go and learn though when it comes to the competition most of them, fail."

Lecturer "C" argued that

"For me, a supportive system or approach I used to my students is debate competition in the form of reading and writing Braille giving them limited time to compete in reading and writing Braille given them a topic to discuss."

Another lecturer added that

"I prefer using Braille display model, Screen reader, and tactile Graphic Display program to make my student competent in Braille reading technologically but the challenge is that most of SETTs had low skill in computer."

Lecturer "E" added that:

"I use the Braille display model, Screen reader, tactile Graphic Display, oral Braille reading, instructional vocabulary, and constant time delay approach also, I use Braille software program, workshops, and training sessions and Braille teaching manual and continuous classroom observations as a support to my students"

4.7.2 Challenges That SETTs Encounter When Learning Braille Reading

In a study conducted at a private university in 2024 lecturers presented their views concerning the challenges that in one way or another lowered the effectiveness and efficiency of the training on Braille's reading skills to their student's teacher who undertook the program of visual impairment. The challenges mentioned included limited time to accomplish the training, poor infrastructure and manpower leading to many trainees in one room, poor learning environment to support all trainees, incompetent trainers, inadequate learning materials, and insufficient training allowance.

Shortage of Teaching and learning material

Lectures at a private university reported that their student is not equipped well with the skills in reading Braille due to insufficient material for practical learning. One of the lecturers said that the material for practical practice is not enough compared to the student number.

Lecturer B reported that

"The material like Braille books paper and computer are not enough at the university to meet the needs of our students that cause a lecture to teach theoretically-based rather than practical."

Lecturer A also had views to add as he said that

"Shortage of material for more practices had resulted to low motivation for the student teacher to stick on Braille reading practices."

Shortage of full-time Braille experts

Most of the lecturers in the study reported that the field of visual impairment as a specialization has few permanent specialists, especially at the university thus causing the student to be taught with more than two lecturers in the same course but lecturers with different experiences of Braille to where they come from and this affect the SETTs in mastering these Braille reading skills.

Lecturer E reports that;

"The university had low full-time lecturers and experts on Braille skill that interfere for them to be competent since each part-time lecturer comes with his or her skills and technique that time confuse our student."

Lecturer A added that

"Limited Braille expertise especially full-time expertise is also a challenge since a lot of lecturers in this department are part-time it results in our student-teacher having limited time for learning and sometimes we prefer online classes which also might affect the learning process for our student-teacher."

Low motivation from the university department

Special education trainee teachers who specialize in Visual impairment as a career program gate low support and motivation in terms of enough seminal, workshop, and partial projects compared to other specializations like those who are specialized in hearing and physical disability have a lot of projects outside and inside the university.

Lecturer A said

"My students are not competent enough in mastering well Braille since the university support is low, especially in terms of motivating them by ensuring the accessibility of everything required for Braille reading practices"

Lecturer B added that

"When I say about motivation even the provision of enough Braille reading material, especially Braille books, paper, and workshops motivate our students but these offers are of low quality at this university that also I see it is a problem"

Consequently, lecturers mentioned they thought the university had low motivation when comes to Braille courses also student teachers had low reactions when given tasks to do lazy and were not ready to learn thus lack of student readiness is a challenge not only for them to be competent.

Lecturer D reported that

"In my class especially when I give the tasks to read from Braille and transcribe to normal most of the student teachers, fail to submit the task given since we have limited Braille books and other they give the task to a visually impaired student to read for them"

C added that

"In terms of laziness ladies are lazier to read Braille when given task compared to boys"

Limited time to accomplish the training

This was mentioned by respondents as one of the challenges their student teacher experienced when learning Braille reading their responses were as follows

Lectures A, B, and D reported that

"Braille is a new skill to be introduced to an adult especially our students the time planned for them to learn Braille reading and writing is limited since in a single semester they are required to learn Braille reading in Swahili and English which makes a problem for our student".

Lecturer E added that

"The guidelines of the university are fixed with the time that limits some Braille training to take a place to make our student competent".

Poor sensitization of dots and lack of early background of Braille

Most of our students have challenges studying Braille in both Grade one and Grade two when they interact with it especially, they interact with Braille in the second year and third years since most of our students have not experienced Braille, they were challenged by some respondents' responses as follows:

Lecturer B said that

"*My student gets a challenge in differentiating some dots to some letters especially later D and then J and H when I gave the tasks to read, this is a result of lack of early interaction with Braille since most of my students learn Braille at the university level."*

Confusion on differentiating between Unified English Braille and English Braille American Edition.

During the interview, some lecturers reported that they face a challenge in using and differentiating some of the changes made on the current Braille Primer when compared to the original one. This confusion affects their students' teachers during learning especially when they are tough with more than one lecturer on the same course. Participant's responses show that despite having knowledge and skills on teaching Braille still yet they still got confusion about which primer to use and at what time. When asked about the difference between the two primer concepts

lecturers' D and B said

"Braille Primer I use as a guideline is the one updated in 2008(EBAE) whereby it is to some extent different from the current one updated in 2010 (UEB) and that of 2022(UEBE) whereby some short forms have been removed and some had been added, the challenge our student's teacher encounter is that some of us we use the updated Braille primer and other use the original primer due to that when they go to the field and sometimes when they are assessed by other Braille expertise they seem to make a lot of mistakes especially when there are given a work to transcribe some."

Lecturer A also had the following to say

"We indeed confuse our students when teaching them some of us stick to using the original primer but currently there is an updated one, the issue is that even in the University itself a lot of material is outdated, though there is little difference between the UEB and EBAE still yet is a challenge to our student's teacher."

From the field, the study found out that the concept of the use of UEB and EBAE Braille guidebook was not only a challenge to SETTs but also to their lecturers. One of the lecturers when asked about the difference between the two had the following to say.

The response from Lecturer D was as follows;

"Braille Primer is the international one even though they update but nothing new come out for me I, did not know if there is an updated one on the primer, I use during classes which were updated in 2008 but am sure there are little changes from the original one though when my students meet the new primer instruction for the first time its challenge for them to cope with."

4.7. 3 The Extent to Which Braille Literacy Has Been Integrated into Special Education Teacher Trainee Curriculum

The participant was asked to give their view on the extent of the Braille literacy curriculum to the special education trainee teachers curriculum Lecturers had the following to say;

Lecturer C reported that

"I don't have specific information about the integration of SETTs curriculum into Braille literacy, but what we use is just a guidebook as prima and a document from the main campus which sometimes seems to be outdated and does not cover the full content of Braille, especially mathematics and Swahili Braille."

Lecturer D added that

"At the university level, we have a curriculum framework whereby we create a course outline to guide the course, but the course constructed it's not specified at what time to teach Braille reading and writing though I can conclude that it's to a low extent the curriculum had been integrated to issues of Braille."

Lecturer B reported that

"The curriculum and course outline are available, but we use the outdated in which to some extent it is theoretically based, so I can say to some extent the curriculum emphasizes the issues of Braille literacy".

Lecturer A said that

"Based on the university curriculum the side course outline I use while teaching Braille literacy has been integrated to a small extent because some components of Braille literacy, especially Swahili and Mathematics are not included fully in that outdated course outline (curriculum). The

curriculum does not specify which method I have to use when teaching also the concept of technology, specifically computer-based is not addressed well."

Lecturer C also reported that added that

"The integration of special education curriculum is not specified, and the statement used is that all trainee teachers to learn and get to know both Braille reading and writing even the module, in the course outline is in general form therefore for me the integration is still at a low level."

The mastering of different Braille reading skills depends much on the way the curriculum is integrated into the course content and coverage lecturers view shows that to a low extent curriculum for training teacher has been integrated with the curriculum their views was based on the course outline, cause content, the methods proposed and the whole coverage of the cause content.

4.8 Summary

The chapter presented findings from the questionnaire, semi-structured interview and observation in the lecture room using non-participant (checklist) observation to verify the SETTs Braille reading experiences, strategies used by lecturers when teaching reading skills, challenges and extent of Braille literacy skills to be integrated into the curriculum. Data was presented based on the experience of 40 respondents both trainee teachers and their lecturers. All lecturers had experience in teaching Braille and trainee teachers were taught how to master different Braille reading skills though yet they had problems with reading. Different strategies are used when teaching how to read Braille though no specific strategies have been put forward to be used. The major challenges SETTs experience are; a lack of enough Braille expertise; shortage of learning material like Braille paper, books and Perkins; low integration of technology with Braille and low extent of integrations of Braille literacy into the curriculum.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Overview

The chapter discusses the findings of the study about and contrary to other studies. The study explores the experiences of Special Education Trainee Teachers on Braille reading skills. The discussion is guided by the social demographic characteristics of respondents and the objectives of the study which follow; (i) To explore special education trainee teachers' experience in Braille reading skills, (ii) To determine strategies and support systems lecturers use in teaching Braille reading to trainee special teachers (iii) Analyse challenges special education Trainee Teachers experience in learning Braille Reading and, (iv) Assess the extent to which Braille literacy has been integrated into special education teacher trainee curriculum. The aim of the study was archived by addressing the confounding factors that cause a lag in mastering Braille reading skills among SETTs. Also, this study suggests that having clear and updated curriculum and course outlines, practical-oriented classes, university improvement on the learning environment and material and individual hard work for both lecturers and SEETTs was necessary during the learning process.

5.1 Respondents' social demographic characteristics

The study deemed it necessary to find out some demographic respondent characteristics of Special education trainee teachers and lecturers, several characteristics were observed for example age, gender, reading experience, and Location for interaction with Braille. These demographic characteristics among respondents were of greater value to this study.

In the case of the gender of respondents, the study revealed that only (42.8%) were female and (57.1%) were male. This information revealed that male trainee teachers were 57.1% more than female trainee teachers. When the researcher went further inquiring why there was such a difference, it was realized that, in the study area, most female trainee teachers specialized in sign language (hearing impairment), and sometimes the priority to Braille for them is low because Braille needs time to interact with exercise machine while in sign language you interact with people for more practice and mostly is done by female trainee teachers.

There was a common belief in the country that male teachers are very active when it comes to technical practices while female adult teachers could interact with children best physically because

they were good caring mothers. The finding is contrary different from what (Khalif et al., 2022) found in their study they found that females were more available and active than males whereby females occupied almost 57% and males occupying 43%. However, this difference in gender representation of the respondents in the study did not affect the findings of this study.

Age of Respondents The study revealed that most of the respondent's ages range from 20-24(54.3%) which can be taken as an adult period. This indicates that the majority of the trainee teachers were fresh from school and had low prior knowledge and interaction with Braille. On the other hand, this observation implies that the majority of respondents who participated in training to improve their knowledge and pedagogical skills on Braille were adult ones and most of them have little understanding of Braille issues since their age indicates that their coming directly from school to university. However, the age of most respondents to some extent affects the mastering of Braille reading skills this was related to the fact that learning to master new skills for adults and age is a challenge compared to children so the age among SETTs and the time they interact with Braille affect their ability on mastering different Braille reading skills.

When it comes to the time for interaction with Braille, in terms of experience the study revealed that 82.86% of respondents had experienced Braille reading for almost 1-2 years, 17.14% experienced Braille for 3-4 years, and 0% experienced Braille reading for 5-7 years the study revealed that majority of respondents had experiencing Braille reading for almost 1-2 years. When the researcher went further inquiring to understand the implication of such years the findings from the field indicated that most respondents have interacted with Braille for a short period in one way to another have impacted the mastering of Braille reading skills. The findings indicated that time of 1-2 years is a time when these Trainee teachers are joined at the university so most had low prior knowledge and understanding about Braille. These findings were consistence with the findings by Mulenga & Muzata (2020) the study revealed that age and years for interaction with Braille matter a lot to the mastering of Braille literacy skills. The study showed that the number of years in which special education trainee teachers had interacted with Braille affected the mastering of Braille reading skills.

Also, when it comes to where SETTs had interacted with Braille the finding revealed 82.86 % of SETTs interacted with Braille reading skills for the first time when they were at the university level, 11.43% at the primary level, 2.86% at the secondary and 2.86 collage level. So, the result indicates that most of the respondents interact with Braille at the university level so they had little knowledge and experience in Braille, and due to that, mastering Braille reading skills has been affected. These findings replay that the early interaction the early and the easy mastering of different skills since SEETs had late interaction might be a cause of the lag in mastering the entered reading skills.

5.2 Special Education Trainee Teacher's Experience in Braille Reading Skills

The first objective of this research was to explore special education trainee teachers' experience in Braille reading skills. Findings of this research indicate that SETTs had low experience in mastering Braille reading skills. Before looking at the factor that causes a delay in mastering Braille reading skills, the researcher decided to look at the experience of different reading skills for special education trainee teachers in the study area. From the findings presented in the study, it was clear that special education trainee teachers under the program of teaching students with visual impairment are taught different Braille reading skills for them to be competent in Braille reading skills. The study found out that those who have good skills in reading Braille in general SETTs skills in reading occupy 27.62% and 18.1% average level and those with little or poor knowledge on mastering Braille reading skills was 54.28% due to that the findings exactly indicate that majority of respondents have poor or low ability of mastering Braille reading skills whereby the majority of SETTs based on the findings from closed-ended questionnaire, findings indicate that most SETTs have problems mastering different reading skills. Findings collected using a questionnaire reveal that most Special education trainee teachers had problems mastering Braille reading skills.

Also, the findings from SETTs indicate that all the reading skills including alphabet reading, recognition of upper and lower case, short forms of words, contracted and uncontracted Braille code, punctuation, reading comprehension, dictation reading individual word and sentence reading were taught. Though they are taught still yet the SETTs confirmed that they had very little knowledge of mastering those skills after being trained. Lecturers mentioned that their student teacher had problems when it came to reading Braille especially when given a task to transcribe, they make a lot of mistakes compared to what they have to archive. The study concurs with those

findings by Iqbal& Abbas (2022) which revealed that undergraduate special education trainee teachers had problems mastering different Braille reading skills within three years of study. The findings from the observation checklist show that 23.6% of respondents observed characteristics were able to master well Braille reading skills or characteristics, and they read well on a test given to read, 24.8% of respondents were observed to have average ability on mastering the skills when observed during reading, and 51.6% have serious problem in mastering all observed characteristics most of them were struggling on reading ad make a lot of mistakes on the assigned task. The study revealed that there was a serious problem with reading skills for the majority of respondents. However, when you compare the findings from both the questionnaire and observation checklist it indicates that almost 54.28% and almost 51.6% of observed characteristics show that SETTs had problems mastering Braille reading skills.

The finding is contrary different from those found by URT (2020) where it was revealed that most special education trainee teachers had mastered well Braille reading and writing skills before being employed. Special education trainee teachers confirmed that they had very little knowledge about Braille reading and writing skills before the training and after the training, all were capacitated with literacy knowledge and skills based on reading and writing competencies the study found out that most of the SETTs master well the skills after a long interaction with students with visual impairment and this is almost done after school when they are employed to different special schools or volunteer. Also, the study finding deviates from the research findings of a study conducted by TIE (2019) where they reported that 75% of pre-special education teachers in the program visually impaired (teachers teaching students with visual impairment) had mastered Braille reading and writing skills and only 25% had challenge on Braille literacy skills when they are graduating. The different findings from the current study and the previous study are the data collection tools used to get the real information. The current study uses both close-ended questions and a non-observation checklist to compare the results between the two tools while the previous study used just yes and no questions that respondents might have hidden their real situation on mastering Braille literacy skills.

Furthermore, the study revealed that special education trainee teachers had difficulty mastering Braille reading skills within three years due to different backgrounds of interaction with Braille, it is difficult to master Braille reading skills as compared to other subjects which they interacted with even at another academic level (advanced level). Mastering Braille reading skills needs a lot of

effort time and prior knowledge. Although special education trainee teacher was taught how to read Braille but time for mastering those skills seems to be not enough for them to master well the skills. The findings are in line with those found by UNESCO (2013) revealed that time and prior knowledge matter a lot for teachers in special education especially those teaching Visually impaired students when it comes to mastering Braille reading and writing skills.

Also, the findings of the study revealed that most of the SETTs under the observation checklist had poor tactile sensitization skills on dots and sentence coordination when were given a task to read, the findings report that STTs failed to master those skills. This problem of poor sensitization for SETTs especially those who are not visually impaired has also been reported by Papadimitriou &Argyropoulos (2020) the study findings were that for a person to be a good Braille reader had to master different reading skills like tactile sensitization fluent reading comprehension and sentences but most of the people failed to read well Braille due to poor mastering of tactile sensitization, dots of alphabet and tracking line skills which was also observed among SETTs. It was however observed that for special education trainee teachers to be competent in the mastering of different Braille reading skills it needs effort and time for more exercise since Braille seems to be like a science subject that needs mastering of formulas and theories which is similar to Braille had also theory and formula to follow to master the reading skills. Also, the study findings report that SETTs had problems when comes to finger dexterity and tracking lines due to that it is difficult for them to read well. Woodlin and Helbrunn (2018) report a similar problem in the project conducted for early beginner Braille readers between the years 2017-2018.

5.3 Strategies and Support Systems Lecturers Use in Teaching Braille Reading to Trainee Special Teachers

Universities and colleges offer literary Braille instruction in several ways, like an online or face-to-face course or a series of courses spread over several semesters, a course that combines Braille instruction with general literacy strategies (that is, how to teach Braille reading and writing) Possi & Milinga, (2017) and Tibatigeza, (2018). These differences in approach to Braille instruction by universities and colleges are often related to an individual state's unique guidelines for teacher certification and a university's particular requirements for its teacher preparation program (McCall & McLinden 2011). Strategies for teaching Braille reading skills for SETTs are necessary to help

student teachers master well the skills. Despite of challenges, the findings revealed that lecturers were still struggling with the appropriate strategy and support system in teaching Braille reading skills. This was observed through the close-ended questions, open and semi-structured interviews when both special education trainee teacher and their lecturer were asked to mention specific strategies used when learning Braille reading skills and the study found out that there were no specific strategies lecturers use though the course seems to be like a science course which needs a lot of practical and specific strategic approach to use when teaching.

Having specific strategy when teaching a new concept among the learners is very important. If there is no specific approach addressed to be used student teachers or learners cannot master well the reading skills. The university must ensure that there is the use of specific strategies when lecturers are teaching Braille reading skills. However, most of respondents both lecturers and SETTs claimed there are no specific teaching approach used to input knowledge on Braille to student teacher also reference should be made to the University policy to enhance learning approach by emphasizing on the use of specific approach that can help to enhance learning practices among lecturers and SETTs. On the strategies, addressed by SETTs through close-ended questions the findings revealed that about 19 (54.29 percentage) of responses shows that there were no specific strategies lecturers uses when teaching Braille reading skills since every lecture used the approach which he or she was aware of, and only 16 (45. 71 percentage) argue that some lecturer uses some specific strategies like tactile approach and practical based approach. Since Braille is a new concept that most of SETTs have never interact with it before lecturers have to use specific and strategic approach when teaching this course. Using the findings, it is like lecturers rarely use practical oriented as an approach despite the knowledge portrayed on how to use it when teaching reading skills.

The study found out that lecturer experience and skills matter a lot in the choice of approach to use when interacting with their students the lecturer who had taught Braille for more than 5 years the teaching strategies, approach, and mastering of Braille code was reported to be different from the lecturer who had only taught Braille skills for almost 2 years and this matter a lot on the student teacher to master the skills. The study findings of the study also showed that due to having different Braille subjects including Swahili Braille, Mathematics, and English Braille both are taught by

different lecturer's Swahili and English Braille theoretical-based approaches are most used while mathematics practical-based are used by some lecturers.

On the other hand, through interviews, lecturers mentioned different approaches they use when teaching, some indicated that they use using participatory approach and practical based some argued that due to limited time and having other courses they prefer the lecture method and giving the task to their students to write from the book and tutorial assistant are the one who mark those tasks, according to the interview comment the lecturer are trying to cover the course content since in the same course they teach both reading and writing so some time they rush their student for the case of covering the course outline on time. Also, the multisensory approach is used as a strategy whereby we inspire our students to connect their eye and finger sensitivity when identifying Braille dots. SETTs agreed that there were exposed to this approach but most of lecturers are not using this approach due to the circumstance that it is time consuming and they are required to cover the course outline on time This strategy was in agreement with Stanfa and Jonh (2015) who stated that for a Braille beginner to master well and be able to identify the Braille dots multisensory approach is the best approach to use when introducing the content.

Having specific teaching strategies when teaching Braille reading skills is very important among lecturers. Lecture needs to know their student teacher and their preferred mode of learning Braille. This is very important to beginner Braille learner. However, the study found that the tactile approach improves finger sensitization and identification of dots and enhances memorization of dots and Braille codes though it was found that are not excessive used by some of lecturers. Teaching Braille to adults to master well these skills needs their readiness and sometimes needs the use of different specific approaches to push and motivate them to practice more. Wamunyi (2017) stated that teaching with the combination of different strategies is the most suitable approach to improving literacy skills among Braille beginners. This finding is in line with the current study findings where SETTs and lecturers agreed that different strategies are used when learning Braille reading skills though most of the strategies are theoretically and orally based.

The other findings of the study also revealed that due to different experiences of Braille between the instructors even the teaching strategies vary and range from one lecturer to another thus some prefer the vocabulary approach as they believe that when a student teacher masters different

vocabulary and their dots it is else for him or her to read and write Braille well. However, lecturers had knowledge on using different methods like introducing knowledge of decoding and Braille word-analysis, encourage students' teacher to develop vocabularies and read them and giving different tasks to identify and read different Braille words. This finding was in agreement with that of Savaiano et al. (2017) instructors experiences and the use of vocabulary approach enhance Braille reading skills and help a Braille reader to master and be able to identify word and reading comprehension.

Findings on supportive system University offer to enhance mastering of Braille reading skills the findings showed that 45.72% of responses indicate that there was the provision of a support system when learning Braille reading skills and this support system given in the form of assistive technology and different workshop on other hands the findings found that 54.28% indicate that there is no support system provided by the university in term of learning Braille reading skills. The study found out that most of these support systems especially when it comes to different workshops they attend only as observers and do not participate in activities also the available software in the resource room, they are limited time to interact with and sometimes had problem in network connectivity that affects the usefulness of different computer programs.

The study also found out that most Braille workshops are attended by lecturers and trainee teachers who are visually impaired and other special education teachers when they attend are like observers so they learn little compared to what they are required to master. As indicated in the conceptual framework that mastering of different Braille readings skills is a result of positive interaction of specific strategies lecturers use in the lecture room matters a lot to the program. Siu (2016); Croake et al, (2024) on their studies they propose the use of Individualized Meaning centred approach and the use of evidence based pedagogical strategy for importing complex skills of reading which also needs Braille literacy experts and reader readiness.

Also, the findings showed that support systems, especially in terms of devices to enhance Braille reading mention Screen Reader, Braille Display, Tactile Graphics Display, Duxbury Braille Translator (DBT), Braille skinners, embosser software programs like Job Access for Windows and Speech (JAWS) which are in resource room computer for them, they are limited to interact with those programs. The study found that the use of Assistive technology by the student teacher had a

greater impact on the acquisition of skills since the world now is in the technology sphere so different computer programs based on reading Braille enhance learning to some of SETTs also the findings from some respondent argue that the use of technology devices deteriorates that mastering of skis by making student teacher lazy. The findings as contrary different with those found by Dixon (2021) where it was revealed that due to the advancement of technology, Braille reading can be taught by using different software programs on phones and computer Mobile Apps like JAWS and enhance learning activity if only are used in a usefully way.

Also, the findings were in line with the study by Farrand and Vasquez (2023) which their findings were revealed that the use of different software and hardware program in teaching Braille skills and use of different simulation program was seen to affect the real meaning of Braille learning and mastering of both reading and writing Braille instruction among student teachers. Though the study found that usefully of different soft and hardware program in learning Braille motivates student teacher in learning but Markelz et al. (2023) report that a possible trend of technology use seems to affect not only the way Braille is taught to teachers but how proficient they become in teaching Braille to their own students. This was also reported by respondents that technology is good in learning but the way it operated had negative impact on mastering Braille reading skills.

It is therefore, important for the specialist lecturers to know all their student's teachers and their preferred mode of learning Braille reading skills when teaching them. Using wrong teaching strategies and concentrating on software and hardware program have impact on their student's teacher on mastering of skills. Lecturers teaching Braille are encouraged to use specific teaching strategies to their students' teachers. They can however use a combination of practical based learning students based and application of different assistive technology to their classes.

5.4 Challenges Special Education Trainee Teachers experience in learning Braille Reading

The third objective of this study requires special education trainee teachers and their lecturers to analyze different challenges that hinder them from mastering Braille reading skills. This section discusses the findings on the challenges SETTs experience when learning Braille reading skills, and the findings are also discussed in line with what other researchers write on challenges that SETTs experience. During the study, lecturers and Special Education Trainee Teachers had to indicate the direct challenges that face them in mastering Braille reading skills. The findings of the

study indicate that SETTs are faced with different challenges which are individual, technical challenges, and institutional challenges. Those challenges have influenced the inability to master the skill as required.

The findings revealed that most Special education trainee teachers had challenges in mastering both contracted, uncontracted Braille code and short forms. This was explained, and some of the student's teachers mentioned this challenge in comparison to the mixing of Unified English Braille and that English Braille American Edition lecturers use. The study found out that SETTs learn contracted Braille uncontracted, alphabet words, short forms and different abbreviations but yet when given a task to read they face difficulty remembering, others agreed that Braille grade 2 is difficult to master since it has a lot of short forms that stand for a word so to remember when reading a big clause, it is not easily. It was revealed that SETTs had a problem reading some words like THOUGH when given a passage. In the word THOUGH it has a word sign like TH, OU and GH, so they seem to confuse dots for THE and that for TH which stands for this. Braille is a new language to most SETTs so learning how to read is not easy. It was found that Contracted Braille was not easy, but sometimes it was confused due to a lack of tactual acuity among SETTs and a shortage of access to updated Braille material.

The findings are in line with those found by AFB (2016); and Farrand et al. (2022) where these studies revealed that most of Braille beginners had problems mastering code especially in Braille short forms, contracted and uncontracted code though they were taught how to read the two Braille grades but still, yet they get confused when reading. In this study, 82.85% of responses from the respondents indicated that they encountered a lot of challenges when learning Braille and about 17.15% indicated that there was no problem. Also, through open-ended questions, special education trainee teachers mention different challenges they encounter, inadequate teaching materials indicated by the majority of the respondents. More than half of the respondents felt that lecturers failed to use practical teaching and give them practice since learning material for effective practice like Braille reading books, paper, machine, and hand flame is not enough for them to practice more due to low quantity in numbers compared to several users. Lack of Braille reading syllabus as a subject to be taught on the university timetable and lack of commitment among lecturers when it comes to assessment issues. Most assessments are based on writing and the feedback to student teachers tends to be late for improvement was also addressed as a challenge

that limits the mastering of skills, as Braille needs the effectiveness of experts in the learning process.

The study also, found out that most lecturers provide assignments on writing Braille and few assignments were given to transcribe what they had written, and even when they were given the task to transcribe (read) lecturers and tutorial assistants failed to give out feedback on time. Furthermore, the study findings established that most of the lecturers and student teachers at the university are not committed to learning and teaching Braille.

These findings concur with previous studies done by, Mkama (2022) established that some lecturers were not interested in learning Braille during their school time and demonstrated a lack of Braille skills in guiding their trainee teachers. This is a clear indication of the decline in mastering Braille reading skills among the trainee teachers. Mugambi (2012) pointed out that the quality of education and training largely depends on the skills of course instructors, academic qualifications, professional training, commitment, and dedication. Trainee teachers can only be effective and master reading skills if their lecturers have committed themselves to imparting knowledge and skills to their students.

The SETTs face the obvious challenges that Braille reading needs enough time to learn the material and a lot of practical exercises. Trainee teachers failed to master well reading skills because of a shortage of practical-oriented exercises and a shortage of learning material. SETTs describe that before coming to the learning processes, the availability of learning material is required. Tungaraza (2018) states that since most universities are still growing when it comes to the issue of special education programs, challenges are available. Van Leendert et al. (2022) state that both teachers who learn Braille and their students are faced with a lot of challenges where the study revealed that different factors cause Braille literacy to decline in the world nowadays as, Braille expertise attitudes, increase in multiple disabilities, inadequate teacher preparation of Braille code and instructor incompetence. The availability of enough full-time Braille expertise is an important tool that universities should have. In this study, both lecturers and teacher trainees reported a shortage of Braille experts and specialists. As a result, they had problems mastering the skills, the findings report that most of the available experts taught Braille because they learned in their first degree but for master's and Doctorate of philosophy they divert to other specializations, and some are part-time so they had little time to fully interact with SETTs. Although some lecturers in the

department stated that SETTs have enough time to interact with their course instructors, the challenges trainee teachers face in the university is the lack of equipment and detailed updated curriculum the university uses to equip skilled trainee teachers.

The findings are similar to that found by LibanDabasa & Negassa (2020) the findings show that around 80% of respondents confirmed that the method of teaching Braille and other courses was not flexible, because of a lack of training lecturers on special education needs, learning resources were not well-equipped in the library as well as classes to meet the needs of students with Visual Impairment and those who learn to take care of Visual impaired student. Also, Farrand et al. (2022); Farrand and Vasquez (2023) revealed that failure to have enough and competent Braille literacy experts and the huge increase use of technology especially distance learning programs through online classes has resulted to a sharp decrease in the specialists and decreased in several tenured eligible instructors which also was observed on the field study. Through semi-structured interviews, the researcher further sought lecturers' feelings regarding the challenges their students encounter when learning Braille. Their responses indicated that their student teachers are faced with a lot of challenges, including low motivation from the university and also a shortage of practical workshops for them to attend and learn well from others. Sometimes the course instructors of Braille are the oldest (age go) lecturers who have already been retired by the government due to their age, so they have skills and experience in Braille. Due to their age, it is a challenge to instruct trainee teachers in more practical and practiced Braille reading and writing tasks, the study found out that since the university is a private sector, most of the specialists are those from outside the country, part-time and retired that affect the learning process to SETTs.

The finding is contrary different from that found by the MoEST (2018) hereby study revealed that universities and colleges had highly motivated their students to be equipped well with skills and competent through the availability of specialists and experts, provision of a good environment including learning material, and a lot of workshops for capacity building. This finding is contrary different from the findings the current study finds in the field. Tanzania Institute of Education (2022) project reported that Braille is taught and learned differently compared to sign language. This means that universities and colleges are not advised to use oral lectures, but other approaches have to be used to simplify the acquisition of skills for teachers specifically practical models. The study found that besides the other challenges special education trainee teachers encounter, they have poor tactile skills, laziness when they are assigned with task to read and some reported that

when given a task to read, they give their friends who are visually impaired to read for them, and they just write what has been done to their friend and some argue that when they are given the task on soft copy the just use software computer program to read for them. Due to that, the study found out that the usefulness of computer programs also influences poor mastering of reading skills, especially to the lazy student's teacher. Also, the study found out that poor tactile skills have been attributed to poor training in tactile sensitization students themselves are too lazy to practice what they are assigned to make the fingers active. This was also observed on the study by on the study by Tungaraza (2018). Since the study found out that there were individual challenges, institutional challenges and expertise challenges is therefore very important to SETTs and lecturers to address these challenges to the specific authority so that can be solved.

5.5 Extent of Braille literacy integrated in the special teacher trainee curriculum

From the finding the study found out that Braille literacy has been integrated to a low extent in the curriculum, this was the argument from lecturers and SEETs. The findings from the study questionnaire revealed that 47.1% of the curriculum had been little integrated into Braille literacy whereas 27.2% of the curriculum had been very little integrated into Braille literacy,10.7% of Braille has been integrated into the curriculum to a very greater extent, thus teaching methodology is related to what should be taught, 8.6% Braille has been integrated to a greater extent and 6.4% shows that to some extent Braille has been integration to the curriculum. Where in interviews 3 lecturers (75%) argued that the curriculum has been integrated into Braille literacy to a low extent,1 (12.5%) lecturer argued that to an average extent, and 1 (12.5%) lecturer argued that to a great extent curriculum has been integrated to Braille literacy. The majority of student teachers and lecturers felt that Braille literacy skills had been integrated to a low extent into the curriculum.

So, the findings imply that most of the respondents reported that the low extent of Braille literacy interaction in the curriculum has affected the mastering of both reading and writing skills. Due to the way the course outline is arranged, the model used during lecture hours and the content inside based on the course coverage, it shows low priority had been put forward on Braille literacy. The study is in line with those found by Tibatigeza (2022) where it was revealed that the extent of curriculum integration into the Braille course affects the way learners master the skills in reading

and writing so the greater integration the mastering of skills and the low extent the poor mastering of skills.

The findings of this research show that there is no specific curriculum at the university that lecturers use as a guideline, when compared to other levels like certificate and diploma colleges they have a specific syllabus and updated curriculum to use as a guide when learning Braille literacy skills. Furthermore, the university uses the guideline from the main campus which does not include Braille as a course instead in the main document Braille has been taken in the general form of a special education program. Also, the findings showed that the low inclusion of Braille expertise during the preparation, of course, outlines, time allocation, and the way course outlines are designed are not effective in meeting what the special education trainee teacher needs to learn. The use of outdated course outlines, and the lack of current documents to guide the training result in the conclusion that, Braille has been integrated into the curriculum to a low extent and thus results in the problem for Special education trainee teachers to have challenge in mastering well the Braille literacy skills.

The finding was contrary different from the study conducted by Aldersey (2011) on the analysis of disability policy where he reports that the curriculum for training special education teachers is well integrated into the course content covered in different colleges and universities. Similarly, the study also relates to the findings by Tungaraza (2019) revealed that the integration of curriculum into Braille is a core function of the course the integration affects the whole process of learning. The study further showed that Braille courses are integrated into the university curriculum, but it is difficult for the student teacher to master well the literacy skills due to having more than two other courses within the course that is, Swahili, English, and Mathematics where both courses a teacher had to master reading and writing within 3 years of study also, the implementer had challenges on using the guideline. Also, the report by MoEST (2018) revealed that since Braille is a new study area and difficult for most student teachers due to little foundation for most of the people, the curricula which are used by different universities in terms of course outline had to be updated and adapted to meet the needs of these special education teachers which most of them Braille is a new subject they never meet before.

Effective curriculum and syllabus instruction are required for every Braille course. Therefore, it is imperative that the curriculum designed had to be adequately designed to help lecturers and SETTs in achieving their intended goals. The integration of Braille literacy into the curriculum matters a lot in guiding learning processes to SETTs.

5.6 Summary

This chapter discussed the findings of the study in line with the research objectives. It first discussed special education trainee teachers' experience in Braille reading skills then, strategies and support systems lecturers use in teaching Braille reading to trainee special teachers, challenges special education Trainee Teachers experience in learning Braille Reading and finally, the extent to which Braille literacy has been integrated into special education teacher trainee curriculum. It was established that special education trainee teachers had low experience in mastering Braille reading skills. Among the skills, they failed to master were, tactile sensitization of dots, mixing of dots of some alphabet, especially dots for letters, D, F, and H, initial signs, difficulty in reading, and identifying and differentiating between contracted and uncontracted Braille.

Regarding the second objective, it was established that there was no specific approach and supportive system the lecturer uses when teaching Braille, especially reading skills, but each lecture uses a different approach. It was also established that a practical-oriented approach was the best to be used. Based on the third objective, the study establishes that there were different challenges trainee teachers encounter when learning both individual, administration challenges, and technological challenges. On the final objective, the study established that Braille literacy has been integrated into the curriculum to a low extent. The study found that most lecturers use the outdated course outline which is not practically integrated with technology, unavailability of updated curriculum and documented one, and limited time on the coverage of course content.

CHAPTER SIX
CONCLUSION AND RECOMMENDATIONS

6.0 CONCLUSION

It is clear from the results of both Special Education Trainee Teachers and lecturers that lag in mastering Braille reading skills among SETTs was a result of different confounding factors, that's included administration factors, individual factors and training factors. This study, therefore, concludes that SETTs had problems mastering reading skills, especially in contracted Braille and sentences with different word signs. This was observed when given a task to read, whereby most of the SETTs struggled to read what had been written on Braille paper. Based on the theoretical framework proposed by Kolb's experiential learning in (1984). He defined learning as the process whereby knowledge is created through the transformation of experience. Failure of transformation and concrete experiments of different Braille reading skills among SETTs has resulted in problems in mastering those skills, as knowledge results from the combination of grasping and transforming experiences.

Based on the findings, the study concludes that the lag in mastering Braille reading skills among Special education trainee teachers particularly at a private university has been associated with different factors. Mentioned as lack of learning material for more practices, shortage of Braille expertise, lack of strong and strategic teaching and lecturing approach and also low extent of integration of Braille literacy issues in the curriculum of special education trainee teachers.

The study also concluded that there were no specific strategies lecturers used when teaching Braille reading skills among special education trainee teachers thus was observed to be one of the factors influencing lag in mastering reading skills. Also, the study concludes that different software programs used by SETTs had an effect on them to master well the skills since most of them rely on practice (reading hard copy) and much they concentrate on using those programs negatively.

On the issue of challenges, there were several uncounted challenges. First were individual challenges among SETTs like laziness and low interest and priority on the course, especially when they are given tasks to do. Among lecturers, there was limited time and knowledge on using assistive technology devices during classes. There were also institutional challenges like, a shortage of Braille expertise, teaching and learning material like Braille papers, embosser,

computers and updated curriculum to drive course content. All in all, both challenges seemed to affect the mastering of Braille reading skills to Special Education Trainee Teachers at the University.

The study findings also conclude that the extent of Braille literacy skills to be integrated into the curriculum affected the mastering of different reading and writing skills. From the study, it shows that to a low extent, these two things have been integrated.

Therefore, there is a closer link between the confounding factors that cause the lag in mastering Braille reading skills like the mentioned challenges by SETTs and lecturers seem to influence the problem. Different factor has been mentioned as a causal like, lack of early interaction with Braille skills, shortage of expertise and learning material. The compounding factors revealed in the university are related to the factors of the lag in mastering Braille reading skills mentioned by different scholars from different studies. Also, there were no significant differences in the views of the respondents from SETTs and lecturers who participated in the study. Therefore, there is a lot to be done on visual impairment training programs to promote competent, skilled and knowledgeable teachers who can provide a quality service for Visually Impaired students in Tanzania.

6.1 RECOMMENDATIONS

The following recommendations are proposed to address the challenges revealed by this study

(i) Special Education Trainee Teachers should commit themselves to mastering different skills by doing practical tasks based on reading and transcribing what has been written by their fellow.

(ii) It was noted in the findings that the university did not have adequate materials and the environment was not familiar enough for the student's teacher to learn well Braille especially the environment in the resource room, placement for the Perkin and embosser. Hence, the study suggests that the university and the major stakeholders embark on projects of buying learning materials including Braille paper, Perkins and hand flame to avoid a shortage of learning material.

(iii) Lecturers had to use specific strategies and approaches like individualized learning, evidence learning, multisensory cooperation, and inclusive environment for learning Braille.

(iv) Since the government insists on an inclusive education program for all, the Ministry of Education Science Technology (MoEST) should employ more efforts in providing teachers‟ regular

professional development and the idea of Braille to students should be introduced early in secondary or primary so as when comes to university have to not be a new concept to SETTs.

(v) Furthermore, the lecturer should be responsible and accountable to the assigned subjects. They have to attend their sessions and observe punctuality during lectures. Also, lecturers need to motivate their students during the teaching and learning process to have enough time to interaction with their student's teachers practically by preparing a lot of work based on Braille reading rather than concentrating on Braille writing tasks only.

(vi) The government should focus in fostering the cooperation between the Ministry of education and the Tanzania Commission for Universities in addressing the demand for the program and to enhance the adequate quality and competent instructors to control the provision and training services based on program demand.

Future research

Upon concluding the findings, the study advances the following further research

(i) There is a need to find out challenges in another subject, especially on the same program-based visually impaired program.

(ii) There is a need to study much on the impact of abusing some rules during writing Braille especially on contracted Braille among SETTs.

(iii) There is a need to study much on how Special Education Trainee Teachers in the program of teaching visually impaired students, accommodate students with deaf and blind in the classrooms.

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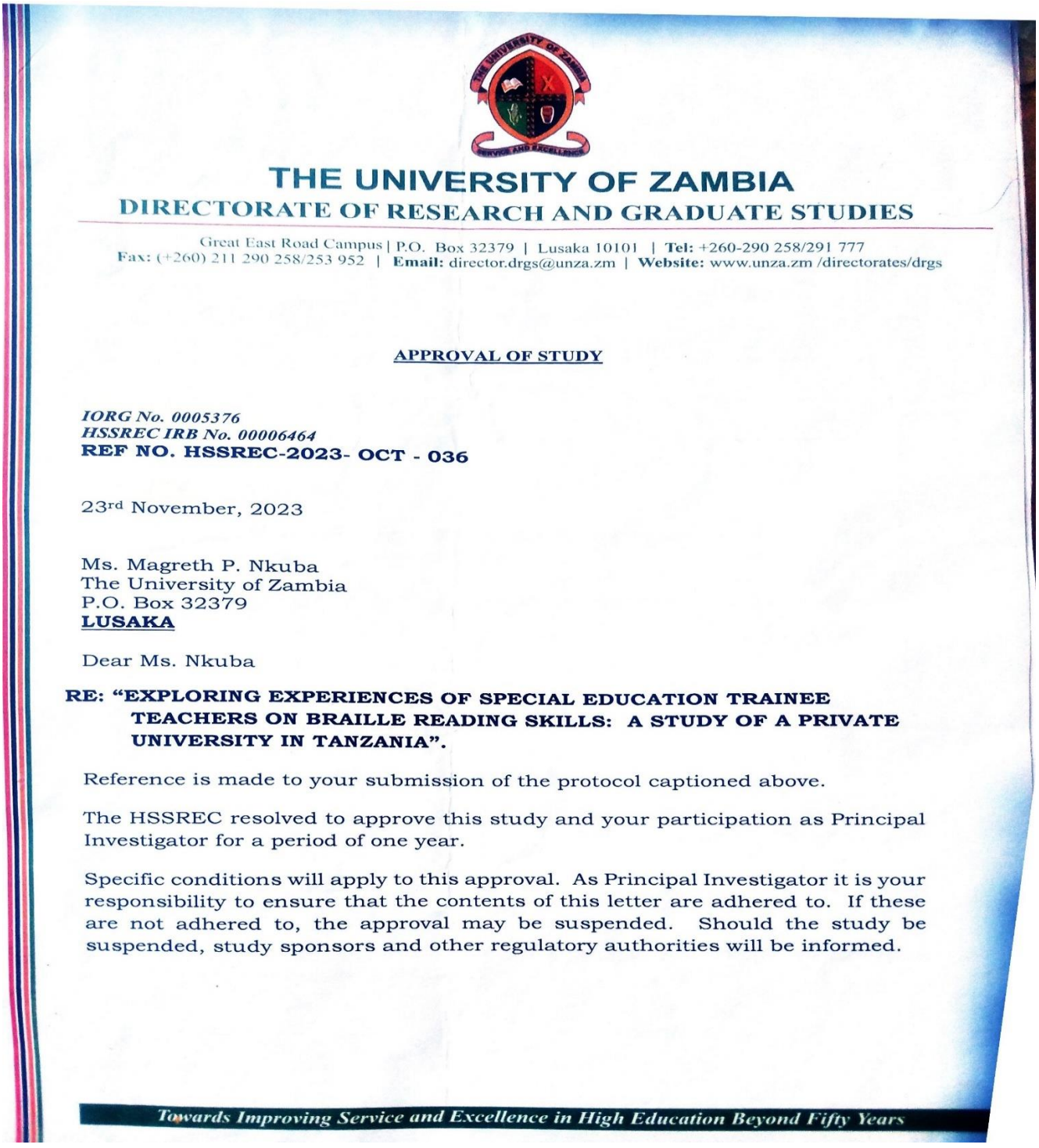
LIST OF APPENDICES

Appendices(1):Ethical clearance



THE UNIVERSITY OF ZAMBIA
DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka 10101 | **Tel:** +260-290 258/291 777
Fax: (+260) 211 290 258/253 952 | **Email:** director.drgs@unza.zm | **Website:** www.unza.zm /directorates/drgs

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464
REF NO. HSSREC-2023- OCT - 036

23rd November, 2023

Ms. Magreth P. Nkuba
The University of Zambia
P.O. Box 32379
LUSAKA

Dear Ms. Nkuba

RE: "EXPLORING EXPERIENCES OF SPECIAL EDUCATION TRAINEE TEACHERS ON BRAILLE READING SKILLS: A STUDY OF A PRIVATE UNIVERSITY IN 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.

Towards Improving Service and Excellence in High Education Beyond Fifty Years

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. HSSREC-2023- OCT-036
Approval and Expiry Date	Approval Date: 23rd November, 2023	Expiry Date: 22nd November, 2024
Protocol Version and Date	Version - Nil.	22nd 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.

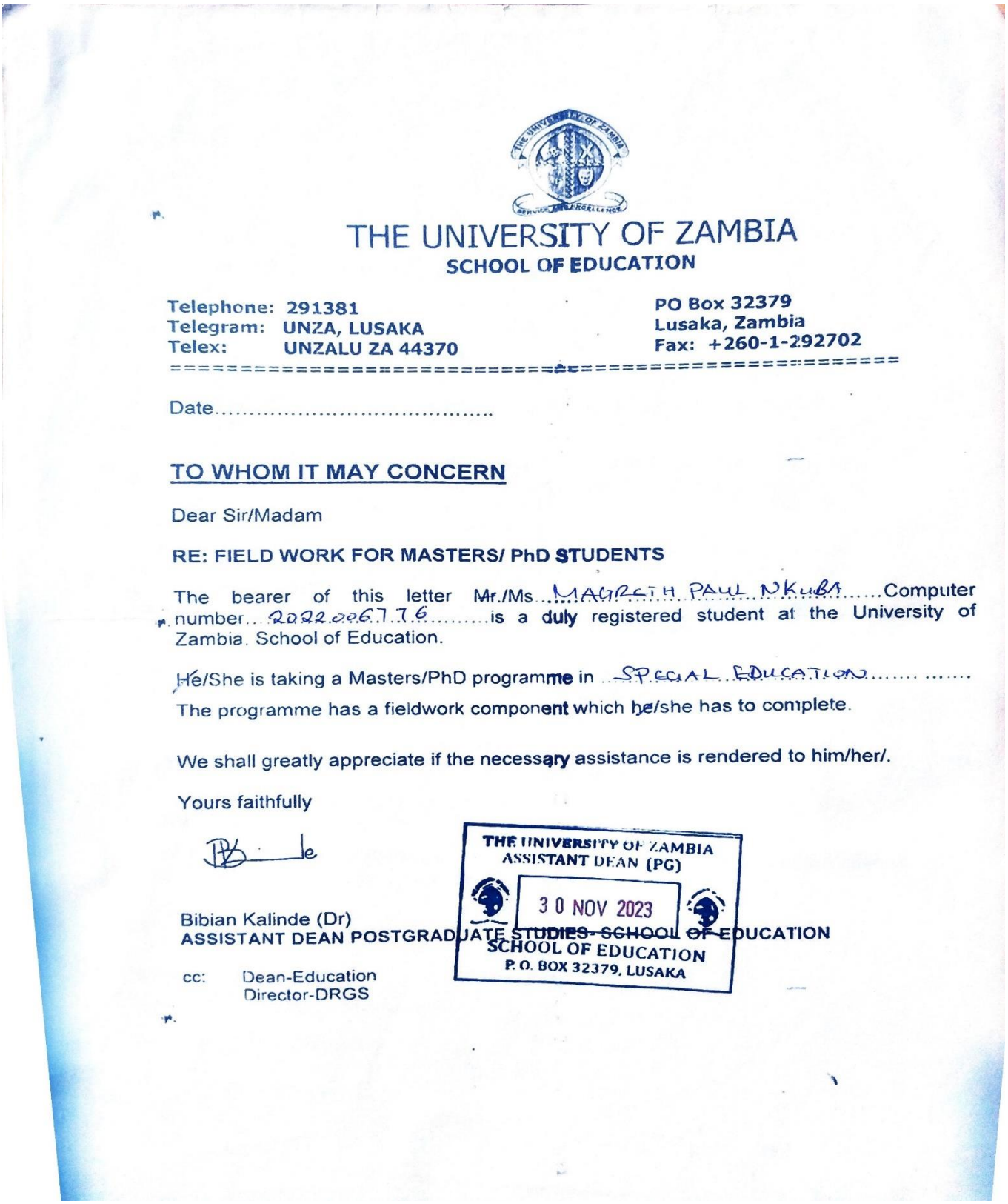
Yours faithfully,

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

Appendices (2): Approval for data collection



THE UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION

Telephone: 291381
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PO Box 32379
Lusaka, Zambia
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Date.....

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE: FIELD WORK FOR MASTERS/ PhD STUDENTS

The bearer of this letter Mr./Ms. MAGRETH PAUL NKUBA .....Computer number. 2022066716 .....is a duly registered student at the University of Zambia. School of Education.

He/She is taking a Masters/PhD programme in SPECIAL EDUCATION .....

The programme has a fieldwork component which he/she has to complete.

We shall greatly appreciate if the necessary assistance is rendered to him/her/.

Yours faithfully

Bibian Kalinde (Dr)
ASSISTANT DEAN POSTGRADUATE STUDIES- SCHOOL OF EDUCATION

THE UNIVERSITY OF ZAMBIA
ASSISTANT DEAN (PG)
30 NOV 2023
SCHOOL OF EDUCATION
P. O. BOX 32379, LUSAKA

cc: Dean-Education
Director-DRGS

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

04th December, 2023

Ref. No. AMC/AD/28/VOL.1/147

Head of Department
Special Needs Education
AMUCTA

RE: PERMISSION TO COLLECT RESEARCH DATA

I, hereby, introduce **MAGRETH P. NKUBA** with the registration number **2022006776** who is a *bona fide* student at 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 ***Exploring experiences of special education trainee teachers on braille reading skills at AMUCTA.***

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
A Constituent College of SAUT

Rev Prof. Juvenalis Asantemungu
Deputy Principal for Academic Affairs

cc: Dean, FESS
Coordinator, BASSU
Chairperson, AMUCTASO

APPENDIX (3): Questionnaire for Special Education trainee teachers

Time schedule for special education trainee teachers.

Name of the University: …….

Date: ……

Time: Starting Time …… Ending Time ……

PART A: SOCIAL- DEMOGRAPHIC CHARACTERISTICS

INSTRUCTIONS

Please tick where appropriate.

1. Gender

Male ☐ Female ☐

2.Age of respondents: Please tick appropriately

20-24 ( ) 25-29 ( ) 30-34 ( ) 35-40 ( )

Section B: Braille Knowledge

3. How long have you experience with Braille reading: Please circle to the appropriately answer

A) 1-2 years b) 3-4 years c) 5-7 years

3. Have you had any experience in reading Braille as part of your training or teaching practice?

a) Yes

b) No

4.Where and when you experience Braille reading skills?

a) At primary school
b) At secondary school
c) At collage level
d) At university level

Section C: Special education trainee teachers, Braille reading skills

5 Basic Braille reading skills to be acquired by special education trainee teachers: Please tick appropriately in an acceptance column based on the level of your understanding of the skill when reading Braille.

1.	Experience on Braille reading skills	Good	Average	Poor
A	Accuracy letter recognitions			
B	Punctuation recognitions			
C	Reading Comprehension			
D	Word formation and sentence reading			
E	Alphabet reading			
F	Tracking lines and finger dexterity			
G	Tactile discrimination			
H	Proficiency reading speed			
I	Recognition of contracted and uncontracted Braille			

SECTION D: challenges special education Trainee Teachers experience in learning Braille Reading.

1.Do you experience any challenges when learning to read Braille

a) Yes

b) No

2.What are those challenges you experience when learning to read Braille

SECTION E: Strategies and support system lecturers use in teaching Braille reading to trainee special teachers.

1. Do you have specific teaching strategies used by lecturers when teaching Braille reading

(a)Yes

(b) No

2. If your answer in question 1 was a; What are those specific strategies lecturers apply when teaching Braille reading?

…….

3. What are other strategies used in teaching learning Braille reading by lecturers?

4. Do lecturers or university provided with support system like the use of assistive technology when learning Braille reading?

(a) Yes

(b) No

5. If your answer in question 3 was a; what are the other support system your provided when learning Braille reading?

…….

SECTION F: Extent of Braille literacy integrated in the special teacher trainee curriculum; Please indicate the level of special education teacher's curriculum integration in Braille literacy.

Statement	Very greater extent	Greater extent	Some extent	Little extent	Very little extent
1.To what extent curriculum have reflected to strategies used in learning Braille					
2.To what extent the curriculum provides opportunities for practical application and hands-on experience with Braille literacy.					
3.To what extent do curriculum reflect with the course content provided in Braille literacy skills and amount of time dedicated to teaching Braille literacy in this program is sufficient.					
4.To what extent curriculum from your university integrated with Braille reading and writing.					

Thank you for taking the time to participate in this questionnaire

APPENDIX 4: Interview Guide for Lecturers

Name of the University ……...

Date: ……

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

1. what is your current educational level and specialization?
2. Are you trained to teaching Special education trainee teachers under the programme of Visually impairment?
3. How long have you work in the field of Braille issues in term of years? Can you describe your experience in the field of special education and background in teaching Braille reading to trainee special teachers?
4. How do you assess Braille reading skills and experience to your students?
5. What teaching strategies are most effective in imparting Braille reading skills to trainee special education teachers?
6. How and what types of support systems or resources do you provide to trainee special teachers to enhance their Braille teaching skills?
7. What is the specific challenges trainee special education teachers encounter when learning Braille reading and how do these challenges affect their overall training experience?
8. Can you provide an overview of the special education teacher trainee curriculum at your institution?
9. To what extent curriculum from your university have been integrated with Braille literacy

Thank you for taking the time to participate in this interview.

APPENDIX 5: Observational Check

OBSERVATIONAL CHECK LIST IN THE BRAILE READING SKILLS TO SPECIAL EDUCATION TRAINEE TEACHERS

1. Observe whether special education trainee teacher have skills in reading Braille on a given task.
2. Is the special education trainee teacher able to recognize dots by transcribing what has been written on the paper?
3. To see whether there is Braille learning material to fit the need during learning process.

A study of behaviour of trainee teachers in Braille reading skills

	Observed activities	Good	Average	Null/ bad
1	Proficiency reading speed			
2	Alphabets reading			
3	Reading comprehension			
4	Finger dexterity and tracking lines			
5	Recognition of contracted and uncontracted Braille			
6	Punctuation recognition			
7	Tactile discrimination of dots			

APPENDIX 5: Informed consent and participant information sheet

THE UNIVERSITY OF ZAMBIA
DIRECTORATE OF RESEARCH AND GRADUATE STUDIES
HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE

Telephone:	+260-211-290258/353080	P O Box 32379
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Zambia		
E-mail	director.drgs@unza.zm	

INFORMED ASSENT FOR PARTICIPANTS (SETTs and Lecturers)

This informed assent is for Special Education Trainee Teachers and lecturers who attend the special Needs Education at a private university, who we are inviting to participate in the study aimed at understanding the confounding factors that facilitate the lag on mastering Braille reading skills.

Name of Principle: Investigator MAGRETH PAUL NKUBA]
[Name of Organization: UNIVERSISTY OF ZAMBIA]
[Name of Sponsor: self-sponsorship]

This informed Assent has to parts:

- Information sheet
- Certificate of Assent

You will be given a copy of full Informed Assent Form

Part 1: Information sheet

Introduction

Introduction

I am MAGRETH PAUL NKUBA student at the University of Zambia working. I am doing research on the Braille reading to special education trainee teachers which is very difficult area in the sector

of education in this country and at this university. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research.

This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose: Why are you doing this research?

The overall purpose of this study is to explore Special Education Trainee Teachers experience in Braille reading skills, with particular focus on factors contributing to the lag of Braille reading skills to SETTs. I believe that you can help me by telling me what you know about Braille reading and what cause a lag in Braille reading skills at your university.

Choice of participants: why are we asking you?

You are being invited to take part in this research because we feel that your experience as lecturer and student teacher can contribute much to this to the understanding and knowledge of Braille reading experience and factors contributing to the lag in reading skills. The choice that you make will have no bearing on your studies or on any work-related evaluations or reports. Even if you say "Yes" now you can change your mind later and stop participating even if you agreed earlier.

If applicable: if anything changes and want you to stay in the research study even if you want to stop, we will talk to you first.

- If you decide not to take part in this research study, do you know what your options are? Do you know that you do not have to take part in this research study, if you do not wish to? Do you have any questions?

Procedures what is going to happen to you?

If you decide to take part in this research the following will happen.

- You will first be tested (SETTs- pre- test)
- You will then interview (lecturers) and questionnaire will be provided among SETTs

- For SETTs you will then be tested by giving you a test to read and observable characteristics will be noted.

Risk: Is this bad or dangerous for you?

There Risks

There is no known risk associated with participation in this research study will be no harm imbalance. Also, there will be no direct benefit to you, but your participation is likely to help us find out more about the factor contributing to the lag in mastering Braille reading skills.

Reimbursements: Will you get anything for being in the research?

You will not be provided any incentive to take part in the research. However, I will need your sincerely time and participation during interview and questionnaire session. Do you have any other question?

Confidentiality: Is every one going to know about this?

The research being done in this university may draw attention and if you participate you may not be asked questions by other people. I will not be sharing information about you to anyone outside. The information that am collect from this research project will be kept private.

Right to Refuse or Withdraw: Can I choose not to be in research?

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your job and career in any way. You may stop participating in the interview or questionnaire session at any time that you wish. You can say Yes no and change your mind later and will still be okay.

Who to contact; Who can I talk to?

If you have any questions, you can ask me now or later. If you wish to ask questions later, you may contact on + 25748007393 email address magrethdavies@gmail.com

Part II: Certificate of Informed Consent

I understand that have been invited to participate in research about Special Education Trainee Teachers

experience in Braille reading skills, with particular focus on factors contributing to the lag of Braille reading skills to SETTs at private teacher training university in Tanzania.

I have read the foregoing 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 to my satisfaction.

I consent voluntarily to be a participant in this study.
I do not wish to take part in the research and I have not signed the assent below. _____
Print Name of Participant_____
Signature of Participant _____
Date _____ Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands.

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been pressured into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.
Print Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____
Date _____
Day/month/year

Copy provided to the participant _____ (initialed by researcher)
Special Education Trainee Teachers has signed an informed consent……yes…...No (initialed by researcher)

HSSREC FORM 1a

THE UNIVERSITY OF ZAMBIA

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HUMANITIES AND SOCIA SCIENCES RESEARCH ETHICS COMMITTEE PARTICIPANT INFORMATION SHEET

1. **TITLE OF STUDY**:

Exploring Experiences of Special Education Trainee Teachers on Braille Reading Skills: A Study of a Private University in Tanzania

.

Purpose of the research

The overall purpose of this study is to explore Special Education Trainee Teachers experience in Braille reading skills, with particular focus on factors contributing to the lag of Braille reading skills to SETTs. I believe that you can help me by telling me what you know about Braille reading skills how your students experience and what cause a lag in Braille reading skills. I want to learn about factors contributing to the lag in Braille reading

skills by telling your experience on Braille and what exactly can be a cause to the lag in reading for your students.

DESCRIPTION OF THE STUDY AND YOUR INVOLVEMENT

This study will use mixed method (both quantitative and qualitative) with descriptive -cross sectional survey design will be used third year special education trainee teachers (30 will be selected random) and Lecturers (5 purposively selected) from the school of education department of Special education need at a private university as a study area. All the instrument will be tested before the actual data collection to take place. The researcher will monitor the whole process during and after data collection.

CONFIDENTIALITY:

The research being done in this university may draw attention and if you participate you may not be asked questions by other people. I will not be sharing information about you to anyone outside. The information that am collect from this research project will be kept private. Any information about you will have a number on it instead of your name.

VOLUNTARY PARTICIPATION AND WITHDRAWAL:

The participants are assured that participation in this study is voluntary. The participant is free to withdraw from the study at any time. Any information that will help the participants to make an informed decision whether or not to participate in the study will be willingly accepted to the participant by the principal investigator.

CONTACT FOR QUESTION

Investigator;

Prof. Beatrice Matafwali

Magreth Paul Nkuba **Emil** **magrethdavies@gmail.com**

Phone no; 255-748007291/ 260-951588518/255-768744752

Chairperson, Humanities and Social Sciences, Research Ethics Committee,

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