

**TEACHERS' PEDAGOGICAL PRACTICES AND THEIR IMPLICATIONS  
ON ACADEMIC PERFORMANCE OF LEARNERS WITH LOW VISION IN  
SELECTED SCHOOLS IN BOTSWANA**

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**E55F/22144/2021**

**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF  
EDUCATION (SPECIAL NEEDS EDUCATION) IN THE SCHOOL OF  
EDUCATION AND LIFE-LONG LEARNING  
KENYATTA UNIVERSITY**

**OCTOBER, 2025**

## DECLARATION

I confirm that this thesis is my original work and has not been presented in any other university or institution. This thesis has been complemented by referenced sources duly acknowledged. Where text, data, graphics, pictures, or tables have been borrowed from other works, including the internet, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.

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## **DEDICATION**

I dedicate this dissertation to my loving late mother, Elinah Chikhwa Moloi. I wish you were here to celebrate this milestone.

## **ACKNOWLEDGEMENTS**

This Master's thesis fulfils one of my lifelong aspirations. I am grateful for God's grace in helping me complete this difficult trip. I thank God for the gift of life and his love, strength, and endurance in completing this research. I am grateful to the government of Botswana for sponsoring my study. My supervisors, Dr. Margret Murugami and Prof. Teresa Mwoma of Kenyatta University, for their supervision experience and invaluable guidance during this research. I would like to acknowledge your tremendous aid during my studies. You sincerely inspired and mentored me and ensured that I completed this thesis. I will forever be indebted to you.

I am grateful to the Ministry of Education and Skills Development and the Regional Directors for the Kgatleng and North East regions for allowing me to conduct this research. I also thank the head teachers and teachers who authorized and helped me conduct this research in their schools. I thank my husband, Anthony, and our children, Kefilwe, Keoratile, and Thulaganyo, for their perseverance during my studies.

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## **ABBREVIATIONS AND ACRONYMS**

<b>ECC</b>	Expanded Core Curriculum
<b>EFA</b>	Education for All
<b>FVA</b>	Functional Vision Assessment
<b>ICT</b>	Information and Communication Technology
<b>IEP</b>	Individual Educational Program
<b>KII</b>	Key Informant Interview
<b>LV</b>	Low vision
<b>O&amp;M</b>	Orientation and Mobility
<b>PWD</b>	People with disability
<b>RNPE</b>	Revised National Policy on Education
<b>SIT</b>	School Intervention Teams
<b>SPED</b>	Special Education
<b>UNESCO</b>	United Nations Educational Scientific and Cultural Organization
<b>UNICEF</b>	United Nations International Children Emergency Fund
<b>VI</b>	Visual Impairment

## ABSTRACT

Teachers' methods of instruction have a major effect on learners' academic performance. This is true for learners with disabilities such as those with low vision (LV), who do not often benefit from methods used to teach their non-disabled peers. The objectives of this research were to establish how teaching strategies used to deliver the core curriculum influence the academic performance of learners with LV, explore how the provision of the Expanded Core Curriculum (ECC) affects the academic performance of learners with low vision, assess how adaptations to the learning environment impact the academic performance of learners with LV and evaluate how school administrators' support for teaching influences the academic performance of learners with LV. The Classical liberal theory of equal opportunities guided the study. The study employed a descriptive survey research design, utilizing both quantitative and qualitative approaches. Purposive sampling was used to select Phatlhogo Primary School in the North East Region and Matsieng Primary School in the Kgatleng Region, whereas census sampling was used to obtain the entire population of teachers and administrators of the two primary schools that integrate learners with visual impairment (VI). Participants in the study included twenty-four (24) special education teachers, forty-three (43) regular teachers, and two (2) school administrators. A sample of six (6) with three (3) officers from the Ministry of Education and Skills Development - Department of Special Support Services and three (3) VI SPED teachers from the only Junior Secondary School – Linchwe in Kgatleng, integrating learners with VI, was used for pilot testing. Data was collected through questionnaires, interview guide, observation guide and document analysis guide. Content validity was undertaken for the research instruments. Cronbach's alpha was used to determine the instruments' reliability. Quantitative data acquired from the surveys was analysed using Statistical Package for the Social Sciences (SPSS) version 28. Interviews were transcribed and data was analyzed thematically. Participants' informed consent was sought alongside ensuring their anonymity and confidentiality on data given. The study established that teachers used different teaching strategies that maximize learning opportunities for learners with LV which include cooperative learning and differentiated instruction in their curriculum delivery. Botswana schools were committed to including learners with LV, but there were inconsistencies and resource limitations. Improvements are needed in communication, standardized practices, resource availability, teacher training, and collaboration. Schools prioritized braille literacy and some learners with Individual Educational Programs (IEPs) performed above average. However, there were shortages in essential tools like assistive technology and lack of clear policies for consistent support to aid in teachers' pedagogical practices and contribute to the academic performance of learners with LV. The study recommends the introduction of ECC for learners with VI, a special needs education policy that includes teacher training plans, job descriptions, and adequate resource allocation. It also suggests national frameworks and standardized practices for assessment and IEPs. Further research should focus on the impact of assistive technologies and standardized practices.

## **CHAPTER ONE**

### **INTRODUCTION AND CONTEXT OF THE STUDY**

#### **1.1 Introduction**

This chapter provides the study's background, problem statement, purpose, objectives, research questions, significance, limitations, delimitations, assumptions, theoretical and conceptual framework, and operational definition of terms.

#### **1.2 Background to the Study**

Pedagogical practices play a crucial role in teaching learners by providing effective and meaningful learning experiences. Kane, Taylor, Tyler & Wooten (2017), explain pedagogical practices as strategies, methods, and approaches used in teaching and learning. They encompass a range of techniques and principles teachers employ to facilitate effective instruction and promote student engagement and understanding. This is supported by Erickson, (2020), who posits that the practices are designed to enhance student learning outcomes and create meaningful educational experiences.

According to experts, visual information accounts for 80% of what learners learn in school. Yet, a significant percentage of learners have a visual impairment. Learners with visual impairment include those who are blind and those with low vision (LV). Learners with LV are among the 240 million disabled children worldwide (UNICEF 2022), whose reduced vision interferes with learning in various ways. Limited vision causes problems with eye coordination, eye tracking, and focusing to name a few. Learners with LV have difficulty reading small or far-away letters. Challenges in differentiating items by colour and shape, as well as confusing letters, are also experienced (Kupar, 2018). Learners with LV have varying degrees of remaining vision; therefore, the impact of their visual loss is determined by the severity of their condition. Studies have shown that most of the time teachers hardly provide them the

relevant support (Vaijannyathi & Naomi, 2021). This is partly because some of their eyes appear to be normal which is not the case, making it difficult for one to recognize their problem. This frustrates learners and leads to poor performance if intervention measures are not considered by teachers.

According to Willings (2020), while all learners have the same educational needs, learners with visual impairment (VI) frequently face barriers to accessing the curriculum when it is offered using standard learning and teaching strategies. In such a situation, learners with VI require teachers to employ a variety of adapted strategies that are tailored to their specific needs (Carmen, 2019).

Like their non-disabled counterparts, learners with LV have fundamental rights to education and hence need quality education that enables them to reach their potential. Furthermore, there are International agreements in place to promote proper care and engage people with disabilities in society, including learners with LV. The United Nations Convention on the Rights of the Child (UNCRC, 1989) is one of them. It ensures that children are permitted to grow, learn, play, develop, and flourish with dignity. The Education for All (EFA, 1990) advocates for quality education for all, and it is supported by the Salamanca Declaration, (1994) which promotes the inclusion of learners with special needs. Signatories globally have embraced inclusive education, where schools are expected to provide equal access to all learners including those with special needs. Inclusive education recognizes the unique contribution each learner's background makes in the learning environment; therefore, diverse groups develop side by side (Bierman, 2022).

Findings by Miyauchi (2020) on perceptions of general education teachers' perspectives and challenges experienced by learners with VI in accessing academic

subjects in inclusive settings in the United Kingdom, United States of America (USA), Canada, Australia, Singapore, and Africa revealed their low academic performance. The inadequate performance was attributed, among other things, to teachers' inability to deal with learners with VI. Teachers require capacity training to give appropriate support based on the requirements of their learners (Parween & Dheesha, 2021). Other findings from studies conducted by Koehler and Wild (2019) in Canada and the USA to examine whether sufficient adaptations are implemented to meet learners with LVs' needs in science classrooms indicated that, while they are included, they do not participate because of their restricted vision. Some teachers are unaware of how to involve the learners in doing experiments. Therefore, if teachers are well equipped on what modifications they make for the learners with LV, they would not deny them the opportunity to learn by doing.

While learners with LV have limited support in some parts of the world, findings show that some in regular schools in the USA are well supported. The support comes in the form of special assistance, including individualized teaching from specialists (Douglas, Rockson & Dorleku, 2020). Furthermore, specialists also assist general education teachers by developing tailored strategies for teaching learners with LV to meet their various needs. Professionals such as resource teachers and Special Education (SPED) consultants work with learners with special needs to develop Individual Educational Programs (IEPs) for learners with special needs.

By contrast, Giese's (2022) study in Germany discovered that all learners with LV who were in mainstream schools chose to transfer to special schools owing to inadequate educational provisions. This indicates that some learners with LV are not receiving adequate support which results in frustration.

In Asia, a study conducted in India in integrated and inclusive schools, to determine the performance of learners with LV in science experiments, revealed that learners with LV get a thorough understanding of ideas when they directly participate in experimenting with appropriate modifications (Dheesha, 2022). According to the findings of the study, modifying experimental aids for learners with LV is crucial for their learning.

Some parts of Africa have made positive attempts to advance the education of learners with LV, despite resource constraints. Research conducted in Ghana to confirm the teachers' assistance for learners with LV revealed the use of real items and optical devices as well as the need for greater capacity building for teachers to update their skills and knowledge (Douglas *et al.*, 2020). Although resources are available in the Ghanaian context, some African countries still face challenges.

Negash and Gasa's (2022) study investigated challenges encountered by learners with VI in the mainstream and showed inadequate support to learners with LV due to a lack of training for teachers in Ethiopia. The findings revealed that in one school, teachers were unaware of the overall number of learners with LV enrolled. In this case, if teachers are unable to identify learners with visual problems in their immediate surroundings, the chances of providing them with relevant support are rare.

Kenya also experiences a shortage of competent specialist teachers. The findings of a study on the challenges faced by learners with LV revealed so. It also found that there are not enough in-service training opportunities to help individuals who work with these learners to improve their skills (Mutia, 2020). This is evidenced by the results of a pedagogical study conducted at Thika Primary School for the Blind which indicated

that learners' mathematical abilities are severely lacking as Njue (2021) opined. Similarly, findings in Botswana on learners with VI's science abilities showed that they performed poorly in science due to ineffective teaching strategies used by teachers (Habulezi, Batsalelwang & Malatsi, 2017). Therefore, there is a definite demand for educated teachers who would apply adapted teaching strategies. In addition, other studies indicate that supportive school leaders who appreciate the variety of their learners promote positive outcomes (Hitt & Turker, 2016). The support they give to their institutions makes the learning environment appealing to the school community. Which could result in good performance in departments.

In South Africa, Morelle and Tabane (2021) discovered that inclusion is a journey that requires teacher development and in-service training workshops on adapted strategies for the visually impaired. From research carried out in Swaziland, Maseko (2021), expresses similar comments emphasizing that the physical environment should also be adapted to meet the needs of learners with VI. Depending on their visual needs, learners with LV require modifications to the environment, materials, and curriculum. Viljoen (2020), emphasizes that it is key for teachers to consider each learner's visual problem and the remaining vision to provide appropriate support.

Moreover, an Expanded Core Curriculum (ECC) caters to the needs of both blind and those with LV, which are not included in the regular curriculum (Willings 2020). These nine ECC skills should be clearly taught to learners with VI so that they can live independently as adults (Dimitrova-Radojichiki, 2022). They include compensatory skills, social interaction skills, recreation and leisure skills, independent living skills, assistive technology, orientation and mobility (O&M), career education, sensory efficiency, and self-determination.

The teaching of ECC is necessary for the education of learners with VI. Research has proved that it is adequately taught in some Western countries where it is part of the curriculum. Research findings in the Australian state of Victoria indicate that teachers of learners with VI were being capacitated online on how to deliver ECC fully to their learners (Opie 2018). However, most schools in some parts of Africa do not offer ECC appropriately. A case in point is research findings in Zambia which revealed that ECC was inadequately taught because teachers lacked the skills and time to teach it (Kasebusha & Banda, 2021). Similarly, Botswana lacks such a provision for learners with VI. The teaching of ECC is not a choice but an obligation for teachers to deliver the curriculum to learners as they have the right to quality education. For learners with VI, the ECC supplements what they miss in their daily learning due to their vision loss.

Wodon, Male, Montenegro and Nayihouba (2018) discovered that more initiatives are needed to improve the inclusion of exceptional learners in schools across Sub-Saharan Africa. In Botswana, Mukhopadhyay, Moswela and Habulezi (2021), state that learners with VI, remain isolated and do badly in schools due to barriers such as lack of involvement and modified approaches employed by their teachers based on the degree of vision loss. Another study by Habulezi *et al.* (2017), demonstrated the poor performance of learners with VI in science subjects while other findings from research done in 2012 highlighted learners with VI's poor academic performance due to a lack of sufficient support. Based on the above, there was a need to add information on how learners with VI specifically those with LV are affected by the teaching strategies used.

Studies done around the world have emphasized that empowering teachers with skills is beneficial to all learners including those with vision problems as the teachers are better equipped to create meaningful learning experiences and adapt to diverse student

needs life (Zebehazy & Lawson 2017). Therefore Botswana, as a developing country and a proponent of inclusive education needs to aggressively empower teachers professionally as lead agents to enhance quality education as stipulated in the Botswana Inclusive Education Policy (2011), Goal: 2. It is in view of this context that the research explored teachers' pedagogical practices and their implications on the academic performance of learners with LV in Botswana.

## **1.2 Statement of the Problem**

Learning becomes more difficult for learners with limited vision due to their visual impairment. These learners represent a diverse group of learners with various needs, necessitating careful preparation and implementation of pedagogical methods in curriculum delivery if they are to achieve academic success. The learners with LV often perform below average because they struggle to understand concepts and skills as well as complete assignments and taking examinations. Studies by Miyauchi (2020), Negasa and Gasa, (2022) have revealed a lack of skills in teachers teaching learners with VI in inclusive setups, resulting in poor academic performance and lack of classroom participation. By adapting their teaching strategies to address these learners' special requirements, teachers create an inclusive learning environment. Although teachers have undergone professional training, there is a need for continuous capacity building in the areas of handling learners with LV. If learners with LV are supported appropriately they can perform like their normal sighted peers.

Studies carried out around the world mainly looked at the teachers' pedagogical practices on the academic performance of learners with VI without specifying the needs of learners with LV. Additionally, these studies have been done in different setups. Similarly, studies done in Botswana have also generalized the issues of learners with

VI (Habulezi *et al.*, 2017). As past studies have not focused on LV, the current study explored the teachers' pedagogical practices and their implications on the academic performance of learners with LV in Botswana.

### **1.2.1 Purpose of the Study**

The goal of this study was to examine teachers' pedagogical practices and their implications on academic performance of learners with low vision in selected schools in Botswana.

### **1.2.2 Objectives of the Study**

The objectives of the study were:

- i. To establish how teaching strategies used to deliver the core curriculum influence the academic performance of learners with low vision in selected primary schools in Botswana.
- ii. To explore how the provision of the Expanded Core Curriculum affects the academic performance of learners with low vision in selected primary schools in Botswana.
- iii. To assess how adaptations to the learning environment impact the academic performance of learners with low vision in selected primary schools in Botswana.
- iv. To evaluate how school administrators' support for teaching influences the academic performance of learners with low vision in selected primary schools in Botswana.
- v. To analyze how the academic performance of learners with low vision is shaped by the combined effects of teaching strategies, Expanded Core Curriculum

provision, learning environment adaptations, and school administrators' support in selected primary schools in Botswana.

### **1.2.3 Research Questions**

Research questions that guided the study include:

- i. What teaching strategies are used to deliver the core curriculum influence the academic performance of learners with low vision in selected primary schools in Botswana?
- ii. How does the provision of the Expanded Core Curriculum affect the academic performance of learners with low vision in selected primary schools in Botswana?
- iii. How do adaptations to the learning environment impact the academic performance of learners with low vision in selected primary schools in Botswana?
- iv. How does school administrators' support for teaching influence the academic performance of learners with low vision in selected primary schools in Botswana?
- v. How is the academic performance of learners with low vision shaped by the combined effects of teaching strategies, Expanded Core Curriculum provision, learning environment adaptations, and school administrators' support in selected primary schools in Botswana?

### **1.3 Significance of the Study**

As a result of this research, teachers may better understand how to tailor their lessons to cater to the strengths and needs of learners with LV. Teachers may understand the importance of assessment reports of learners to provide the support that is relevant to the learner's unique needs. It provides information to schools, regional education

officers, and the Ministry of Education on the importance of offering the expanded core curriculum to learners with visual impairments at a tender age as it is the foundation for their future independence within their communities and beyond.

Furthermore, this study provides recommendations on classroom and environmental modifications required when educating learners with LV. This helps the Ministry of Education develop applicable policies that are aligned with the needs of learners with LV as well as future in-service training programs for staff. The findings contribute to a transformation in school administrators, teachers, learners, parents, and the public's attitudes toward the success and acceptance of learners with LV in society given that residual vision benefits individuals in various ways. The research findings provide more information and fill in knowledge gaps on VI issues as well as encourage future research.

#### **1.4 Limitations and Delimitations of the Study**

##### **1.4.1 Limitations of the Study**

Limitations were anticipated during data collection, with the view that respondents could not be genuine if they believed that they were being watched, and could give answers to impress the researcher, potentially affecting the credibility of the data. Furthermore, the generalizability of the findings was constrained by the specific characteristics of the participating schools and educators, potentially limiting the applicability of the results to other contexts.

##### **1.4.2 Delimitations of the Study**

The study specifically engaged only school administrators, SPED, and regular classroom teachers from two primary schools in Botswana's Northeast and Kgatleng Regions which integrate learners with VI. These are the only primary schools integrating learners with VI where learners with LV are many. Further, these schools

have SPED teachers who collaborate with regular teachers in their daily work. The study focused on the strategies teachers employ to accommodate learners with LV as well as the implications for their academic performance and the support provided by school administrators. Botswana has not conducted research in this area. Lastly, the study confined itself to primary school teachers as it is its focus.

### **1.5 Assumptions**

The study assumed that adapted teaching strategies used by teachers on learners with LV resulted in learners' good performance. The researcher anticipated that the administrators' support for integrating learners with LV plays a great role in their performance.

### **1.6 Theoretical and Conceptual Framework**

#### **1.6.1 Theoretical Framework**

The study was guided by the classical liberal theory of equal opportunities that was developed by Sherman and Wood (1982). The classical liberal principle of equal opportunities is based on the belief that all persons, regardless of their origin or circumstances, should have an equal opportunity to fulfil their objectives and desires. According to this theory, the government's responsibility is to level the playing field so that individuals compete and thrive on their own merits and abilities.

Equal opportunities, according to classical liberals, should be ensured by the protection of individual rights such as free speech, property rights, and the rule of law. According to this theory, schools should ensure that learners with VI do not face discrimination. They should have equal access to school as their sighted peers. This entails putting in place rules and practices that cater to their individual needs, such as providing adapted teaching methods, suitable assistive devices, accessible learning materials, and specialized support services. As a result, this theory was applicable to the study as it

envisaged that appropriate teaching strategies to address the individual needs of learners with LV are used for them to attain good academic performance.

### 1.6.2 Conceptual Framework

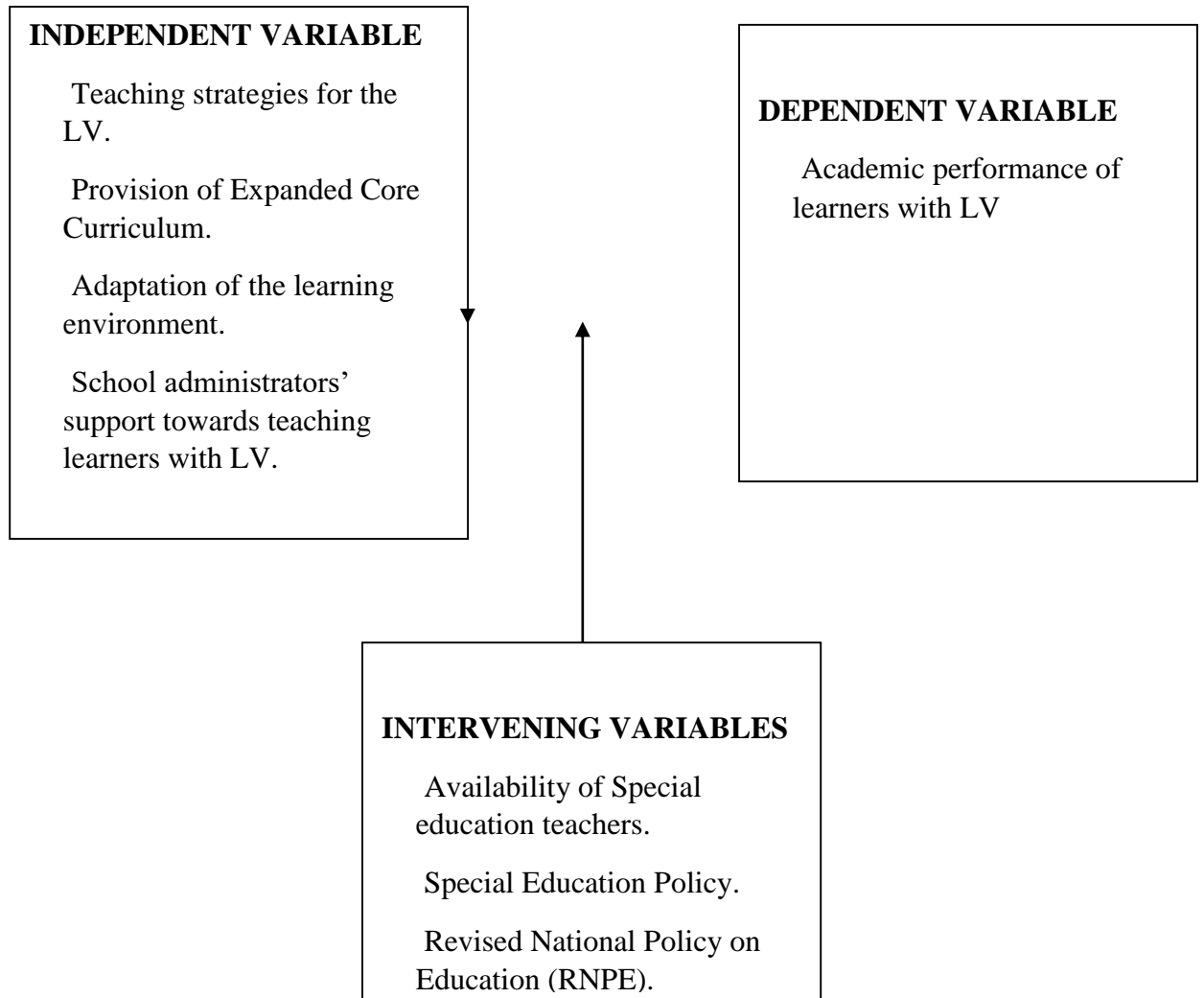


Figure 1.1: *Teachers' Pedagogical Practices and their Implications on Academic Performance of Learners with Low Vision.* Source: Researcher, 2023

The independent variables under investigation which include teaching strategies, provision of ECC, adapting the learning environment, administrators' support towards teaching the LV influence the dependant variable which is the academic performance of learners with LV. Intervening variables include the availability of SPED teachers and policies governing the teaching of learners with LV.

## **1.7 Operational Definition of Terms**

**Academic performance:** The evaluation of student achievement in many academic subjects.

**Adaptation of learning environment:** Adjustments made for learners with VI in the classroom and the surroundings to close a learning gap. Depending on their visual requirements, learners with VI require environment adaptations including the provision of large print, and a sitting position in the classroom. Adaptation consists of both accommodation and modification.

**Expanded core curriculum:** Refers to a special curriculum that caters to the needs that blind or visually impaired learners may have, and which are not covered in the regular curriculum. It covers Social interaction skills, Compensatory skills, Recreation and leisure skills, Orientation and Mobility, Career Education, Assistive technology, Self-determination, and Sensory efficiency skills.

**Implications of pedagogical Practices:** Inferences drawn from teaching strategies used by teachers.

**Inclusive education:** Education that combines learners with or without disabilities together, in regular schools, colleges, and universities.

**Low vision:** Severe loss of vision that cannot be treated by medication, surgery, or standard eyeglasses.

**Visual Impairments:** A limitation in the eye or visual system which results in vision loss. It includes blindness and low vision.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

A review of related literature on teachers' pedagogical practices and their implications on the academic performance of learners with LV is provided in this chapter. The chapter components are teaching strategies used in teaching learners with LV, provision of expanded core curriculum to learners with LV, adaptation of the learning environment for learners with LV, school administrators' support on teaching learners with LV, academic performance of learners with LV, and a chapter summary.

#### **2.2 Teaching Strategies Used to Deliver the Core Curriculum to Learners with Low Vision**

Low vision (LV) is a significant visual impairment (VI) that cannot be fully corrected with standard vision aids and hinders daily activities due to reduced visual acuity or field (Kavitha *et al.*, 2015). Learners with LV often face challenges in education, including difficulty with reading small print, perceiving details on visual aids, color differentiation, and experiencing eye strain, which can impede learning engagement (Bajaj, 2019). These visual limitations necessitate accommodations and assistive technologies to support their educational needs. To foster inclusive learning for learners with LV, teachers must implement cooperative learning alongside tailored strategies (Bajaj, 2019). This involves diverse instructional approaches such as group, paired, and individualized work, coupled with accommodations like accessible materials, optimized lighting, visual aids, strategic seating, assistive technology, effective communication, and independence promotion (Holbrook & Rosenblum, 2017).

Koehler and Wild (2019) conducted a study with 51 VI teachers and O&M specialists teaching the science curriculum in public schools in the USA and Canada. They examined what modifications, adaptive equipment, and instructional practices teachers use to educate learners with VI. Participants were chosen through convenience sampling. An online questionnaire was used to collect data. A descriptive statistical analysis was performed. Findings revealed a lack of participation by learners with VI. Teachers lacked training and skills in involving the learners with VI in class activities. Participants were chosen using convenience sampling, therefore, the results were not generalized as they were based on a sample of available respondents. By contrast, this study adopted census sampling, which involved all regular and SPED teachers as well as the administrators who provided full information in the Botswana context.

Douglas, Rockson, and Dorleku (2020) conducted a descriptive survey to investigate the support provided by teachers to learners with low vision (LV) in selected regular schools in Ghana's Ashanti region. The study purposively sampled 25 learners with LV, 964 sighted learners, 261 regular teachers, and 22 school heads, using a questionnaire to collect data. Findings revealed that teachers utilized real objects and optical devices to support learning but lacked sufficient skills to effectively manage available resources, despite access to in-service training aimed at enhancing their ability to teach learners with LV. Unlike the Douglas *et al.* study, which focused solely on regular teachers, the present study included both regular and SPED teachers as key informants to provide a more comprehensive understanding of pedagogical practices for learners with LV in Botswana.

Mutia (2020) investigated the problems of educating children with VI at Kitui Secondary School in Kenya, purposively sampling 64 teachers. Data was gathered through interviews and observations. Findings revealed that teachers' ability to manage

learners with VI was limited. Most of them lacked SPED formal training. The study only targeted teachers in one secondary school which affects the generalizability of findings. It revealed that teachers lacked formal training in SPED whereas this study included formally trained SPED teachers, making the authenticity of the study results better.

Kebusha and Banda (2021) in Zambia, conducted a case study on the teaching methodologies for learners with VI in special schools. The study included 35 SPED teachers and learners with VI. Data was collected using questionnaires and interviews and analysed using thematic analysis. The study discovered that teachers use IEPs, inclusive education, audio devices, recording of lessons, adaptation of lesson materials in high contrast, and the use of magnifiers when teaching. It also revealed that teaching strategies provide diverse learning among learners and stimulate interactive learning. Although the study by Kebusha and Banda (2021) is informative, it is general in nature. It is not clustered, which makes it difficult to pick learners' needs. Instead, this study focused on learners with LV to specifically pick the positive or negative implications of the strategies used by the teachers in their learning.

Negash (2020), conducted a case study in Mikelle, Ethiopia in two secondary schools integrating learners with VI. The study looked at teaching practices to consider while including learners with VI. 30 participants including 12 VI, 12 sighted learners, 4 teachers, and 2 school principals were purposively sampled. Data were collected through interviews, questionnaires, and focus group discussions, and themes were analysed. Cooperative learning, peer tutoring, collaborative learning, and the use of assistive technology and materials were among the educational practices employed with learners with VI. It was recorded that teachers did not use the strategies in their

classrooms. The study by Negash (2020) is informative and was done to prepare for inclusion, unlike this study which focused on ongoing learning programs and further recommended better teaching strategies for teaching learners with LV.

Habulezi (2016) researched the teaching and learning techniques used to assist learners with VI in a secondary school in Botswana. The study attempted to define and explain the teaching and learning strategies used by the school as well as to suggest ways to improve the practices. Respondents included the school community and stakeholders. Interviews, documents, and observations were used to gather data, which was analysed using descriptions. The study established several educational approaches to aid learners with VI in their teaching and learning processes. The study by Habulezi (2016) is time-bound and focused on one secondary school, unlike this study, which focused on learners with LV at the foundation and primary school level who advance to secondary school.

There is a dearth of multifaceted approaches to the teaching strategies used to accommodate learners with LV. A study undertaken in this context in Botswana helps provide diverse viewpoints on the teaching strategies used on learners with LV and their implications on the learners' performance to enhance knowledge in the field. Therefore, this study sought to close the knowledge gap in the literature.

### **2.3 Teaching of Expanded Core Curriculum (ECC) to Learners with Low Vision**

Learners with visual impairment require specialized instruction beyond the standard curriculum (Griffin & Trusty, eds., 2017). The ECC addresses this need by providing nine essential skill areas: compensatory skills, orientation and mobility, social interaction, independent living, recreation and leisure, career education, assistive technology, sensory efficiency, and self-determination. Mastery of these skills is crucial

for academic success, self-esteem, and future independence (Parween & Dheesha, 2021).

Bjorg (2016) conducted a study in North Dakota, USA with six public VI school teachers from kindergarten through grade 12 to assess their perceptions and experiences on teaching the ECC. A phenomenological research design was adopted, and respondents with 3 years or more of experience teaching learners with VI were purposefully chosen. Telephone interviews were used to gather information. Data was analysed using thematic analysis. Findings revealed that teachers were not teaching ECC collaboratively in a systematic way. Teachers were required to teach ECC in class, at home, and in the community. Lack of time and communication hindered ECC teaching. Bjorg's study revealed that ECC was not systematically and collaboratively taught. This study was systematic since it focused on regular and SPED teachers and how the teaching of ECC impacts the academic performance of learners with LV.

Nirupalini and Naomi (2018) investigated the amount and depth of acquisition of ECC circular skills by learners with VI in Inclusive education at the secondary level in India. In grades 9 to 12, 120 learners with LV and blindness were sampled. A questionnaire was used to collect data. The researchers employed statistical techniques such as mean, t-test, ANCOVA, correlation, and core efficiency as well as regression analysis. According to the findings, 70% of blind and learners with LV learned ECC skills. The study found that ECC skills have a substantial influence on the academic achievement of learners with VI. Although the study is informative, it generalized VI and focused on learners at secondary schools. By contrast, this study specifically targeted the learners with LV at primary school and how their performance is affected by the teaching of ECC in the Botswana context.

Douglas and Hewett (2014) in the UK investigated 70 young individuals with VI aged 16 and 19's views of independence and how they anticipated they would deal with unemployment. Interviews were conducted with individuals. According to the findings, they were not effectively offered ECC earlier in their lives. They emphasized the need to teach ECC to young people in schools to maximize their independence in the future. The study by Douglas and Hewett (2014) is informative. It indicates the importance of teaching learners with VI, ECC at an early age for future self-reliance. However, this study targeted teachers and learners with LV at the primary school level and sought to establish how ECC was delivered and its impact on the learners' performance.

Fanshawe and Cain (2019) conducted a descriptive case study in Australia among learners with VI, exposing their everyday experiences in the mainstream. 15 learners and parents from private, government, and Catholic primary schools were interviewed by telephone to collect data. Findings demonstrated that the learners with VI preferred to be treated as learners first and that they were capable of partaking in the same activities as their peers. They suggested modifications in writing, textbooks, technology, visual fatigue, assessment, classroom organization, school grounds, pedagogy, and ECC. The study by Fanshawe and Cain (2019), was informative to this study although general in nature. The contemporary study focused on teaching strategies and their implications on learners with LV's academic performance in the Botswana context.

The research conducted by Simalalo (2017) sought to evaluate the usefulness of ECC for learners with VI attending special schools in Zambia. Data was collected through interviews, focus groups, a questionnaire, and documents. A case study technique was adopted. Purposive sampling was employed to choose 28 learners with VI from fifth to

twelfth grade, as well as 22 teachers from three special schools, 10 college learners, a university lecturer, two college lecturers, and two curriculum specialists. The research discovered that ECC teachers adopted segment patterns when teaching without a curriculum guide, resulting in subject inadequacies. Although Simalalo's study was objective, the findings indicated that ECC was offered without a curriculum guide and, therefore, was not informative. This study was informative since it targeted teachers and learners with LV who use an approved government curriculum. The teaching of ECC has shown challenges even in developed countries. Teachers do not offer it adequately. This study established whether teachers offered ECC so that it could be fully implemented.

#### **2.4 Adaptation of the Learning Environment for Learners with Low-Vision**

Creating an ideal learning environment for learners with LV necessitates tailored adjustments to the environment, materials, and curriculum (Willings, 2020). As each learner's visual needs vary according to Hornby (2014), understanding their specific VI and residual vision is crucial for effective support. Implementing classroom and school adaptations, including but not limited to labeling, appropriate lighting, and safe school grounds, is essential to facilitate inclusive learning experiences for these learners (Viljoen, 2020).

A study conducted in India by Gupta (2016), examined the physical surroundings of schools for learners with VI. The study looked at the best facility conditions for schools serving learners with VI. There were three specific schools for learners visually impaired. A data collection checklist was created by the researcher. The study revealed that the facilities at the special schools were inadequate for teaching learners with VI. The Gupta study was carried out in an environment that was not optimal for teaching

learners with VI. This study focused on the two regions considered optimal and further looked into how the adaptations of the learning environment affected the academic performance of learners with LV.

Niyisabwa, Munyi, and Muthee (2018) conducted research in seven Ugandan regions to examine adaptations for access and retention of learners with VI in Regular Universal Primary (UPE) Schools in Uganda. The mixed-methods research design was used. 141 purposively selected respondents included teachers of learners with VI from regular and integrated schools, learners with VI, and inspectors of schools in charge of special schools. Focused group discussions, interviews, questionnaires, and observations were employed to gather information. Data was analysed using thematic and descriptive statistical analysis. According to the findings, both regular UPE schools and integrated lacked most of the necessary adjustments for learners with VI to easily access learning facilities and the general school environment. Niyisabwa *et al.* (2018) study revealed a shortage of learning facilities and the general environment. On the contrary, the present research focused on whether the learners had access to the learning facilities and the general school environment, and related it to the academic performance of learners with LV.

Baafi's (2020) research investigated whether or not the physical setting of the school affects learners' academic performance. A survey was conducted on all senior high school learners in Ghana's Great Accra region. According to the study, learners do better academically when their senior high schools have a pleasant physical environment. The focus of this research was general, it included both VI and sighted learners. However, this study targeted learners with LV and how their teachers adapted the environment to suit their learning.

Maindi (2018), conducted a study with 147, purposively chosen form 2 Physics learners with VI from four Kenyan counties. The study sought to uncover difficulties that the learners with VI encountered when learning physics. The researcher utilized a survey approach. Questionnaires and test schedules were used to collect data. Descriptive statistics were used to examine the data. The findings revealed that there was insufficient lighting in the classrooms. Other concerns included reflecting glare, effective ways of reaching materials, color, and a lack of other non-optical interventions. The study revealed a series of challenges that informed this study. However, this study was undertaken to provide information on how teachers adapt the environment to suit learners with LV in the Botswana context.

Ramatea and Khanare (2024) conducted a study in Lesotho to look into resources that may be used to create an enabling learning environment for children with vision impairments in rural primary schools. The researchers selected 12 teachers. Data was gathered through focus group discussions with a sample of teachers and was evaluated thematically. The study found that a lack of resources, rigid teacher attitudes, and inadequate in-service training were key barriers in creating inclusive learning environments with visual impairment. Although Ramatea and Khanare's (2024) study was informative, this study engaged both regular and special education teachers to get more information on how they adapt the learning environment to suit learners with low vision. Reviewed studies indicated that teachers face challenges in modifying the learning environment for learners with LV while also ensuring that physical spaces are inclusive. This includes safety ramps, signage, and layout, all of which must be carefully examined to meet a variety of purposes.

## **2.5 School Administrators' Support for the Teaching of Learners with Low-Vision**

School administrators serve as educational leaders responsible for the smooth operation of a school (Sefotho & Ferreira, 2020). They foster collaboration among teachers, learners, parents, and the community while providing support and addressing the needs of both teachers and learners to create a positive learning environment (Sefotho & Ferreira, 2020). Effective administrators can identify and overcome challenges, enhance teacher collaboration (Dewi *et al.*, as cited in Pugu, Siminto, & Mursidin, 2024), and, in this study, were represented by the head teachers of the participating schools.

Toenders, De Putter-Smith, Sanders, and Den Brok (2017), conducted research on learners with VI in a regular Dutch High School in the Netherlands. The study intended to evaluate the physics learning environment because of the low enrolment of learners with VI. One VI student and her teacher participated. The study was qualitative. The data was gathered through observations and interviews. The findings revealed that the school administration did not give the teacher extra time to teach. There were no adapted course materials for the student. Although the study by Toenders, *et al* (2017) is informative, it sampled one learner and one teacher, so the findings cannot be generalized.

Darmawat, Fitria and Fitriani (2021), investigated the principal's role in improving the teachers' performance in Ulu, Malaysia schools. The study was qualitative. The researchers interviewed and observed teachers. According to the findings, the school principal must perform some roles to improve teacher performance. The school principal must carry out teacher supervision, teacher mentoring, incentives, and

achievement appreciation to increase teacher performance. Although the Darmawat *et al.* (2021) study is informative to this study, it is general in nature because it targeted all teachers in all schools in Ulu. This study borrowed a leaf from them and further focused on school administrators who were in the two primary schools that integrate learners with VI in Botswana.

Khaleel, Alhosa, and Duyar (2021) explored how principals in Al Ain, United Arab Emirates, encourage schools to welcome learners from diverse backgrounds. The study discovered that principals' attitudes and behaviour towards learners with disability and their inclusion in mainstreams influence how teachers accept the learners in school. The results revealed that school principals determined whether to back or limit activities for a more inclusive school. Their willingness was very important for facilitating inclusive practices. The study focused on attitude and behaviour in a culturally different setup. The contemporary study focused on learners with LV, unlike the Khaleel *et al.* (2021) study which focused on multiple backgrounds of learners with disabilities. Therefore, the manner in which their school administrators experience differed from Botswana because of their multiple backgrounds.

Abdulla (2020) explored leadership styles employed by head teachers and how they affect teachers' performance in integrating learners with VI in Lamu County, Kenya. 42 head teachers and 9 teachers informed the study. The findings revealed that head teachers acknowledged the usage of autocratic, democratic leadership and that leadership styles have a major impact on their performance. The leadership styles noted by Abdulla (2020), were informative to this study although its scope was limited to Lamu County. Therefore, this study went beyond and investigated the two special

schools integrating the VI in the two regions in Botswana. The scope of the study was broader.

Josua, Haihambo, and Likando (2022), did a study to investigate obstacles faced by the school management in Namibian schools that practice inclusion for learners with VI. The study employed a qualitative design. 16 participants were selected through stratified purposive sampling. Interviews and observations were used to collect data that was analysed narratively. The findings revealed that school management must deal with curriculum constraints, unwelcoming infrastructures, huge classes, teachers who lack VI skills, and instructional resources. This study focused on VI integration schools in Botswana that use a curriculum that includes learners with LV, as opposed to the Namibia case that had curriculum limitations.

A review of related literature has shown that there are management challenges in institutions that support learners with LV. Further, there is limited information on how they support teachers in their teaching. The current study therefore provides information on how school administrators in Botswana support teachers in teaching learners with LV.

## **2.6 Academic Performance of Learners with Low Vision**

Including learners with LV in regular schools necessitates more than physical accommodations (Belay & Yihun, 2020; Miyauchi, 2020). Effective inclusion requires equitable access to the general education curriculum, engaging teaching strategies, and appropriate materials to foster full participation and understanding (Bajaj, 2019). The academic success of learners with LV is dependent on addressing their unique challenges including access to specialized materials, classroom adaptations, teacher training, emotional support, and transition planning (Parween & Dheesha, 2021).

Kizislan, Zoruoglus and Sozbilir (2020) did an exploratory study in 6<sup>th</sup> grade classes with learners aged 12-15 years in a VI-integrated school in the United Kingdom.9 learners with VI were chosen on purpose. The researcher looked at how activities and resources used to teach science to learners with VI affected their learning. Classroom observations, interviews, and academic achievement tests were used to collect data. Descriptive analysis was employed. The study revealed that literacy skills for both blind and learners with LV were low despite suitable modifications made. Although the study by Kizislan *et al.* (2020) is informative to this study, it focused on learners in the 6<sup>th</sup> grade. This study focused on all learners with LV's academic performance across all the subjects they do at primary school level.

Macharia (2018), investigated the factors that influence the academic progress of learners with VI in integrated primary schools in Kakamega County Kenya. A descriptive survey design was used. A simple random sampling procedure was used to choose teachers and learners. A questionnaire was used to collect data which was then evaluated descriptively. The findings revealed that the methods used, teaching and learning materials, the teachers' attitude, and the involvement of parents influenced the academic performance of learners. Although the study by Macharia (2018) reveals some strategies for academic performance, it is limited in nature because it focuses on Kakamega County, lacking a comparative as to the contemporary study that included both the Kgatleng and the Northeast regions in Botswana.

Mokhuphadhay, Moswela, and Habulezi (2017), conducted a multiple case study on the educational experiences of 19 learners with VI in primary schools. Observations, focus group discussions, and interviews were employed by researchers. Findings revealed that learners with VI faced challenges both in curriculum and classroom

participation. The study by Mokhuphadhay *et al.* (2017) focused on learners with VI in general, the current study specifically concentrated on the learners with LV and how the teaching methods used affect their performance. Reviewed studies on this variable indicate that learner with visual impairments' academic performance is influenced by either methodological or teaching and learning materials used or other factors. Further, there is limited information on how teaching strategies affect the academic performance of learners with LV. Therefore conducting this contemporary study helped in understanding of how teaching strategies affect learners with LV academic performance.

## **2.7 Summary of Literature and Gaps**

The empirical analysis covers studies undertaken by various researchers around the world. The studies focused on different aspects and used different methods. There is a dearth of multifaceted approaches to the adapted teaching strategies used to accommodate learners with LV. A study undertaken in the Botswana context helped provide diverse viewpoints on the teaching strategies used on learners with LV and their implications on the learners' performance to enhance knowledge in the field. Therefore, this study sought to close the knowledge gap in the literature. The teaching of ECC has shown challenges even in developed countries. Teachers do not offer it adequately. The study sought to establish whether teachers understood it so that it is fully implemented.

Reviewed studies have indicated that adapting the learning environment for learners with LV is a challenge to teachers as well as ensuring that physical spaces are inclusive. Therefore, the present study sought to establish how teachers adapt the learning environment and also how it affects the academic performance of learners with LV. A

review of related literature has also shown that there are management challenges in institutions that support learners with VI. Further, there is limited information on how they support teachers in the teaching of learners with LV. The study evaluated the support the school administrator gave to teachers on the teaching of learners with LV.

According to reviewed studies, learners with VI academic performance is influenced by either methodological or teaching and learning materials used. Further, there is a scarcity of information on the academic performance of learners with LV in Botswana. Therefore, conducting a study at primary school level on this variable helps teachers to gain better understanding on how tailored teaching strategies they use affect the academic performance of learners with LV.

The empirical analysis reveals a lack of multifaceted approaches to teaching strategies for learners with LV, with limited research on their academic performance in Botswana, prompting this study to address these gaps by examining tailored pedagogical practices and their impact. Notably, the literature lacks the perspectives of learners with LV themselves, needed to provide critical insights into the effectiveness of teaching strategies, environmental adaptations and administrative support. By incorporating this, the study enhances understanding of how these factors influence their academic experiences and outcomes, ensuring a more inclusive approach to addressing their needs.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The chapter presents the procedures that were used in conducting this study. The research design, variables, location of the study, target population, sampling techniques, sample size, data collection tools, and pilot study. It also includes instruments' reliability and validity, data collection techniques, data analysis, and presentation as well as logistical and ethical considerations.

#### **3.2 Research Design and Locale**

##### **3.2.1 Research Design**

The research was conducted using a descriptive survey research design that combines qualitative and quantitative approaches. According to Stangor (2014), descriptive designs allow for the evaluation of a group's features, such as its members expressed and observable behaviour, knowledge of activities, attitudes or opinions, and needs. A descriptive research design, allows the researcher to collect a large amount of data to better understand and explain a phenomenon or group of individuals. In view of this, the current study sought to evaluate the pedagogical strategies employed by teachers to accommodate learners with LV and their implications on their academic performance. The qualitative approach was used to examine and convey the voices verbatim. The quantitative approach enabled the researcher to acquire measurable data that was presented quantitatively considering the multiplicity of research tools used.

##### **3.2.2 Study Variables**

The variables of the study were independent, intervening, and dependent. The independent variables were teaching strategies for the LV, provision of ECC, adaptation

of the learning environment, school administrators' support towards teaching learners with LV and performance of learners with LV. They included active learning approaches that include cooperative learning, differentiated instruction, and the use of assistive devices and technology. The variables were measured through a classroom observation checklist and a questionnaire. The expanded core curriculum's provision was measured by observing classroom application of compensatory skills which enhance learner participation. An observation guide was used. The adapted learning environment was assessed by observing the classroom and physical space adaptations and assistive device usage. The school administrators' support for teaching learners with LV was measured through teachers' responses to the questionnaire and during observations. School administrators were interviewed following an interview guide. The document analysis guide was also used. The dependent variable in the study was the academic performance of learners with LV, which was evaluated based on their class performance records and outcomes as indicated in their test scores, grades, homework, and IEPs. Intervening variables were the availability of SPED teachers, the use of SPED policy, the Botswana Revised National Policy on Education (RNPE, 1994), and the inclusive education policy.

### **3.2.3 Location of the Study**

The study was conducted at Phatlhogo Primary School in Botswana's North East Region, a rural area with limited economic resources and infrastructure, and Matsieng Primary School in the Kgatleng Region (Appendix D), a peri-urban district with better access to services but still facing resource constraints, both serving diverse communities with a mix of subsistence farming and small-scale trade economies. These schools are unique in Botswana as the only primary institutions integrating learners

with VI, including those with LV, taught by both regular and SPED teachers, with a combined total of 51 learners with low vision out of 91 learners with visual impairment. This selection was strategic, as these schools' inclusive setups and higher LV enrolment provide a critical context for studying pedagogical practices and their impact on academic performance in resource-limited settings.

### 3.3 Target Population

The study targeted 69 participants from two primary schools comprising 24 SPED teachers, 43 regular teachers, and 2 school administrators in Phatlhogo Primary school in North East Region and Matsieng Primary school in Kgatleng Region. The informants and respondents were chosen because the target institutions are the only ones in Botswana's Kgatleng and North East Regions that integrate learners with VI. As a result, the study included all SPED teachers, regular teachers, and administrators from the two institutions, justifying the number of informants and respondents. The two primary schools have 91 learners with VI of whom 51 of them have LV.

**Table 3.1**

*Target Population*

<b>School</b>	<b>Regular Teachers</b>	<b>Special Education Teachers</b>	<b>School Administrators</b>	<b>Total</b>
VI-Phatlhogo	26	11	1	38
VI-Matsieng	17	13	1	31
<b>Total</b>	<b>43</b>	<b>24</b>	<b>2</b>	<b>69</b>

Source: Researcher, 2023

### 3.4 Sampling Techniques and Sample Size

The sampling techniques and sample size are described in detail in this section.

### **3.4.1 Sampling Techniques**

The research used both purposive and census sampling. Phatlhogo Primary school in North East Region and Matsieng Primary school in Kgatleng Region were purposively selected as they are the only regions that have the only two primary schools in Botswana that integrate learners with VI, and these schools have regular and SPED teachers who interact with learners with VI in classrooms that are integrated. Census sampling was used to select the entire target population of teachers and administrators, to ensure complete data collection from the defined target population within those regions.

### **3.4.2 Sample Size**

Cresswell (2014) recommends that in a scenario where the target population is not vast, then the researcher considers the entire population as the sample size. The participants consisted of 2 school administrators, 43 regular teachers, and 24 SPED teachers.

## **3.5 Research Instruments**

The research instruments that were used to collect information from the respondents are questionnaires, interview guide, observation checklist, and document analysis guide. Each of these instruments are described in the subsequent subsections.

### **3.5.1 Questionnaires**

Questionnaires for regular and SPED teachers with 20 and 24 items respectively in sections A, B, and C were used for data collection. Section A collected information on respondents' demographics. The questionnaires extracted qualitative and quantitative information from respondents on the research topic. Teachers as implementers of pedagogical practices, shared their experiences and knowledge on the same. (Appendix A & B)

### **3.5.2 Interview Guide**

The interview guide was used to collect qualitative information from the informants in the study. Interviewees were able to express their views, beliefs, and experiences on the subject (Sahoo, 2022). To acquire data from the informants, the researcher used a Key Informant Interview (KII) guide. School administrators as overseers of teachers' pedagogical practices that focus on learners with LV were interviewed (Appendix C).

### **3.5.3 Observation Checklist**

The researcher observed actual teacher interactions with LV learners in an integrated classroom setting. An observation checklist was developed in line with the study variables, following indicators to be observed to extract quantitative information from the study environment and be recorded appropriately (Appendix D). Observations enable the researcher to observe actions, behaviour, and real-life components of a scenario, rather than relying on people's interests and ability to respond appropriately to questions (Taherdoost, 2021).

### **3.5.4 Document Analysis Guide**

A document analysis guide for school administrators consisting of a list of statutes and records that are vital in running schools was used to check how they benefit the institutions. The documents include the school mission statements, vision statements, Botswana Special Needs policy, Inclusive education policy, Botswana Revised National Policy on Education (1994), and other school performance records were reviewed to gain an understanding of how the school functions. The other document analysis guide was used to examine the academic performance of learners with LV. Classroom performance records, such as termly test grades, books, and IEPs were analysed, to see how strategies used by teachers benefit them (Appendix F).

### **3.6 Pilot study**

A pilot study was conducted in the Kgatleng region, Botswana to validate the instruments. The pilot study targeted three (3) officers from the Ministry of Education and Skills Development - Department of Special Support Services and three (3) VI SPED teachers from the only Junior Secondary School – Linchwe in Kgatleng, integrating learners with VI to evaluate the instruments that were used in the study. This was to ensure that test items and instructions were clear. Unclear questions were revised.

#### **3.6.1 Validity**

The accuracy of the study instruments was determined using content validity. Surucu and Maslaki (2020) recommend that the researcher seek input from subject matter experts. The researcher consulted with the supervisors to evaluate the instruments. The instruments were fine-tuned further, based on their feedback and recommendations.

#### **3.6.2 Reliability**

The internal consistency technique was used to evaluate the instruments' reliability. Pilot testing was performed on the instruments to ensure internal consistency, and the Cronbach Alpha reliability test was used to determine whether the test items are reliable. Cronbach Alpha recommends an internal consistency of 0.7 and above hence a value of 0.78 was attained.

### **3.7 Data Collection Techniques**

Questionnaires were used to collect data from regular and SPED teachers in the two institutions. The researcher administered and collected questionnaires at set times. Teachers in an integrated classroom were observed as they taught learners with LV.

Observations were recorded in a book to avoid forgetting. Class observations for teachers were conducted according to the schedules. The researcher focused on indicated aspects of the observation guide such as materials used, and modifications to accommodate learners with LV. Learners with LV class records, books, test grades, and IEPs were analysed using a document analysis guide. The researcher conducted interviews with school administrators and recorded their responses, school documents were also reviewed at agreed times following the document analysis guide.

### **3.8 Data Analysis and Presentation**

The qualitative data from interviews were transcribed into text. In this context, transcription entailed converting all the field notes taken during the interviews and recorded audio materials into written form that was analysed as recommended by McMullin (2023). The researcher organised the data using the six-step thematic analysis procedure: familiarization, computing, generating themes, inspecting, defining, and objectively labelling themes. Responses from the survey were analysed qualitatively and quantitatively through coding and entry into a computer-aided program on Statistical Package for Social Sciences (SPSS) version 28. The findings were written in line with the study objectives and presented through charts, and graphs. Tables and figures were used to show descriptive statistics. Observations were recorded using an observation checklist. Data from the document analysis guide was corroborated to the study findings. Finally, the thesis was written in line with the study objectives.

### **3.9 Logistical and Ethical Considerations**

The study's logistical considerations alongside ethical considerations are discussed in this section.

### **3.9.1 Logistical Considerations**

The Graduate School at Kenyatta University issued a letter of approval for the study. Beyond that, a research permit was sought from the National Commission for Science, Technology, and Innovation, Kenya. Further, permission was sought from the Botswana authorities to conduct research in the Northeast and Kgatleng regions. Following that, the researcher met the administrators of the schools that were selected to explain the purpose of the study and the logistics of data collection. Schools were visited on agreed schedules to collect data.

### **3.9.2 Research Protocol and Itinerary**

The research protocol followed a structured, ethical approach to ensure systematic data collection and minimize bias. Prior to fieldwork, relevant permissions were obtained. Informed consent was secured from all participants (school administrators, SPED teachers, and regular teachers) using signed forms (Appendix H), emphasizing voluntary participation, confidentiality, and the right to withdraw. Data collection adhered to COVID-19 protocols, including sanitization and social distancing.

The protocol involved: Initial site visits for reconnaissance at Phatlhogo Primary School (North East Region) and Matsieng Primary School (Kgatlung Region) to build rapport with head teachers and confirm participant availability. Then data collection sequence followed where questionnaires were administered to 43 regular teachers and 24 SPED teachers (self-administered, with follow-up for clarification).

Semi-structured interviews were conducted with 2 school administrators (audio-recorded with permission, lasting 30-45 minutes each). Further, classroom observations were performed using the checklist (Appendix D), focusing on teaching strategies,

adaptations, and learner interactions (non-intrusive, 1-2 hours per session across 10 classrooms). Additionally, a review of documents (IEPs, performance records) using guides (Appendices E & F), with access granted by administrators was undertaken.

Field notes were recorded daily and audio files transcribed verbatim within 24 hours. Quantitative data was entered into SPSS for cleaning, while qualitative data coded thematically. Anonymity was maintained by using codes for interviews. Quality assurance was ensured through the triangulation across methods (questionnaires, interviews, observations, documents) enhancing validity. Debriefing sessions were undertaken with participants to address any concerns.

On the itinerary, fieldwork was conducted from May 20-30, 2024, aligning with school schedules and minimized disruption. Travel between sites (approximately 200 km apart) was via road. Day 1-2 (May 20-21): Arrival in Botswana; obtain final clearances; reconnaissance at Phatlhogo Primary School. Day 3-5 (May 22-24): Data collection at Phatlhogo – questionnaires (teachers), interviews (administrator on May 24), observations, and document reviews. Day 6 (May 25): Travel to Matsieng Primary School; initial setup. Day 7-9 (May 26-28): Data collection at Matsieng – questionnaires, interviews (administrator on May 25), observations, and document reviews. Day 10 (May 29-30): Follow-up clarifications; data backup; departure.

### **3.9.3 Ethical Considerations**

The respondents were provided consent forms to complete to participate willingly. They were informed that they could opt not to participate in the study at any time. Respondents' confidentiality and anonymity were guaranteed. They were assured that the information they gave would be used for the study and their identities were kept private.

## CHAPTER FOUR

### FINDINGS, INTERPRETATION, AND DISCUSSION

#### 4.1 Introduction

The chapter presents the study's findings in relation to the response rate, demographic data, teaching strategies used to deliver the core curriculum to learners with LV, provision of the expanded core curriculum to learners with LV, adaptations to the learning environment to learners with LV school administrators' support, and academic performance of learners with LV in primary schools in Botswana, with key insights and implications for educational practice.

#### 4.2 General and Demographic Information

##### 4.2.1 Response Rate

The study achieved an overall response rate of 100%, with all 69 targeted participants (67 respondents and 2 informants) participating. The 67 respondents constituted 97% of the total target, while the 2 informants represented the remaining 3%. This response rate was indicative of the effectiveness of the data collection strategy, and the high level of engagement and commitment from the participants illustrated in Table 4.1.

**Table 4.1**

*Response Rate*

<b>Targets</b>	<b>Responses Attained</b>	<b>Response Rate</b>
67	67	97%
2	2	3%
<b>69</b>	<b>69</b>	<b>100%</b>

Source: Field Data, 2024

Achieving such a high response rate strengthens the reliability and validity of the study's findings, as it ensures that the data collected is comprehensive and representative of the entire target population.

### 4.2.2 Demographic Data

The study sought demographic data of respondents on gender, age range, education level, and duration worked as a teacher. The data provided an understanding of the respondents' backgrounds and how these factors influenced their experiences. Gender distribution helped identify potential differences in experiences between male and female teachers. The age range of respondents was crucial for understanding generational perspectives and the identification of any correlations between age and teaching strategies or adaptability to new methods. Education level provided insight into the respondents' qualifications and professional training, which impact their effectiveness in implementing specialized curricula. Lastly, the duration of teaching experience was essential to gauge the level of expertise and familiarity with diverse educational needs, such as those of learners with LV. Figure 4.1 illustrates on the gender of respondents.

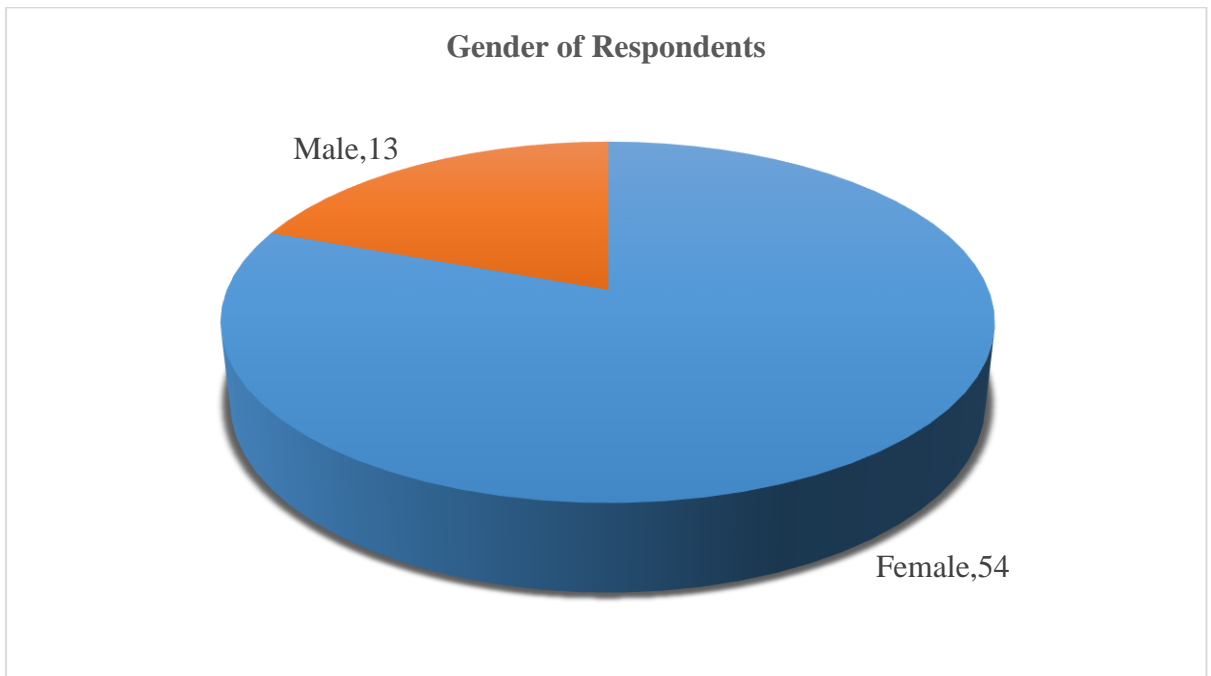


Figure 4.1: *Gender of Respondents* Source: Field Data, 2024

Figure 4.1 on the gender distribution of respondents in the study revealed a significant female majority, as opposed to male respondents participating in the survey. This predominance of female respondents reflected the demographic makeup of the teaching profession in the region, where women are often more prevalent in educational roles, especially in primary schools. This gender composition was important to consider as it influenced the study's outcomes and insights into teaching learners with LV. The predominance of female respondents in this study mirrors the broader trend of female dominance in the teaching profession, particularly at the primary level (Viljoen, 2020). While this study provides valuable information about the perspectives and experiences of female teachers, it is essential to acknowledge that a more balanced gender representation would offer a comprehensive understanding of the factors impacting the academic performance of learners with LV. Further, the age range of respondents was sought in the study, as illustrated in Figure 4.2.

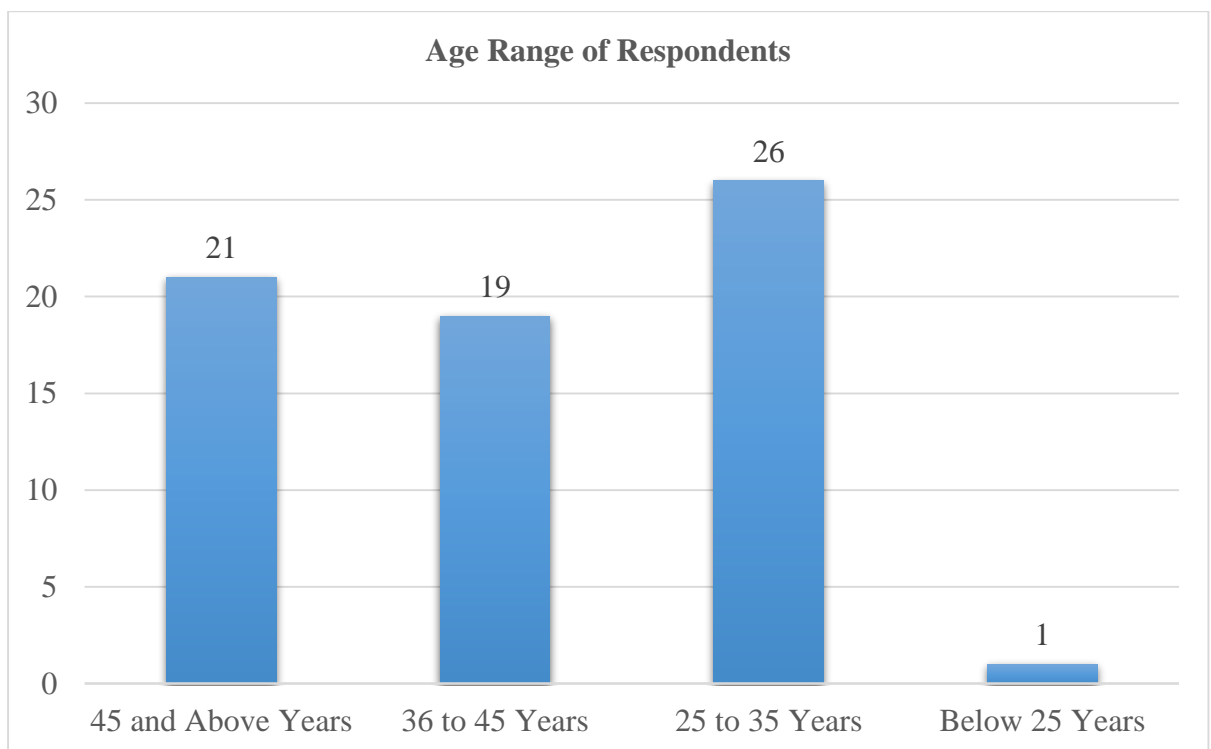


Figure 4.2: *Age Range of Respondents* Source: Field Data, 2024

Figure 4.2 on the study's respondents' age distribution indicated a diverse range of experience levels among the teachers. The largest group was those aged 25 to 35 years, with 26 (39%) respondents, followed closely by 21 (31%) respondents aged 45 and above. The 36 to 45 years age group included 19 (28%) respondents, and there was only one (2%) respondent below 25 years. This variety in age groups provided perspectives on teaching strategies and experiences, as younger teachers brought new, innovative approaches while more seasoned teachers offered valuable insights based on years of experience. The diversity of teacher age groups in this study offers a rich tapestry of perspectives on teaching learners with LV. As suggested by Sherman and Wood (1982), different educational theories and approaches emerge across generations. Younger teachers often bring innovative and technology-driven strategies, while more experienced teachers offer a wealth of practical knowledge and adaptability. This interplay of perspectives can significantly impact the development and implementation of effective teaching methods for learners with LV, potentially leading to improved academic outcomes. By combining the enthusiasm and creativity of early-career teachers with the wisdom and experience of their senior colleagues, a more comprehensive and effective approach to teaching learners with LV can be fostered. Beyond that, the level of education of respondents was sought, as illustrated in Figure 4.3.

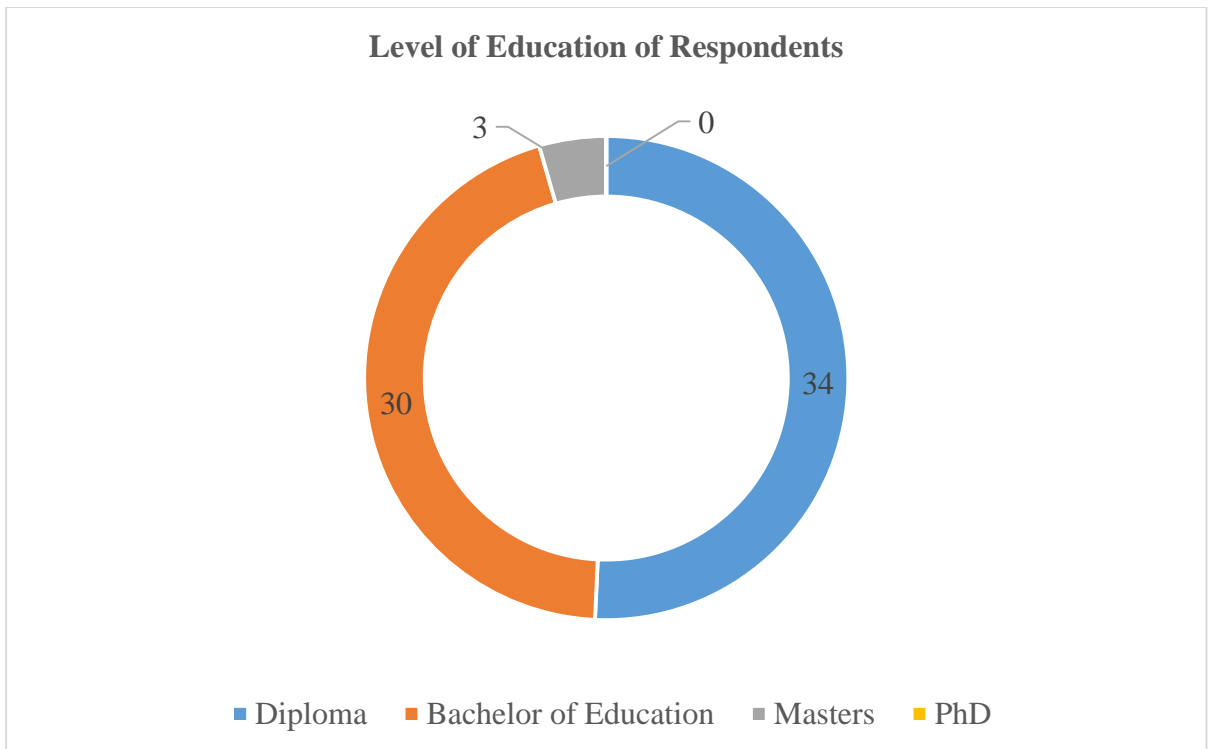


Figure 4.3: *Level of Education of Respondents* Source: Field Data, 2024

Figure 4.3 on the educational qualifications of the respondents revealed a well-educated group with a range of academic backgrounds. More than half of the respondents held a diploma, indicating a foundational level of professional training. Another significant population of respondents had attained a Bachelor of Education degree, demonstrating a higher level of academic preparation and specialization in the field of education. Only the least number of respondents had a master's degree, reflecting advanced studies and potentially more specialized knowledge or expertise in educational practices.

Notably, there were no respondents with a PhD, suggesting an absence of the highest level of academic achievement within the group. This distribution highlighted the predominance of diploma and bachelor's degree holders, which influence the approaches to teaching strategies and curriculum implementation, as well as the capacity for innovative practices in educating learners with LV. The study further

probed into the duration of work as a teacher among respondents as illustrated in figure 4.4.

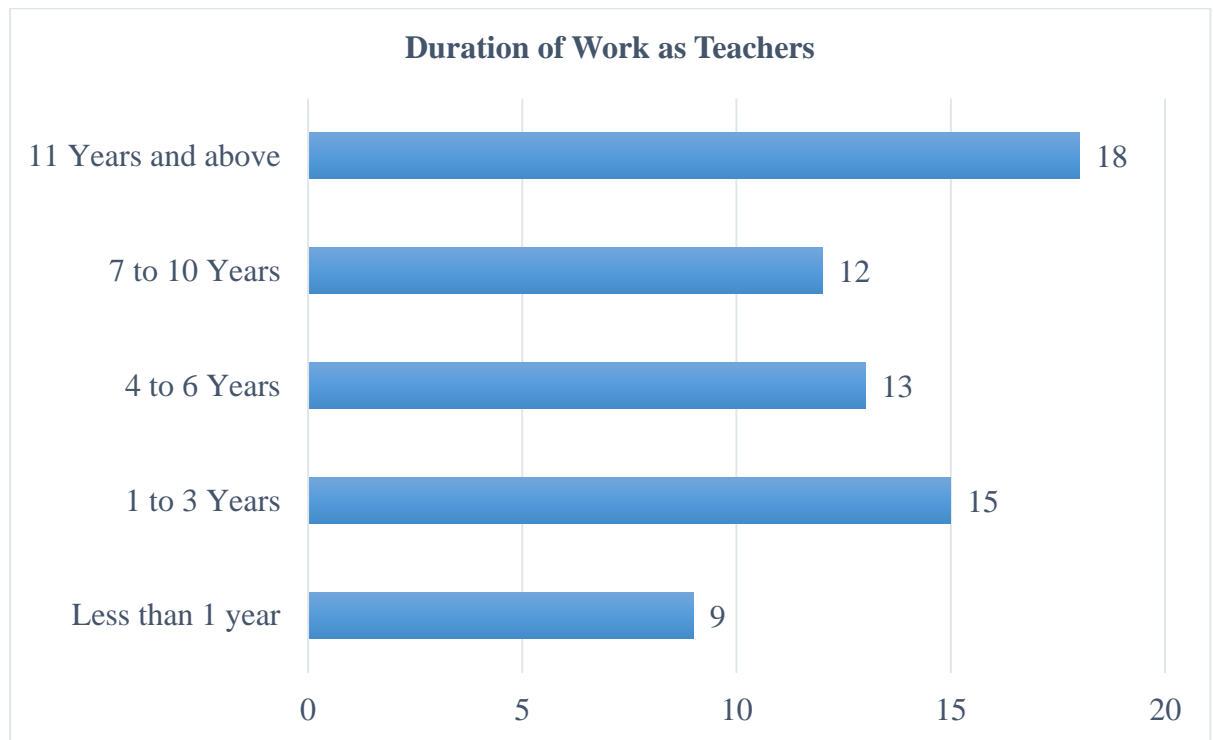


Figure 4.4: *Duration of Work as Teachers* Source: Field Data, 2024

Figure 4.4 in the study revealed a diverse range of teaching experiences among respondents. 9 (14%) respondents had less than 1 year of experience (comprised of a smaller subset of respondents had relatively shorter teaching experience durations, with 4 respondents having taught for 2 months, 3 respondents for 3 months, and 2 respondents for 6 months), while 15 (22%) had worked as teachers for 1 to 3 years (8 respondents reported having one year of teaching experience, while 4 had been teaching for two years, and 3 respondents had three years of teaching experience).

Additionally, 13 (19%) respondents had 4 to 6 years of experience (3 had 4 years of teaching experience, 6 had been teaching for 5 years, and 4 had accumulated 6 years of experience), 12 (18%) had 7 to 10 years (4 respondents had been teaching for 7 years, 1 respondent for 8 years, and 2 respondents for 9 years). Additionally, 5 respondents reported having 10 years of teaching experience, and the highest number, 18 (27%)

respondents, had been teaching for 11 years and more. This distribution suggests a mix of novice and experienced educators participating in the study, reflecting a comprehensive perspective on pedagogical practices within the context of LV learners in Botswana.

#### **4.3 Teaching Strategies Used to Deliver Core Curriculum to Learners with Low Vision in Primary Schools in Botswana**

The first objective of this study sought to establish the teaching strategies used to deliver the core curriculum to learners with LV. Before seeking information on these strategies, respondents' understanding of the integration of learners with VI was sought. The responses highlighted various understandings and approaches. Integration was perceived as the practice of teaching learners with VI alongside their sighted peers in regular schools or classrooms, aiming to create inclusive learning environments. This approach often involves using the same syllabus and teaching methods for both VI and non-VI learners, sometimes employing communication tools like Braille to facilitate learning for those with VI. Education in Botswana is in line with the Education for All (1990) and the Salamanca declaration of 1994, which promoted the inclusion of learners with disabilities. Integration is seen as a means to prevent discrimination and foster relationships among learners, promoting a mixed-ability strategy where learners with VI are included in mainstream education settings. However, there were expressions of unfamiliarity with working with learners with LV or provision of more general statements about integration without specific details.

The consensus among the responses highlighted the importance of integrating learners with VI into mainstream education, ensuring they learn alongside their non-VI peers in regular classrooms with teachers being well versed on inclusion. Integration was perceived as a practice that breaks down barriers and promotes inclusive learning

environments, where learners with VI are not segregated but rather included in daily teaching activities alongside their sighted peers according to Otieno, Okello and Namunga (2023), who note that teachers with positive attitude strongly influence inclusion of VI in public regular schools. The use of mixed-ability strategies and the emphasis on creating welcoming and inclusive environments highlighted a commitment to providing equal opportunities for learners with VI and fostering positive interactions among all learners. In view of the responses, the researcher objectively probed into the teachers’ pedagogical practices and their implications on academic performance of learners with LV.

Findings of objective 1 revealed that teachers employed a variety of strategies to accommodate learners with LV in their daily teaching, emphasizing inclusivity and accessibility as summarized in Table 4.2.

**Table 4.2**

*Statements on Strategies to Accommodate Learners with Low Vision*

<b>Number</b>	<b>Strategy</b>	<b>Yes</b>	<b>No</b>
1.	The use of interactive learning techniques	43	21
2.	One-on-one attention to LV learners (Individualized attention and peer support)	54	13
3.	Inclusivity through peer support strategies	42	25
4.	Practical activities and tangible objects	47	20
5.	Braille for learners with more severe LV (Perkins brailers, writing frames, and styluses)	55	12
6.	Use of ICT in curriculum delivery varies significantly among teachers	47	20
7.	Few teachers can use ICT regularly	20	47
8.	No single best method for teaching learners with LV	56	11

Source: Field Data, 2024

A common approach among 43 teachers as illustrated in Table 4.2, was the use of interactive learning techniques such as group work, paired work, and individual tasks, which helped engage LV learners actively in the classroom. These strategies were

equally observed and recorded in the observation checklist. By involving them directly in activities, teachers ensured these learners participate fully in the learning process, facilitating better understanding and retention of the material.

This was often complemented by using large print materials and coloured chalk to enhance visibility. Teachers also prepared enlarged copies of classroom materials and used teaching aids with big fonts to ensure LV learners read and follow along without straining their vision. Additionally, some teachers made use of audio-visual aids and Braille to cater to the specific needs of these learners.

Majority of the teachers (54) representing 81% also adopted a personalized approach by providing one-on-one attention to learners with LV. This included attending to them individually, modifying lesson content where necessary, and refrained from using visual-only references. They ensured instructions and explanations were clear, often involving verbal teaching methods and provided oral discussions to supplement written materials. In some cases, teachers prepared exercises and activities beforehand to familiarize learners with LV with the content, reducing the cognitive load during lessons. In view of the study by Khalil, Fizzah, and Khan (2016), on addressing the needs of learners with VI in Pakistan, the study established that qualified and competent teachers can handle and deal with learners in the classroom effectively although age had an effect on the level of awareness on dealing with SPED needs.

Inclusivity was further promoted through peer support strategies. 42(62.6%) teachers indicated that LV learners were often paired with sighted peers for collaborative tasks, creating an environment of mutual assistance and learning. Peer teaching, group work, and presentations were utilized to foster a learner-centred approach, enabling learners with LV to benefit from the insights and support of their classmates. This strategy not

only aids in academic learning but also helps in building social connections and reducing feelings of isolation.

Additionally, practical activities and tangible objects were used to enhance the understanding for learners with LV. 47(70%) teachers were in support of practical activities and tangible objects as they incorporated hands-on learning opportunities where learners with LV manipulated objects, thereby facilitating experiential learning. Adjustments such as allowing extra time for tasks and using hearing aids for better comprehension were also implemented to cater to the diverse needs of learners with LV.

Braille was frequently mentioned by 55(82%) respondents as a critical communication medium for learners with more severe LV. Teachers highlighted the use of brailled work for reading and writing, which significantly aided learners in accessing the curriculum. While braille was an essential method, it was also noted that learners with mild LV benefited from other approaches such as using large print materials or assistive technology like laptops with screen magnification software.

Teachers also emphasized on the importance of verbal instructions and descriptions, which help learners with LV follow along without relying solely on visual cues. Ensuring that the environment was inclusive and supportive was crucial for the success of learners with LV.

Thus, this study found that teachers use a variety of strategies to deliver the core curriculum to learners with LV, emphasizing inclusivity and accessibility. This aligns with the recommendations in "Teaching Learners with VI" (Sefotho & Ferreira, eds, 2020), highlighting the importance of interactive learning techniques and differentiated instruction to cater to individual needs. The study specifically mentions using enlarged

materials and clear verbal explanations, which is corroborated by Viljoen (2020) in the same book, who emphasizes practical approaches like curriculum differentiation and using clear communication methods for successful learning by learners with visual impairment.

The responses on the strategies used indicated consensus among 56(83.5%) respondents that there was no single best method for teaching learners with LV; instead, various strategies were effective depending on the specific needs of the learners. According to Holbrook and Rosenblum (2017), it is impossible to determine one method of adaptation that works for all learners with VI, considering that each learner is unique in terms of needs depending on the functional implications of the learner's VI, learners' level of adaptive skills and learners' personal preference. Respondents suggested that all teaching methods were beneficial for learners with LV, emphasizing the importance of flexibility and adaptation to individual needs. This included using the same methods as those used for sighted learners while making necessary accommodations, such as larger fonts or positioning learners closer to the chalkboard.

Individualized attention and peer support were also vital. Many respondents totalling to 54(80.5%), mentioned one-on-one teaching and peer teaching as effective approaches. By providing personalized support, teachers were able to address specific challenges faced by learners with LV. Peer support fostered a collaborative learning environment where learners with LV benefited from the assistance and interaction with their sighted classmates, enhancing both academic learning and social integration. The consensus was that a combination of various methods, tailored to the individual needs of LV learners, worked best. This included using braille, assistive technologies, modified teaching materials, and creating an inclusive classroom environment. Flexibility, adaptability, and a student-centred approach were essential to effectively

accommodate learners with LV and ensure they receive a comprehensive and equitable education.

The study findings aligns with the findings of Habulezi (2016) who emphasizes using a variety of approaches based on individual needs. Similar to the emphasis on braille for learners with severe vision loss, this study highlights its importance (Habulezi, 2016). Both studies also acknowledge the value of adapting existing teaching methods for sighted learners alongside specialized techniques like using enlarged materials or assistive technology. This reinforces the notion that a single method is not sufficient and a combination of strategies tailored to the student is most effective.

The responses indicate a range of assistive devices that are considered useful for learners with LV, with a strong emphasis on braille-related tools. Perkins brailers, writing frames, and styluses are frequently mentioned by 55(82%) respondents as essential devices that help learners with LV read and write. These tools are fundamental for learners whose low vision is severe and rely on tactile methods to access written information, allowing them to participate actively in their education.

Another key category of assistive devices includes electronic gadgets that enhance visual accessibility. Devices such as CCTV (Closed-Circuit Television), which can magnify printed materials, and other magnifiers, are highlighted for their ability to enlarge text and images. (Phutella & Dwivedi, 2019). These tools help learners who have some residual vision to better see and interact with educational content. Laptops with special software and talking tablets are also noted for their versatility and ability to provide customized support, such as screen magnification and audio feedback.

Audio aids are also deemed valuable, with audio tapes and ICT (Information and Communication Technology) tools like the Victor Reader being mentioned. These

devices can convert text to speech, allowing LV learners to listen to their lessons and written materials. This auditory support can be crucial for learners who find it challenging to read even enlarged text. Additionally, the use of ICT in classrooms can facilitate a more interactive and accessible learning experience for LV learners.

Specialized educational tools like the Perkins Braillewriter and the Connect 12 are also seen as beneficial. The Perkins Braillewriter is a mechanical device similar to a typewriter but for Braille, which allows learners to write Braille easily. The Connect 12 is a portable device that combines a high-definition camera with a tablet to enlarge and display text and images, providing both visual and tactile learning options. These tools support a variety of learning needs and preferences among LV learners.

Various assistive devices significantly improve learning accessibility for learners with VI. Braille tools like Braille machines and styluses are crucial for tactile readers to interact with written information (Sefotho & Ferreira, eds, 2020). Electronic magnifiers and screen readers on laptops and tablets address the needs of learners with some residual vision by enlarging text and converting it to speech (Viljoen, 2020). Audio aids and ICT tools further enhance accessibility by providing audio versions of written materials, promoting active participation in lessons (Habulezi, 2016).

The responses from 47(70%) respondents reveal that the use of ICT in curriculum delivery varies significantly among teachers, with many reporting limited or infrequent use primarily due to a lack of functional equipment. A number of teachers mention that they rarely use ICT, citing non-operational computers and a general shortage of ICT gadgets as major barriers. Despite this, there is a consensus that when ICT is available and utilized, it is highly beneficial for learners, including those with LV, as it enhances engagement and makes learning more accessible and effective.

Some (47) teachers use ICT occasionally, particularly when necessary, and report positive outcomes when they do. Tools like the Braille Note Touch are noted for their utility in recording and replaying lessons, which helps learners with LV to review and retain information more effectively. Additionally, teachers who use laptops or other ICT devices observe increased interest and engagement from learners, indicating that technology can play a crucial role in making lessons more interactive and stimulating.

On the other hand, a few teachers representing 20(29.8%) were able to use ICT more regularly, such as on a weekly or even daily basis. These teachers affirm the benefits of ICT in their teaching practices, highlighting how it can save time and simplify the presentation of complex content. They also emphasize that ICT allows for a more exploratory and interactive approach to learning, which can be particularly advantageous for learners with diverse learning needs, including those with VI. In view of Hamlin (2021), there is compelling long-term evidence that learners' achievement can be improved through the use of technology, while AT use is often essential for learners with VI, to achieve success, classroom teachers do not implement AT in regular education due to lack of training to fully understand the need for AT, insufficient time and staffing support implementation.

For those who do not use ICT at all, the reasons often relate to infrastructural challenges. The lack of working computers and adequate technological support in schools hinders the integration of ICT into daily teaching. However, these teachers acknowledge the potential benefits of ICT and express a desire to incorporate it into their teaching if the necessary resources were available. The consensus is that ICT has the potential to significantly enhance the learning experience when the infrastructure and tools are in place.

The study reveals a positive impact of ICT on student learning, particularly for learners with VI, but also highlights challenges in its implementation. The teachers who use ICT regularly report increased engagement and a more exploratory learning environment, similar to the benefits highlighted by Zorluglu *et al.* (2020) in using hands-on activities for science education with visually impaired learners. However, the lack of functional equipment and technical support significantly hinders ICT use, suggesting a need to address infrastructural challenges for equitable access to technology in the classroom.

Teachers were asked how they assess learners with LV. Findings revealed mixed approaches. While a significant portion relied on traditional written tests and examinations, some acknowledged the limitations of this approach and expressed the need for a more comprehensive assessment. There were instances where assistive technology skills were considered, and a few teachers incorporated observations alongside testing. However, it was concerning that some teachers did not have training in assessing learners with LV. This inconsistency highlights a need for standardized assessments that go beyond written tests and incorporate functional vision skills to accurately evaluate the learning abilities of learners with LV.

The study identified a concerning lack of standardized assessment practices for learners with LV. While some teachers acknowledge the limitations of traditional written tests and incorporate assistive technology or observations, a significant portion continues to rely solely on these methods. The inconsistency highlights a gap similar to what Habulezi (2016) identified, where teachers may not have proper training in assessing learners with VI. This calls for standardized assessments that move beyond written tests and consider functional vision skills for a more accurate evaluation of learning abilities. In relation to assessment of learners, the study probed whether there was IEP for learners with LV as illustrated in figure 4.5.

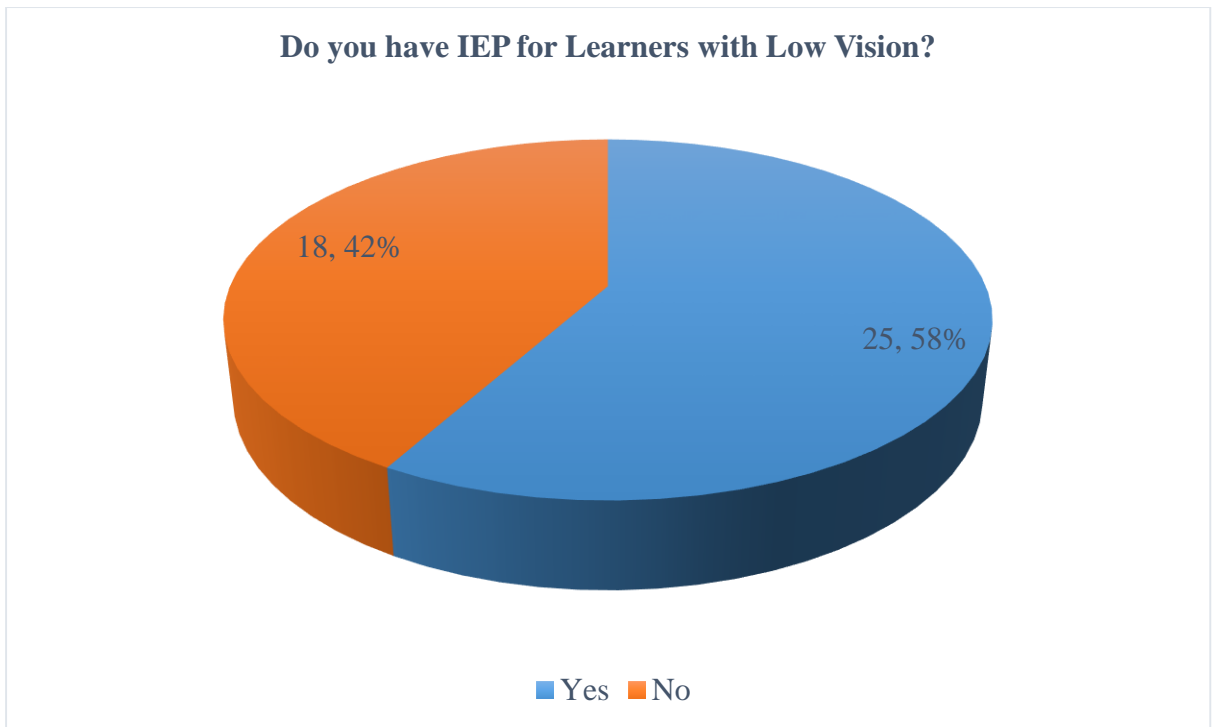


Figure 4.5: Availability of IEPs for Learners with Low Vision Source: Field Data, 2024

Figure 4.5 on IEPs for learners with LV showed a lack of universal implementation. While 25 (58%) of the respondents reported having IEPs for LV learners, there was a significant number of 18 (42%) that lacked IEPs. Some respondents indicated that IEPs were handled by SPED teachers, suggesting a potential lack of awareness or training among regular classroom teachers. This inconsistency highlighted a need for a clearer understanding of IEPs and their importance in ensuring all educators can provide targeted support for learners with LV.

The study findings reinforces the need for improved IEP implementation for learners with LV. While over half (58%) reported having IEPs, a significant minority (42%) lacked them, mirroring findings by Alworikat *et al.* (2020) who discussed the challenges of integrating LV learners. This inconsistency suggests a potential knowledge gap among regular classroom teachers, as some respondents attributed IEPs solely to SPED teachers. A clearer understanding of IEPs, as emphasized by the study,

is crucial to ensure all educators can provide targeted support for LV learners and promote inclusive education.

Further, regular teachers were asked about other people whom they found helpful in the daily teaching of learners with LV and why. Findings revealed that educators working with learners with LV, especially SPED VI teachers, were supportive due to their expertise in working with learners with vision impairment. They offered specialized knowledge and skills to directly assist learners and guide educators on effective support strategies. They provided guidance on teaching methods, modified learning materials, and assisted with Braille. According to Skae, Brown, and Wilmot (2020), no single teacher possesses all the necessary skills to meet the diverse needs of learners within an inclusive classroom.

Another notable group was that of caretakers who also played a crucial role in supporting learners with daily activities like mobility and note-taking, allowing teachers to focus on instruction. Additional support mentioned included educational psychologists and even peers in the classroom. These individuals contributed by providing emotional support or facilitating peer interaction.

The study found that multiple people played a significant role in supporting learners with VI besides regular classroom teachers. The study also highlights the expertise of SPED teachers, aligning with Sefotho and Fereirra (eds) (2020) who acknowledge the importance of teachers with specialized knowledge in teaching learners with VI. Overall, successful inclusion requires a collaborative effort from various specialists and caregivers in addition to classroom teachers.

The kind of assistance received from these helpful categories was sought. Findings indicated the multidimensional support teachers receive when working with learners

LV. Forms of support received ranged from braille and material modification, guidance and mobility, assessment and note-taking to instructional support. On braille and material modification, VI specialist teachers frequently assisted by braille learning materials and modifying tasks or worksheets, while on guidance and mobility, caretakers and sometimes peers provided crucial guidance in navigating the classroom and school environment. Some teachers mentioned that they supported in assessing learners with LV and taking notes. Finally, specialists and experienced teachers offered guidance on teaching methods by giving reports on how to assist the learners and feedback on how to assist them in adapting to lessons for learners with LV in terms of teaching styles.

The study found that teachers working with learners with LV receive multidimensional support from various sources. This aligns with the resources provided, as Habulezi (2016) mentions teaching strategies adopted to support learners with VIs, highlighting the need for teachers to have a broader skill set. The findings further detail the specific types of assistance, ranging from modifying materials (Braille learning materials) to guidance on navigating the classroom (guidance and mobility) (Fanshawe & Cain, 2020). This corroborates the need for teachers to collaborate with specialists and peers to provide a well-rounded support system for learners with LV.

Respondents were asked to respond on what they do or not in relation to teaching of learners with LV and responses were as tabulated in table 4.3.

**Table 4.3***Activities Done or Not in Relation to Teaching of Learners with Low Vision*

<b>Activity</b>	<b>Yes</b>	<b>No</b>
Activity	Yes (n, %)	No (n, %)
Use group work discussions (collaborative learning)	41 (95.3%)	2 (4.7%)
Always enquire from LV if they are comfortable with their sitting position	37 (86.0%)	6 (14.0%)
Being aware that their remaining vision differs	34 (79.1%)	9 (20.9%)
Use of concrete objects when teaching	40 (93.0%)	3 (7.0%)
Ensure that classwork is modified before starting to teach	39 (90.7%)	4 (9.3%)
Allowing extra time	42 (97.7%)	1 (2.3%)
Have an Individual Educational (IEP) for learners with special needs	24 (55.8%)	19 (44.2%)
Give remedial work to LV learner	39 (90.7%)	4 (9.3%)
Assign learners with LV learner classroom roles like other learners	36 (83.7%)	7 (16.3%)

Source: Field Data, 2024

In Table 4.2 above, the results from the survey reflect a strong commitment to inclusive educational practices among the respondents. A notable majority of educators engage in collaborative learning through group work discussions (41), and they frequently accommodate learners with LV by allowing extra time (42) and using concrete objects in teaching (40). This indicates a proactive approach in addressing the diverse needs of students, ensuring that instructional strategies are adapted to support learners with

varying visual abilities. Additionally, there is considerable effort to modify classwork before teaching (39) and to provide remedial work (39), highlighting a focus on personalized learning and reinforcement.

However, there were areas where the implementation of inclusive practices appear less consistent. While 37 teachers inquired about the comfort of sitting positions for LV learners, only 24 had IEPs in place, which suggests a gap in individualized support. The practice of discussing vision problems with LV learners was also less common, with only 30 teachers engaged in these conversations. This indicates that while there are effective strategies in place, there is room for improvement in ensuring that all aspects of individual needs are systematically addressed, such as through the development of IEPs and more frequent communication about vision-related challenges.

The survey results show the gap between teachers' awareness and communication about learners with VI. While teachers implemented common accommodations like collaborative learning and extended time (Alworikat *et al.*, 2020), less frequent practices like discussing vision directly with the student (Fanshawe & Cain, 2020) suggest a communication gap. This highlights a need for teachers to bridge the gap between recognizing individual needs and directly addressing them with learners.

#### **4.4 Teaching the Expanded Core Curriculum to Learners with Low Vision in Primary Schools in Botswana**

The second objective of this study sought to explore how the ECC is taught to learners with LV. Data from SPED teachers on this objective was analysed. Findings revealed mixed responses as presented in figure 4.6.

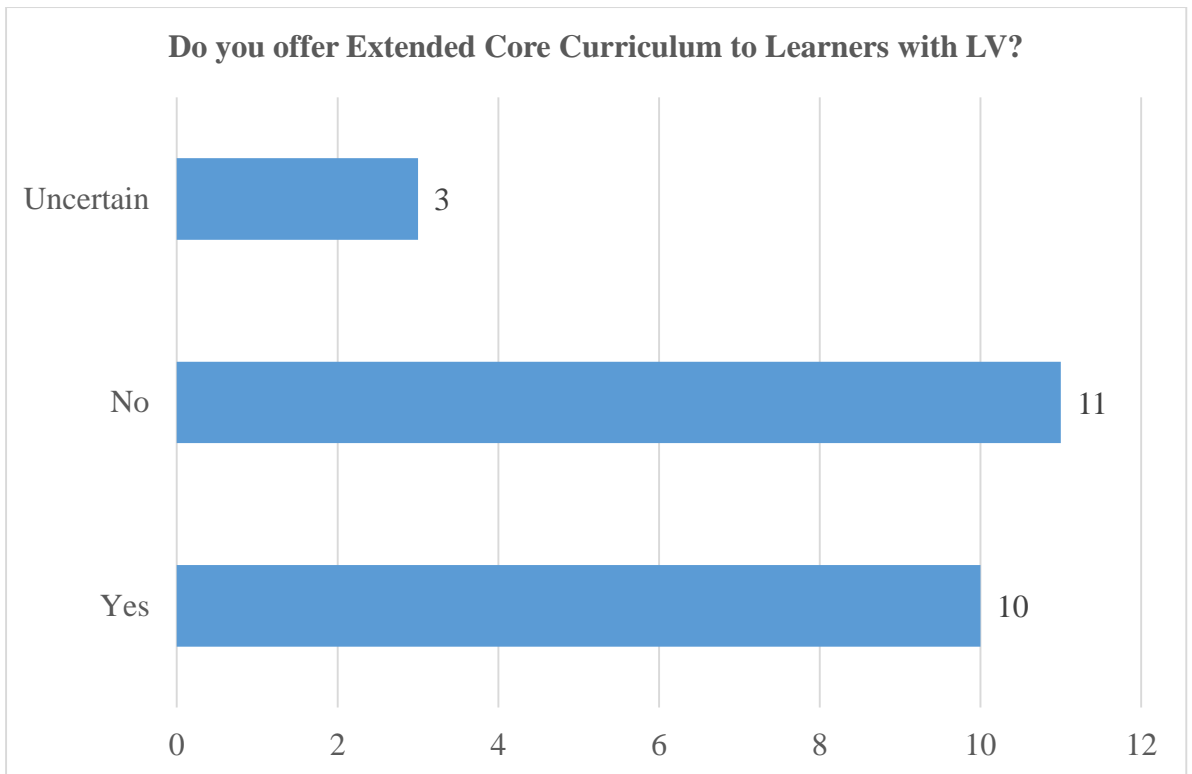


Figure 4.6: Availability of ECC for Learners with LV Source: Field Data, 2024

Figure 4.6 on the availability of ECC for learners with LV, findings leaned towards expanded core curriculum not being offered to learners with LV. While there were 10 "yes" responses, there were 11 "no" responses, indicating a slightly higher prevalence of schools not offering it. The "uncertain" category, with 3 entries, suggested a lack of clarity or consistency in this practice across schools. Further investigation was needed to understand the reasons behind these variations. Findings align with the research on ECC implementation by Ochieng (2019) on a primary school for the blind in Kenya showcasing the challenges in implementing the ECC and highlighting the need for further investigation into the factors affecting its availability across schools. Similarly, the study aligns with an assessment by Simalalo (2017) on the ECC in Zambian special schools suggesting potential inconsistencies in its application. Beyond that, responses were sought on when the subjects were offered as illustrated in Figure 4.7.

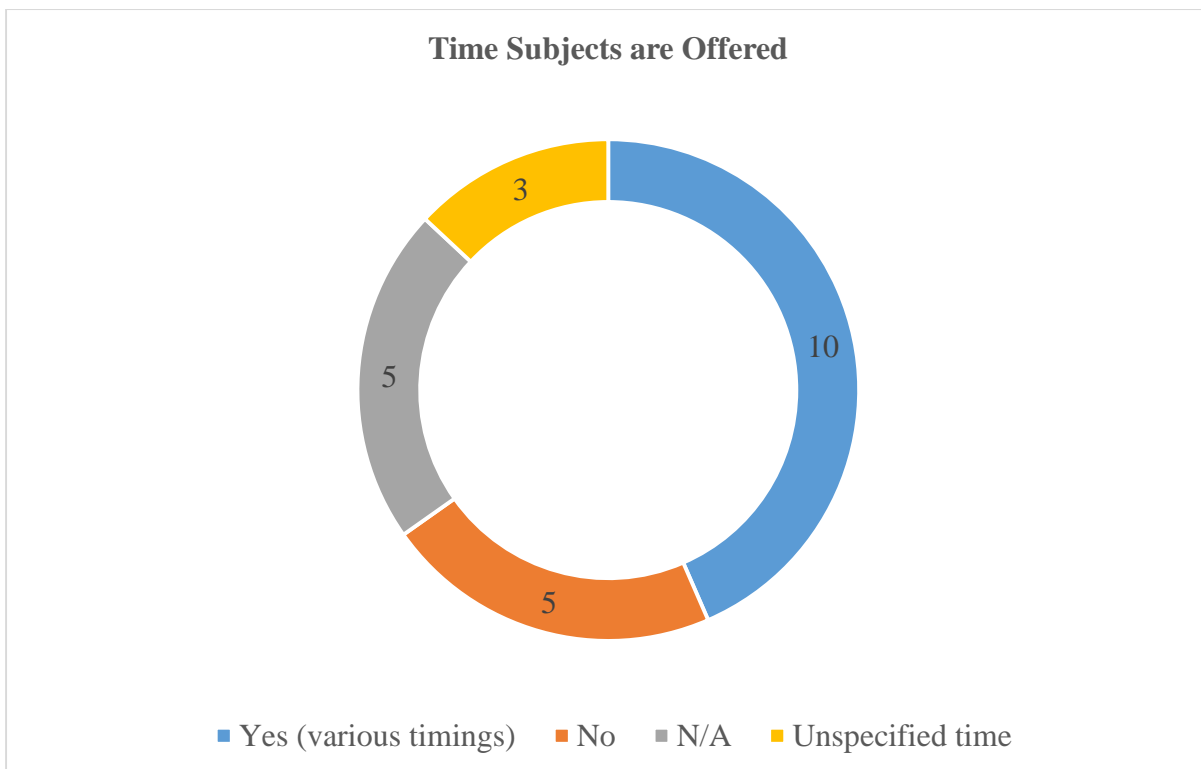


Figure 4.7: *Timing Subjects are offered* Source: Field Data, 2024

Figure 4.7 on time subjects are offered, informed by the responses, there were mixed practices regarding when expanded core curriculum subjects are offered. While a significant portion (10) offered them at various times like after lessons or study time, a considerable number of 5 did not offer them at all. The remaining responses (8) were unclear, indicated unspecified time, and were inapplicable (N/A), making it difficult to determine a definitive schedule. This suggested a lack of standardized practice across institutions.

A study by Abdulla (2020) examining leadership styles and teacher performance in Kenya highlights a potential contributing factor to the observed inconsistency in ECC scheduling. The finding of mixed practices regarding ECC delivery aligns with Abdulla’s (2020) notion that head teachers autonomy and leadership styles can influence how educational programs are implemented within schools. This is further

supported by Darmawati *et al.* (2021) who emphasize the role of school principals in improving teacher performance. Their research suggests that strong leadership may play a part in establishing standardized practices for ECC instruction.

In relation to the timings of the ECC subjects, an inquiry was undertaken on the assessments conducted for learners with LV who are newly admitted and responses indicated that there was no consistent practice for assessing newly admitted LV learners. Some schools relied on assessments conducted by vision specialists where assessments from vision officers were considered. Others used E charts and other given devices to determine the extent of their LV, assessment for the newly admitted learners with VI. Another category of respondents conducted their assessments on functional visual and learning media assessments by giving different activities, checking math and Braille by role learning.

The lack of standardization makes it difficult to compare and track the vision progress of learners with LV across schools. A study by Niyisabwa *et al.* (2018) highlights the inconsistency in practices for assessing newly admitted learners with LV. Schools relied on various methods, with some using assessments by vision specialists or officers (Niyisabwa *et al.*, 2018). Others conducted their in-house assessments, including functional vision skills and learning media checks (Niyisabwa *et al.*, 2018). This lack of standardization makes it challenging to compare and track vision progress across schools for LV learners.

The study sought to find out how a smooth transition is ensured to the next level for learners with LV. The findings revealed a variety of practices for ensuring a smooth transition for learners with LV to their next level. Sharing information with the next teacher was a common strategy this was through holding discussions with the next

teachers and sharing information on learners, sometimes accompanied by progress reports that discuss learners' progress. Some teachers utilized IEPs or transition plans to ensure continuity of support. However, some respondents mentioned simply handing over the student, highlighting a potential need for more standardized transition procedures. A study by Nirupalini and Naomi (2018) supports this notion of varied practices in transitioning learners with VI as it established that while some teachers share information through discussions and reports, others rely solely on IEPs or transition plans, highlighting a potential need for more uniformity. Among SPED teachers and regular teachers, the study inquired on how often the two categories of teachers do collaborative planning as illustrated in Figure 4.8.

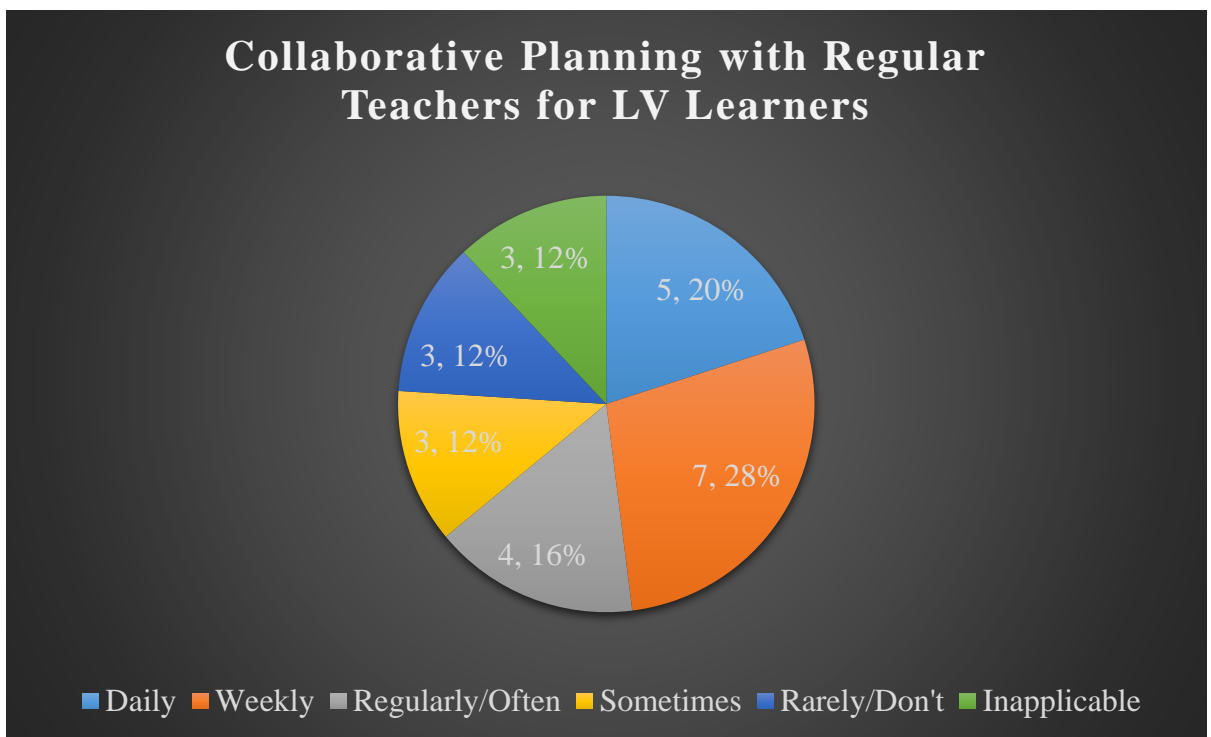


Figure 4.8: *Collaborative Planning with Regular Teachers for Learners with LV*

Source: Field Data, 2024

Findings on SPED teachers' collaborative planning with regular teachers for learners with LV showed mixed responses. There was a strong emphasis on collaboration in some respondents, with daily or weekly planning meetings (daily: 5, weekly: 7).

However, a significant portion (3) did not collaborate at all, and others did so sporadically (sometimes: 3) or had limitations in terms of time for planning. This suggests a need for a more standardized approach to ensure consistent collaboration across schools, which could benefit the learning experience of learners with LV.

While some studies highlight successful examples of frequent collaboration, with teachers reporting variances in planning meetings as noted by Alworikat, Abduljaber, and Darawsheh (2020) and Fanshawe and Cain (2020), others reveal a lack of consistent collaboration entirely (Dheesha, 2022). This inconsistency, with some teachers collaborating sporadically or facing time constraints, suggests a need for a more standardized approach to collaborative planning across schools. This standardization could ensure that all learners with LV benefit from the advantages of consistent collaboration.

Further, SPED teachers were asked whether they instructed learners with LV on O&M. The findings overwhelmingly indicated that teachers instruct learners with LV on O&M. 23 out of 24 special education teachers (95.8%) confirmed providing O&M instruction to learners with low vision, indicating it is a standard practice, with only one response marked as "N/A", it was evident that providing O&M instruction was standard practice. This suggested a strong focus on equipping learners with the extra skills they need to navigate their surroundings safely and independently in the future. A study by Abdulla (2020) found that teacher performance in integrating learners with VI improved when there was strong leadership advocating for their needs. This aligns with the findings where SPED teachers desired increased administrative advocacy for learners with LV. Additionally, Bjorg (2016) underlines the importance of teachers having access to resources to effectively support learners with VI.

Lastly, responses on how often Functional Vision Assessment (FVA) was conducted was sought in the study. Findings revealed a lack of consistent practice. While some teachers performed them regularly on a weekly, monthly, and annual basis, a significant portion did not conduct them at all or relied on external reports. There was also some variation in frequency among those who conduct them. The findings mirrored Alworikat *et al.* (2020), where teacher reports indicated inconsistent FVA implementation. Some conducted regular assessments while others did not perform them or relied on external evaluations. Hence, this inconsistency highlighted a need for a standardized approach to ensure regular FVAs are used to monitor progress and adjust relevant support for learners with LV.

#### **4.5 Adaptations of the Learning Environment to Accommodate Learners with Low Vision**

The third objective of this study sought to assess how the learning environment is adapted to accommodate learners with LV. Data from regular teachers alongside the classroom and environment adaptations for learners with LV were investigated. The findings revealed a focus on several key areas, including seating position and visibility, lighting and colour, organization and labeling, physical space and movement, materials, and presentation. It was established that many teachers prioritize placing learners with LV at the front of the classroom for better access to visual materials. Lighting was another crucial factor, with teachers aiming for sufficient light and some using contrasting colours to enhance visibility.

Clear labelling and organization of the classroom environment was noted to help learners navigate and locate things more easily. It was notable that teachers created space for movement for some learners with LV. However, it was important to note that 30 out of 69 respondents (43.5%) indicated a lack of sufficient adaptations in the

physical learning environment for learners with low vision, highlighting inconsistencies in classroom modifications and resource availability. This highlights a need for a more consistent approach to ensure all schools provide appropriate environmental adaptations to support learners with LV.

The study found that regular teachers prioritize adaptations in several areas for learners with LV. These adaptations include preferential seating for better visibility (Carmen, 2019), adjusted lighting and color contrast, clear labeling for easy navigation (Rosenblum, Rustrey and Trusty (eds) (2017), and providing space for movement. However, the study also identified a lack of consistent application across classrooms, highlighting the need for a more standardized approach to ensure all learners with LV benefit from appropriate environmental support.

In an interview, an informant opined that:

*I commend the efforts of both regular and special education teachers in adapting the learning environment and daily work for learners with LV. The focus on seating, lighting, labeling, and material adaptations aligns with best practices for visual accessibility. The creative approaches employed by some teachers, such as modifying content and collaborating with colleagues, demonstrate a deep commitment to inclusive education. However, the inconsistency in adaptation practices across classrooms is a significant concern. To optimize learning outcomes for all students with Low Vision, it is crucial to develop and implement comprehensive guidelines and professional development opportunities to ensure that all teachers are equipped with the necessary knowledge and skills to create inclusive learning environments.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

In view of the verbatim note, the efforts of teachers in adapting learning environments for learners with LV, highlight the importance of practical accommodations and collaborative approaches. However, it underscores the critical issue of inconsistency in adaptation practices across classrooms. The sentiment is that while there are commendable examples of inclusive education, a systemic approach is necessary to ensure all students with low vision receive optimal support. This includes developing

standardized guidelines and providing comprehensive professional development to equip teachers with the necessary expertise to create inclusive learning environments for all learners.

Daily living skills were addressed uniformly, with both schools providing white canes. These canes were indispensable for learners with VI, enabling safe navigation through physical spaces and promoting independence in mobility. This finding aligns with Niyisabwa *et al* (2018) who emphasizes on the importance of teaching orientation and mobility skills for student independence.

On observation, the physical environment adaptation for learners with LV was mixed. While some classrooms seemed to have free movement space and proper lighting, others lacked elements like user-friendly ramps or clear markings on the floor. There was also some variation in furniture arrangement and the placement of teaching aids on walls, suggesting a need for consistency to optimize accessibility for learners with LV.

A study by Gupta (2016) supports the observation, noting inconsistencies in physical environment adaptations for learners with VI. Similar to the observations, the schools' lack of user-friendly ramps and clear floor markings aligns with Njue's (2021) research, highlighting the need for improved accessibility measures in special education schools. Further, one school had infrastructure accessibility challenges due to a lack of ramps and uneven terrain. While the other had ramps and partially paved grounds, but still learners with LV relied on sighted peers for assistance.

In a qualitative inquiry, an informant stated that:

*In terms of infrastructure, there are no enough ramps making it hazardous to learners. Some floors are playgrounds and the school is not paved and the ground is not even and is rocky therefore there are mobility challenges experienced by VI learners in general. Good enough*

*there are no injuries so far, although a proposal has been made to the council for these provisions.*

(KII 1, 24th May, 2024-Botswana)

The sentiments of the other informant were:

*In my school there are ramps and part of the school is paved, although learners with VI are assisted by their sighted peers to move around. So far there are no serious injuries recorded. In addition, we have no building for indoor sports, no adaptations made on the school grounds and learners with VI just use the playgrounds by regular learners.*

(KII 2, 25th May, 2024-Botswana)

The two informants' accounts of accessibility differ. One mentions a lack of ramps and uneven terrain mentioned in a study by Mutia (2020), while the other highlights existing ramps and partial paving, possibly contradicting Mutia (2020). Both acknowledge assistance of learners with LV by sighted peers for mobility as noted by Mutia (2020) but differ on dedicated infrastructure for learners with LV. Both schools required improvements to ensure safe and independent mobility. Adapting the learning environment for learners with visual impairment is a very crucial issue in the sense that it creates a more inclusive, and supportive space for them to thrive.

#### **4.6 School Administrators' Support to the Teaching of Learners with Low Vision in Primary Schools in Botswana**

The fourth objective of this study sought to evaluate how school administrators support the teaching of learners with LV. Data from school administrators on the teaching of learners with LV was obtained and analysed. The findings revealed both positive efforts and areas for improvement in supporting learners with LV through interviews with administrators from Phatlhogo and Matsieng Primary Schools.

On integration, both schools believe in integrating learners with LV into mainstream classes. However, one administrator highlighted a lack of knowledge among some teachers regarding different disabilities and one administrator opined that:

*Integration is the placing of learners with special needs in the same class as their so-called normal counterparts. It is a good government initiative. However, there is a lack of knowledge of the different disabilities. Individuals think intellectual disability is the same as VI. The education system has challenges in supporting the initiative with a lack of SPED policy that elaborates SPED teachers' job descriptions, exit plans, and programs for learners who are not coping academically.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

The other administrator stated that:

*Integration of learners with LV is learning alongside their sighted counterparts in the mainstream. Its advantage is that they interact well from now up to their adult life environment.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

While both administrators promote integration the first highlights knowledge gaps as noted by Fanshawe and Cain (2020). They point out the need for clear SPED policies like those in teacher training recommended by Willings (2020) to support this initiative, hence, a need for training on inclusive practices.

Support for teachers in the inclusion of learners with LV was generally sought. In one school, the administrator requested teaching materials, promoted teamwork between teachers, and advocated for them at relevant platforms. However, the School Intervention Team (SIT) seemed inactive. Further, in the other school, the administrator co-taught with mainstream teachers, and motivated them on inclusion, and advocated for learners with VI. The administrator also visited resource classes and attended meetings to secure resources. In an interview, one administrator stated that:

*I support my teachers by taking some lessons from every stream in classes that have learners with VI. Further, I meet teachers to motivate them on the inclusion of VI and other special needs. This has been through availing myself*

*to every teacher. Beyond that, I do visit the resource classes to see what is happening weekly. In the council meetings, regional meetings, and Botswana examinations council I also advocate for VI for the provision of teaching resources.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

The other administrator indicated that:

*I support my staff by requesting teaching materials like equipment for learners with VI in general from the council, counsel and promote teamwork amongst regular and special education teachers, advocate for both learners and teachers in relevant platforms, promote inclusion of learners with special needs in general in the school and call meetings to listen to their experiences and requests.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

The sentiments align with best practices for supporting teachers with learners with VI, as advocated by Viljoen (2020), who emphasizes collaboration and access to resources. Similar to the other administrator, championing on inclusion as noted by Wodon *et al.* (2018) through resource acquisition and advocating for learners with VI.

Informants from both schools mentioned having a SIT but neither seemed fully functional. The administrators acknowledged their oversight role but described activities that went beyond simply leading the SIT. In one school, the administrator requested materials, promoted teacher collaboration, and advocated for learners, suggesting they took a more active, hands-on approach. In the other school, the administrator co-taught, motivated teachers, and secured resources, again demonstrating a proactive role. In an interview, one administrator stated:

*I am supposed to be the overseer of SIT. My team is doing its best to assist learners with special needs and referring relevant personnel such as social workers. We only do the duties of SIT but have never met in the same SIT.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

The other administrator noted that:

*SIT is not active in my school although I know about it and that as school head, I should be the one to oversee it. However, the SIT duties are performed.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

While both administrators showed dedication to supporting learners with LV, a more active and focused SIT could provide a valuable framework for coordinating support efforts. Abdulla (2020) emphasizes the role of SIT in teacher performance, particularly for integrating learners with disabilities and the sentiments align more with a study by Darmawati *et al.* (2021) where the principal delegates tasks but lacks a cohesive SIT. This suggests a potential disconnect between leadership and execution within your SIT.

The study sought to understand how other stakeholders were involved in the education of learners with LV. Through the interviews, the study established that the schools engaged various stakeholders to support learners with LV effectively. Both collaborated with residential centres where learners with VI stay, ensuring alignment on school programs, procedures, and student well-being. One institution worked with social workers from the council, while the other focused on the centre's social worker rather than external ones. Although the council was responsible for providing learning materials, there was a noticeable shortfall. COVID-19 disrupted parental involvement, but schools were reviving meetings to encourage parental support, with one school actively strengthening relationships with parents of learners with VI. Additionally, the school engages the PTA, village development committee, and other schools, fostering a comprehensive community support network. In an interview, the school administrator stated that:

*As a school, we involve other stakeholders such as Lephoi Centre for the Blind where learners majorly stay, I give them some gadgets to assist learners during their homework. The school discusses learners with VIs' welfare with Lephoi Center as their guardians. The school engages more with the centre's social worker than those from outside. Further, we engage with council authorities who provide learning materials although few have been issued. Lastly, parents are our greatest stakeholders with parent meetings beginning every Term 2 although stopped since COVID-19, we are looking at reviving it. Parents greatly support their learners' education.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

In addition, the other administrator stated that:

*Our stakeholders include the Mochudi Resource for the blind hostel coordinator, where learners live and discuss school programs and procedures. Further, council authorities provide resources needed for learners at the primary school level. Parents through the Parent Teachers Association, parents are invited to school meetings and, the Village Development Committee and participate greatly. Further, the ward Chief and other schools around are our partners. We have been working to fully engage social workers.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

Informants were asked to comment on any capacity building that facilitates teachers working with learners with LV. Informants indicated that both schools offered capacity-building initiatives for teachers working with learners with LV. External support included workshops by the Department of Learner's Support Services, the Thuto le Pono Boswa program focusing on supporting learners with LV, and NGOs. Internally, schools conducted orientation programs for new teachers on supporting learners with VI, and SPED teachers held workshops on Braille instruction. In an interview, an informant stated that:

*The Department of Learner's Support Services empowers teachers through workshops. The media services department recently trained teachers on how to use gadgets that are used by learners with VI. Thuto le Pono Boswa (Netherlands LV program) trains teachers on supporting learners with LV. As a school, we hold orientation for new teachers on how to support learners with VI, and lastly, special education teachers hold workshops to empower each other on Braille teaching and writing.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

In addition, the other informant stated that:

*To build on the capacity of teachers to work with learners with LV, we conduct internal workshops as part of the orientation of new staff on handling the learners in class and school. We have also an established teacher's welfare, which caters to teachers' well-being. There are also instances when we are called for workshops that are centered on learners with LV by non-governmental organizations.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

The voice notes of the two administrators highlighted collaboration with various stakeholders. One school meets with a centre for the blind regarding homework support and student well-being, similar to how the other collaborates with a hostel coordinator. Both schools also work with parents and government bodies to address student needs an issue captured in collaboration in a study by Fanshawe and Cain (2020). These efforts highlighted a commitment to teacher development, although the frequency and comprehensiveness of these programs were not specified, leaving room for improvement in sustained teacher training.

The study probed into whether the schools had vision and mission statements that promote the integration of learners with special needs. Informants indicated that neither of the schools had a vision or mission statement explicitly promoting the integration of learners with special needs. One school recognized that its existing statements were too general and acknowledged the necessity of revising them to be more inclusive. Similarly, the other school had statements in place, but the administrator expressed a desire to review and potentially revise them to better reflect a commitment to inclusion.

In an interview, an administrator in one school attested that:

*Vision and mission statements are available. They are general in nature. I however have to look into them to include learners with special needs.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

The other administrator indicated:

*The school's mission and vision are available and are general. What I can promise is that I will make them inclusive and specific.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

While existing school mission and vision statements might be general, the study suggests a need for inclusive education as recommended by Wodon *et al.* (2018).

Revisions can be made to incorporate the specific needs of learners with VI (Sefotho &

Ferreira, 2020). The administrators' awareness of the importance of inclusive mission and vision statements was a positive sign, indicating a progressive step towards developing clear and specific statements. This demonstrated the schools' dedication to creating a welcoming environment for all learners, ensuring that their educational mission aligns with the principles of inclusivity and support for learners with special needs Khaleel *et al.* (2021).

Inquiry, into the school administrators' support, and challenges experienced in relation to the study were sought. Informants outlined several significant challenges in supporting learners with VI. Resource limitations were a major concern, with inadequate maintenance of VI-specific equipment like Perkins braille and a shortage of essential braille materials such as textbooks and toner. Infrastructure issues compounded these problems, as schools lacked sufficient space and had grounds that were not navigable or safe for learners with VI. Class walls that had cracks unsafe for learners with LV. Additionally, gaps in policy and support were evident, with no specific SPED Policy, unclear job descriptions for SPED teachers, and an absence of clear plans for assisting learners with VI who struggle academically. Furthermore, there was a pressing need for enhanced collaboration between departments to support learners with VI effectively, and regular teachers would benefit from awareness training to better support learners with LV. In an interview, an administrator revealed that:

*As a school, we have a myriad of challenges, including a lack of maintenance of VI materials such as Perkins braille and zyfuse. Lack of space to accommodate learners' needs not enough classrooms, awareness on counselling for regular teachers, exit plan for learners with VI who are not academically competitive, unfriendly school grounds, a well-documented job description for SPED teachers to follow, and lack of SPED Policy.*

(KII 2, 25<sup>th</sup> May, 2024-Botswana)

Further, the other administrator noted that:

*As a school we have a number of challenges that include a shortage of resources, such as the Perkins Brailers and toners not provided by the council, transport means needed for special classes, maintenance of equipment such as the Braillo 300 and poor infrastructure, as in the unit we have cracked walls that are a safety hazard to learners. Further, we have shortages of Braille textbooks for learners. We have a shortfall in teamwork as departments working with learners with VI. The Botswana Examinations Council (BEC) time allocated for learners is also insufficient, with low public awareness of the support required for learners with VI.*

(KII 1, 24<sup>th</sup> May, 2024-Botswana)

The two school administrators, in statements, opined similar challenges in supporting learners with VI. Both mentioned a lack of resources, like Braille materials noted in a study by Mutia (2020) and equipment maintenance noted by Josua *et al.* (2022). Additionally, inadequate infrastructure and insufficient staff training are echoed in their concerns.

In document analysis on numerous statutes benefiting the running of the schools, comments from the informants were drawn. Available documents revealed a variance regarding educational policies and records for learners with VI. While the Revised National Policy on Education (1994) seemed informative, there was a lack of a specific Inclusive Education Policy or a comprehensive Botswana Special Needs Policy. School mission and vision statements, though aiming to include learners with special needs, lacked a specific language. However, School Performance Records showed good performance by learners with VI from 2019 to 2023, suggesting some level of successful integration. The Children's Act was another relevant record, but documents like General Orders did not offer specific information on VI education. Findings raised through interviews were equally observed. An analysis of school documents alongside national policies revealed inconsistencies that were noted in a study by Bjorg (2016) in relation to support for learners with VI. While the policy seemed informative, specific

VI education policies were missing, despite schools showing positive VI student performance. This suggests the potential for improvement through clearer guidelines.

#### **4.7 Academic Performance of Learners with Low Vision in Primary Schools in Botswana**

The fifth objective of this study was to analyze the academic performance of learners with LV in primary schools in Botswana. Data were collected through a document analysis guide (Appendix F) focusing on learners' classroom performance records, including termly test grades, homework completion, classwork, and IEPs. Observations of classroom interactions and mobility were also conducted using an observation checklist (Appendix D). The data were analyzed thematically for qualitative insights and descriptively using SPSS for quantitative measures, such as test score distributions and IEP effectiveness. The findings provide insights into the academic performance of learners with LV and the factors influencing their performance.

Data on academic performance were gathered from two primary schools, Phatlhogo Primary School in the North East Region and Matsieng Primary School in the Kgatleng Region, which together had 51 learners with LV out of 91 learners with VI. The document analysis guide was used to review termly test grades (scored on a scale of A to E, where A represents the highest performance and E the lowest), homework completion rates, and IEP implementation records for learners with LV. Classroom observations focused on learners' mobility, peer interactions, and engagement with learning materials, such as large print textbooks or Braille. Quantitative data from test scores and homework completion were entered into SPSS to calculate frequencies, means, and percentages, while qualitative data from observations and IEP reviews were transcribed and analyzed thematically to identify patterns in academic performance and contributing factors.

Findings were drawn in the study on IEPs and academic performance. Of the 51 learners with LV, 38 (74.5%) had IEPs tailored to their specific visual and educational needs. Quantitative analysis showed that 23 of these learners (60.5%) achieved above-average test scores (grades A or B) in at least two subjects, such as Mathematics and English, during the 2023 academic year. For example, at Phatlhogo Primary School, 12 out of 20 learners with IEPs (60%) scored A or B in Mathematics, while at Matsieng Primary School, 11 out of 18 learners with IEPs (61.1%) achieved similar grades in English. However, 13 learners with IEPs (34.2%) scored average grades (C), and 2 (5.3%) scored below average (D or E), indicating variability in IEP effectiveness. Qualitative data from IEP reviews revealed that successful IEPs included specific accommodations, such as extended time for tests and large print materials, but inconsistencies in implementation, such as irregular teacher follow-through, limited their impact for some learners. These findings align with Dheesha (2022), who emphasizes that tailored IEPs enhance learning outcomes when consistently applied.

On mobility and peer interaction, classroom observations indicated that mobility within the classroom positively influenced academic engagement for 32 learners (62.7%) with LV across both schools. At Matsieng Primary School, 15 learners with LV demonstrated independent navigation using white canes, correlating with higher homework completion rates (80% completion compared to 60% for less mobile peers). Positive peer interactions were observed in 28 learners (54.9%), with collaborative activities, such as group work, linked to improved motivation and test scores. For example, one learner at Phatlhogo Primary School, observed engaging actively with sighted peers during group tasks, achieved a B grade in Science, compared to a C grade for a less socially engaged peer. These findings support Fanshawe and Cain (2020), who highlight the role of social inclusion in academic success.

On the integration into mainstream classrooms, all 51 learners with LV were integrated into mainstream classrooms, with 30 (58.8%) having IEPs. Document analysis showed that integrated learners with consistent support, such as preferential seating and teacher assistance, achieved average to above-average grades (B or C) in 70% of cases. However, qualitative observations noted that 10 learners (19.6%) faced challenges due to inadequate support due to teacher training or resource shortages, resulting in lower engagement and grades (C or D). This aligns with Miyauchi (2020), who notes that effective integration requires robust support systems to ensure equitable academic opportunities.

On test score distribution, quantitative analysis of termly test scores for 2023 revealed a range of academic outcomes. Of the 51 learners with LV, 18 (35.3%) achieved above-average scores (A or B), 24 (47.1%) scored average (C), and 9 (17.6%) scored below average (D or E). At Phatlhogo Primary School, 10 out of 27 learners with LV (37%) scored A or B, while at Matsieng Primary School, 8 out of 24 learners (33.3%) achieved similar grades. Subjects like Setswana and Social Studies showed higher performance (65% scored B or above) compared to Mathematics (40% scored B or above), likely due to less reliance on visual aids. These results echo Machario (2018), who found varied academic performance among learners with LV, with resource availability impacting performance.

On the impact of large print and assistive materials, document analysis and observations confirmed that large print textbooks, used by 25 learners (49%) across both schools, improved test scores and homework completion for 18 learners (72% of large print users). For example, at Matsieng Primary School, learners using large print materials completed 85% of their homework compared to 65% for those relying solely on standard materials. Qualitative data noted reduced anxiety and improved engagement

with reading among large print users. However, 5 learners (20%) preferred Braille or audiobooks, indicating diverse preferences. These findings are consistent with Mukhopadhyay *et al*, (2021), who highlights the benefits of tailored materials but notes variability in learner preferences.

The sample size of 51 learners with LV limited the generalizability of findings, as noted by McLeod (2023). Additionally, the reliance on school records and observations may have missed nuanced factors, such as learners' additional disabilities, which were noted to contribute to underperformance in 7 learners (13.7%). Further data collection is needed to explore these variables comprehensively.

The academic performance of learners with LV in Botswana's primary schools varies, with 60.5% of those with IEPs achieving above-average grades, supported by effective mobility, peer interactions, and tailored materials like large print. However, inconsistencies in IEP implementation, resource shortages, and inadequate teacher training contribute to average or below-average performance for some learners. These findings underscore the need for standardized practices, enhanced resources, and ongoing teacher support to improve academic outcomes for learners with LV, aligning with recommendations by Negash and Gasa (2022) for addressing academic barriers in inclusive settings.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.1 Introduction**

In this chapter, a summary of the study, conclusion, policy recommendations and recommendations for further research are provided.

#### **5.2 Summary**

In summary, teachers' pedagogical practices and their implications on the academic performance of learners with LV were investigated. It was established that teachers employ various strategies to create inclusive and accessible learning environments in delivering the core curriculum. These include collaborative learning techniques, adaptive seating and materials, one-on-one attention, and assistive technology. Teachers also utilize peer support, practical activities, and tangible objects to aid understanding. Essential assistive devices range from Braille tools to electronic gadgets and audio aids. However, ICT integration is inconsistent due to infrastructure and resource challenges. Assessments combine traditional tests with observations, yet standardized methods considering functional vision skills are needed. IEPs are inconsistently implemented, indicating a need for better training and understanding among teachers.

The study explored how ECC is delivered to learners with LV in Botswana's primary schools. The findings revealed diverse results. While some teachers offer ECC to learners with LV, many do not, and there is no standardized practice regarding the timing of these subjects. Similarly, assessment practices for newly admitted learners with LV vary considerably. However, schools generally provide support through enlarged print materials, Braille instruction, assistive technology, and individualized instruction. The study also found out that collaboration between SPED and regular

teachers occur to some extent. However, the frequency of such collaboration varies significantly. SPED teachers highlighted a need for increased administrative support in advocating for learners with LVs' needs, securing resources, and providing professional development opportunities.

The study was carried out in two primary schools in Botswana integrating learners with VI. The study highlighted significant learning environmental adaptations to support learners with LV, with teachers prioritizing practical modifications such as preferential seating, improved lighting, and clear labeling to enhance visibility and navigation. However, the research also reveals inconsistency in implementing these adaptations across classrooms and the physical environment.

The study evaluated how school administrators in Botswana support the education of learners with LV. Interviews with administrators from two primary schools revealed both positive efforts and areas for improvement. Both schools embraced integration but highlighted a need for teacher training on inclusive practices. Teachers in these schools modified the regular curriculum collaboratively rather than using a specialized one. Infrastructure accessibility issues were evident, requiring improvements for safe and independent mobility. While administrators supported teachers, School Intervention Teams (SIT) were inactive.

The study analysed the academic performance of learners with LV. IEPs emerged as a crucial factor. Learners with IEPs showed potential for above-average performance. However, the effectiveness of IEPs varied, and mobility and positive peer interactions fostered engagement and motivation. Further, the study indicated a range of academic performance for learners with LV. Some learners achieved above-average scores, while others score within the average or below-average ranges (between BC and DE).

### **5.3 Conclusion**

In conclusion, the study highlights a strong commitment to inclusive education for learners with LV in Botswana as teachers used different teaching strategies to deliver the core curriculum but identifies significant inconsistencies and resource limitations.

However, inconsistencies and a lack of standardization exist in several areas, including offering the ECC, assessment practices, and collaboration between teachers. These inconsistencies make it difficult to ensure all learners with LV receive the support they need to succeed.

The learning environment adaptations differed across schools. The study highlights the importance of considering the diverse needs of learners with LV when adapting learning environments, as this could help in providing the relevant support needed by learners.

The study identifies areas requiring improvement, such as strengthening the SITs, addressing resource limitations, and providing consistent teacher training which are crucial. While there was evidence of successful integration, as shown by the good performance of learners with LV, a lack of clear policies and specific job descriptions for SPED teachers creates challenges.

The results revealed that the academic performance of learners with LV was influenced by multiple factors, including the implementation of IEPs, classroom (adaptations) mobility and peer interaction, integration strategies, and test scores. While some learners with LV achieved above-average performance, others faced significant challenges that hindered their academic success.

## **5.4 Recommendations**

Policy recommendations and suggestions for further research are provided in the following subsections.

### **5.4.1 Policy Recommendations**

- i. Objective one sought to establish the teaching strategies used to deliver the core curriculum to learners with LV. Findings revealed that there is a need for Botswana to review the Inclusive Education Policy of 2011, to emphasize the specific needs of learners with LV. This framework should include comprehensive training programs for teachers on effective strategies for supporting learners with LV, such as skills in the use of assistive technology.
- ii. Objective two sought to explore how the ECC is taught to learners with LV. Findings of this study revealed the need for the introduction of ECC to supplement the regular curriculum for learners with LV.
- iii. Objective three assessed how teachers adapted the learning environment to accommodate learners with LV. The study findings revealed that there is a need for the Ministry of Education in Botswana to establish national guidelines for adapting the learning environment in schools to ensure all learners with low vision have access to essential resources and technology.
- iv. Furthermore, in view of objective four, which evaluated how school administrators support the teaching of learners with LV, the Ministry of Education should put in place a Special Needs Policy that would provide schools with clear, consistent guidelines for supporting learners with LV. The policy would ensure that all schools follow a standardized approach to inclusive education.

The fifth objective analysed the academic performance of learners with LV. Findings revealed an above-average to a below-average performance. To improve the academic performance of learners with LV, the Ministry of Education and Skill Development should implement systematic monitoring and evaluation processes. Establishing clear guidelines and metrics for evaluating the effectiveness of inclusive education strategies will help identify areas for improvement and ensure that learners with LV receive the support they need. Regular visits, tracking assessments, and adjustments based on these evaluations will contribute to the continuous improvement of the academic performance of learners with LV. Those who are not doing well academically should have their prevocational skills developed at the primary level.

#### **5.4.2 Recommendations for further research**

The current study observed that there are no standard guidelines followed when supplying assistive devices to schools and their maintenance plan. The teaching of learners with LV is not standardised. It was observed that there are no transition plans for those learners who are not doing well academically. There are limited government programs where regular teachers are empowered on inclusive education. The learners with low vision have not been accorded an opportunity to voice their opinions regarding their education.

To address these gaps there is need to conduct further research to:

- i. Investigate the impact of various assistive technologies on the academic performance of learners with LV in mainstream classrooms.
- ii. Examine the role of parents and caregivers in supporting learners with low vision in their education.

- iii. Explore the effects of expanded core curriculum on the education of learners with visual impairment.
- iv. Assess the various teacher training programs that support teachers who work with learners with LV in the context of Botswana's primary schools.
- v. Explore the experiences and perspectives of learners with low vision in the mainstream schools in Botswana.

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3. Is there any specific method or approach that is best for learners with low vision?  
.....  
.....
4. Which assistive devices do you find useful to learners with low vision?  
.....  
.....
5. How often do you use ICT in your curriculum delivery? Is it beneficial?  
.....  
.....  
.....
6. What classroom/environment adaptations have you made for learners with low vision?  
.....
7. How do you assess learners with low vision?.....  
Do you have IEP for learners with low vision?.....
8. Which other people do you find helpful in your daily teaching of LV learners?  
Why?-----
9. What form of assistance do you receive from them?  
.....
10. What do you find interesting in teaching learners with LV?  
.....  
.....

## SECTION C

### WHICH OF THE FOLLOWING DO YOU DO/NOT DO?

ACTIVITY	YES	NO
Use group work discussions (collaborative learning)		
Always enquire from LV if they are comfortable with their sitting position.		
Being aware that their remaining vision differs.		
Use of concrete objects when teaching.		
Ensure that class work is modified before starting to teach.		
Allowing extra time.		
Have Individual Educational Plan (IEP) for learners with special needs.		
Give remedial work to LV learner		
Assign LV learner classroom roles like other learners.		
Talk to the LV learner about their vision problem		



6. Do you have Individualised Educational Plan for the LV?  
.....
7. How do you ensure the smooth transition of LV to their next level of learning?  
.....
8. How often do you do collaborative planning with regular teachers?.....
9. What kind of assistance would you like to receive from the administration?.....
10. Do you instruct learners with low vision on Orientation and Mobility?.....
11. How do you adapt and modify daily work of learners with LV?.....
12. How often do you conduct FVA?  
.....

## **Appendix C: Interview Guide for School Administrators**

This research is meant for academic purposes. The information you will give will be held with strict confidentiality. You are kindly requested to provide answers to the questions as honestly as possible. Your responses will be recorded through the use of a voice recorder.

1. Gender
2. Highest professional qualification
3. How long have you worked as a school administrator here?
4. How many teachers does your school have?
5. What is your view on integration of learners with low vision in the mainstream classroom?
6. How have the following aspects been adapted in the teaching of the learners with LV?  
Curriculum, school infrastructure, playgrounds
7. How do you support your regular/ special education teachers in the inclusion of learners with visual impairment in general?
8. Does your school have an active School Intervention Team (SIT)? What is your role in it?
9. How do you involve other stakeholders in the education of learners with low vision?
10. Is there any form of capacity building to facilitate teachers who are working with LV?
11. Does your school have a vision and a mission statement that promotes the integration of learners with special needs?
12. What challenges do you experience in your school as a leader?

### Appendix D: Observation Checklist

Objective	Theme	Indicator to observe
1	<p>Strategies used to teach the LV.</p> <ul style="list-style-type: none"> <li>-Active learning approach</li> <li>-collaborative learning</li> <li>-differentiated instruction</li> <li>-multisensory approaches</li> <li>-use of assistive devices and technology</li> </ul>	<p>Observe teaching styles, group work, pairs, enlarged fonts assistive devices used, Legibility of writing on the chalkboard etc.</p>
2	<p>Provision of Extra Core Curriculum</p> <ul style="list-style-type: none"> <li>-9 areas of ECC</li> </ul>	<p>Ability to move around, reach out for books, neatness, cleanliness, able to use assistive devices</p>
3	<p>Adaptation of the learning environment (classroom and the physical environment)</p>	<p>Classroom set up, Free movement space, Sitting position Lighting, Teaching aids position on the wall, Colour contrast, Markings on the floor. Ground: paved, obstacles, ramps</p>
4	<p>Administrators' support towards the teaching of LV learners</p>	<p>School mission and vision statements, if they embrace the inclusion of the VI. How teachers and learners are supported. Other stakeholders' involvement. Availability of records:</p>
5	<p>LV learners performance</p>	<p>Classroom performance, test scores Projects, interaction with the peers, mobility, IEP</p>

### Appendix E: Document Analysis Guide-School Administrator

How the following statutes are of benefit in the running of the school.

Educational Statutes/Records	Comments
Revised National Policy on Education- (RNPE-1994)	
Inclusive Education Policy	
Botswana Special Needs Policy	
School mission statement	
School vision statement	
School Performance records: termly results, PSLE results from 2019-2023, learners with VI results.	
Other Records	

## Appendix F: Document Analysis Guide - Low Vision Learner Classwork

<b>CLASSWORK ANALYSIS</b>	<b>COMMENTS</b>
<b>TEXT BOOKS: LARGE PRINT</b> Use of large printed books, Audiobooks, Braille	
<b>WORKBOOKS</b> -all subjects Bold-lined books, work organization, Feedback given	
<b>HOMEWORK</b> Amount of work given, Completion, Feedback, student scores	
<b>LEGIBILITY OF WORK</b> Handwriting, reading back, chalkboard	
<b>ASSISTIVE DEVICES USED IN CLASS</b> Hand magnifiers, white canes, any other gadgets	
<b>ASSESSMENT</b> Test grades: are they dropping, average, or improving, compared with sighted peers, Extra time allowance	
<b>Individual Educational Plan (IEP)</b> Areas that need attention, Report, Feedback	
<b>Classroom adjustments made</b> -sitting position, colour preference, lighting,	
<b>Student Interaction</b> -Paired work, group work, sports or other activities.	

**Appendix G: Districts of Botswana**



**Study Area:** North East and Kgatleng Regions

**Appendix H: Consent Letter for Teachers and School Administrators**

Martha Tjini Toteng

Department of Early Childhood and Special Needs Education

Kenyatta University

P O Box 43844

Nairobi, Kenya.

Dear Teacher

I am Martha Tjini Toteng, a Master in Special Needs Education at Kenyatta University.

I am doing research in North East and Kgatleng Regions, in visual impairment-integrated Primary Schools that have both Special education teachers and regular teachers. The title of the study is **Teachers’ pedagogical practices, and their implications on learners with low vision academic performance in selected schools in Botswana**. The information gathered from this study may help educators with good teaching strategies, relevant information on support necessary for learners with low vision at the primary school level.

I would like to let you know that you have been chosen to take part in this research because you are a regular/ special education teacher /school administrator at this school.

You have the right to consent to the study, decline to consent, or decide to not take part in the research at any given time. The findings of this study will be treated in complete confidence, and they will only be presented in summary form without disclosing your identity. I assure you that I will share the results of the research upon its completion with all the participants.

I agree to take part in the research study.

Signature..... Date.....

## Appendix I: Kenyatta University Research Authorization Letters



### KENYATTA UNIVERSITY GRADUATE SCHOOL

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 020-8704150

---

Our Ref: E55F/22144/2021

DATE: 16<sup>th</sup> February, 2024

Director General,  
National Commission for Science, Technology  
and Innovation  
P.O. Box 30623-00100  
**NAIROBI**

Dear Sir/Madam,


**RE: RESEARCH AUTHORIZATION FOR MARTHA T. TOTENG REG. NO.  
E55F/22144/2021**

I write to introduce Ms. Martha T. Toteng who is a Postgraduate Student of this University. She is registered for M.ED degree programme in the Department of Early Childhood & Special Needs Education.

Ms. Toteng intends to conduct research for a M.Ed. thesis Proposal entitled, "Teachers' Pedagogical Practices and their Implications on Academic Performance of Learners with Low Vision in Selected Schools in Botswana"

Any assistance given will be highly appreciated.

Yours faithfully,

  
PROF. ELISHIBA KIMANI  
EXECUTIVE DEAN, GRADUATE SCHOOL

2024/02/16



**KENYATTA UNIVERSITY  
GRADUATE SCHOOL**

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

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P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 020-8704150

**Internal Memo**

**FROM:** Executive Dean, Graduate School      **DATE:** 16<sup>th</sup> February, 2024  
**TO:** Martha Tjini Toteng      **REF:** E55F/22144/2021  
C/o Department of Early Childhood  
& Special Needs Education

**SUBJECT: APPROVAL OF RESEARCH PROPOSAL**

=====

This is to inform you that Graduate School Board, at its meeting on 14<sup>th</sup> February, 2024, approved your Research Proposal for the M.ED. Degree entitled, "Teachers' Pedagogical Practices and their Implications on Academic Performance of Learners with Low Vision in Selected Schools in Botswana"

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation and Ethics Review Committee, Kenyatta University.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your thesis before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

**DR. HARRIET ISABOKE**






**FOR: EXECUTIVE DEAN, GRADUATE SCHOOL**

CC. Chairman, Early Childhood & Special Needs Education Department

**Supervisors:**

1. Dr. Margaret Murugami  
C/o Department of Early Childhood & Special Needs Ed.  
Kenyatta University
2. Dr. Teresa Mwoma  
C/o Department of Early Childhood & Special Needs Ed.  
Kenyatta University

# Appendix J: NACOSTI Permit

 <b>REPUBLIC OF KENYA</b>	 <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
Ref No: <b>618034</b>	Date of Issue: <b>22/May/2024</b>
<b>RESEARCH LICENSE</b>	
	
<p><b>This is to Certify that Ms.. Martha Tjimi Toteng of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: <b>TEACHERS' PEDAGOGICAL PRACTICES AND THEIR IMPLICATIONS ON ACADEMIC PERFORMANCE OF LEARNERS WITH LOW VISION IN SELECTED SCHOOLS IN BOTSWANA</b> for the period ending : 22/May/2025.</b></p>	
License No: <b>NACOSTI/P/24/35510</b>	
618034	
Applicant Identification Number	Director General <b>NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY &amp; INNOVATION</b>
	Verification QR Code
	
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**THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)**  
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

**The National Commission for Science, Technology and Innovation**, hereafter referred to as the Commission, was established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.


**CONDITIONS OF THE RESEARCH LICENSE**

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
  - i. Endanger national security
  - ii. Adversely affect the lives of Kenyans
  - iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
  - iv. Result in exploitation of intellectual property rights of communities in Kenya
  - v. Adversely affect the environment
  - vi. Adversely affect the rights of communities
  - vii. Endanger public safety and national cohesion
  - viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

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Innovation(NACOSTI),  
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## Appendix K: Botswana Authorities Research Authorization

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REPUBLIC OF BOTSWANA

MINISTRY OF EDUCATION & SKILLS  
DEVELOPMENT  
NORTH EAST REGION  
PRIVATE BAG F251  
FRANCISTOWN  
BOTSWANA

REF: FRE 1/12/1 VII (42)

6 March 2024

Ms Martha Toteng  
P.O.Box 10244  
Tatitown  
Francistown

Dear Sir/Madam

**PERMISSION TO CONDUCT A RESEARCH STUDY**


Your letter dated 5 March 2024 regarding the above caption refers.

Permission is granted to conduct research at Phatlhogo Primary School.

The topic of study is: **TEACHERS' PEDAGOGICAL PRACTICES AND THEIR IMPLICATIONS ON ACADEMIC PERFORMANCE OF LEARNERS WITH LOW VISION IN SELECTED SCHOOL IN BOTSWANA.**

It is important to liaise with the School Heads, Teachers and that you adhere to the research ethics. Furthermore you are requested to submit at least one hardcopy of the report to the Director, North East Region.

Yours faithfully



R. Maunganidze  
*For/ Director Regional Operations –North East Region*

