# THE TEACHING OF LEARNERS WITH DYSLEXIA IN AN INCLUSIVE SETUP IN THE MAINSTREAM PRIMARY SCHOOLS OF SOUTH-EAST REGION, BOTSWANA

**by**

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## DECLARATION

I declare that the above Thesis is my work and all the sources that I have used or quoted have been acknowledged by means of complete references.

I further declare that I submitted the Thesis to originality checking software and that it falls within the accepted requirements of originality index.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for other qualifications or at any other higher education institution

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SIGNATURE DATE.

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## ABSTRACT

This study examined the teaching of learners with dyslexia within an inclusive educational setting in mainstream primary schools located in the South-Eastern region of Botswana. Utilizing a quantitative research methodology, the study systematically investigated the main research question, “How are learners with dyslexia taught in inclusive mainstream primary schools in the South-East Region of Botswana?” A stratified sampling approach was employed, selecting a total of 418 teachers with expertise in instructing diverse learners within inclusive mainstream classrooms. Data collection methods encompassed questionnaires, observation checklists, and the analysis of existing data sets. These research instruments facilitated an in-depth exploration of respondents' attitudes, perspectives, pedagogical practices, and instructional strategies. The findings demonstrated that teachers effectively accommodated learners with various learning styles by integrating sensory-rich instructional techniques, such as visual aids, auditory resources, and multimodal learning strategies. The results also highlighted a significant shortage of essential resources, materials, and assistive equipment necessary for the effective instruction of learners with dyslexia. The study recommended a comprehensive, multi-tiered approach to teaching that incorporates sufficient resource allocation, continuous professional development for teachers, and active collaboration among stakeholders. This study has made a significant contribution to the existing body of knowledge by developing a model aimed at enhancing the instruction of learners with dyslexia within an inclusive educational framework in mainstream primary schools in Botswana. The model provides pedagogical insights and practical strategies designed to support inclusive teaching practices, ensuring that learners with dyslexia receive equitable educational opportunities alongside their peers.



**Keywords:** Assistive technology, Curriculum, Dyslexia, Inclusion, Mainstream School, Quantitative, Stakeholders, Teachers

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| | |
|---|---|
| ADA | Australian Dyslexia Association |
| ADHD | Attention Deficit Hyperactive Disorder |
| APA | American Psychological Association |
| BDA | British Dyslexia Association |
| CPD | Continuous Professional Development. |
| DI | Differentiated Institution |
| ICT | Information and Communication Technology |
| IDA | International Dyslexia Association |
| IEP | Individualised Educational Programme |
| LD | Learning Disabilities |
| OECD | Organisation for Economic Cooperation and Development |
| PALS | Peer Assisted Learning Strategies |
| RTI | Response to Interventions |
| SEN | Special Education Needs |
| SS | Special Schools |
| UDL | Universal Design for Learning |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| UNISA | University of South Africa |
| VSSP | Visio Spatial Sketch Pad |

# CHAPTER 1: ORIENTATION TO THE STUDY

## 1.1 INTRODUCTION AND BACKGROUND

The global shift toward inclusive education within mainstream public schools has required teachers to engage with terminology that may initially seem specialized or complex. One such term, "dyslexia," was previously unfamiliar to many teachers. The on-going international discourse surrounding dyslexia has examined its original definition, characterized as difficulty with words, and how this conceptualization encompasses broader barriers to learning, particularly those related to literacy and language skills (Booth & Ainscow, 2018). A divergent perspective from the Organization for Economic Co-operation and Development (OECD) suggests that dyslexia does not manifest uniformly across cultures, languages, and educational systems (ibid). Researchers argue that dyslexia is often categorized as a "hidden disability," as it presents both cognitive challenges and strengths that affect various aspects of learning, including reading, spelling, writing, and, in certain cases, numeracy. Haage (2017) posits that an individual's dyslexia may go undetected until they encounter academic or professional situations demanding proficiency in literacy and the processing of specific types of information. Furthermore, Landsberg (2019) emphasizes that delayed recognition and intervention exacerbate the difficulties experienced by both teachers and learners.

This discussion highlights the significance of inclusive education and the need for adaptive teaching methodologies that ensure equitable access to education for all learners, particularly those with dyslexia. By fostering a deeper understanding of the condition, teachers can implement strategies that support diverse learning needs, ultimately promoting a more inclusive and effective educational environment. According to Landsberg (2019) the provision of inclusive education was a moral issue of human rights and values as set out in the Salamanca Statement (UNESCO, 1994), although Mastropieri and Scruggs (2016) noted that implementing inclusive education in schools poses significant challenges for teachers. According to UNESCO (1994), a foundational principle of inclusive education is that all children should be provided the opportunity to learn together, thereby fostering equal access to quality education. These developments underscore the commitment to ensuring that educational institutions are equipped to support the diverse needs of all learners, promoting a more equitable and inclusive learning environment.

Since 1994, the demand for the education of learners with special educational needs in Botswana has increased significantly, continuing to grow in the present era. This growing demand has prompted substantial changes in policy and legislation to enhance the inclusion of learners with dyslexia and other academic challenges within mainstream educational institutions. The fundamental objective of these reforms has been to ensure that the needs of every learner are met, reinforcing the core purpose of all educational organisations, whether early childhood centers, schools, outreach service providers, or strategic entities such as education authorities. Inclusive education had then emerged as a central focus of Botswana's education sector, defined as the integration of learners experiencing barriers to learning into mainstream schools (Forlin & Sin, 2015).

However, many barriers in the Botswana education system stifled the progress of providing inclusive education (Landsberg, 2019). The barriers included but were not limited to socio-economic factors, non-flexible curriculum, language and communication barriers, inaccessible and unsafe learning environments (ibid). Due to these factors, Botswana had a high number of learners who experienced learning difficulties like dyslexia, more so that many current experienced teachers had very little or no training in the area of inclusive education, either as student teachers or through continuing professional development (Booth & Ainscow, 2016). Those who were knowledgeable and demonstrated positive attitudes about special needs education had empowered themselves by means of in-service training either on a voluntary basis or through workshops and seminars arranged by their respective schools (Chitaika & McKenzie, 2016).

Furthermore, in Botswana, there was no established framework for the formal diagnosis and prognosis of dyslexia, which would allow for the differentiation of learners with dyslexia from their peers in terms of their literacy and language acquisition needs. Dyslexia was commonly perceived as part of a broader continuum of learning needs, closely linked to various approaches in the development of language and literacy skills. Moreover, it often co-occurred with other learning difficulties, rather than presenting as an isolated condition.

Teachers were expected to have knowledge of detailed dyslexia and expertise in this area of special needs education. This demand was compounded by the necessity of maintaining a non-judgmental approach, which placed considerable strain on teachers. They have consistently expressed concerns regarding their ability to effectively support learners with dyslexia. Many teachers felt inadequately trained to address the specific needs of these learners, while others

acknowledged shortcomings in the planning and implementation of instructional strategies designed to assist them (Haage, 2017). They were obliged to, seamlessly accommodate learners with dyslexia within the mainstream educational framework, while simultaneously burdened with the responsibility of supporting all learners equitably, as Florian (2014:1) asserts, “teachers were faced with the stress of having more responsibilities and paperwork placed upon them, with every new educational initiative that were frustrating to say the least.” Haage (2017:15) asserted that for learners, especially those with dyslexia, to thrive in an inclusive educational environment, it is crucial to have teachers who possess the necessary expertise and understanding

There is a notable paucity of research in Botswana specifically addressing the inclusion of learners with dyslexia within mainstream educational environments. While existing literature extensively examines the integration of learners with disabilities into conventional classrooms, it often lacks a nuanced exploration of specific disability types, particularly dyslexia. As a practitioner within a mainstream educational setting, I have observed numerous learners who struggle to engage effectively with the curriculum, potentially due to undiagnosed or suspected dyslexia. Many of these learners, along with their parents, remain unaware of the presence of a learning difficulty. The reality that some learners navigate approximately twelve (12) years of formal schooling without demonstrating significant academic progress was my cause for concern. This issue was further compounded by attitudinal challenges among teachers, which stemmed from their insufficient knowledge and training. Teachers often resort to labelling these learners as "lazy" or "unintelligent," inadvertently masking their own difficulties in supporting learners with learning challenges.

Through my professional experience, I have identified a pressing need for teachers in mainstream primary schools to possess the requisite knowledge and skills to recognize dyslexia at an early stage. Early identification would enable teachers to implement appropriate interventions, ensuring that learners with dyslexia receive the necessary support to achieve academic success comparable to their peers without learning difficulties. Furthermore, enhanced awareness and expertise among teachers would empower School Management Teams (SMTs) to provide targeted support for both teachers and learners within inclusive classroom settings.

My motivation for conducting this research arose from my professional role as a school manager collaborating with teachers who encounter diverse learners in their classrooms. The

challenges they face in their efforts to support learners with dyslexia have underscored the urgency of investigating this phenomenon. This research sought to contribute to improved pedagogical practices and inclusive education strategies within mainstream schools. This study, therefore, examined the teaching of learners with dyslexia in mainstream primary schools within the South East Region of Botswana and sought to address the existing gaps and contribute to the broader discourse on inclusive education.

## 1.2 STATEMENT OF THE PROBLEM

Over an extended period, the education system in Botswana has encountered significant challenges in addressing the needs of learners requiring special educational support. Notably, the term "dyslexia" was scarcely utilized within the educational landscape, as many teachers were uncertain about how to categorize and define this learning disability. Despite these limitations, teachers have historically been, and continue to be, responsible for assisting, guiding, and supporting learners with dyslexia in their academic development, even in the absence of specialized training tailored to such needs.

Moreover, considerable time and effort have been required to help these learners adapt and attain equivalence with their peers in terms of curriculum comprehension, academic performance, and adherence to institutional policies. Consequently, Botswana's education system has faced substantial challenges in effectively accommodating learners with dyslexia and other special educational needs due to limited awareness, the lack of a well-defined policy framework, and a lack of inclusive educational practices among teachers. These gaps have contributed to barriers in both learning and socio-emotional development, underscoring a critical concern for the country.

The issues of teachers' limited awareness regarding dyslexia, the absence of an inclusive education policy framework, and the potential negative impact on learners warrant urgent attention. Addressing these concerns served as an essential foundation for developing solutions such as comprehensive teacher training programs, policy reforms, and initiatives promoting inclusive education. This study, therefore, sought to examine teachers' approaches to instructing dyslexic learners, as well as their current levels of awareness and support for such learners, as already indicated in the background to this study, Booth& Ainscow (2018) avowed that for dyslexic learners to be successful in an inclusive educational environment, teachers

who are knowledgeable about what they are doing and why they are doing it, are paramount (Booth & Ainscow, 2018).

Research showed that teachers generally expressed some level of concern because they felt they did not have adequate knowledge and training in order to meet the needs of learners with special needs (Haage, 2017). Although most studies relating to learning disabilities have been conducted in other countries, there was no reason to believe that the situation was any different in South Africa or Botswana. First, many general teacher-training programmes did not offer modules or electives that covered special needs education in depth. Second, teachers did not empower themselves in this area, and third, schools did not provide enough in-service training for already qualified and experienced teachers (Robuck, 2017). For this reason, it was of paramount importance that teachers were trained in new and emerging issues of educational initiatives and challenges so that they were up to date with the demands of education.

## 1.3 AIM OF THE STUDY

This study aimed to investigate the teaching of learners with dyslexia in an inclusive system in mainstream primary schools of the South-East Region, Botswana.

## 1.4 MAIN RESEARCH QUESTION

The main research question of this study was:

- How are learners with dyslexia taught in inclusive mainstream primary schools in the South-East Region of Botswana?

### 1.4.1 Sub-research questions

This study attempted to answer the following sub-research questions:

1. To what extent could the teachers teach and manage learners with dyslexia in inclusive mainstream primary school settings?
2. What was the relationship between teacher training and its impact on the teaching of learners with dyslexia in an inclusive mainstream primary school setup?
3. To what extent did teachers meet the learning needs of learners with dyslexia in an inclusive mainstream primary school setup?
4. What strategies were put in place to enhance the inclusive teaching of learners with dyslexia in a mainstream primary school setup?

## 1.5 OBJECTIVES OF THE STUDY

The objectives of the study were to:

1. Establish the extent to which teachers could teach and manage learners with dyslexia in an inclusive mainstream primary school setup.
2. Examine the relationship between teacher training and its impact on the teaching of learners with dyslexia in an inclusive mainstream primary school setup.
3. Establish the extent to which teachers could meet the needs of learners with dyslexia in an inclusive mainstream primary school setup.
4. Determine the strategies that were implemented to enhance inclusive teaching for learners with dyslexia in an inclusive mainstream primary school setup.

## 1.6 SIGNIFICANCE OF THE STUDY

This study has the potential to significantly enhance scholarly understanding of pedagogical strategies for learners with dyslexia while providing deeper insights into the complexities of teaching such learners with dyslexia within mainstream educational environments. It aimed to stimulate further research, particularly in areas such as curriculum development, policy formulation, and the integration of dyslexia-specific instructional methods in teacher-learner interactions.

Furthermore, the findings of this study would be instrumental in informing teachers, policymakers, and other relevant stakeholders about the critical considerations necessary for supporting learners with dyslexia in mainstream classrooms. This includes addressing their distinct learning styles, upholding their educational rights, and ensuring appropriate care and intervention strategies. From a policy perspective, existing frameworks have been found to be overly generalized, lacking explicit guidelines on specific learning disabilities experienced by learners and teachers in mainstream educational settings.

This study would contribute to refining these policies to ensure targeted and effective interventions. Additionally, parents of learners with dyslexia and other learning disabilities often struggle to understand the reasons behind their children’s academic difficulties, leading to misconceptions about their intellectual abilities. By fostering greater awareness among parents, teachers, and policymakers, this study sought to illuminate dyslexia as a significant

barrier to learning and development, advocating for informed and inclusive educational practices.

## 1.7 THEORETICAL FRAMEWORK

This study was underpinned by Baddeley's multicomponent theory (2012), which is a theoretical model of working memory composed of several systems that all act to attain relevant information and suppress irrelevant information. These systems are: the central executive, phonological loop, visuo-spatial sketchpad, episodic buffer, and alternative models of working memory. The Multicomponent theory (2012) concluded that working memory was responsible for the processing and structuring of new words and sounds, which in turn enable one to learn and pronounce them. A more extensive examination of this theory was presented in Chapter 2 of this study.

## 1.8 RESEARCH METHODOLOGY

This study employed a quantitative research method, which Gay and Airsian (2015:626) define as "a type of empirical research into a social phenomenon or human problems, testing a theory consisting of variables which were measured with numbers and analysed with statistics in order to determine if the theory explained or predicted the phenomena of interest". This process was characterized by a systematic and objective approach to utilizing numerical data, which was derived exclusively from a selected subset of a broader population. The primary objective was to extrapolate findings from the selected sample to the larger population under investigation. The three fundamental components of this methodological framework were objectivity, the use of numerical data, and the principle of generalizability (Maree, 2019:184).

## 1.9 ETHICAL CONSIDERATIONS

Permission to conduct this research was initially requested from the Research Ethics Committee (REC) of the University of South Africa (UNISA), under whose oversight the current study was carried out. Subsequently, additional approval was sought from the Department of Primary Education within the Ministry of Basic Education in the South East region of Botswana to facilitate data collection in schools. A more extensive discussion of this aspect was presented in Chapter 4 of this study.

## 1.10 ASSUMPTIONS OF THE STUDY

- Teachers had educational training and knowledge concerning teaching leaners with dyslexia.
- Teachers were aware of the needs of learners grappling with dyslexia.

Teachers were aware of their roles and responsibilities in providing equal opportunities for learners with dyslexia in an inclusive setup in mainstream schools

## 1.10 DEFINITION OF TERMS

This section of the study outlines the definition of key terms.

**Dyslexia -** Dyslexia is a learning disability that affects how the brain processes written language. People with dyslexia often struggle with reading, spelling, and writing because their brains have difficulty connecting letters to sounds. It is not related to intelligence, hearing, or vision, but rather to differences in how the brain handles language (Florian, 2014).

**Mainstream school -** Mainstream school is a regular educational institution that follows the national curriculum and is designed to accommodate the general student population, cater to students without special educational needs, although they may provide some level of support for those who require it. They include public and private schools and typically focus on traditional academic subjects, extracurricular activities, and standardized assessments (Silas, 2014).

**Primary school -** A primary school serves as an educational institution for children aged five to eleven years, providing foundational learning within the primary or elementary education framework. It encompasses both the physical infrastructure and the organizational structure dedicated to early academic development. Typically, primary education follows pre-school education and precedes secondary schooling, forming an essential stage in a child's academic progression (McGee, 2018).

**Inclusive Education -** Inclusive education is conceptualized as a pedagogical framework that integrates learners experiencing barriers to learning into mainstream educational settings alongside their peers who do not face such challenges (Forlin & Sin, 2010). This approach recognizes the necessity for differentiated instruction, wherein learners with barriers to learning require tailored support from educators to ensure equitable access to educational opportunities. In this study, inclusive education is regarded as both a model and an educational program that teachers are expected to implement within mainstream schools. Consequently, this framework

serves as a fundamental benchmark in shaping the research inquiry and informing its theoretical foundation.

## 1.11 ORGANISATION OF THE STUDY

The study was organized into the following chapters:

### Chapter 1: Orientation to the Study

This chapter outlined the background to the study, the research questions and objection, statement of the problem, theoretical framework, and significance of the study, ethical considerations and the outline and organization of the Thesis.

### Chapter 2: Theoretical Framework

This chapter introduced the Multisensory Theory, which served as the foundational framework for the study. It provided a theoretical basis for understanding the integration of multiple sensory modalities and their impact on cognitive and perceptual processes. Furthermore, the chapter articulated the theory's relevance to the study, demonstrating how its principles informed the research design, methodology, and interpretation of findings.

### Chapter 3: Literature Review

This chapter presented a comprehensive and critical review of the literature concerning the instruction of learners with dyslexia within an inclusive mainstream primary school setting. The analysis systematically engaged with scholarly works that aligned with the study's primary research questions, sub-questions, and objectives. Additionally, the literature was rigorously examined in relation to national, regional, and international best practices, ensuring a well-contextualized and academically robust discussion of prevailing pedagogical approaches in the field

### Chapter 4: Research Methodology

This chapter provided a comprehensive examination of the methodologies employed in data collection, encompassing the research approach, theoretical paradigm, study design, target population, and sampling techniques. Additionally, it addressed the implementation of a pilot study and the ethical considerations integral to the research process.

**Chapter 5: Data presentation, analysis and discussion of findings**

This chapter provided a comprehensive analysis of the study and engaged in a detailed discussion of its findings.

**Chapter 6: Summary of findings, conclusion and recommendations**

This chapter presented a synthesis of the study's findings, articulated the conclusions derived from the research, offered recommendations based on the results, and proposed directions for future scholarly inquiry into inclusive education.

## 1.12 CHAPTER CONCLUSION

This chapter of the study covered the background to the study, statement of the problem, research question and sub- research questions, objectives to the study, significance of the study, rationale of the study, aims of the study, theoretical framework, literature review, research methodology and its components, trustworthiness and its components, ethical considerations, limitations of the study, delimitations of the study, chapter outline and conclusion. The subsequent chapter presents the discussion on teaching and managing learners with dyslexia in an inclusive setup, substantiated by the theoretical framework that has been employed to inform this study.

# CHAPTER 2: THEORETICAL FRAMEWORK

## 2.1 INTRODUCTION

This study was underpinned by Sepp, Howard, Tindall-Ford, Agostinho, and Paas Baddeley's Multicomponent theory (2012), which focuses on the impact of various components of learning that motivate learners to perform best. This multi-component theory is a theoretical model of working memory, made up of several elements or systems that work together to collect crucial information and filter out unimportant information. These systems are: the central executive, phonological loop, visuo-spatial sketchpad, episodic buffer, and alternative models of working memory. Baddeley's Multicomponent theory (2012) asserts that working memory is responsible for the processing and structuring of new words and sounds, which in turn enable learners to learn. The working memory model is a set of cognitive processes that enables extremely easy access to information (Camos et al., 2018). In accordance with this conceptual framework, a specific subset of long-term memory that is activated beyond a critical threshold is delineated from a subset of this active memory that constitutes the focal point of attention or conscious awareness.

## 2.2 BADDELEY'S MULTICOMPONENT THEORY (2012)

A range of experimental tools was used to carefully construct the multi-component theory. These mostly consisted of neuro-psychological information, approaches to concurrent tasks that looked at similarity effects, which could be used to determine how different sub-systems contribute to challenging tasks, and concurrent task strategies (Gathercole, Dunning, Holmes & Norris, 2019). The multi-component model aimed to provide a broad theoretical framework enabling both more detailed fractionation and analysis of its components and a capacity for it to be used fruitfully beyond the laboratory. In its current form, it comprises four interacting components. Two are modality-specific memory storage systems, one verbal-acoustic, the phonological loop, and one visuospatial, the sketchpad. Information in both these stores can be temporarily maintained via focused attention termed 'refreshing', while the phonological loop can also maintain familiar verbalizable material by subvocal or overt rehearsal.

The multi-component model has been systematically developed using several experimental tools. These include, principally, similarity effects to identify the type of coding involved, concurrent task methods to assess the contributions of the various subsystems to complex tasks, and neuropsychological evidence.

The goal of the multi-component theory was to offer a thorough theoretical framework that would allow for effective application outside of the lab as well as more in-depth fractionation and analysis of its components (Walton & Sholl, 2015). Working memory was a key concept in comprehending the phonological components of dyslexia. According to Baddeley (2012), working memory is in charge of structuring and processing new words and sounds, which helps one to learn them (Wen, Schwieter & Benati, 2019). Each element or system of the working memory model and the associated experimental details were explained in the sections that follow.

### 2.2.1 The Central Executive

According to Padhy, Goel, Das, Sarkar, Sharma, and Panigrahi (2016), the central executive is responsible for monitoring and coordinating the operation of the slave systems like the visuospatial sketchpad and the phonological loop, and relating them to long-term memory (LTM). The central executive is the most versatile and important component of the working memory system. It functions as the primary control mechanism within the working memory system, responsible for determining which information is attended to and directing relevant cognitive resources accordingly. It orchestrates the allocation of information to subsidiary components of working memory, ensuring efficient processing and integration to facilitate higher-order cognitive tasks such as problem-solving, decision-making, and reasoning. By regulating attentional focus and managing the flow of information, the central executive plays a pivotal role in cognitive flexibility and goal-directed behaviour. The central executive directs attention and gives priority to particular activities. This process of conceptualisation allowed the learners to use their memories to retrieve the words learnt.

Baddeley (2000) suggested that the central executive acted more like a system that controls attention processes rather than as a memory store. It enabled the working memory system to selectively attend to some stimuli and ignore others. This was exemplified by learners who were able to focus their attention on the stimuli that would enable them to learn new concepts faster and easier, and ignored those stimuli that made reading and conceptualising language a challenge to them. Furthermore, Baddeley (2000) used the metaphor of a company boss to describe the way in which the central executive operates. The company boss made decisions about which issues deserved attention and which should be ignored. They also selected strategies for dealing with problems, but the boss could only do a limited number of things at the same time. He (sic) would collect information from several different sources. Learners with

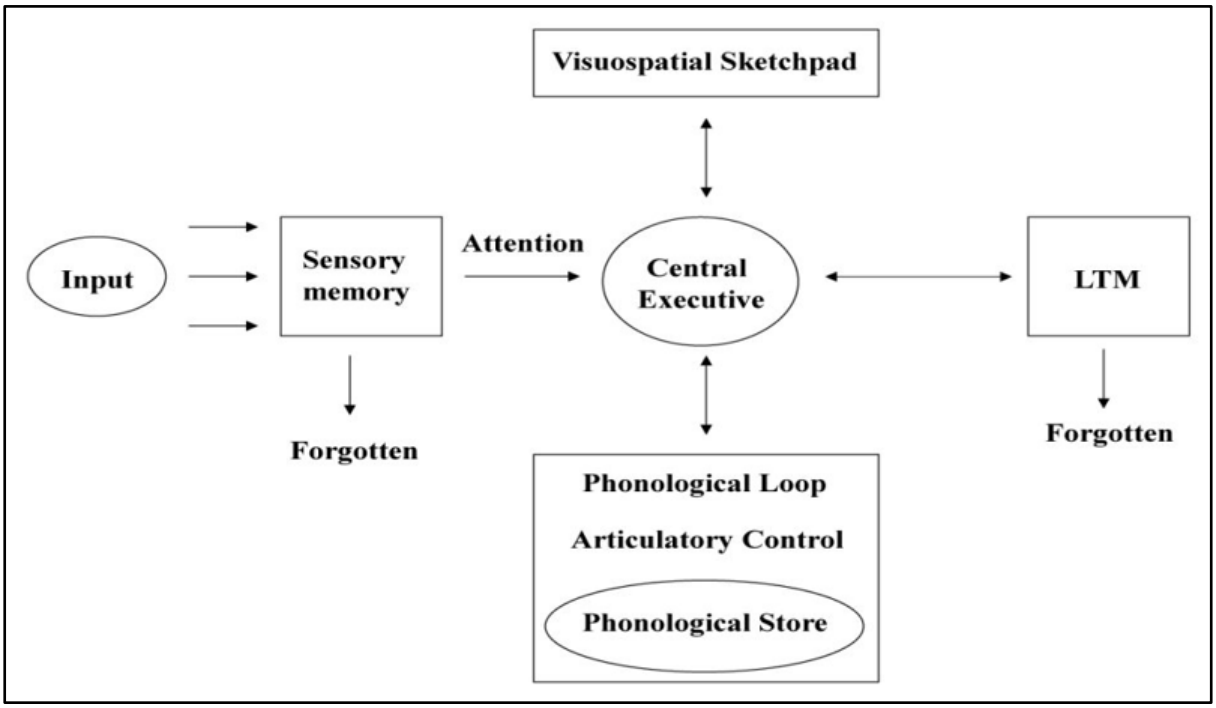
dyslexia also acquire information through a diverse range of activities, including visual stimuli such as images, auditory inputs like sounds and music, and other interactive experiences. Through engagement with these multimodal resources, they selectively determine which activities necessitate greater cognitive attention for the acquisition of new vocabulary. This approach allows them to navigate language learning in a manner that aligns with their individual cognitive processing styles. If this metaphor were extended further, the central executive within working memory would function as a coordinator, synthesizing information from two subsidiary systems: the phonological loop, responsible for auditory and verbal processing, and the visuospatial sketchpad, which manages visual and spatial information. Additionally, the central executive would retrieve and incorporate relevant knowledge from an extensive repository, long-term memory, enhancing cognitive processing and decision-making.

### 2.2.2 Phonological Loop (PL)

Baddeley's theory was constituted by several systems, one of which, called the phonological loop, focuses on language learning. The loop can be explained as a specialized cognitive system for the retention of verbal material over brief periods of time (Baddeley, 2012). The phonological loop has been recognized as a key cognitive mechanism in language acquisition, serving as a specialized tool for the temporary storage of linguistic information. Phonological data is processed and retained within this system, while a rehearsal mechanism ensures the maintenance of relevant information, preventing its deterioration. This continuous cycle facilitates learning by preserving essential phonological representations (Vicari, 2016). Consequently, the loop functions as a specialized apparatus for short-term linguistic retention. It is in charge of storing and retaining information in phonological form, whether it came from an auditory verbal input or from information that had been presented visually after being converted into phonological code via silent articulation (Coumel, Christiner, & Reiterer, 2019). It consists of two parts: an articulatory rehearsal process that can reawaken memory traces similar to sub-vocal speech, and a passive short-term phonological storage that maintains auditory memory traces that quickly degrade. Oral communication immediately and directly enters the phonological loop and be stored in phonological form (Baddeley, Gathercole & Papagno, 2017). Additionally, the phonological loop converts perceptual input into phonological codes such as phonemes and words that were previously stored in long-term memory (Schmidt, Brandenburg, Busch, Buttner, Grube, Mahler & Hasselhorn, 2021). Furthermore, the phonological loop is a component of the working memory model that deals

with spoken and written material. It is subdivided into the phonological store, which holds information in a speech-based form, and the articulatory process, which allows people to repeat verbal information in a loop. Figure 2.1 illustrates the Central Executive in relation to the Visuospatial Sketchpad, the Phonological Loop, and other components of the working memory.

**Figure 2.1: Working Memory Model (Baddeley & Hitch, 1974)**




Source: Baddeley et al (2000:195)

The labels given to the components on the diagram above of the working memory reflect their function and the type of information they process and manipulate. The phonological loop was assumed to be responsible for the manipulation of speech-based information, whereas the visuospatial sketchpad was assumed to be responsible for manipulating visual images. The model proposes that every component of working memory has a limited capacity, and that the components are relatively independent of each other. The Phonological Store acts as the inner ear and processes speech perception and stores spoken words people hear for a short amount of time, while the articulatory control process, which is likened to the inner voice, processes speech production, rehearses, and stores verbal information from the phonological store.

When attempting to comprehend a sentence or a story, learners with dyslexia would draw on meaningful representations from long-term memory. The central executive performs complicated working memory activities during this high-level activity (Hale & Robey, 2019).

The central executive controls the whole system of working memory. It allocates data to the sub-systems of the phonological loop and the visual-spatial sketchpad. It deals with cognitive tasks such as mental and problem-solving. The phonological similarity and word length effects, as well as other significant experimental events, provide support for the properties of the phonological loop. The similarity effect is the lower recall of a set of objects with similar phonological properties compared to those with different phonological properties (Schmidt, Brandenburg, Busch, Buttner, Grube, Mahler & Hasselhorn, 2021).

The amount of information that could be stored in the verbal short-term storage also depends on the quantity and quality of articulation of the learner, according to the word length effect experiments. Since longer words are thought to take longer to memorize, there is more trace decay and worse recall (Baddeley, et al., 2017). The inclusion of classroom activities that involve higher-order thinking skills and the use of meta-cognitive tools that encourage learners to reflect on their observations, such as successful demonstrations and discovery, could intrigue learners' curiosity, enhance their understanding of linguistic concepts, and motivate them when coupled with active learning practices in language learning.

More objects could be maintained by learners with faster articulation rates than by those with substantially slower articulation rates (Gong, Lei & Chen, 2022). By preventing rehearsal using an interference task, specifically articulatory suppression, these effects can be reversed. This common interference task requires the subject to speak concurrently while executing linguistic activities, such as "the, the, and the." The relevance of practice in short-term memory is demonstrated by the articulatory suppression (Baddeley et al., 2017).

The phonological loop notion was developed using the serial recall paradigm, which was commonly assessed using straightforward word or digit span tests. Therefore, understanding the relationship between working memory and dyslexia and related learning disabilities is critical in planning educational adaptations in schools. For dyslexic learners to complete tasks, they must recall sequences of numbers or phrases presented to them, with their digit span representing the longest sequence they can remember. Verbal working memory is commonly assessed through tasks that evaluate both storage and processing capacity, such as listening and reading span tests.

### 2.2.3 Visuo-spatial Sketchpad (VSSP)

The visuospatial sketch pad is in charge of temporarily storing, retaining, and manipulating visual and spatial information (Baddeley, et al., 2017). Logie (1995) proposed that VSSP is composed of two subcomponents, one that acts as a passive storage system for visual and spatial presented stimuli and the other that acts as an active rehearsal mechanism for both visual and spatial information. This idea is similar to that of the phonological loop and was supported by previous experimental findings (Funahashi, 2017). According to research, the VSSP component plays a crucial role in reading because it preserves the reader's visuospatial frame of reference while they read by visually encoding printed letters. This allows the reader to go back and know where they were in relation to other letters or words as they progressed through the passage (Slana Ozimi, 2020).

Reading involves automatic processing, such as text elaboration, letter identification, and semantic information (images, words, or diagrams). It is crucial to remember that phonological loop and articulatory rehearsal are necessary for visuospatial storage and rehearsal (Gray, Green, Hogan, Kuo & Cowan, 2017). People who are 10 years old and younger typically verbalise visual information (e.g., location of objects to be remembered). Due to the automaticity of reading, older children can recode visually presented materials into speech-based form (Demir, 2021). However, difficult-to-name items that are given visually would be encoded visually, which may hinder practice and, as a result, affect retention (Baddeley et al, 2017). Accordingly, in light of recent research on VSSP, it was considered to be a component split into visual and spatial sub-parts, each with its own distinct processes for storage, upkeep, and manipulation. Although research had demonstrated that activities that used VSSP largely relied on the central executive (Baddeley et al., 2019), it appeared that only manipulation relied on these resources, whereas maintenance appeared to be independent of them. Teaching learners with dyslexia in mainstream primary schools, with reference to this theory, implies that teachers should rely mainly on visual and verbal means to instill knowledge in the minds of learners with dyslexia.

Numerous concurrent tasks, such as the backwards digit recall tasks that can distinguish between the three initially postulated working memory sub-components, have been used in Baddeley's research on the central executive (Baddeley et al, 2017). The job was designed with the expectation that it would interfere with the different working memory functions, as opposed to tasks that just required maintenance, which place specific demands on the central executive.

Based on several experimental studies, Baddeley (1996), proposed and identified the following functions of the central executive: the capacity for concentration, the capacity for division, the capacity for switching or selecting attention and plans, and the capacity for linking the contents of working memory to long-term memory (Prates & Rigo, 2015). The latter task related to the central executive has since been transferred to a new working memory structure called the episodic buffer, which will be discussed next. In this regard, the theory explained the role of multi-tasking in teaching learners with dyslexia and how it would help with memory development.

### 2.2.4 Episodic Buffer

The episodic buffer, which was recently added to the working memory model, filled the void left by the inability of the phonological loop, visual-spatial sketchpad, or central executive to be viewed as general storage that can mix many kinds of information (Baddeley et al, 2017). Baddeley et al. (2017) assumed that the central executive was a purely intentional system with no store capacity in an effort to restrict the working memory model. However, this presumption has raised a number of issues and queries. Without the episodic buffer, it was difficult to explain a number of findings, including the development of working memory for verbal-spatial associations and the numerical advantage in memory span between Arabic numerals and digit words (Cockcroft, 2015).

The episodic buffer represents a separate storage system of limited capacity using a multimodal code. It is episodic by virtue of holding information that is integrated from a range of systems, including other working memory components and long-term memory, into coherent complex structures: scenes or episodes. It is a buffer in that it serves as an intermediary between sub-systems with different codes, which it combines into unitary multi-dimensional representations. As a result, Baddeley et al. (2000), had identified a number of characteristics of the episodic buffer, including a limited storage capacity, the capacity to combine data from various sources into a single complex structure, and the ability to act as a bridge between the two slave sub-systems (PL and VSSP) and combine them into a unitary multi-dimensional representation.

Overall, the episodic buffer could be seen as a portion of the central executive because it performed some tasks that were previously performed by the central executive (Funahashi, 2017). Recently, this viewpoint has been expanded to link emotion to the episodic buffer

function (Baddeley et al, 2017). It had become clear after more than three decades of in-depth research that working memory was not a single store but rather a memory system made up of numerous distinct components. These elements served as a temporary connection between outside-generated mental representations and internally created mental representations by processing and maintaining information during intensive cognitive tasks. Teaching learners with dyslexia is a challenge on its own and could be an emotional exercise for learners who are struggling to read. The episodic buffer can allow learners with dyslexia to draw from their emotions, their long-term memories, and even from their short-term memories, their outside-the-classroom environments, as well as from their mental representations in order to learn to read words. This inference to various components allows learners with dyslexia to fully function and cope with reading. Although the work described in this study was specifically inspired by the working memory model developed by Baddeley and Hitch (1974), there were a few other significant memory models that were addressed below.

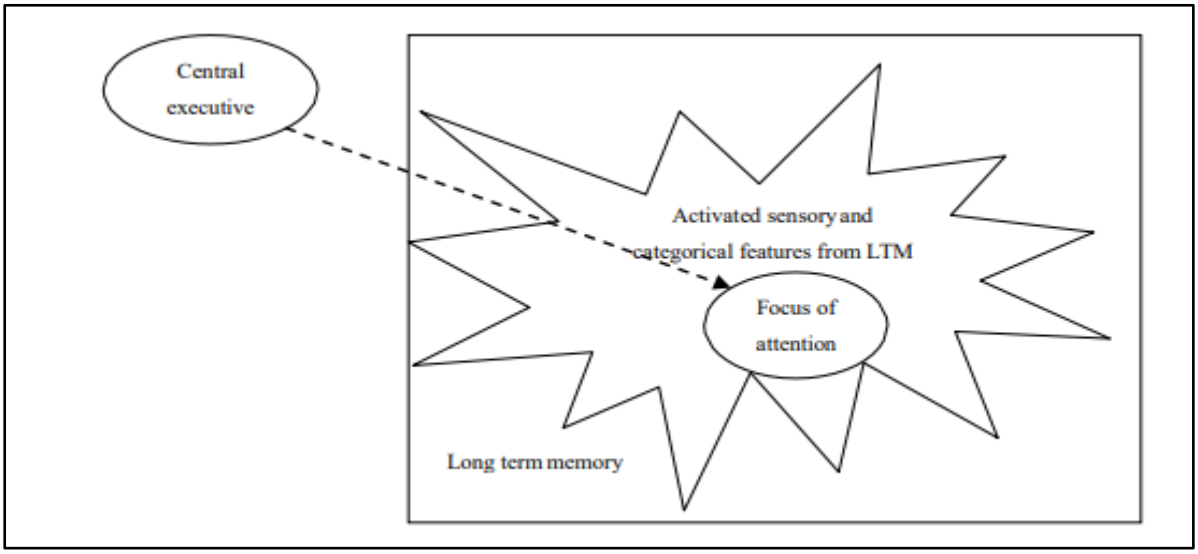
### 2.2.5 Alternative Models of Working Memory

Working memory theory was a controversial theory that offered a variety of perspectives or theoretical frameworks to explain this memory component (Wen et al, 2019). Whether working memory was better characterized as a particular capacity (or group of capacities) or as a combination of purposeful procedures and processing ability in different areas has been the subject of numerous discussions. Cantor and Engle (1993) had created a different working memory strategy. Their research focused on understanding the theoretical concepts that underlie the relationships between working memory capacity and Central Executive Activated sensory. Their research centered on the ability of the general working memory capacity to account for individual learner variances. Working memory capacity, according to Engle, was equivalent to central executive function, regulated attention, and general fluid intelligence (Hicks, Wouters, Waltman, de Rijcke & Rafols, 2015). It has been suggested that individual differences in working memory capacity primarily reflect differences in the capability for controlled processing and reflect the ability to apply motivation to memory representations (Jackson, 2016). The activated memory was multi-dimensional and resembled the episodic buffer in Cowan's working memory model.

## 2.3 NELSON COWAN'S THEORY

The working memory model by Cowan is a set of cognitive processes that enables extremely easy access to information (Camos et al., 2018). In accordance with this conceptual framework, a specific subset of long-term memory that was activated beyond a critical threshold was delineated from a subset of this active memory that constituted the focal point of attention or conscious awareness. Cowan is depicted in the Figure below.

**Figure 2.2 Nelson Cowan Model of Working Memory**




Source: Nelson Cowan (1988)

Nelson Cowan's theory of embedded processes, as depicted in Figure 2.2 above, is Cowan's working memory model, a set of cognitive processes that enables extremely easy access to information (Camos et al, 2018). In accordance with this conceptual framework, a specific subset of long-term memory that was activated beyond a critical threshold was delineated from a subset of this active memory that constituted the focal point of attention or conscious awareness. Furthermore, in the absence of sustained activation, whether through active verbal rehearsal or continuous cognitive focus, this transient activation is subject to gradual deterioration.

Although Cowan was more interested in the focus of attention, which was at least partially controlled by the central executive, he strongly argued for a capacity of 4-5 items that could be held in the focus of attention at any given time as opposed to 7 items as proposed by Miller (1956)

While Hicks et al. (2015) argued that the key component of working memory was the ability to maintain attention in the face of distraction, an alternate argument was that decay through rehearsal may be prevented by continuously focusing attention on the fading trace, as suggested by Barrouillet, Bernardin, and Camos' (2004) time-based resource sharing model. According to Hicks et al. (2015), a simple task minimized rehearsal since it was tightly controlled, whereas complex tasks permitted small intervals so that rehearsal could happen. Thus, the model emphasized the centrality of multi-tasking to the learners as it widened their thinking ability.

The assumption that working memory functioned as a kind of mental workbench, offering a place for thought, having a strong link between working memory and attention, and having the ability to draw on additional resources within short- and long-term memory was shared by all of these models (Storbeck & Maswood, 2016).

Numerous studies on working memory in standard and atypical learners have discovered a solid connection between working memory and reading comprehension and math skills (Demir, 2021). Empirical research revealed that a fundamental impairment in the growth of working memory underlies reading or math disabilities (Peng & Fuchs, 2016). Either of these two approaches could provide a theoretical explanation for the findings in terms of the structure and functional role of working memory.

In fact, Archibald's (2017) research had demonstrated that, regardless of task modality, tasks that required executive processes or that simultaneously maintain and manipulate information correlated more strongly with reading ability than storage-only tasks like short-term memory tests. A meta-analysis study on the subject of individual variations in working memory and reading comprehension was conducted by Chow, Mo, and Dong (2021). According to the modality of the working memory task and the impact of executive or deliberate control on task performance, Nouwens, Groen and Verhoeven (2016) looked at the applicability of numerous working memory measures in identifying high and low reading comprehends. Their results demonstrated that measurements of complex span tasks were not as good predictors of reading comprehension ability as working memory tests that involved a high demand for deliberate resources. Thus, the results seemed to support non-unitary working memory models (Baddeley et al., 2017), indicating that deficiencies in reading comprehension by poor comprehends may also be partially explained by the inefficiencies in working memory-controlled mechanisms, which were failing to specifically support the verbal processing. The model explained that slow

learning among learners with dyslexia was explained by their poor reading and math-solving capabilities.

## 2.4 RELEVANCE OF WORKING MEMORY THEORY FOR TEACHING DYSLEXIC LEARNERS

According to Baddeley (2000), significant life events have the power to alter and transform a person's personality and qualities rather than keeping them constant over the course of their lifetime. Humans are social creatures by nature; therefore, how they relate to others greatly affects how they feel about themselves (Baddeley & Hitch, 2019). Because the human species developed in small to moderate-sized group environments, people still spend a significant portion of their time with others at home, at work, and in schools in the modern world. As a result, the great majority of people's conversations are centered on their relationships and interactions with their peers (Sepp, 2019). Given the importance of sociality for the human experience, researchers continue to pay close attention to how ethnic contacts affect numerous interpersonal outcomes. In this study, the Baddeley's (2012) multi-component theory implies that learners with dyslexia do not exist in a vacuum but are shaped by constant interaction with their peers.

The instruction of learners with dyslexia in mainstream primary schools aligns with this theoretical framework, as the incorporation of visual learning strategies facilitates comprehension and cognitive processing. Given that dyslexia often affect language-based skills such as reading and writing, the use of visual representations, including diagrams, charts, and imagery, serves as an essential pedagogical tool, enabling learners to engage with concepts in a more accessible and meaningful manner. This approach supports multimodal learning and reinforces understanding by leveraging visual stimuli to enhance memory retention and conceptual development. Learners with dyslexia learn best if they were engaged in active visual learning and motivated to deal with observation of concepts before the introduction of linguistic concepts, jargons and facts, and if they sensed that they were a part of a community of learners in a classroom environment that is supportive of their learning and learning challenges.

According to Schulze, Vargha-Khadem, and Mishkin (2018), learners with dyslexia struggle to access relevant information and suppress irrelevant information through the phonological loop because of their phonological deficit. In other words, such learners fail to recognize the

connection between the correct letter and sound, which makes dyslexia a problem of working memory.

When compared to learners with typical development, learners with dyslexia, developmental language disorder, or both typically showed working memory problems. Additional unknowns included the severity of the impairments and how well they fit into a diagnostic category (Gray, Green, Alt, Hogan, Kuo, Brinkley & Cowan, 2017). Working memory is the capacity to process and hold onto new information for small periods of time. It is a reliable measure of learning and considers the range of reading and writing abilities among learners in primary school (Gathercole, Dunning, Holmes & Norris, 2019). As a result, there is controversy around working memory in learners who have learning difficulties.

In a study by Johann, Konen, and Karbach (2020), the authors looked into how the varied cognitive profiles of learners with reading impairments related to verbal working memory and verbal short-term memory. Based on their reading proficiency, the learners were split into four groups: High Comprehension/High Word Recognition, Low Comprehension/Low Word Recognition, High Comprehension/Low Word Recognition, and Low Comprehension / High Word Recognition. According to their findings, the poor comprehension only group had working memory problems, while the poor recognition only group had short-term memory deficits. They came to the conclusion that learners with reading challenges also had executive processing issues that were separate from their phonological processing deficiencies. Their other studies comparing learners with dyslexia and sub-group skilled learners on a variety of executive processing, phonological, visual-spatial, and semantic tasks provided evidence for domain-general deficits, where the hampered capacity for controlled processing seemed to be evident across verbal and visuospatial working memory tasks.

The inability to maintain task-relevant knowledge while ignoring distractions or interference, the inability to suppress unnecessary information in order to concentrate, and the difficulty in accessing information from long-term memory were a few examples of central executive processing deficiencies. Johann, Konen, and Karbach (2020) countered that while domain-free impairments in the central executive may exist, they may also reflect domain-specific codes depending on the nature of the task and processing demands. Johann et al.'s (2020) research made predictions or suggested different ways to think about reading abilities by making reference to these different methods and provided an explanation of working memory models.

According to a domain-specific view of working memory, it was possible to predict that verbal complex memory tasks could better differentiate performance between learners with dyslexia and those without dyslexia (or between science and humanities learners), than verbal simple memory tasks and visuo-spatial tasks. This was because the relationship between working memory and performance was mediated by task modality and intentional control. In this regard, the theory best explained the importance of memory tasks and visual tasks in teaching learners with dyslexia. On the other hand, a domain-general theory of working memory predicted that, regardless of task modality, working memory tasks better captured the differences between learners with dyslexia and learners without dyslexia than less taxing tasks, like short-term memory tasks, in terms of intentional resources.

The study team, led by Shin (2020), also used the multi-component working memory model as the foundation for their theoretical framework to analyze working memory function in learners with reading and/or math difficulties. According to Shin (2020), the relationship between working memory and reading and math performance in learners with reading and/or math difficulties depended on the task demands and could either be related to domain-specific restriction or domain-general constraint. It can be inferred, therefore, that working memory encompasses an individual's ability to process and store incoming information over short periods of time. It is a powerful predictor of learning (Maehler & Schuchardt, 2016) and explains variance in reading and writing performance in elementary school children (Berninger, 2010; Swanson & Berninger, 1996).

This theory has emerged as a powerful framework for understanding how individuals learn and process information. By incorporating multiple senses, such as visual, auditory, and kinesthetic elements, this theory provides a comprehensive approach to instruction that can cater to diverse learning needs. This theory has been particularly influential in the field of special education, where it has been used to develop effective strategies for learners with dyslexia and other learning difficulties. By leveraging the strengths of multisensory instruction, teachers can create engaging and supportive learning environments that promote academic achievement and foster a love of learning. The application of this theory has shown promise in supporting learners with dyslexia, and its principles can be adapted to various educational settings. This theory was therefore a suitable framework for this study as it advocates for the use of different methodologies, techniques, and components to teach learners with dyslexia, as they are unable

to grasp concepts at once. The subsequent section discusses Baddeley's Multicomponent theory and its systems in detail.

## 2.5 CHAPTER CONCLUSION

The theories examined in this chapter aimed to establish a comprehensive theoretical framework that facilitates both detailed fractionation and in-depth analysis of their constituent elements, while ensuring their applicability beyond controlled experimental settings. A central focus of these theories was the exploration of various learning methodologies and their practical implementation by teachers in teaching learners with dyslexia. The multi-component theory provided a broader explanatory scope, offering insights into a diverse range of cognitive tasks, including verbal reasoning, comprehension, reading, problem-solving, and visual-spatial processing. Additionally, the discussion on working memory underscored its relevance to real-life tasks, illustrating how different components, such as the phonological loop in reading, the central executive in problem-solving, and visual-spatial processing in navigation, interact in cognitive functions. The subsequent chapter provides a thorough review of the related literature, situating these theoretical insights within the broader academic discourse.

# CHAPTER 3: LITERATURE REVIEW

## 3.1 INTRODUCTION

The literature on dyslexia provided a rich foundation for understanding the complex issues surrounding this study's research question. This chapter reviewed the existing literature on the research topic, examining the findings that had shaped the understanding of this research area of study. By synthesizing the existing literature, this review aimed to identify key themes, debates, and gaps in knowledge, providing a comprehensive overview of the current state of research in this field and informing the development of effective strategies for teaching learners with dyslexia.

## 3.2 INCLUSIVE EDUCATION

The global trend for teachers in teaching learners with dyslexia in mainstream schools was that schools did not function in isolation but were influenced by the economic and social developments within their communities. Appropriate preparation of significant educational personnel stood out as an important factor in promoting progress towards inclusivity (UNESCO, 1994). According to Peters (2013), who prepared a report for the Disability Group of the World Bank, establishing a truly inclusive educational system was an extremely complex process. The implementation of inclusive education in different countries depended on the aims and motives of the government, more so that inclusive education was linked to issues such as healthcare, economic policies, labour markets, social welfare, parental choice, and consumer satisfaction. Governments provided varying degrees of inclusive education appropriate for those societies. Research findings highlighted some key lessons to be learnt from different countries around the world as to what constituted good practice in inclusive education, and the barriers or obstacles to establishing an inclusive education system (UNESCO, 1994).

Globally, Greek educational policy and special education regulations were discussed with the primary goal of illuminating the government's limited commitment to provide for learners with special needs, such as dyslexia. The country required a tentative demand for the government to carefully design intervention strategies concerning dyslexia and to assist those who were impacted because the government was not completely engaged in its intervention strategies to help those learners (Tsakalidou, 2022). The government agreed to the national demand, and as a result, a variety of intervention techniques were employed to help the learners who struggled with reading and writing. In order to assist learners with special needs, Information and

Communication Technology (ICT) in schools was developed (Giannakou, 2022), on the idea that if ICT could be used for learners with specific needs, it could also benefit young learners with dyslexia. This ICT-specific tool could be utilized in the classroom and significantly improve learning. It could also assist learners with dyslexia in becoming more sociable and boosting their low self-esteem (Reraki, 2023). Consequently, the Department of Technology Education and the Digital Infrastructure at the University of Piraeus continued to advance the development of the educational software E-Tech.

As an illustration of a nation where fairness and equality have always been valued in educational systems, Finland might be used. All learners with different requirements were guaranteed equal opportunity under Finland's comprehensive educational system. Depending on their needs, learners receive varying degrees of assistance. According to Aalto (2019), the important feature of the Finnish educational system that supported inclusion and equity in education was the provision of adaptable special education. Finnish society valued and respected teachers. Self-evaluation and responsible accountability were valued highly in the country.

Studies from countries such as Scotland and England that successfully established inclusive education revealed that vital issues include effective pre-service and ongoing in-service teacher training, whole school reform, early identification and remediation of learners, and converting Special Schools (SS) into resource schools (UNESCO, 1994). However, these and other countries that reported barriers to establishing inclusive education cited issues such as proper allocation and distribution of funds and meeting the needs of Special Educational Needs (SEN) learners in primary school.

According to Bertie (2018), having access to both technical and physical educational materials was essential for teaching learners with dyslexia. Learners with dyslexia have special educational needs that necessitate financial assistance in order for their inclusion to be effective. According to Jaya et al. (2018), it was the responsibility of the government to secure the resources required for the inclusion of learners with dyslexia. For inclusion to be successful and of high quality, both learners and teachers need to have access to the necessary resources. This was because resources were crucial to school administration, and their absence rendered policies ineffective or made them difficult to comprehend and put into practice.

Teachers encountered challenges as a result of the inclusive curriculum's design (Ross, 2019). They believed that learners with dyslexia needed additional time to comprehend language theories, but most curricula did not allow for this, according to Khalid and Anjum (2019). In order to maintain effective education and meet the needs of the majority of learners, teachers frequently had to make concessions, which put the inclusivity of the classroom in peril (Ahmad et al., 2018). The inclusive curriculum must provide for the educational needs of all learners, regardless of disability.

### 3.3 DEFINITION OF AND DISCUSSIONS ABOUT DYSLEXIA

There has been an ongoing global debate about how dyslexia is defined, originally referring to a 'difficulty with words' that includes challenges related to literacy and language skills (Kirby, 2020:476). According to Langeveldt & Pieterse (2024:104-120), dyslexia should not be a condition that disables a learner, nor should it be a condition that disables a teacher in the classroom. For learners, differing perceptions may be experienced with dyslexia, due to the wide spectrum of the condition. Nadyannaki, Andree & Jacinth (2021:75) maintain that some learners may believe that dyslexia is integral to their identity, burgeoning their creativity and building strength and resilience.

Kim (2012) explained dyslexia as a hereditary disability that does not affect cognitive capability or other abilities but still affects the ability to read and write. This meant that dyslexia had no relation to a person's intelligence or talent. The most predominant trait of learners with dyslexia is the difficulty in reading isolated words and spelling correctly (Kim, 2012). The Swedish Dyslexia Association (2013a) further concludes that there is a biological reason behind the condition and that it generally has to do with in what way the brain stores and interprets phonemes and sound sequences that could lead to difficulties with reading and writing. Two aspects of dyslexia could be found prominent in research on dyslexia, namely phonological and orthographic. According to Renaldi, Stefani, and Gulo (2016:31), phonological difficulty is the broader term used when talking about learners who have difficulties with separating phonologically related letters, such as b-p, d-t, k-g, which, to some extent, are pronounced similarly.

Dyslexia is now seen widely as part of a continuum of needs that relate to approaches to developing language and literacy skills (Knight, 2018). It does not always come unaccompanied. Learners with dyslexia often face a range of other challenges to various

degrees of severity. They experience reading difficulties, which depend on the type of dyslexia and the severity thereof that a learner has. Stein (2018) observed that dyslexia could either be developmental or acquired.

Gonzalez (2021) examined the prevalence of dyslexia in a standard 7 class of learners at Thogoto Primary School in Kenya's Kikuyu area. She found that the learners read monosyllabic words more quickly than polysyllabic ones and that they read English terms more slowly than Kiswahili words. Words with inflectional endings were also challenging for them to read. They found that fluency in their native language appeared to have an impact on learners with dyslexia's ability to meet the demands of learning a second language. Some of the learners' reading and writing abilities in English appeared to be impacted by the learners' native language, Lulogooli, which had a different word structure from that of English. In Kenya, it was said in support of the latter that teachers were mandated to give learners with dyslexia more time to complete tests and oral assessments so that they had an opportunity to do well. This was important to the current study because it also examined a scenario with many languages.

Learners with dyslexia should only be included in regular classes or classes with few learners (Schwab, 2020). A standard class in Nigeria typically comprised 35 learners (Okech et al., 2021) because larger classes complicated learning outcomes, particularly for learners with dyslexia. However, the number of learners in each class in African classrooms might occasionally range from 50 to 80, which makes it challenging for both teachers and learners to teach and study (Schwab, 2020). Alkhawaldeh (2018) suggests that instruction for learners with dyslexia may be conducted either in a one-on-one setting or within small groups comprising no more than ten learners. The study emphasizes the importance of individualized training within a small-group environment, particularly for reading and writing assessments. Furthermore, it is recommended that each reading and writing session be structured to last between 30 and 60 minutes per class to optimize learning outcomes.

### 3.4 EMPIRICAL REVIEW

Internationally, the Australian Dyslexia Association (ADA) was founded to educate the government about dyslexia and its role in the identification, diagnosis, and educational treatment of learners with dyslexia, despite the fact that the Australian government lacked adequate knowledge about the condition (Maxwell, 2019). The ADA sought out several

stakeholders, including the Minister of Education and the Minister of Disability, to help it achieve its core goal and cooperate with both. Additionally, the ADA assisted in keeping its members informed of the most recent findings in both domestic and worldwide dyslexia research, news, and articles (Nevill & Forsey, 2022). Subsequently, support for learners with dyslexia took place in Australian schools where teachers embraced inclusivity and diversity in the classroom and worked together to determine how to meet these learners' needs (Maxwell, 2019). Similar to this, before designing support services for learners with dyslexia in inclusive education in Canada, teachers took into account factors like assessment and identification, individualized program plans, collaboration, parent involvement, ongoing assessment, accommodations, assistive technology, self-advocacy, and transition planning (Zylstra, 2021).

Raver and Kolchenko (2017) also reported that Ukraine had excellent disability rights laws, but the implementation of the laws was largely ignored. Such was the case with Botswana. Botswana had an excellent policy on Inclusive education, which was developed in 2005, but its implementation to this day leaves much to be desired.

In Africa, there were many similarities amongst developing countries and or territories with regard to policy design and creation, but also many differences with regard to the implementation of such policies. According to Bolborici and Bodi (2022), laws governing special educational needs in Romania were comparable to those in many economically advanced countries. There were, of course, exceptions; for instance, Zimbabwe had no specific legislation for inclusive education, but there was a Disabilities Act that required education at local schools to be accessible to all children with disabilities (Chitiyo, Simone, Muresherwa, Chitiyo & Chitiyo, 2025). Such was also the case in the Palestinian Authority, West Bank, and Gaza, where the provision of inclusive education was in its early stages.

In South Africa, apartheid not only segregated people along racial lines, but it also separated children in a school setting according to ability and disability (Section 27, 2016). In essence, apartheid schools were separated along two lines: race and disability (Department of Education, 2001). The Integrated System meant that learners with barriers to learning were integrated into mainstream schools. However, they were taught in separate special classes. White, Coloured, and Indian children received this form of remedial education. It was not available at black schools, and black children who attended mainstream schools, therefore, received no form of remedial or special education. Those with severe disabilities were, however, educated or trained in special institutions or clinics. Also, it was common practice for churches, non-

governmental, and private organisations to take responsibility for the education of black children living with disabilities.

For South Africa, the legacy of apartheid education has added a further dimension. Unfortunately, special needs education was the area where the effects of apartheid education were felt most (Section 27, 2016). Disparities between educational provision and access to different racial and socio-economic groups were still felt. For example, since most parents still had to pay school fees, wealthier parents were able to provide better future prospects for their children with disabilities. This constitutes a minority of advantaged families, and the vast, mostly black majority of parents were not able to provide for their children with disabilities, thus limiting their children's future prospects.

In Botswana, the constellation of difficulties categorized as dyslexia warranted further research, due to the detrimental impact the affliction had on the well-being of an individual as well as the society. The researcher was unable to locate any literature research on this topic in Botswana, as local studies were scarce, if any, even in relation to the number of learners with dyslexia attending schools. Even so, investigations into the perceived barriers experienced by teaching professionals who were responsible for the learners were not fully documented.

Leseyane et al. (2018) asserted that teachers in public schools frequently expressed negative remarks regarding learners with dyslexia and provided minimal individualized support. They emphasized the necessity for English language teachers to enhance learners' awareness of the challenges encountered by learners with dyslexia and to employ inclusive language teaching methodologies.

Similarly, Nijakowska (2019) highlighted that foreign language teachers often lacked the requisite skills to establish inclusive learning environments tailored to the needs of learners with dyslexia. Nijakowska et al. (2018) further noted that English language teachers demonstrated insufficient expertise in adapting their instructional approaches to accommodate learners with dyslexia. Additionally, Kormos and Nijakowska (2017) found that foreign language teachers frequently experienced significant concerns and exhibited low levels of self-efficacy when implementing inclusive teaching strategies for learners with dyslexia.

Keenan (2021) found that while teachers were aware of their role in the development of executive function, they also made the observation that issues with neuro-psychological reports

and financial restrictions would make it more challenging to provide specialised assistance to learners with dyslexia.

Shin et al.'s (2019) investigation of good and bad readers focused on their capacity to remember both relevant and strangely spelled texts. They conducted a similar examination of scenarios in which phonological confusions might occur and scenarios in which they could not. In contrast to proficient readers, they found that weak readers did not substantially rely on the phonological approach to memorize material. As a result of their limited ability to match all of the letters of a word to their sounds, learners with dyslexia, according to Bokelman (2018), stored a distorted form of the word in their memory. In the current study, the respondents' reading and writing skills were assessed using terms they had previously studied. They were better able to distinguish between the word forms they had learned and compare their reading output with those as a result.

### 3.5 BARRIERS TO INCLUSIVE EDUCATION

Most studies conducted in the field of inclusive education have been conducted in the West, with a few in the developing world. Studies carried out in well-resourced school systems, such as in Scotland and England, assessed the state of inclusion in schools and found the following barriers to effective inclusion: lack of adequate teacher training, irrelevant curricula and assessment strategies, and unrealistic teacher expectations (UNESCO, 2020). According to Jardinez and Natjividad (2024), the lack of inclusive education, pre-service, and in-service training of teachers was one of the major barriers to successful inclusion. A lack of commitment and cooperation among teachers often arose due to ineffective teaching methodologies, inappropriate assessment strategies, rigid curricular structures, and, most notably, insufficient teacher training and professional support. Research consistently identifies teacher preparation and ongoing professional development as critical areas for improvement in fostering inclusive education (Jardinez & Ntjvidad, 2024).

Adewumi and Mosito (2019) conducted a study on overcoming inclusive education and reported that overcoming these obstacles presented huge challenges to governments worldwide. Adewumi and Mosito (2019) suggested that teachers, school administrators, community stakeholders, and governmental bodies play a crucial role in addressing the challenges associated with effective inclusion. They emphasized that fostering inclusivity requires teachers to have experience working with learners with disabilities, undergo

comprehensive teacher training, and adopt a holistic, school-wide approach to inclusive education. The successful implementation of inclusive educational practices is dependent on the active engagement and collaboration of key stakeholders, including educators, school leadership, and educational policymakers.

### 3.6 TEACHER AWARENESS OF DYSLEXIA

Teacher awareness referred to “the recognition and understanding of a phenomenon by the teacher within the educational system” (Hobbs & Porsch, 2021). One could reasonably deduce that if teacher awareness and understanding of special needs education were poor, their level of understanding of dyslexia would even be lower, since it was a sub-division in the field of learning disabilities.

Teachers appeared to believe that learners with disabilities were misfits in mainstream education, according to a study that examined general education teachers' views towards disability and inclusive practices in Sri Lanka (Hettiarachchi, 2021). Another study focused on general education teachers' attitudes towards inclusion and was carried out in Delhi, India. The results demonstrated that the participating teachers held the view that low motivation among learners was the root cause of learning difficulties (Nijakowska, Tsagari, and Spanoudis, 2020). According to Boitumelo, Kuyini, and Major (2020), such unfavorable teacher attitudes caused them to have lower expectations of learners with impairments, which eventually led to less learning chances and poorer performance for learners with dyslexia. Huys (2020) discovered that a group of 30 teachers in the Netherlands exhibited slightly unfavorable implicit attitudes towards learners with dyslexia after analyzing both their explicit and implicit attitudes towards the condition.

According to research from Knight (2018), a teacher's fundamental concept of dyslexia was mainly dependent on the behavioral concerns connected to it, such as weak or strained reading and challenges with spelling and writing. Additionally, when asked to characterize dyslexia in their own words, the teachers only addressed the difficulties that come with it and made no mention of any advantages about it (Knight, 2018).

In spite of having a general or fundamental awareness of dyslexia, the teachers in Knight's (2018) study did not have a thorough comprehension of its biological, neurological, or

cognitive elements. Despite the fact that there was no evidence to support their use as indicators of dyslexia, the teachers' perceived visual functional aspects such as letter reversals and print distortions as traits of the disorder. In Knight's (2018) study, the majority of the teachers said their initial training programs did not adequately address dyslexia. Teachers' negative views towards learners with dyslexia and inclusion appeared to be related to their ignorance of these issues. For instance, a study by Alawadh (2018) on teachers' understanding of dyslexia in the Arabic context, which included 471 primary school teachers, revealed that the participants' knowledge of dyslexia was poor, and they were not aware of the advantages of early intervention. These teachers felt unprepared to use inclusive practices as a result.

The widespread lack of awareness among school administrators and teachers regarding learners' learning disabilities has been a concerning issue in Pakistani society as a whole, with Khyber Pakhtunkhwa being particularly affected. This deficiency in understanding had significant implications for educational development and inclusion, as noted by Ashraf and Najam (2020). Additionally, they lacked the tools to train their teachers to deal with learners with dyslexia. Because untreated and undiagnosed pupils became a major burden for society and had an impact on all educational institutions, this brought a huge loss for both learners and society.

The way teachers situated themselves in relation to learners with dyslexia was critical to the educational and behavioral development of these children. When the teachers cast learners with dyslexia in a negative light, it may have adverse ramifications on their future. It has long been established that teacher attitudes and experiences could have lasting consequences, particularly in the case of a classroom teacher who held a less-than-positive attitude towards learners with dyslexia (Ginevra, Maggio, Valbusa, Santilli & Nota, 2021). It was well documented that if not properly addressed, dyslexia may lead to alienation and disenfranchisement, place learners at risk, and potentially fuel depression and anti-social behavior (Wilmot, Hasking, Leitao, Hill & Boyes, 2023; Kgatse, Khanare & Adewuyi, 2024). According to Ooko (2021), teachers only acknowledged feeling more comfortable teaching learners with dyslexia and having a greater understanding of how to treat the cognitive aspects of dyslexia after taking more dyslexia-related training.

## 3.7 TEACHER CHALLENGES OF TEACHING LEARNERS WITH DYSLEXIA

According to Ahmad et al. (2018), teachers encountered a number of challenges while instructing learners with dyslexia because they lacked effective teaching techniques for use in inclusive classrooms. Teachers had implicitly negative judgments about strict behaviour policies and academic difficulties. According to Krischler et al. (2019), teachers did not understand the biological and cognitive traits of learners with dyslexia, which further emphasized the value of excellent teacher training in increasing teachers' comfort level when working with this group of learners.

Muoz (2019) investigated the public perceptions of inclusion and the application of national policy in Chile. According to the study's findings, teachers believed that, lack of human and financial resources was one of the biggest obstacles they had to overcome to satisfy the demands of their learners with disabilities. The researchers argued that the attitudes of teachers in other Latin American nations were reflected in their findings.

Teachers in Hong Kong struggled to meet the needs of the city's increasingly diverse learner population, particularly those with specialized educational needs (Mumford & Dikilitaş, 2020). They faced enormous challenges in providing effective instruction and helping learners with dyslexia overcome their learning disabilities. They had experienced worse-than-excellent results because of teaching learners with dyslexia. (Aktan, 2021). Interviews with teachers of inclusive classrooms revealed that strong leadership and the ability of teachers to provide high-quality instruction appeared to be lacking in inclusive classes. Teachers frequently approached learners with Special Educational Needs (SEN) in regular classes with apprehension and a lack of preparation.

The effectiveness of integrating learners with dyslexia into conventional classrooms depended heavily on time (Moberg et al., 2020). According to a study conducted in Zambia by Manyeruke (2021), in order to properly integrate learners with dyslexia, teachers lacked enough time and should be given extra time to meet the specific educational needs of learners with dyslexia without interfering with or prolonging regular class time. Andrews, Walton, and Osman (2021) argued that this was the case because they were ignorant of impairments in general. According to Andrews et al. (2021), this might have been the result of the following factors: first, teacher training programs that devoted little or no class hours to comprehending the difficulties that learners with particular disabilities encountered and how to support them

in learning, second, general education teachers who were not conducting any new research on the best ways to teach learners with learning disabilities, and third, educational authorities who were not giving teachers regular in-service training on how to teach learners with dyslexia and other special needs. This was consistent with Zimbabwean teachers, who turned away learners with disabilities because they felt unprepared and ill-equipped to help them in inclusive education (Nkomo, Dube & Tautona, 2022).

## 3.8 THE ROLE OF THE TEACHER IN AN INCLUSIVE CLASSROOM

The role of the teacher in an inclusive classroom is like that of a manager, and it includes helping learners to see that working hard and doing what the teacher asks is worth the effort and adds quality to their lives. This could be achieved by developing positive relationships with learners and providing active, relevant learning experiences where learners could demonstrate success. An effective teacher or classroom manager creates shared Quality World pictures with their learners, so learners are motivated to learn what the teacher intends to teach. When creating lessons, teachers who use the multi-component theory should ensure that learners with dyslexia's activities are varied such that they cater for different types of learners in the same classroom. Learning will increase and disruption would diminish when learners know that they are able to connect, feel a sense of competence and power, have some freedom, and enjoy themselves in a safe and secure environment.

Teachers are expected to master concepts and encourage learners to retake tests and continue to work on assignments until they demonstrate competence or quality. The emphasis should be on deep learning demonstrated through the ability to apply what has been learned. Repeated exposure to a specific word or concept through sustained reading would enhance comprehensive mastery, particularly for learners with dyslexia. This process would facilitate cognitive reinforcement, allowing individuals to develop greater fluency, retention, and contextual understanding. By engaging with the material multiple times, dyslexic learners can strengthen their neural pathways, leading to improved recognition and application of the learned concepts. Through the outcomes gained, learners with dyslexia would concentrate on tasks that are difficult for them and keep on improving on their reading skills until mastery.

General education teachers are increasingly required to accommodate the diverse needs of learners with special educational requirements, as the inclusion of such learners in mainstream classrooms continues to expand (Nijakowska, 2019). A fundamental aspect of this

responsibility involves the early identification of dyslexia and the implementation of timely interventions, allowing learners to engage with varied approaches to reading acquisition from a young age (Alonzo et al., 2019). Consequently, it is imperative for educators to recognize dyslexia at an early stage and develop effective instructional strategies and lesson plans that facilitate the seamless integration of learners with dyslexia into the general education environment, thereby fostering an inclusive and supportive learning atmosphere.

In research conducted by Padhy, Goel, Das, Sarkar, Sharma, and Panigrahi (2015) in India, teachers were willing to interact with learners who had reading impairments; they lacked confidence in their capacity to be successful. Two-fifths of the teachers in the study claimed they were unaware of learning difficulties; however, the majority of the teachers were open to taking extra training. Additionally, most of the instructors surveyed by Padhy et al. (2015), said that segregated schools would be better suited to serve learners with reading impairments since they could receive specialized teaching. Despite that this study was carried out in India, the results were relevant to the current study since dyslexia is a global issue that affect all languages, and because teacher perspectives and beliefs may be comparable (Kohli, Sharma & Padhy, 2018).

## 3.9 TEACHER TRAINING FOR LEARNERS WITH DYSLEXIA

Policies supporting teachers' training in inclusive classrooms were quite uncommon in elite institutions, and professional development related to dyslexia was not given much weight. UNESCO (1994) stated that teachers should receive training that enhances their skills in areas of pedagogy and curriculum. Training should also be ongoing and intensive. Booth and Ainscow (2018) also agreed that the training of teachers and other key educational personnel was of paramount importance to successful inclusion.

When recommending a model for teachers to use in helping learners with dyslexia to develop their social and emotional skills, Scott-Beale (2016) applied a grounded theory approach. Six elements were included in the model because they were essential: (a) teacher commitment, (b) encouragement of positive peer interaction, (c) behavior modeling, (d) teacher-to-teacher collaboration, (e) learner strengths focus, and (f) safe and supportive setting. The use of these techniques, according to Scott-Beale (2016), was advantageous for all learners, despite the fact that learners with dyslexia were more likely to experience other difficulties such as low self-esteem, anxiety, and depression. In essence, Scott-Beale (2016) came to the conclusion that

teachers must provide secure, encouraging environments in order to help all of their learners improve their social and emotional skills.

Numerous studies conducted in Kenya have shown that in order to successfully integrate all learners with disabilities in ordinary classroom settings, teachers need specialized training (Aldabas, 2020). A teacher who had received in-depth training in learning disorders could have the confidence needed to properly teach learners with dyslexia in typical classroom settings. Nkomo et al. (2018) conducted in Zimbabwe also found that teachers' ignorance of dyslexia prevented them from giving learners with dyslexia the right kind of support. Kachong'u and Muzata (2020) indicated that teachers with an understanding of dyslexia demonstrated a considerably more favorable attitude towards learners with dyslexia based on a study done in Zambia with the participation of 30 teachers.

Research also suggests that when teachers have limited access to information, training or support, a sense of learned helplessness develops in the teacher and learner (UNESCO, 202). This conversely affects the level of support teachers provide for learners with dyslexia. Being well-versed in the signs of dyslexia would allow a teacher to identify its occurrence, and additionally, develop the skills necessary to support a learner with dyslexia’s learning. Insufficient teacher training in dyslexia, lack of teaching materials, and a lack of professional and parental collaboration were all found in a study of dyslexia in Greece (Rontou, 2020).

## 3.10 THE RELATIONSHIP BETWEEN TEACHER TRAINING AND TEACHING LEARNERS WITH DYSLEXIA

According to a study conducted in India by Rao, Midha, Oberoi, and Kar in 2021, using tactile, visual, kinesthetic, auditory, and olfactory instruction methods improved the reading abilities of learners with dyslexia. Teacher training, therefore, plays a significant role in effectively teaching learners with dyslexia. They should be knowledgeable about dyslexia, its causes, and its impact on reading, writing, and spelling skills to provide tailored support. Training teachers in multisensory teaching methods such as Orton-Gillingham can help them engage learners with dyslexia and enhance learning outcomes. Teachers should be familiar with assistive technology tools, like text-to-speech software, to provide alternative learning methods. The more teachers are aware of dyslexia, the more equipped they will be in the classroom.

The International Dyslexia Association's (IDA) standards placed a strong emphasis on the requirement that teachers received deeper training in language structure, including the speech

sound system, the writing system, sentence structure, the meaningful parts of words, meaning and relationships between words and their referents, and the organization of spoken and written discourse (Becker, Vasconcelos, Oliveira, Santos, and Bizarro 2017). The teacher would be better equipped to adapt lessons and instruction to meet individual requirements if they had a deeper understanding of the particular areas in which the majority of learners with dyslexia struggled.

According to a review of the literature, one of the main factors contributing to teachers' lack of understanding of inclusion in Sri Lanka was the absence of organized teacher training (Hettiarachchi, 2021). According to Kormo's (2020) study, teacher training could have a positive impact on teachers' attitudes, self-efficacy beliefs, and knowledge of how to accommodate learners with dyslexia in the language teaching process. The study was based on a massive open online course (MOOC) on dyslexia and foreign language teaching.

According to a poll conducted in New Zealand by Sleeman et al. in 2022, learners with dyslexia were less proficient readers than their peers in the Organisation for Economic Co-operation and Development. In support of the latter, Dymock and Nicholson (2022) discovered that New Zealanders generally did not comprehend dyslexia as well as people in other nations where the handicap had been acknowledged for a long time. However, attitudes and beliefs about learning disabilities must be considered in order to provide effective teaching and assistance. Additionally, Sleeman et al. (2022) discovered that New Zealand special needs teachers lacked the necessary training to teach learners with dyslexia. They were adamant that even some special education teachers lacked the necessary training to teach learners with learning difficulties successfully.

## 3.11 TEACHING STRATEGIES FOR SUCCESSFULLY TEACHING LEARNERS WITH DYSLEXIA

Each learner exhibits a unique combination of abilities, skills, and knowledge, shaped by their distinct socio-economic backgrounds and individual personalities (Buele, López, Edisson, Reinoso, & Urrutia-Urrutia, 2020). As a result, teachers must respond to the specific demands of learners within the classroom by employing diverse instructional strategies tailored to meet their varied needs. One effective approach for addressing learner diversity is curriculum differentiation, which can be implemented across multiple dimensions, including content, pedagogical methodologies, assessment strategies, and the learning environment (Lopes,

2018). By adapting these elements, educators can foster an inclusive and equitable educational experience that accommodates the diverse learning profiles of learners.

Leseyane, Mandende, Makgato, and Cekiso (2018) claimed that teachers who are knowledgeable about dyslexia and its symptoms may be able to work with learners with dyslexia more successfully. When teachers are competent and employ the appropriate strategies, they help learners who struggle with learning succeed academically and socially. Instead of presuming that learners with dyslexia only need professional support, teachers who have a deeper grasp of dyslexia could help learners with dyslexia in a variety of ways (Knight, 2018).

Curricular differentiation necessitates the implementation of varied instructional strategies, assessment practices, and curriculum materials to effectively address diverse learner needs (Bondie, 2019). Moreover, within an inclusive classroom setting, curriculum diversity plays a critical role in enabling each learner to engage with content in a manner tailored to their individual learning requirements (Westwood, 2018). One pedagogical approach that supports inclusive education through curriculum adaptation is multi-level teaching (Themane & Thobejane, 2019). This approach considers the broad spectrum of learner demands, modifying both the curriculum and learning environment to ensure learners can engage with educational material in ways that align with their distinct learning preferences and academic objectives (Westwood, 2018).

According to Bower, Wood, Lai, and Highfield (2017), the majority of learners with dyslexia in conventional educational settings were included in mainstream classrooms, which consequently limited their access to individualized, one-on-one instructional support. As a result, it is essential that learners with dyslexia receive additional educational support and guidance, particularly in language-based subjects (Nijakowska et al., 2018). Therefore, when teachers possess a comprehensive understanding of the nature and characteristics of dyslexia, they are better equipped to address the specific learning needs of learners with dyslexia and facilitate their academic development. Awada and Plana (2018) emphasized the importance of teachers developing their own practical strategies to achieve a balance between the educational requirements of learners with dyslexia and those of their peers without dyslexia.

The vast array of instructional tools must be tailored to their individual learning preferences, styles, and interests. Teachers need to be aware that learners with learning difficulties might

need the learning materials to be modified. For example, a learner with weak vision or who struggles with reading would need a larger print to read comfortably. Since learners with dyslexia receive information differently, information presented in a variety of formats is more likely to be helpful to them. As a result, textbooks, lectures, and notes could be supplemented or replaced by music, movement, and visual elements including pictures, diagrams, and charts (Majoko, 2019). Teachers can alter how assignments should be presented, such as the level of detail in graphs, info-graphics, drawings, and cartoons. Pictures or images could be replaced with, or added to, written descriptions and explanations. Additionally, fewer diagrams and drawings might be used in place of some of the information.

According to Fonger and Malot (2018), a study conducted in the United States found that the incorporation of shape in instructional methods proved effective in teaching young learners diagnosed with autism spectrum disorder (ASD). Furthermore, Muuvila, Helminen, Lehtonen, Eriksson, and Kylliäinen (2022) reaffirmed the efficacy of awards as a motivational tool, demonstrating their role in encouraging learners to exert substantial effort in their academic endeavours.

Additionally, Ooko, Aloka, and Koweru (2019) identified a statistically significant positive correlation ($R^2 = 0.109$) between shape and reading skills in an experimental study involving learners with dyslexia. Lastly, the research conducted by Lyytinen, Richardson, and Aro (2019) on self-questioning instruction in Finland highlighted the application of various instructional methodologies in facilitating learning outcomes.

On the other hand, research conducted in Malaysia by Kambal (2019) revealed that the Clay Modelling Programme did enhance learners with dyslexia's reading behaviours. The study conducted in New Zealand by Sleeman, M., Everatt, Arrow, and Denston (2022) revealed that the video self-modelling intervention had effect on the learners' reading preferences. Andreou and Segklia (2019) asserted that because dyslexia was not a disability, learners with dyslexia could achieve their full potential with early remediation.

Backhaus, Jeske, Poinstingl, and Koenig (2017) found that using antecedent prompts helped young female learners with dyslexia transfer the abilities they had learned. Similar to this, research by Rice and Gilson (2023), in the United States of America revealed that after two semesters of teaching, teachers' conceptions of "Nature of Science" greatly improved.

Sleeman, Everatt, and Denston (2022), discovered that prompting worked well for teaching learners with autism in New Zealand.

In Kenya, according to Ooko's (2021), the teaching of speech skills to pre-scholars was aided by the use of pictorial prompts. As a result, whole word reading and phonetic strategies had been used in Kenya to help learners master reading (Ooko, 2021). If the inclusion was to be successful, it was essential that teachers received training that would intellectually equip them. However, according to a study conducted in the United States of America by Andreou and Segklia (2019), there were no appreciable changes between learners' word choices and sentence lengths while using the teacher's writing prompts.

The Universal Design for Learning (UDL), Differentiated Instruction (DI), Co-teaching, and Peer coaching were a few of these tactics used in Australia. They also emphasized the importance of using the Response to Intervention (RTI) technique by teachers to respond constructively to the knowledge that these learners possessed in addition to their own. Co-teaching was a vital assistance method employed in Canada for learners with LD. This tactic and teamwork could occasionally be used inter-changeably. The latter word referred to how professionals and others interacted in meetings, teams, and parent conferences, even if co-teaching could be extremely collaborative. Strategies for Peer-Assisted Learning (PALS) (in which two learners were partnered up at the same skill level, without a significant gap in their abilities); and (v) Reciprocal Peer tutoring (RPT) had also been used in Greece and had been shown to be effective in raising academic performance of learners with dyslexia. In this method, a higher performing learner was paired with a lower performing one to alternate between acting as the tutor and tutee during each session, with equitable time in each role.

## 3.12 ASSESSMENT OF LEARNERS WITH DYSLEXIA

Together, teachers could create educational materials, share resources, learn from one another's expertise, and assist one another with chores (Lindner and Schwab, 2020). To address the needs of all learners, teachers must adopt a flexible assessment strategy and change their point of view in order to differentiate assessments (Ginja and Chen, 2020).

In the classroom, teachers could consider how they mark learners' worksheets and workbooks. Since red ink was linked with failure, it was advisable that marking be limited to a section of the text rather than the full piece. One colour pen could be used for content, and the other for spelling and presentation, according to the British Dyslexia Association (BDA), which was

referenced in Kontra (2019). BDA further suggested that when spelling was really shoddy, a tick could be placed next to the words that are correct rather than rectifying all of the mistakes. Another method was to use a tick on a line when there were no errors and a dot alongside the margin to indicate an error. Kontra, (2019) also suggested that work be evaluated in accordance to the learning purpose to make sure that learners understood what was being graded and why.

Reraki (2022) conducted a study examining Greek speakers of English as a second language, comparing learners with dyslexia to those without. The research assessed their narrative construction abilities using computer-based images, evaluating the efficiency with which they conveyed stories. Findings revealed that, in both languages, learners with dyslexia exhibited a higher frequency of errors than their counterparts without dyslexia. Moreover, both groups demonstrated increased phonological and orthographic errors in English compared to Greek. These results underscore the manifestation of dyslexia-related characteristics in written expression, even when utilizing a computer keyboard, thereby reinforcing the study's objective and contributing valuable insights to the present investigation.

### 3.13 PARENTAL INVOLVEMENT

According to Henry and Namhla (2020), parental involvement was essential for the achievement of inclusive education for learners with dyslexia in conventional classroom settings. The learning behaviour and emotional development of learners with dyslexia depended heavily on their parents (Singal, 2019). According to teachers, absent parents was a serious problem in other studies (Ainscow, 2020). In Finland, it was discovered that learning and teaching may be successfully carried out when parents and schools collaborated in a positive and proactive way.

Smith (2019) discovered that in the United Kingdom, parents' commitment to their learners' education improved the likelihood that their learners would do well on tests or exams. In order for inclusion to be successful, parents and teachers must evaluate a learner's progress and agree on the kind of support they could offer the learner (Ainscow, 2020). The collaborative connections built on trust were crucial for inclusive education because they sustained best practices and improved the learning results for learners with dyslexia, according to Andrews et al. (2021) study on aiding young learners with dyslexia in Asian schools.

## 3.14 GAPS IN LITERATURE

Thompson et al. (2018) found that the bulk of dyslexia research took place outside of the perspectives of teachers, despite the fact that schools were under pressure to address dyslexia due to the law and media attention. Puni, Anlesinya, and Korsorku (2018) discovered important gaps in the body of knowledge on the integration of learners with dyslexia in higher education. In addition, a review of empirical studies showed that little was known about the experiences of the teachers who worked in inclusive classrooms in Botswana's educational system, despite the challenges learners with dyslexia faced in these environments. Therefore, the researcher looked into how teachers managed learners with dyslexia in regular classes.

## 3.15 CHAPTER CONCLUSION

In alignment with the study's research objectives, Chapter 3 provided a comprehensive examination of the existing body of knowledge on dyslexia and pedagogical approaches for teaching learners with dyslexia in mainstream educational settings. The chapter commenced with an exploration of the conceptualization of dyslexia, prevailing beliefs about the condition, its role as a barrier to education, and the significant academic challenges encountered by learners with dyslexia. Additionally, the global prevalence of dyslexia was analysed to contextualize its impact on education systems worldwide.

Subsequently, the discussion extended to the broader framework of inclusion as a global priority, examining international conventions on the education of learners with disabilities, global perspectives on inclusive education, and specific considerations for teaching learners with dyslexia in mainstream classrooms within the African context. These discussions laid the foundation for the subsequent chapter, which delineates the study's research methodology.

# CHAPTER 4: RESEARCH METHODOLOGY

## 4.1 INTRODUCTION

This chapter provides a detailed discussion of the research methodology, employing a quantitative approach to examine teachers' practices for teaching learners with dyslexia in Botswana's mainstream primary schools. It systematically explored key methodological components, including research paradigms, design, instrumentation, sampling, data collection, analysis, and ethical considerations. The methodology was carefully structured to address the central research question, with sub-questions from Chapter 1, guiding data collection and sampling strategies to ensure the validity and reliability of findings.

## 4.2 RESEARCH PARADIGM

Kamal (2019:50) defines a paradigm as a foundational set of beliefs that guide action, conceptualized as a framework facilitating comprehension and observation. These beliefs direct researchers toward specific inquiries, addressing fundamental assumptions accepted without empirical validation (Matta, 2022:89). Such assumptions may relate to the nature of reality and the epistemological relationship between the knower and the known.

The positivist paradigm was employed in this study to investigate primary and secondary inquiries, as it emphasizes understanding phenomena through participants' perspectives, analysing interactions between individuals, and considering historical and cultural contexts (Ryan, 2018:44). Positivism closely associated with the quantitative research paradigm, structures experience around cause-and-effect reasoning, necessitating systematic variable refinement for precise measurement and integrated explanatory frameworks (Creswell & Plano-Clark, 2018:67). These researchers assert that, within the positivist tradition, objective reality is studied through rigorous observation and causal analysis.

This research aimed to understand the experiences of participants regarding the integration of learners with dyslexia into mainstream primary schools in Botswana, with ontology, epistemology, axiology, and methodology guiding the inquiry (Kamal, 2019). Ontology concerns the nature of reality under investigation and the knowledge attainable about it (Melnikovas, 2018), shaping epistemological boundaries and metaphysical assumptions (Berryman, 2019:275). The study adopted a perspectival reality, focusing on teachers' perspectives within the Botswana mainstream primary school setting.

Epistemology establishes a philosophical basis for determining acceptable knowledge. Data acquisition was facilitated through active engagement between the researcher and participants, emphasizing knowledge construction (Matta, 2022:72). The researcher viewed the study as an interconnected human endeavour (Sprake & Palmer, 2022), demonstrating strong commitment (Baškarada & Koronios, 2018). Axiology, derived from the Greek "axios" and "logos," examines the significance of values (Ryan, 2018). Allemang et al. (2018:35) highlight positivism's axiological orientation, recognizing researchers' values in shaping factual acceptance.

Positivism explores social reality by asserting that human behaviours are best understood through observation and reason, relying on objective facts (Schutte, 2018:13). It posits that true knowledge stems from empirical experiences validated through observation and experiment, emphasizing determinism, empiricism, parsimony, and generality. Positivist research depends on quantifiable observations leading to statistical analysis, maintaining that reality consists of discrete, observable elements interacting in determined and regular ways. This paradigm asserts that researchers remain independent of the research, ensuring objectivity (Ark, Konge & Artino, 2020).

### 4.3 RESEARCH METHODOLOGY

Research methods are the techniques and procedures used to obtain and analyze data (Saunders et al., 2018). There exist three research approaches, namely quantitative, qualitative, and the mixed methods approach (Baškarada & Koronios, 2018). These approaches encompass a collection of methodologies, strategies, and procedures utilized during the investigative process, which incorporate many stages that extend from original assumptions to the methodical execution of data collection, analysis, and interpretation (Leko, 2021). According to Tracy (2019), the choice of a research methodology is contingent upon the specific attributes of the research problem and the researcher's individual research experience. Leko (2021) asserts that the selection of a specific research approach should be contingent upon its appropriateness in effectively addressing the study objectives.

This study, therefore, following its choice of the positivist paradigm, employed a quantitative research methodology, which Hennink, (2020) opines that it is established on the fundamental notion of a single reality that is independent of the opinion. The quantitative research process involves selecting and formulating the research problem and hypothesis, the definition of

variables, selection of the research design, describing the sampling procedures, data collection, data analysis, and interpretation as well as providing the conclusions and recommendations (de Vos et al., 2018; Fouche et al., 2021). This study employed a quantitative research approach, integrating both case study and survey methodologies.

Quantitative research is fundamentally structured, involving the formulation of survey questions, the quantification of responses, and the statistical analysis of archival, historical, or self-collected data (Saunders et al., 2019). As noted by Fouché et al. (2021), quantitative research is distinguished by its ability to examine relationships between measured variables, facilitating the explanation, prediction, or control of phenomena. Moreover, quantitative researchers deliberately select the variables for analysis, ensuring alignment with the study's objectives. The resulting data are inherently measurable, enabling systematic analysis to derive meaningful conclusions (Saunders et al., 2018). Through the quantification of data, researchers can establish cause-and-effect relationships among variables, supported by the application of statistical methods.

Quantitative research is centered on the numbers and the quantification of perceptions or connections between ideas (Fouché et al., 2021). Saunders et al., (2018:76) postulated that the quantitative method studies the relations amongst the variables by gathering and analyzing numerical data stated in figures or scores, using consistent dimension tools. The study adhered to a rigorous methodological framework, with measurement techniques clearly defined prior to its commencement (Fouché et al., 2021). This process involved administering observation checklists prior to the implementation of the identified teaching strategies. This methodological approach effectively addressed the quantitative dimension of the study According to Creswell (2014:48), in quantitative research, the researcher analyses a theoretical proposition by stipulating slight propositions and the compilation of data to maintain or disprove the assumptions, more so that (Fouché et al., 2021) alleges that quantitative research operates under the notion of objectivity. Because this study sought to explore the issue of inclusion in mainstream primary schools in the South East region in Botswana, a quantitative method was employed.

## 4.4 RESEARCH DESIGN

According to Fouche, Strydon and Roestenburg (2021:145) a research design is 'a set of logical arrangements from which perspective researchers can select one suitable option for a specific

project.' Creswell and Creswell (2018) highlight that research designs take research decisions from broad assumptions to detailed methods of data collection and analysis. A quantitative research design, according to Creswell (2014), is a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Creswell (2014) characterizes quantitative research design as a structured methodological approach that facilitates the numerical representation of trends, attitudes, or opinions within a population. This is accomplished by analyzing a sample, enabling the researcher to generalize findings or draw inferences regarding the broader population. The research design constitutes a comprehensive framework, meticulously selected to integrate various elements of the study in a coherent and logical manner. As Busetto et al. (2020:6) note, this framework ensures that the research problem is systematically addressed while serving as the foundation for data collection, measurement, and analysis.

Ryan, (2018:49) reported that researchers typically draw upon either experimental or quasi-experimental research designs to determine whether there is a causal relationship between inclusive practices and the performance of learners with dyslexia. In this study, an experimental research design was appropriate to identify the influence of inclusive practices as a studying approach on the academic performance of learners with dyslexia. Therefore, an experimental research design in this study successfully examined whether there was a causal relationship between independent and dependent variables which were inclusive learning practices and performance of learners with dyslexia.

This study adopted a non-experimental research design. According to Maree (2019:193) non-experimental designs are mainly used in descriptive studies in which the units that have been selected to take part in the studies are measured on all the relevant variables at a specific time, while McMillan and Schumacher, (2014:237) assert that, the non-experimental study totally depends on the variables that are out of the scope of the researcher's control. Participants had an opportunity to answer the self-administered questionnaire in an uncontrolled environment. Observation checklists were used within their classrooms, while a review of the existing data sets was done in an uncontrolled environment. Quantitative research was also concerned with establishing a relationship between two or more variables that were correlational (Maree, 2019). In this study, the researcher sought to find the extent to which teachers were able to teach and manage learners with dyslexia in inclusive mainstream primary school settings.

## 4.5 REFLEXIVITY

Reflexivity refers to the stance adopted by a researcher in relation to their study, shaped by their ontological and epistemological perspectives (Savin-Baden & Howell-Major, 2013). It is understood as being embedded within dynamic and shifting networks of relationships that can be critically examined and altered (Maher & Tetreault, 1994, as cited in McGarry, 2016: 341). These relational dimensions necessitated that I engage in self-reflexivity, recognizing my own position within participants' perspectives and the research context (Savin-Baden & Howell-Major, 2013).

The researcher's positionality is influenced by various intersecting factors, including political, methodological, social, and historical contexts (Crean, 2019). Additionally, attributes such as culture, race, class, gender, nationality, and sexuality play a crucial role in shaping the researcher's engagement with the study (Foote & Bartell, 2011). To ensure ethical integrity and transparency, I engaged in reflective practice to acknowledge my positionality, following Crean's (2019) guidance.

Scholarly discussions suggest that researchers may assume insider, outsider, or hybrid positions based on their familiarity with the linguistic and socio-cultural norms of the study population (Milligan, 2016). Blix (2015) argues that both researcher and participant identities are fluid, continuously negotiated, and evolving. Gair (2012) further asserts that the insider-outsider dichotomy should be understood in terms of the researcher's proximity to or distance from the group under investigation, making it challenging to maintain a singular stance throughout the research process.

In this study, I occupied both insider and outsider positions. As a teacher in a mainstream primary school in Botswana, my professional experience provided insights into pedagogical approaches for teaching learners with dyslexia. My shared historical and socio-cultural background with participants facilitated rapport-building, ensuring ease of engagement and acceptance in the research setting. Teachers felt comfortable with my presence, enabling naturalistic observations in their classrooms.

I was aware that my position could lead to over-identification, potentially affecting research processes and outcomes and that I could fail to recognize patterns requiring further examination due to my familiarity with the community. To mitigate such biases, I maintained a critical and reflexive stance, consistently assessing my assumptions and interpretations. Throughout

observations, I consciously positioned myself as a "participant-as-observer" (Creswell, 2014), ensuring minimal interference in the learning environment. Additionally, I scrutinized my assumptions during data collection and analysis, striving for objectivity and methodological rigor. My role as a teacher also equipped me with pedagogical knowledge, enabling me to identify varied instructional strategies and learner engagement techniques. This dual perspective allowed me to assume an outsider stance, critically examining the research context while remaining aware of the implications of my position. By continually reflecting on my positionality, I sought to minimize bias and uphold the integrity of the research process.

## 4.6 POPULATION AND SAMPLE

This section of the study details the targeted study population and sampling design.

### 4.6.1 Targeted Population

According to Creswell (2014:251), the term "population" refers to a substantial collection of individuals or objects that constitute the primary focus of a scientific inquiry. A research population is defined as a systematically delineated group of individuals or objects that exhibit similar characteristics. Furthermore, Salkind (2018) explains that population encompasses the entire set of participants within a specific group from whom generalizations will be drawn to inform the findings of the study.

In this research, the population under examination comprised all teachers employed in inclusive mainstream primary schools located in the South-East Region of Botswana. Specifically, the population included school principals, Heads of Departments (HODs), and teachers from five (5) mainstream primary schools administered by the Ministry of Education and Skills Development (MoESD) in Botswana. Additionally, it encompassed teachers from institutions with experiences in mainstream education, who had previously participated in the pilot implementation of the inclusive policy within this region. The total population of the study consisted of N=1230 members, incorporating teachers, school principals, Heads of Departments (HODs) and School Management Teams (SMTs).

### 4.6.2 Sample and Sampling

A sample (n) is a population subset (Salkind, 2018). A sample is used for data collection as it is impossible for the researcher to collect data from the entire population due to resources and

time constraints (Fouche et al., 2021). However, the researcher should bear in mind that the sample may not be representative enough of the population's characteristics. For this reason, the researcher assessed adequate representation prior to the sampling procedure by specifying the sample expected (Polit & Beck, 2020). The research was quantitative in nature, thus requiring a larger sample for representativeness (Creswell & Creswell, 2018). A sample size was defined by Hennink (2020:11) as any sub-category of sampling units selected from the total population. In simple terms, sample size represents a specific number of selected participants used in carrying out a study.

Ames et al. (2019:10), stated that sampling involved selecting a portion of the population to represent the entire population. Sampling methods generally fall within two categories that are probability and non-probability sampling techniques.

This study employed the probability sampling method for data collection, which ensures that every individual within the target population has an equal and known chance of being selected representatively (De Vos et al., 2018:228). Moreover, probability sampling facilitates timely data collection, contingent on the availability of population elements (Saunders et al., 2018).

This sampling procedure enabled the researcher to estimate the accuracy of the sample prior to data collection, thereby enhancing the reliability of the study.

To obtain a representative sample, the study utilized a simple random sampling technique, a probability sampling method that guarantees each member of the population an equal and independent chance of selection (Saunders et al., 2018). The selection process involved drawing cell numbers from a WhatsApp group where teachers of learners with dyslexia communicate. A mathematical table was constructed, with numbers arranged randomly in rows and columns. The researcher identified a column of numbers, chose a starting point by pointing randomly without viewing the table, and proceeded to select the required units by navigating through the table horizontally, vertically, or diagonally (Saunders et al., 2018). If a selected number was not represented in the population, it was excluded, and the next number in sequence was selected.

To obtain consent from participants, the researcher sent individual messages to the selected numbers, requesting them to provide their email addresses for study participation. This approach aimed to maximize response rates for the questionnaire, mitigating the impact of lost emails and non-responses. The sampling method was deemed appropriate as it enabled the

researcher to effectively access and sample the teachers involved in the study while adhering to the provisions of the Protection of Personal Information Act (POPIA) (Creswell & Creswell, 2018).

The study managed to secure 143 respondents. Subsequently, Table 3.1 represents the sample of this study.

**Table 3.1 Sample Representation**

| School | Respondents |
|---|---|
| School A | 28 |
| School B | 28 |
| School C | 29 |
| School D | 29 |
| School E | 29 |
| Total | 143 |

Source: Author's own computation

## 4.7 CONTEXT OF THE STUDY

Botswana is situated in the heart of the Kalahari Desert. It is a landlocked country located in Southern Africa. It is bordered by Namibia to the West and North, Zambia to the North, Zimbabwe to the northwest, and South Africa to the southeast and South. Mainstream schools in Botswana include both public and private institutions that follow the country's national curriculum or international curricula such as Cambridge IGCSEs and A-Levels or the International Baccalaureate. These schools offer a range of curricula and educational approaches, catering to different needs and preferences.

The South-East Region consists of 48 schools, as documented by the Minister of Basic Education (2012), with each institution accommodating a minimum of 35 teachers. These schools vary in size and grade-level categories. Based on this criterion, all schools with a faculty of at least 35 teachers, inclusive of both male and female, were selected to participate in the study. Schools meeting this threshold were prioritized for inclusion, as their combined teacher population provided a representative sample within the South East Region of Botswana. Additionally, these schools were among the first to implement the inclusive education policy in the region.

## 4.8. DATA COLLECTION INSTRUMENTS

Reliability, defined as the consistency of research tools and analytical methods in producing stable results (Mohajan, 2018:20), was a key consideration. A thorough literature review guided questionnaire development, ensuring alignment with the research objectives. A self-administered survey questionnaire with closed-ended questions, according to Dawadi, Shrestha, and Giri (2021), can be used to collect data from large numbers of participants over a relatively short period of time. Surveys have proven to be a valuable methodological tool for researchers, facilitating the systematic collection of data while enabling the quantification of respondents' cognitive and affective responses. Specifically, they allow for the measurement of individuals' thoughts, opinions, attitudes, values, personality traits, and behavioural intentions in a structured manner (Saunders, 2019). The questionnaire for this study was systematically organized into two sections: Section A and Section B. Section A comprised questions designed to gather demographic information about the respondents, while Section B focused on inclusive learning practices. Responses in Section B were measured using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing for a structured assessment of participants' perspectives.

Secondary sources, such as prior studies and datasets, further validated the findings, reinforcing both reliability and validity. Observation checklists, and the review of existing datasets facilitated a standardized and consistent approach to data collection (Matta, 2022) and enhanced data robustness by aggregating participant responses for comparative analysis According to Leko et al. (2021), the utilization of questionnaires, observation checklists, and the review of existing data sets facilitate the systematic collection of information, enabling precise descriptions and comparative analyses of the phenomena under investigation. These methodological tools ensured that respondents remained aligned with the primary objectives of the study, thereby minimizing deviations and enhancing the reliability of the findings. The data collection tools were chosen as they enabled the researcher to gain insights into the opinions and characteristics of the research participants towards the link between inclusive learning practices and the performance of learners with dyslexia.

## 4.9 DATA COLLECTION PROCESS

Data collecting refer to the techniques employed by researchers to gather data for a particular study (Barrett & Twycross, 2018:63). Data collection as described by Salkind (2018) entails

the construction of the data collection form, designing the categories of data and the strategy that are used to represent data, collection of the actual data, and entry of the data onto the form. This study employed closed-ended questionnaires, observation checklists, and review of existing data sets to gather data from the research participants.

The researcher employed a self-administered online questionnaire survey to accommodate respondents distributed across various geographical locations (Salkind, 2018). According to Salkind (2018:262), a questionnaire is defined as "a type of research that uses a written or oral survey form as its primary tool for the collection of information." The questionnaire consisted of closed-ended questions designed to systematically collect data (Salkind, 2018) and was structured into two sections: Section A focused on demographic data, while Section B examined the techniques teachers employ to instruct learners with dyslexia. The questionnaire items were rated using a five-point Likert scale, ranging from "Agree," "Disagree," "Strongly Agree," "Strongly Disagree," and "Not Sure" (Joshi et al., 2015).

The researcher distributed the questionnaire to respondents by utilizing the WhatsApp contact details of teachers, which were obtained from a WhatsApp group with their consent. The WhatsApp group served as an intervention to enhance communication among educators (Joshi et al., 2015). WhatsApp was employed as a tool for quantitative data collection, whereby the researcher disseminated links to an online platform that hosted the questionnaire, allowing respondents to complete the research questions digitally (Joshi et al., 2015). The study further made analyses of two data sets, firstly because a single data set might give a partial view, but incorporating another could reveal broader implications or unexpected correlations and to uncover relationships and validate the findings. The researcher analysed two data sets also to compare patterns to draw meaningful conclusions. By analysing these different sets, the researcher wished to confirm whether results were consistent across various sources, improving the credibility of their findings.

Although the study was quantitative in nature, it was conducted using a case study approach. A case study is defined as “a method used to study an individual or an institution in a unique setting as intensely and as detailed a manner as possible” (Salkind, 2018:175). The research was carried out within a reasonable time frame, ensuring that the procedure was systematically supervised and evaluated for reliability and validity.

## 4.10 VALIDITY AND RELIABILITY

Validity in research refers to the extent to which a study effectively addresses its research questions and objectives, ensuring that the findings are accurate and meaningful (Saunders et al., 2018). It evaluates the strength of the study's conclusions, inferences, and propositions, providing the best possible approximation of their truth or falsity (Salkind, 2018; Saunders et al., 2018). Moreover, validity signifies the accuracy of measurement within a study; an instrument must correctly measure the intended variables, as mere consistency without accuracy renders it ineffective (Salkind, 2018). According to Joshi et al. (2015), validity refers to the accuracy of a measure in representing its intended concept. In this study, validity was assessed by evaluating the extent to which the results aligned with established theories and comparable measures (Hayashi et al., 2019). To ensure validity, the researcher designed clear, closed-ended questions and compared them with existing scholarly instruments.

Joshi et al (2015) defined reliability as the extent to which a measure produces consistent results when applied under identical conditions. Additionally, reliability serves as a quality indicator, assessed by examining consistency over time, across various observers, and among different components of the test itself. It reflects the degree to which outcomes remain predictable over time and accurately represent the total population studied. Furthermore, if the findings of a study could be replicated using similar methodologies, the research instrument was considered reliable (Melnikovas, 2018:32).

Reliability refers to the consistency and dependability of a measurement instrument in producing stable results under identical conditions across multiple applications (Salkind, 2018). A measurement is considered reliable when it consistently assesses the same construct and yields comparable outcomes upon repeated administration (Salkind, 2018). This characteristic ensures that any observed variations in data are attributable to actual differences rather than inconsistencies in the measuring tool.

Several factors pose threats to reliability, including the characteristics of research subjects, the instruments used, and the influence of the observer (Saunders et al., 2018). To mitigate these risks, the reliability of this study was reinforced through a comprehensive description of the research methodology and objectives. Respondent confidentiality was maintained to enhance the integrity of the data collection process. The research instrument was systematically

structured into multiple sections to facilitate the collection of diverse and relevant data from participants.

Reliability and validity serve as safeguards against erroneous conclusions and are fundamental in ensuring accurate measurement practices (Salkind, 2018). To enhance reliability and validity, the researcher expanded the range of measured items and ensured clarity in questionnaire items to facilitate respondent comprehension. Additionally, the research instrument adhered to established standards, underwent moderation, and was evaluated by experts before data collection, thereby minimizing potential errors and validating the research instruments prior to implementation.

There are two principal types of validity: internal validity and external validity (Salkind, 2018). Internal validity concerns whether there is a causal relationship between dependent and independent variables. In the context of the present study, which examined the strategies teachers employ when teaching learners with dyslexia, various respondent characteristics and external factors may influence their selection of teaching methods, independent of their dyslexia awareness. Such influences may affect responses and study outcomes. Conversely, external validity relates to the ability to generalize findings to different settings, ensuring applicability beyond the immediate research context.

Recognizing potential threats to validity, the researcher took measures to mitigate their impact. Internal validity was subject to risks such as prior research outcomes, maturation effects, instrumentation inconsistencies, participant selection biases, mortality rates, regression effects, and testing-related issues. External validity could be compromised by the degree to which findings are generalizable to other populations, timeframes, and circumstances. However, the selection of study participants was representative of a broader population, ensuring minimal threats to external validity.

Furthermore, the researcher selected an optimal time for questionnaire administration, ensuring that respondents could engage with the questionnaire without disrupting their professional or academic commitments. Adequate time was allocated for participants to provide thoughtful responses. To ensure clarity and validity, the questionnaire underwent an external review by a professional outside the faculty overseeing this study. This evaluation aimed to assess the instrument’s appropriateness, relevance, verbosity, and potential ambiguity, thereby reinforcing its reliability and precision in data collection.

## 4.11 DATA CLEANING PROCESS

Data cleaning was carried out by the researcher and validated by at least one co-researcher to ensure the integrity and reliability of the collected and recorded data. The primary objective of this process was to uphold the fidelity and trustworthiness of the dataset. The initial phase of data cleaning involved systematically capturing all data obtained from various research instruments. Subsequent stages encompassed the identification and removal of duplicate entries, the verification and correction of school and teacher names, and the consistent application of unique codes across all relevant instruments to maintain coherence.

Additionally, attention was given to detecting and rectifying erroneous data entries, commonly referred to as "wild codes." These errors included inadvertent mistakes made by data capturers, such as incorrectly recording a test item score of "1" as "11" or misrepresenting a learner's age of "9" years as "99." Instances of missing data that could not be resolved through follow-up visits to schools were appropriately recorded as "0" in the relevant instrument.

The evaluation of the questionnaire was undertaken by two individuals, one of whom was either an English specialist or a research specialist. Data analysis commenced only after a thorough verification process had ensured the accuracy, consistency, and relevance of all entered data.

## 4.12 DATA ANALYSIS

According to Cooper and Schindler (2016), data analysis is a systematic process involving the refinement and reduction of accumulated data to a manageable scope, the development of summaries, the identification of patterns, and the application of statistical methodologies. These methodologies encompass both descriptive and inferential statistics, wherein descriptive statistics provide fundamental evaluations of a distribution’s central tendency and variability (Salkind, 2018). Descriptive statistical techniques include frequency distributions, measures of central tendency, measures of variation, and association. Given the large volume of data analysed in this study, the Statistical Package for Social Sciences (SPSS) version 2.6 was employed as the analytical tool (Salkind, 2018).

The questionnaire was analyzed using the Statistical Program for Social Sciences (SPSS) version 26. At a 95% confidence level, simple and multiple regression analysis was used to establish the statistical significance of the various hypotheses. The data was analyzed in two steps: descriptive statistical analysis and inferential analysis, coding and verification of data,

as well as analysis and reporting, were part of the process. The researcher used inferential statistics such as correlation analysis tests using Pearson's Product Moment Correlation (PPMC) and Coefficient of determination (R2), as well as multivariate techniques such as multiple regression analysis, to determine the nature and magnitude of the relationships between the variables.

To assess and compare the correlation between variables, the Pearson Correlation Coefficient was utilised, offering a statistical measure of the strength and direction of relationships within the dataset. Following the collection of data, the researcher commenced the analytical process by systematically coding and entering the information. Given the labour-intensive nature of these tasks, the potential for errors in data processing remained considerable. The subsequent phase of data analysis facilitated the interpretation of responses obtained from the study. Statistical methods employed in the examination of quantitative data focused on categorization, ordering, and summarization, thereby transforming raw data into a format conducive to interpretation.

The statistician constructed tables and graphs to visually depict the findings, ensuring clarity in the presentation of results. Ultimately, the researcher presented both descriptive and inferential statistical analyses, offering an interpretation of the processed data to provide meaningful insights into the study's findings.

## 4.13 ETHICAL CONSIDERATIONS

Ethics, as defined by Fouche et al. (2021:279), constitute a set of moral principles proposed by individuals or groups, which subsequently gain widespread acceptance and establish guidelines for appropriate conduct. These principles regulate interactions with experimental subjects and respondents, employees, sponsors, fellow researchers, research assistants, and students.

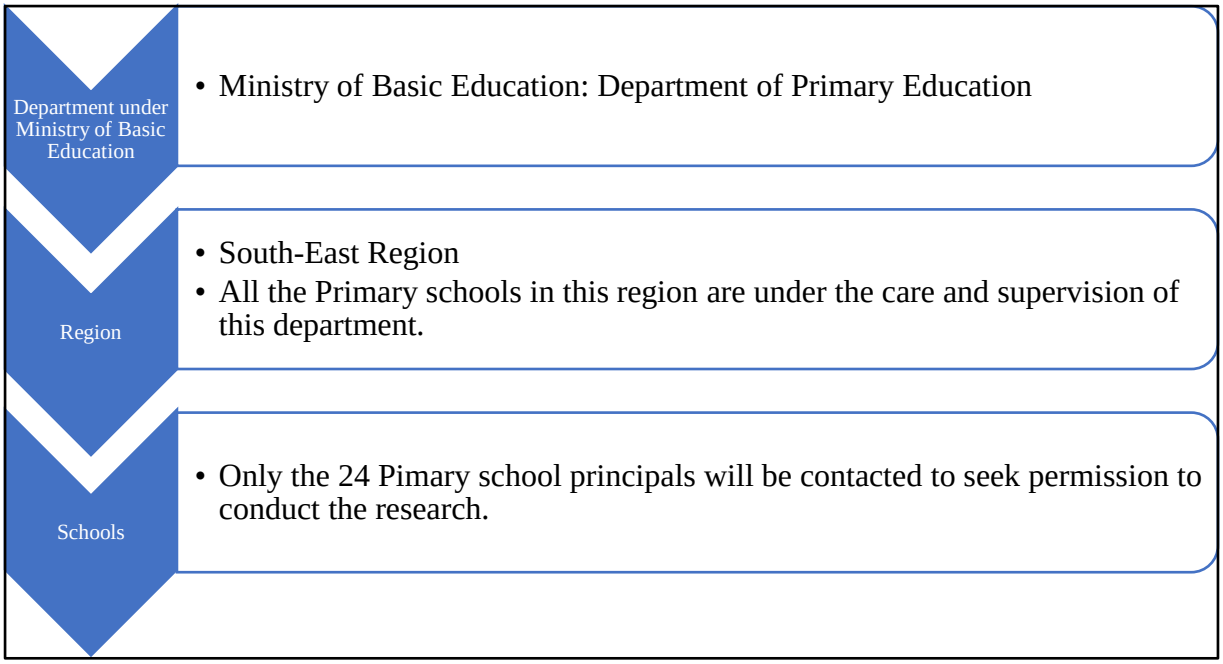
In academic research, ethical considerations necessitate that study designs must be structured to prevent embarrassment, harm, or any form of disadvantage to the research population (Salkind, 2018). Fouché et al. (2021) emphasize the imperative for professionals conducting research to uphold the 'do not harm' principle, ensuring that ethical standards safeguard the rights and well-being of all individuals involved. The researcher's adherence to ethical guidelines was a fundamental determinant in shaping their conduct throughout this study (Fouché et al., 2021).

Throughout the investigation, the safety of participants was prioritized wherever feasible. Ensuring the protection of research participants' rights in accordance with established ethical principles remained paramount. As Aguinis and Solarino (2019:54) highlight, the ethical guidelines mandated by the American Psychological Association (APA) require researchers to safeguard participants' physical and psychological well-being, ensuring their restoration to a pre-experiment state. In alignment with these standards, the researcher confirmed that no participants reported experiencing emotional or physical distress as a consequence of their involvement in this study. Accordingly, the researcher committed to upholding these ethical principles throughout the present study.

### 4.13.1 Permission

To uphold the reliability and validity of the research, formal approval was secured from the Research Ethics Committee of the University of South Africa (Appendix A). In Botswana, the Department of Primary Education is made up of 10 regions in different locations. Each region overseas the schools that are found in that region. The subsequent step involved seeking authorization to carry out the research in educational institutions located in the South East area of Botswana, specifically from the Department of Primary Education within the Ministry of Basic Education (Appendix C). The Department of Primary Education in Botswana comprises ten discrete zones distributed across the country. In order to conduct a study within educational institutions, the researcher obtained consent from the regional management responsible for the administration of those schools. The researcher initiated the study by seeking authorization from the research office of the Department of Primary Schools, followed by the regional office, and the school principals in the South-East region (Appendix B). The researcher utilized the official website of the Ministry of Education and Skills Development to gather an exhaustive inventory of all publicly funded, mainstream primary schools located within the South-East region. The researcher personally delivered formal letters of approval to seek authorization for the research, strategically utilizing the geographical proximity of the schools to the department and regional offices to facilitate efficient communication and logistical coordination. Typically, authorization was granted by the principal, vice principal, or a senior member of the SMT schools (Appendix D). Figure 3.1 highlights the hierarchy of offices from which permission was sought from.

**Figure 3.1: Offices order of hierarchy**




Source: Authors own computation

### 4.13.2 Informed consent

Upon obtaining the necessary permissions, the researcher rigorously adhered to ethical principles throughout the study. These measures included the distribution of informed consent forms, which were provided to respondents for voluntary completion and submission, thereby affirming their willingness to participateTo ensure the attainment of precise responses, participants were provided with comprehensive information regarding the objectives of the study, hence obviating the necessity for any type of deceit. The informed consent form provided a comprehensive description of the study's objectives. Based on the available data, individuals had the autonomy to make an informed decision on their participation in the study in addition, the researcher furnished participants with a copy of the UNISA response to the researcher's request for ethical approval to carry out the study. This measure was implemented to enhance participants' confidence in their rights to participate in the research.

Participants were provided with a comprehensive explanation of the study's clearly defined objectives. This information was explicitly outlined in the consent form, ensuring that participants had the opportunity to make an informed decision regarding their participation. Furthermore, they were made aware of their right to withdraw from the study at any point, without facing any consequences or disadvantages. The researcher additionally provided the Ethical Clearance from UNISA to enhance participants' confidence in engaging with the study.

### 4.13.3 Confidentiality and Anonymity

Confidentiality is an undertaking by the researcher to protect the anonymity of the participants (Kang & Hawng, 2023). Furthermore, a formal commitment was made to uphold the confidentiality of all shared information, ensuring that it would neither be disclosed to unauthorized parties nor used for purposes beyond the scope of the study. In maintaining ethical integrity, the researcher safeguarded respondents' anonymity by ensuring that their identities remained undisclosed, thereby preserving their privacy. To further protect the integrity of the research process, data security and management protocols were strictly followed.

Confidentiality was reinforced by instructing respondents to refrain from providing identifiable personal details, such as names and surnames. The researcher assured all participants that their responses would remain protected. Data management was conducted with a strong emphasis on security, including the implementation of password protection on electronic devices and the storage of printed materials in a lockable cabinet throughout the data collection phase. The researcher ensured that data security measures were upheld until the dissemination of findings, after which all data would be securely retained for a period of five years before being systematically destroyed.

To protect the anonymity of participants, it was imperative for the present researcher to demonstrate a firm commitment to preserving confidentiality (Abrar & Sidik, 2019:88). The concealment of participants' identities was maintained as they were not requested to provide their personal details on the surveys. Furthermore, participants were explicitly encouraged to refrain from disclosing any personally identifiable information while completing the questionnaires.

### 4.13.4 Right to no harm

According to Resnik (2018:11), harm entails exposing research participants to conditions or environments that may cause distress, shame, discouragement, physical injury, or discomfort. Consequently, the present researcher exercised caution in managing participants' expectations by refraining from exaggerating the study’s potential impact (Busetto et al., 2020:8). To uphold the ethical integrity of this research, the researcher implemented measures designed to safeguard participants from any undue risk or harm.

### 4.13.5 Right to withdrawal

During the process of data collection through observational methods, it was imperative for the researcher to ensure that participants were fully informed of their right to withdraw from responding to the questionnaire and/or participating in the observation at any time, as outlined by Tracy (2019:25). In the present study, participants received a detailed and comprehensive explanation regarding their autonomy in choosing whether to continue their involvement in the research process.

### 4.13.6 Beneficence

The benevolence of a study refers to its ethical and constructive contributions to society, individuals, and the advancement of knowledge. This research aimed to effect positive change by refining and addressing pedagogical strategies for teachers teaching learners with dyslexia, thereby advancing scientific inquiry and fostering a deeper understanding of dyslexia.

At its core, this study prioritized ethical considerations, ensuring that its findings are utilized for constructive purposes rather than harm. The researcher provided a thorough explanation of the various benefits associated with participation to all study participants, thereby maintaining transparency and ethical integrity. The data obtained holds substantial value in the realm of inclusive education for learners with impairments, with a particular emphasis on those with dyslexia.

Furthermore, the findings of this research will contribute to the existing body of literature on the integration of learners with dyslexia into Botswana's mainstream education system, an area that currently lacks depth and breadth. The study's conclusions offer significant advantages to teachers, educational personnel, and stakeholders in mainstream schools both within Botswana and internationally. Additionally, this research supports the Department of Education in Botswana and beyond in organizing in-service training sessions and workshops aimed at equipping teachers with effective strategies for instructing learners with dyslexia. The findings will also provide valuable insights for educational policy development and curriculum enhancement, reinforcing a more inclusive learning environment.

## 4.14 CHAPTER CONCLUSION

Section 4.1 introduced this chapter; Section 4.2 discussed the philosophical foundations underpinning the study; Section 4.3 presented the research methodology; Section 4.4 elaborated on the research design; Section 4.5 provided the researcher's reflexivity; Section 4.6 explored population and sampling procedures; Section 4.7 contextualized the study; Section 4.8 described the data collection instruments; Section 4.9 explained the data collection process; Section 4.10 evaluated research quality; Section 4.11 clarified the data cleaning process; Section 4.12 detailed the data analysis process; Section 4.13 outlined ethical considerations; Section 4.14 provided the conclusion to the chapter.

# CHAPTER 5: DATA PRESENTATION, ANALYSIS AND DISCUSSION

## 5.1 INTRODUCTION

The study's goal was to investigate how teachers in Botswana's mainstream primary schools incorporated learners who struggled with reading. Quantitative research methodologies were used in the study. Using Statistical Package for the Social Sciences (SPSS) version 28 software, the quantitative data collected in the field was edited, coded, and examined. Relevant statistics were obtained from the analysed results and given in tabular and descriptive form. This chapter is divided into two sections: the first section covered basic and demographic information, and the second section covered the study's responses to the research questions and the discussion of findings. The study was guided by Baddeley's Multi-Component Theory (2012), which played a crucial role in shaping the findings. This theoretical framework provided the foundation for addressing the main research question by systematically exploring sub-research questions formulated in Section 1.3 of Chapter 1. Through the application of this theory, the study was able to generate insights that contributed to a deeper understanding of the research objectives.

The subsequent sections presented and analyzed the data collected from the questionnaire, observation checklist and the review of existing data sets. This incorporated their response rate, demographic information which included gender, age, main language used in teaching, highest level of qualifications, professional rank, experience in teaching, and number of learners taught in the classroom to determine the level of support offered to learners with dyslexia.

## 5.2 QUESTIONNAIRE DATA ANALYSIS AND PRESENTATION OF FINDINGS

### 5.2.1 Response rate

A total of 143 questionnaires were distributed by the researcher to the selected schools. The study exclusively included educators teaching in mainstream classrooms, as well as Heads of Department for Middle and Upper school levels and school principals. Of the questionnaires disseminated, 140 were successfully completed and returned, with some being mailed back by respondents while others were collected directly by the researcher. Regular follow-ups were conducted to ensure the accurate completion and timely return of the questionnaires. As a result, the researcher was able to retrieve the vast majority (98%) of the distributed questionnaires, thereby enhancing the reliability of the data collection process.

### 5.2.2 Respondents' demographic information

The collection of demographic information from respondents was undertaken to determine the age distribution of teachers working with learners experiencing dyslexia in mainstream educational settings. To achieve this, specific questions regarding respondents' demographic characteristics were incorporated into the study. The findings related to these demographic factors are presented in this section.

#### 5.2.2.1 Respondents Gender Distribution

**Table 5. 1: Respondents Gender Distribution**

| | | Frequency | Percent |
|---|---|---|---|
| Valid | Male | 56 | 39.0 |
| | Female | 84 | 61.0 |
| | Total | 143 | 100.0 |

Source: Authors own computation

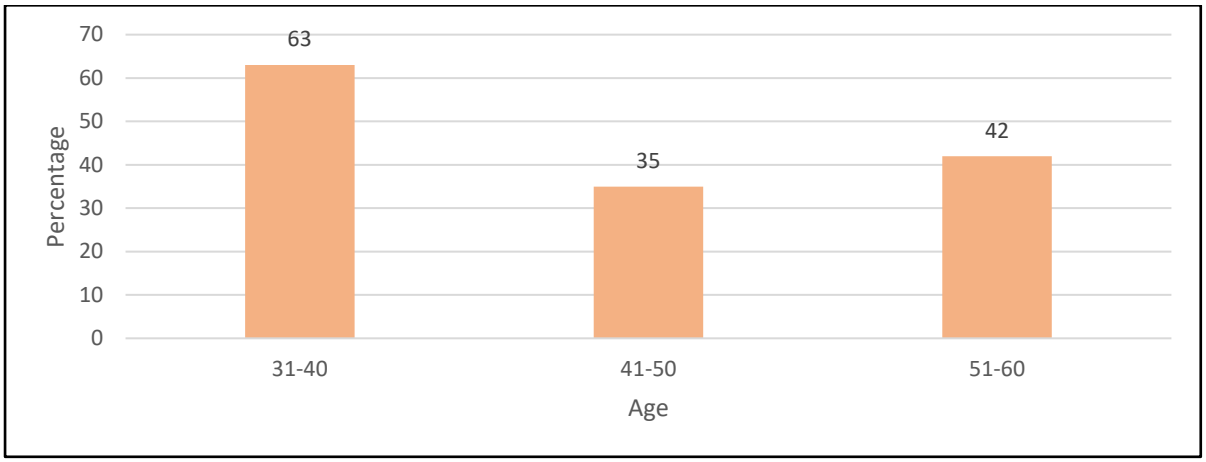
The study findings revealed that majority (59.0%) of the respondents were females and the remaining 39.0% were males.

#### 5.2.2.2 Respondents Age Distribution

The respondents were asked to indicate their age, as depicted in Figure 5.1.

The majority (45.0%) of the respondents were aged between 31 and 40 years old. The study also showed that 24.0% were aged between 41 and 50 years old and the remaining 29.0% were aged between 51 and 60 years old. This sums up to a total of 98% of the received responses from respondents.

**Figure 5.1: Respondents Age Distribution**




Source: Authors own computation

### 5.2.2.3 Respondents main language used in teaching

The respondents were surveyed regarding the primary language they utilize in their instructional practices. The findings of this inquiry are presented in Table 5.2.

**Table 5. 2 Respondents main language used for teaching**

| | | Frequency | Percent |
|---|---|---|---|
| Valid | English | 48 | 36.8 |
| | Tswana | 12 | 5.3 |
| | Both | 80 | 57.9 |
| | Total | 140 | 100.0 |

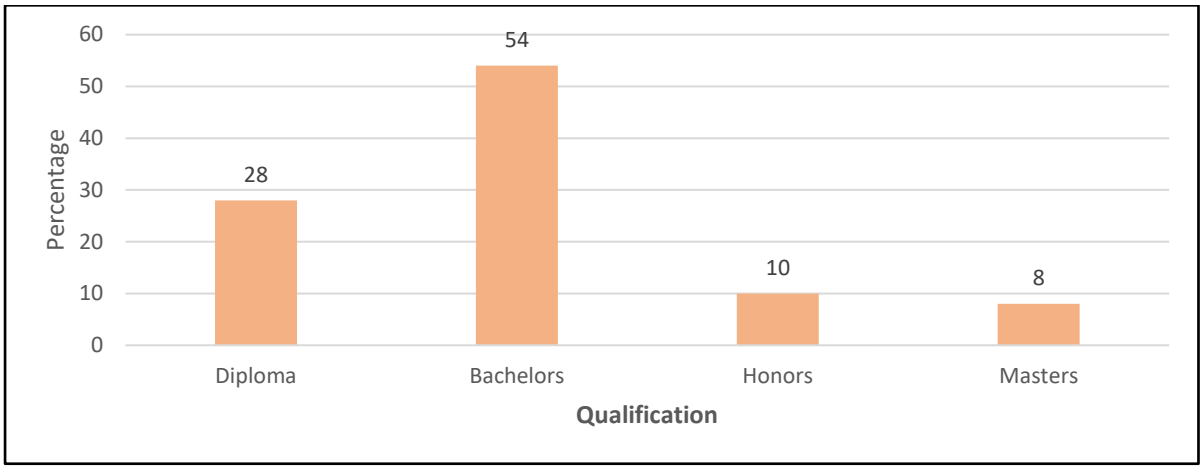
Source: Authors own computation

The majority of respondents (58.0%, n=80) preferred using both English and Tswana, while 5.0% (n=12) primarily used Tswana and 37.0% (n=48) mainly used English. Since most teachers conducted courses in both languages, they supported learners who struggled with English as a second language. Instruction in a learner's mother tongue was more easily absorbed and processed, particularly for those with dyslexia, as it reduced cognitive load and enhanced comprehension. Teaching in the mother tongue also provided culturally relevant content, fostering greater engagement and facilitating deeper connections with the subject matter.

### 5.2.2.4 Respondents highest level of qualifications

The study sought to identify the teaching qualifications of teachers who teach learners with dyslexia and the results are summarized in Figure 5.2.

**Figure 5.2: Respondents Highest Teaching Qualification**




Source: Authors own computation

The findings of the study indicated that the majority of teachers in mainstream primary schools in Botswana held a Bachelor's degree, accounting for 55.0% of the respondents. Additionally, 26.0% of the participants possessed a Diploma in teaching, while 11.0% have obtained an Honors degree. The smallest proportion of respondents was holders of a Master's degree. The study further demonstrated that the respondents were suitably qualified for their positions, thereby ensuring the reliability of the questionnaire responses as a credible basis for drawing conclusions.

### 5.2.2.5 Respondents professional rank

Table 5.3 represents the professional ranks of teachers in the selected primary schools.

The study findings indicated that 50.0% of the respondents were senior teachers with designated portfolios, while 21.0% were classified as senior teachers without portfolios. Additionally, 17.0% of the respondents held positions as ordinary teachers. The remaining 4.0% comprised individuals in leadership roles, including Heads of Department, Middle, Upper, and School Heads. The distribution of respondents across various professional categories ensured that the study captured perspectives from diverse fields and hierarchical levels, thereby enabling a comprehensive understanding of opinions based on differing ranks of responsibility.

**Table 5.3: Respondents professional rank**

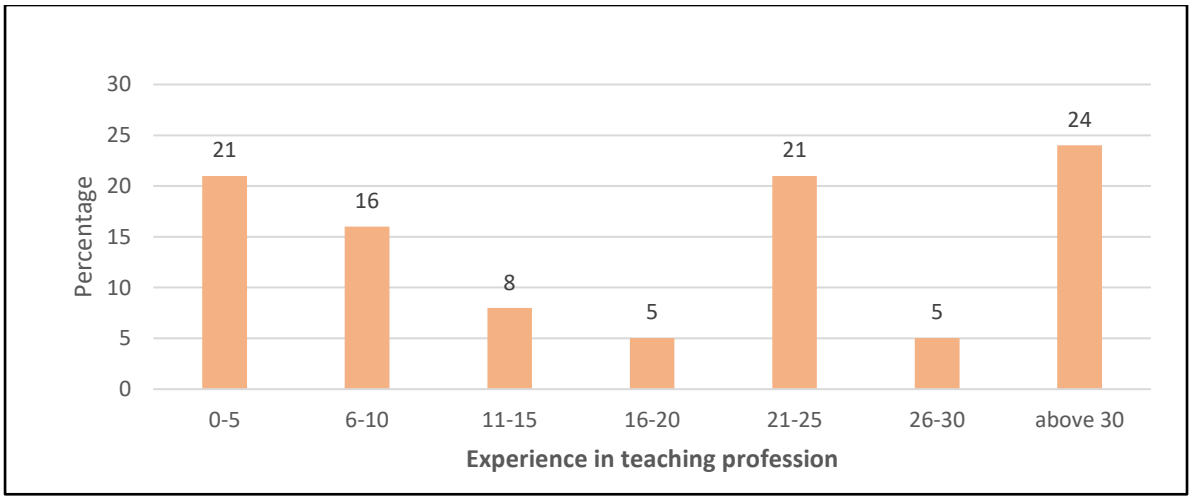
| | | Frequency | Percent |
|---|---|---|---|
| Valid | Teacher | 25 | 17.0 |
| | Senior teacher (without portfolio) | 30 | 21.0 |
| | Senior teacher with portfolio | 70 | 50.0 |
| | HOD middle | 5 | 4.0 |
| | HOD upper | 5 | 4.0 |
| | Head teacher | 5 | 4.0 |
| | Total | 140 | 100.0 |

Source: Authors own computation

### 5.2.2.6 Respondents experience in teaching profession

The respondents' experience in teaching profession is presented in Figure 5.3.

**Figure 5.3: Respondents' experience in teaching**




Source: Authors own computation

A significant proportion of teachers (24.0%) had over 30 years of experience, while 21.0% had either 0–5 years or 21–25 years of teaching experience. Additionally, 16.0% had 6–10 years, and 8.0% had 11–15 years, indicating that most respondents had more than 5 years of teaching experience. Their extensive exposure to learners with dyslexia had likely enabled them to develop specialized knowledge and skills in identifying learning difficulties and implementing effective, evidence-based interventions. Experienced teachers could adapt lessons, resources, and assessments to accommodate diverse learning needs, ensuring equitable access to education. They were also equipped to provide targeted support, helping learners with dyslexia

develop essential literacy skills such as phonological awareness, decoding, fluency, and comprehension through individualized instruction and reinforcement.

#### 5.2.2.7 Respondents number of learners in the class

The study sought to explore the number of learners in a class depicted in Table 5.4.

**Table 5.4: Respondents number of learners in class**

| | | Frequency | Percent |
|---|---|---|---|
| Valid | 20-30 learners | 88 | 63.0 |
| | 30- 40 learners | 40 | 29.0 |
| | Other | 12 | 8.0 |
| | Total | 140 | 100.0 |

Source: Authors own computation

The study findings indicated that 63.0% of respondents taught classes comprising 20 to 30 learners, while 29.0% instructed groups of 30 to 40 learners. Additionally, 8.0% of respondents reported teaching classes with either fewer than 20 learners or more than 40 learners. The results suggested that, on average, class sizes contained fewer than 30 learners. This smaller class size allowed teachers to provide more individualized attention and support to each learner, including those with dyslexia. Consequently, teachers were able to deliver instruction specifically tailored to learners' needs and preferences, thereby enhancing their overall learning experience.

### 5.2.3 Teachers Capacity to Support Learners with Dyslexia in Inclusive Classrooms

This section of the study examines the ability of research participants to effectively instruct and manage learners with dyslexia within an inclusive classroom environment. The findings are systematically presented in Table 5.5.

Majority of the respondents agreed that dyslexia is a language-based learning problem as shown by the mean response of 1.16. The standard deviation (0.351) suggested that, the responses were clustered around the mean. Respondents also were in agreement that learners with dyslexia usually had trouble with spelling as shown by the mean response of 1.10. The standard deviation (0.493) suggested that responses were clustered around the mean. The results further revealed that learners with dyslexia had trouble with writing as shown by the mean response of 1.11. The standard deviation (0.887) showed a fair distribution of responses.

Respondents also agreed that learners with dyslexia had trouble with words pronunciation as shown by the mean response of 1.16. The standard deviation (0.669) was low showing that there was a low variation of responses.

**Table 5.5: Teaching learners with dyslexia**

| | n | Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|
| Dyslexia is a language-based learning problem. | 140 | 1.06 | 0.351 | 1.242 | .310 |
| Learners with dyslexia usually have trouble with spelling | 140 | 1.10 | .493 | 1.683 | 1.760 |
| Learners with dyslexia have trouble with writing | 140 | 1.11 | .887 | 1.383 | 1.075 |
| Learners with dyslexia have trouble with words pronunciation. | 140 | 1.16 | .669 | .525 | -.655 |
| Dyslexia affects individuals throughout their lives. | 140 | 1.12 | .801 | .353 | -1.340 |
| There is a clear cause of dyslexia | 140 | 2.18 | .766 | -.332 | -1.192 |
| An estimate of about 10% of the school population is affected by dyslexia. | 140 | 2.55 | 1.083 | -.059 | -1.270 |

Source: Authors own computation

Results showed that respondents agreed that it was true that dyslexia affected individuals throughout their lives as shown by the mean responses of 1.12. The standard deviation (0.801) showed that there was a high variation of responses. The study findings showed that respondents indicated that it was not true that there was a clear cause of dyslexia as shown by the mean response of 2.18. The standard deviation (0.766) showed that there was a fair distribution of responses. Last but not least, the results indicated that majority of respondents were not sure if an estimate of about 10% of the school population was affected by dyslexia as shown by the mean response of 2.55. The standard deviation (1.083) indicated a high variation of responses.

According to the study's findings, teachers used a range of sensory-rich teaching strategies, including visual aids, audio resources, practical exercises, and kinesthetic learning experiences. This method supported different learning styles and reinforced what was learnt. This was consistent with the multi-component hypothesis proposed by Baddeley (2012), which held that working memory was responsible for organizing and processing new words and sounds in order to support learning (Sepp, Howard, Tindall-Ford, Agostinho & Paas, 2019). Baddeley's multi-component theory, a theoretical model of working memory composed of several systems that cooperated to gather significant information and suppressed irrelevant information, served as the foundation for this explanation of memory.

According to Baddeley's (2012) multi-component theory, which applied to this study, learners retained and retrieved knowledge in their minds by engaging in activities including auditory resources, practical exercises, visual aids, and kinesthetic learning experiences. While learners with dyslexia did not usually catch up or got better at reading over time, early detection and intervention allowed these learners to use different approaches to start reading at a young age (Alonzo, McIlraith, Catts & Hogan 2019). Thus, it was imperative that teachers recognized this condition at an early stage to facilitate the development of instructional strategies and plans that enabled the learners with dyslexia to successfully integrate into the classroom setting.

Additionally, teachers' assessments of their learners' strengths and weaknesses and their awareness of their requirements guided the deployment of teaching strategies for learners with dyslexia (Alshuwaysh, Cheong & Ismail 2021). To bolster this assertion, Alshuwaysh et al. (2021), asserted that the utilization of dyslexia-friendly fonts and formats in school must be emphasized. In order to make written materials more accessible, time must be taken to evaluate each learner's needs and select typefaces that were simpler for learners with dyslexia to read, also employing formatting strategies like bullet points, headings, and clear spacing.

Nkomo, Dube, and Tautona (2022) contend that the introduction of assistive technology solutions, such as voice recognition software, text-to-speech software, and dyslexia-friendly applications, was necessary. These resources could help learners with dyslexia to read, write, and organize their ideas more efficiently. Respondents did, however, reveal that the majority of teachers did not have instruction on how to use these tools to support learners with dyslexia. According to Nelson (2024), there were a few possible causes for this: First, very few or no class hours in teacher preparation programs were devoted to comprehending the difficulties faced by learners with specific disabilities and how to support their learning. Second, there was a lack of research being done by general education teachers on how best to teach learners with learning difficulties.

Thirdly, teachers did not receive continual in-service training from educational authorities regarding how to teach learners with dyslexia and other special needs. This was consistent with Zimbabwean teachers who turned away learners with disabilities because they felt incapacitated in terms of training and resources to support them in inclusive classrooms (Nkomo, Dube & Tautona, 2022). To meet the needs of the current educational system, teachers must be developed to keep up with evolving trends in education. In order to effectively manage the diverse range of learners they encounter in the classroom on a daily basis, teachers

must be adequately equipped. Nonetheless, teachers in Botswana might have discovered strategies to help their learners with dyslexia. Nkomo et al., (2022) said that for learners with dyslexia, work must be divided into smaller, more manageable steps and learners should be provided with clear directions and explanations. Routines and frameworks assisted learners with dyslexia to feel more supported and organized in the classroom, they felt they belonged and that they were not alone.

The results of the study also demonstrated the necessity for teachers to create a welcoming and inclusive learning atmosphere in the classroom so that learners feel comfortable speaking up for themselves. In this study, the Baddeley's (2012) multi-component theory implied that learners did not exist in a vacuum but were shaped by constant interaction with their peers.

The results of the study also showed that learners needed to have additional options for demonstrating their comprehension and expertise, such as oral presentations, projects, or multimedia tasks. These enabled learners with dyslexia to highlight their skills in unconventional settings. Support for learners with dyslexia was provided in Australian classrooms where teachers appreciated diversity and inclusivity in the classroom and work together to develop strategies for meeting these learners' needs (Maxwell, 2019). Similar to this, before planning support services for learners with dyslexia in inclusive education, teachers in Canada considered elements like assessment and identification, individualized program plans, collaboration, parent involvement, ongoing assessment, accommodations, assistive technology, self-advocacy, and transition planning (Zylstra, 2021).

### 5.2.4 Impact of Teacher Training on Teaching Learners with Dyslexia in Inclusive Classrooms

In this section the study aimed to investigate the relationship between teacher training and its impact on the teaching of learners with dyslexia and results are presented in Table 5.6.

The study findings revealed that majority of the respondents agreed that they were able to identify symptoms or characteristics of dyslexia as shown by the mean response of 2.50. The standard deviation 1.007 was very high indicating a high variation of responses. The study also revealed that respondents were unsure if they were able to identify the characteristics of a learner with dyslexia as opposed to a learner experiencing other challenges as shown by the mean responses of 3.42. The standard deviation 1.130 was very high indicating a high variation of responses. The study findings showed that respondents agreed that they were able to identify

a learner who was in need of a diagnostic assessment with regards to dyslexia as shown by the mean response of 2.42. Majority of the respondents disagreed that they were trained on how to manage learners with dyslexia as shown by the mean response of 3.90. The standard deviation of 0.841 showed a fair distribution of responses.

**Table 5.6: Teacher training**

| Questionnaire criterion on teacher training: | N | Mean | Std. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|
| I am able to identify symptoms / characteristics of dyslexia. | 140 | 2.50 | 1.007 | 1.510 | 1.951 |
| I am able to identify the characteristics of a learner with dyslexia as opposed to a learner experiencing challenges. | 140 | 3.42 | 1.130 | -.327 | -.564 |
| I able to identify a learner who is in need of a diagnostic assessment with regards to dyslexia. | 140 | 2.42 | .841 | .278 | -.356 |
| I was trained on how to manage learners with dyslexia | 140 | 3.90 | 1.845 | .000 | -.467 |
| As a teacher I am able to effectively assist learners with dyslexia in my class | 140 | 2.98 | .906 | -.506 | -.500 |
| The training I received at college or university gave me enough tools on managing learners with dyslexia | 140 | 3.67 | 1.828 | .071 | -.582 |
| I confident in teaching learners with dyslexia | 140 | 3.72 | .882 | -.465 | -.277 |
| The methodologies I use in class are adequate enough to assist a leaner with dyslexia to grasp concepts | 140 | 4.03 | .609 | -.011 | -.078 |
| I am not sure if I am doing enough to assist learners who cannot read | 140 | 2.31 | 1.117 | .130 | -1.378 |
| Having learners who are unable to read in class possess a lot of work on the teacher | 140 | 1.94 | 1.068 | .862 | -.482 |
| Every child deserves a fair chance to learning in spite of the challenges they face | 140 | 2.14 | 1.222 | .515 | -1.367 |
| It is refreshing to have learners who are diverse in the classroom | 140 | 2.22 | 1.124 | .812 | .271 |
| The school management is very supportive to teachers implementing inclusive policy in the school | 140 | 3.14 | .798 | .452 | .080 |
| There are various strategies put in place to support both the learners and teachers of inclusive education in the school | 136 | 3.59 | 1.088 | .417 | -1.065 |
| Are you aware of the available strategies put in place to assist learners with dyslexia | 134 | 3.62 | .942 | .108 | -.920 |

Source: Authors own computation

The study further revealed that majority of the respondents indicated that they were unsure if they were able to effectively assist learners with dyslexia in the class as shown by the mean response of 2.98. The standard deviation of 1.845 is very high indicating a high variation of responses. The study further revealed that respondents disagreed that the training they received at college or university gave them enough tools on managing learners with dyslexia as shown by the mean response of 3.67. The standard deviation 1.828 was very high indicating a high

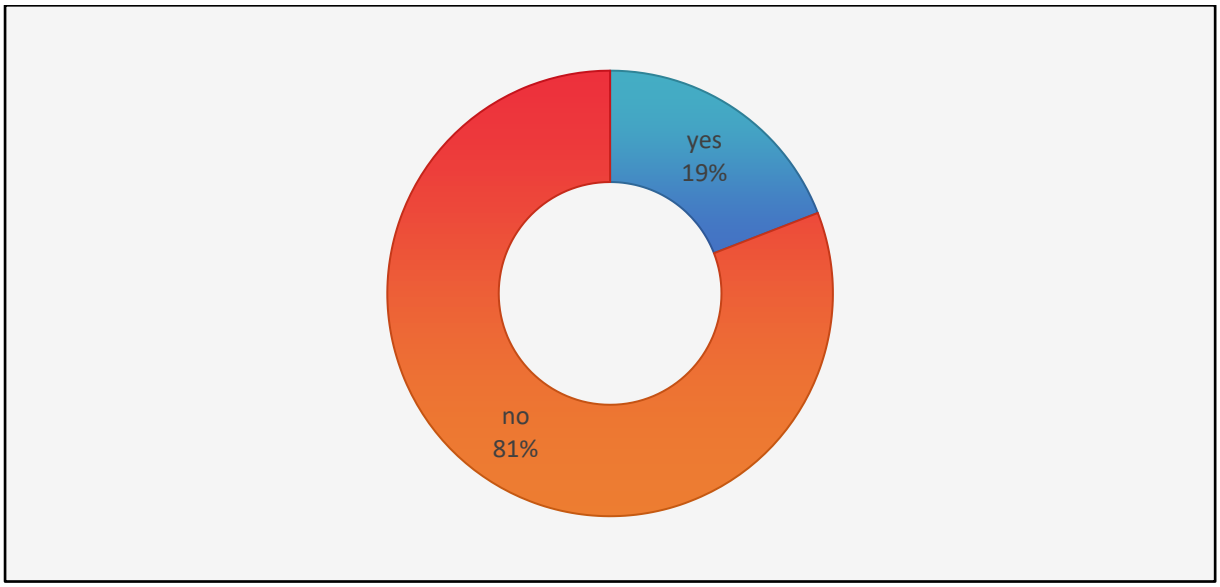
variation of responses. The mean of 3.72 showed than majority of the respondents disagreed that they were confident in teaching learners with dyslexia. The standard deviation of 0.882 showed that there was a fair distribution of responses. Respondents disagreed that the methodologies they used in class were adequate enough to assist a leaner with dyslexia to grasp concepts as shown by the mean response of 4.03. The standard deviation of 0.609 was small showing that responses were clustered around the mean. Respondents were in agreement that they were not sure if they were doing enough to assist learners who could not read as shown by the mean response of 2.31. The standard deviation of 1.117 was very high indicating a high variation of responses. The mean of 1.94 showed that respondents agreed that having learners who were unable to read in class posed a lot of work on the teacher. The standard deviation of 1.068 was very high indicating a high variation of responses.

The study further revealed that every learner deserved a fair chance to learning in spite of the challenges they face as shown by the mean response 2.14. The standard deviation 1.222 was very high indicating a high variation of responses. Respondents agreed that it is refreshing to have learners who are diverse in the classroom as shown by the mean response of 2.22. The standard deviation 1.224 was very high indicating a high variation of responses. Majority of the respondents indicated they were unsure if the school management were supportive to teachers implementing inclusive policy in the school as shown by the mean response of 3.14. The standard deviation 0.798 shows that there was a fair distribution of responses. Most respondents disagreed that there were various strategies put in place to support both the learners and teachers of inclusive education in the school as shown by the mean response of 3.59. The standard deviation 1.088 was very high, indicating a high variation of responses. Lastly yet importantly, respondents indicated that they were not aware of the available strategies put in place to assist learners with dyslexia as shown by the mean response of 3.62. The standard deviation 0.942 was very high, indicating a high variation of responses.

### 5.2.5 Teachers' Effectiveness in Meeting the Learning Needs of Learners with Dyslexia

The study examined teachers' perceptions regarding the effectiveness of teaching learners with dyslexia, specifically investigating whether they considered the instruction to be a misuse of time and whether they felt equipped to address the unique needs of these students. The findings of the analysis are illustrated in Figure 5.4.

**Figure 5.4: Time on learners with dyslexia**




Source: Authors own computation

The findings indicate that a substantial majority of respondents (81%) rejected the notion that they ever perceived working with learners with dyslexia as unproductive or time-consuming. Conversely, a notable minority (19%) expressed that they felt their time was not optimally utilized when supporting learners with dyslexia. Nonetheless, the majority of respondents emphasized that they went above to accommodate the needs of learners with dyslexia and their requirements. According to the study, if teachers were knowledgeable of dyslexia and its symptoms, they would be able to work with learners who have this reading challenge more successfully. Rather than presuming that learners with dyslexia only needed professional support, teachers who had a deeper grasp of the disorder helped them in many ways. The findings were consistent with a study by Bower, Wood, Lai, and Highfield (2017), which found that most learners did not have access to tailored, one-on-one assistance since they were not kept out of the classroom in typical institutions. For this reason, it was essential that learners with dyslexia received extra support and direction, especially in language lessons (Nijakowska et al, 2018). Therefore, when teachers were aware of the characteristics of dyslexia, they might better meet the requirements of learners with this learning disability and support their successful learning. Awada and Plana (2018) exhorted teachers to devise their own efficient strategies for balancing the needs of learners with dyslexia and those without

Effective instruction for learners with dyslexia necessitates a structured approach that enhances comprehension and retention. It is advisable to break down lessons into smaller, manageable components and present them in a logical sequence to accommodate the cognitive processing

needs of these learners. This methodological approach fosters improved conceptual understanding and minimizes cognitive overload, thereby optimizing learning outcomes.

Teachers must ensure that instructional content is precise and unambiguous, providing clear justifications, relevant illustrations, and well-integrated case studies to reinforce learning. Moreover, relying solely on implicit learning strategies—where students are expected to acquire knowledge intuitively—may not be effective for learners with dyslexia. Instead, explicit instructional techniques that prioritize clarity, structured guidance, and active engagement should be employed to facilitate meaningful knowledge acquisition. By implementing these pedagogical principals, teachers can create a more inclusive and effective learning environment for students with dyslexia.

Curriculum differentiation involved adjusting, modifying, changing, adapting, extending, and varying teaching methodologies, teaching and evaluation procedures, and curriculum content in order to meet the needs of learners with dyslexia (Themane and Thobejane, (2019). According to Westwood (2018), who concurred with these findings, curricular variation enabled each learner in an inclusive classroom to pursue their own learning goals. One method for addressing inclusion through curriculum customization and meeting each learners' unique requirements while accommodating all ability levels in the classroom was multi-level teaching (Themane & Thobejane, 2019). Multilevel teaching considered the different demands of each learner in a classroom and adjusted the curriculum and learning environment as needed to support learners in learning in ways that were appropriate for their learning styles and academic objectives. Themane and Thobejane. (2019:410), made the following statement:

> "*Certain abilities may take longer for learners with dyslexia to learn. Teachers can modify the pacing of education to accommodate each student's unique learning style thanks to a flexible curriculum. If further practice, repetition, or different explanations are required, they can provide them. Teachers can diversify education to accommodate diverse learning styles and preferences when there is flexibility in the curriculum. Providing alternate materials, including audio recordings or visual aids, to augment standard text-based resources may be necessary for learners with dyslexia.*"

To reinforce this point, it must be noted that multiple sensory learning experiences were beneficial for learners with dyslexia. To improve comprehension and retention, teachers could use a range of modalities in their classes, including auditory, visual, and kinesthetic ones, by

using a flexible curriculum. Teachers can create personalized learning objectives for each learner based on their interests, strengths, and shortcomings by using a flexible curriculum. With this individualized approach, learners with dyslexia could maximize their talents and concentrate on the areas in which they required the greatest support.

Learners had access to an extensive range of educational materials that were tailored to suit their individual learning styles, interests, and preferences. Teachers needed to be aware that learners with dyslexia might need the lesson materials to be modified. For example, a learner who struggled to read or had low vision would need a larger print to read comfortably. Learning materials presented in a variety of formats were more likely to be helpful to learners with dyslexia because their learning styles differed from others without dyslexia. Thus, textbooks, lessons, and notes could be supplemented or replaced by music, movement, and visual elements like pictures, diagrams, and charts (Majoko, 2019). Teachers had the ability to alter the format in which lessons and homework were presented. Pictures or images could be supplemented or replaced with written explanations and descriptions. There was also room to reduce the amount of material and remove superfluous diagrams and images.

This study also demonstrated how crucial it was to differentiate assessments in order to address the needs of learners with dyslexia. In this regard, learners with dyslexia frequently excelled in subjects unrelated to traditional written exams. Differentiating assessments allowed teachers to provide options that played to learners' strengths. For example, learners could exhibit their learning through hands-on demonstrations, multimedia projects, or oral presentations. This allowed learners to demonstrate their comprehension in ways that worked best for them. Due to their challenges with reading, writing, and processing written material, learners with dyslexia might find it challenging to pass traditional examinations like written tests. By providing alternate forms, such as audio recordings, visual aids, or interactive exercises, differentiated assessments break down these barriers and allow learners to more properly exhibit their knowledge and skills.

In order to address the needs of all learners, teachers must adopt a flexible assessment strategy and adjust their perspective in order to do differentiated assessment (Ginja & Chen, 2020). Building a cooperative network of support for teachers was essential to the efficiency of curriculum differentiation. When teachers collaborated, they could build educational materials, assist one another with assignments, share expertise, and serve as resources for one another (Lindner & Schwab, 2020). Teachers should consider how they mark learners' workbooks and

worksheets in the classroom. It was suggested that marking be limited to certain sections of the work rather than the full piece, and some teachers would not use red ink because they believed it to be a sign of failure.

### 5.2.6 Strategies to Enhance Inclusive Teaching for Learners with Dyslexia in Mainstream Primary Schools

Improving inclusive instruction for learners with dyslexia entailed establishing a welcoming classroom and using instructional techniques tailored to their individual requirements. Teachers were aware that every learner was an individual with distinct talents, knowledge, and socio-economic backgrounds in addition to a variety of personalities, and that this called for the use of a range of strategies and interventions. The results of the study indicated that the provision of both technological and physical educational resources was essential for the teaching of learners with dyslexia.

For their inclusion to be effective, learners with dyslexia needed financial assistance due to their special educational needs. According to Jaya et al. (2018), governments are responsible for supplying the tools required to allow learners with dyslexia to participate in the educational process. A lack of resources effectively nullified the policy or made it impossible to understand and apply; therefore, both teachers and learners should have access to the necessary materials for inclusion to be successful and of the highest caliber. In order to foster greater empathy and understanding, teachers must inform themselves and others about dyslexia. They ought to cultivate an environment of tolerance and assistance in the classroom and school community.

A teacher needs to be equipped with a broad range of skills and knowledge in order to effectively teach learners with dyslexia in an inclusive classroom (Strassfeld, 2019). If inclusion is to be successful, teachers must receive training that adequately empowers them academically. Analogously, Ndombo (2019) highlighted that in Zimbabwe, teachers lacked the necessary skills to successfully oversee teaching and learning in an inclusive classroom where learners with dyslexia were taught. Several studies conducted in Kenya had demonstrated that teachers needed specialized training to adequately accommodate all learners with a variety of disabilities in a regular classroom (Aldabas, 2020). Having received extensive training in learning disorders, a teacher could cultivate the confidence required to teach learners with dyslexia in traditional classroom environments. The success of integrating learners with dyslexia into regular classrooms was greatly influenced by time (Moberg et al., 2020).

According to a Manyeruke (2021) study conducted in Zambia, in order to properly integrate learners with dyslexia, teachers should demand more time to address their specific educational needs without interfering with or adding to regular class time.

The study findings also raised the importance of collaborations with peers and parents in that schools needed to provide a welcoming environment in the classroom where learners may express questions and work together with their peers without feeling awkward. To create customized support plans for learners with dyslexia, it was necessary to keep lines of communication open with parents and work with support agencies, including speech therapists, reading experts, and special needs education teachers.

According to Henry and Namhla (2020), parental involvement was essential to the achievement of inclusive education, especially for learners with dyslexia in conventional classroom settings. For their children with dyslexia, behavioral difficulties, emotional and learning development challenges, parents had a critical role to play (Singal, 2019). In other surveys, teachers reported that absent parents were a major problem (Ainscow, 2020). It was discovered that effective learning and teaching were possible when parents and schools collaborated in a positive and proactive way. Smith (2019), in his study conducted in the United Kingdom, discovered that parents' enthusiasm for their children's education raised the probability that their children will do well on assessments or examinations. For inclusion to be successful, parents and teachers must discuss the learner's development and decide together what kind of support each can offer (Ainscow, 2020). A study conducted in Asian schools by Andrews et al. (2021) revealed that to maintain best practices and improve learning outcomes for learners with dyslexia, collaborative connections built on trust were crucial.

These results were also consistent with the theoretical framework of the study. The Multi-Component Theory of working memory developed by Baddeley (2012) may be applicable to the analysis of learners with dyslexia's learning experiences in mainstream primary schools in Botswana's South-East Region. According to the study's findings, dyslexia is a condition that affects reading, spelling, and writing even in those with average intelligence and access to quality education. Working memory's phonological loop component processed auditory data (Gathercole, Dunning, Holmes & Norris, 2019). People who had dyslexia frequently had trouble with phonological processing, which is the ability to identify and work with language sounds. The study suggested that to develop this part of working memory in the context of learning experiences, teachers should provide more assistance with phonological awareness

activities. Visual and spatial processing were handled by the visuo-spatial Sketchpad component (Vicari, 2016). While reading and language abilities are the main areas affected by dyslexia, some people may also experience problems with visual processing. According to the study, teachers may want to think about using fewer visual materials in their lessons or giving learners specific education in visual processing techniques.

Moreover, attention and information manipulation were managed by the central executive component of Baddeley's Multi-Component Theory (Gathercole, Dunning, Holmes & Norris, 2019). Learners with dyslexia may find it challenging to focus for extended periods of time and to switch between tasks. This was consistent with the study's findings, which highlighted the tactics that teachers should use to assist learners with dyslexia in developing better attentional control. Some of these strategies included utilizing visual aids to complement task instructions or breaking activities down into smaller, more manageable chunks. Not to mention, the episodic buffer component, which combined data from several sources into logical episodes or sections (Hale & Robey, 2019). Learning across a variety of subjects may be impacted by dyslexia as it might affect one's capacity to assimilate information from numerous sources. According to survey participants, in order to support learners with dyslexia in better integrating and remembering knowledge, schools should concentrate on offering multi-modal learning experiences that involve several modalities (e.g., auditory, visual, and kinesthetic).

## 5.3 DATA ANALYSIS AND FINDINGS FROM OBSERVATION CHECKLISTS

The researcher conducted observations across four schools (n=4), designated as School A, School B, School C, and School D. Within each school, four teachers (n=4) from Standard 5 and four teachers (n=4) from Standard 7 were selected for observation. The focus was specifically on teachers whose classrooms included learners experiencing difficulties with reading and spelling. The observation checklist tool used and summary of findings are outlined in Table 5.7.

**Table 5.7: Observation checklist tool used**

| Criteria targeted | Summary of findings |
|---|---|
| **Section A: Instructional approaches**<br>1. Is the teacher using multi-sensory instructional methods (e.g., visual, auditory, tactile)?<br>- ☐ Yes ✓<br>- ☐ No<br>2. Which instructional methods were observed during the lesson? (Check all that apply)<br>-☐ Visual aids (pictures, charts, diagrams) ✓<br>-☐ Auditory repetition (reading aloud, songs)<br>-☐ Kinaesthetic activities (manipulates, hands-on activities) ✓<br>-☐ Lecture-based (verbal instruction only)<br>-☐ Group work✓<br>-☐ Individual work<br>-☐ Interactive technology (smart boards, tablets)<br>3. Does the teacher adapt lesson content to meet the needs of learners with dyslexia?<br>-☐ Frequently<br>-☐ Sometimes<br>-☐ Rarely✓<br>-☐ Never | Teachers adopted multi-sensory instructional strategies to address the differences, including those of learners with dyslexia, by incorporating the use of more than one sense in teaching.<br>Using multiple inputs to teach helped the learners internalise the content in different ways; this technique was helpful to learners with dyslexia, as they well knew their limitations of reading and writing. For instance, teachers employed phonics embedded visual aids and objects that the learners with dyslexia could touch and see, such as the letter tiles. This activity facilitated the learners to touch and look at the language in a way that helped them to make connections between sounds and letters.<br>Some of the learners were frustrated because what was taught did not offer any form of the visual or even kinaesthetic support of the content. For example, twelve teachers in schools A and D (n=12), relied heavily on talk-based approaches while four teachers in schools' C and B respectively (n=24), were able to adapt the lesson content to meet the needs of learners with dyslexia, which meant that there was little differentiation in how instruction was delivered making it more difficult for the learners with dyslexia to cope and often they fell further behind their peers academically. |
| **Section B: Learner Participation**<br>1. Do learners with dyslexia actively participate in classroom activities?<br>-☐Yes ✓<br>-☐ No<br>2. What type of participation was observed for learners with dyslexia? (Check all that apply)<br>- ☐ Verbal responses to teacher questions✓<br>-☐ Group activities✓ | Learners with dyslexia taught using the multi-sensory methods indicated a more active participation and learning in classroom activities in the ratios of 75:25.<br>It was also noted that any tasks that sought to engage their physical interaction with learning inputs like the word cards where learners rearranged them into pairs or the inputs where learners matched sounds to the letters using |

| | |
|---|---|
| -☐ Individual activities<br>- ☐ Peer collaboration ✓<br>- ☐ Independent work<br>- ☐ non-participation/distracted<br>3. Rate the level of engagement of learners with dyslexia during the lesson:<br>- ☐ Highly Engaged<br>- ☐ Moderately Engaged<br>- ☐ Minimally Engaged✓<br>- ☐ Not Engaged | respective coloured items would go down well with the learners.<br>In settings where conventional teacher-centered direct instruction prevailed, the interaction of learners with dyslexia reduced significantly.<br>Learners were seen to switch off when the lessons called for a lot of reading or writing such as in continuous writing or reading comprehensions which went on for some time. The classrooms lacked features like breaking down instructions or the use of some teaching aids which saw most learners with dyslexia got left behind. |
| **Section C: Classroom Environment**<br>1. Is the classroom environment adapted to accommodate learners with dyslexia?<br>- ☐ Yes<br>- ☐ No✓<br>2. Are learners with dyslexia seated in positions that enhance their engagement (e.g., close to the board, teacher)?<br>- ☐ Yes<br>- ☐ No✓<br>3. Are there visual aids/resources available that support dyslexic learners? (e.g., word walls, phonetic charts, posters)<br>-☐ Yes<br>-☐ No✓<br>4. Is the classroom free of distractions that may affect learners with dyslexia?<br>-☐ Yes<br>-☐ No ✓ | Observation of the learning environments of this study revealed that the physical environment was not properly arranged to cater for learners with special needs.<br>Class desks in standard 5 and standard 7 of school B, C and some in A, were set in a line formation, which deprived learners with dyslexia of the kind of setting that made it easy for teachers to identify learners who struggled or for other learners to lend a helping hand.<br>Some of the learners were frustrated because what was taught did not offer any form of the visual or even kinaesthetic support of the content, this was observed in School B and D. Furthermore, where teachers relied heavily on talk-based approaches, there was little differentiation in how instruction was delivered, making it more difficult for the learners with dyslexia to cope and often fell further behind their peers academically.<br>Some schools like school A and C, were free from distractions that could affect learners with dyslexia, while school B and D were really destructive. Learners used outdoor teaching areas which had no boundaries and their attention was taken by any movement. |
| **Section D: Use of Assistive Tools and Strategies**<br>1. Are any assistive tools used in the classroom for learners with dyslexia? | The use of the assistive tools and strategies was not prominent and appeared to be inconsistent between the observed classes. |

| | |
|---|---|
| -☐Yes -<br>☐ No✓<br>2. What types of assistive tools were observed? (Check all that apply)<br>-☐ Phonics-based reading programs✓<br>- ☐ Color-coded texts or materials✓<br>- ☐ Audio-assisted reading tools ✓<br>-☐Specialized educational software/apps<br>-☐ Other (specify): ----------<br><br>3. How frequently are assistive tools used for learners with dyslexia?<br>- ☐ Throughout the lesson - -<br>☐ Occasionally✓<br>- ☐ Rarely - -<br>- ☐ Never | Teachers indicated that they utilized materials such as phonics-based reading programs, coloured texts or even audio-linguistic devices necessary for learners with dyslexia.<br>Teachers in schools A, B and D, often incorporated materials that were simplified so that learners with dyslexia could easily comprehend the content as well as instructions given to them at their own pace.<br>Furthermore, teachers from the same institutions implemented augmentative technologies, including tablets equipped with applications specifically designed to support learners with dyslexia. The integration of these assistive tools demonstrated a significant enhancement in learners" literacy development, particularly in reading and writing, as they facilitated personalized learning experiences. These improvements were notably observed in Schools A, B, and D. |
| **Section E: Classroom Management and Teacher Support**<br>1. Does the teacher provide individualized instruction to learners with dyslexia?<br>- ☐ Frequently✓<br>- ☐ Sometimes<br>- ☐ Rarely<br>- ☐ Never<br><br>2. Is there evidence of positive reinforcement for learners with dyslexia?<br>- ☐ Yes✓<br>- ☐ No<br>3. How well does the teacher manage the classroom to ensure inclusivity?<br>- ☐ Highly Effective<br>- ☐ Moderately Effective✓<br>- ☐ Minimally Effective<br>- ☐ Not Effective<br>4. Does the teacher use differentiation strategies to balance the needs of learners with dyslexia with the rest of the class?<br>- ☐ Frequently✓ | Support from the teachers as well as management of classroom determined the success of inclusive practices.<br>The teachers employed positive reinforcement strategies in equal measure and included the use of words of encouragement and incentives to make learners with dyslexia to continue working hard in the classroom and did not give up easily.<br><br>In the classes observed, teachers had positive attitudes towards classroom management. Some of the teachers made sure that the learners with dyslexia were well attended to.<br>Teachers employed effective pedagogical strategies to accommodate the diverse learning needs of all learners. For example, those who utilized small-group instruction provided targeted support for learners with dyslexia, thereby fostering their academic achievement and enabling them to perform at a level comparable to their peers. This individualized approach was crucial in cultivating a Learning Support Climate, as it ensured that students with dyslexia felt |

| | |
|---|---|
| - ☐ Sometimes<br>- ☐ Rarely<br>- ☐ Never | recognized and valued within the educational environment. |

Source: Author's own computation

The findings obtained from the observation checklists were significant in explaining if and how different principles of inclusive education promoted learners with dyslexia in mainstream primary schools. The findings of this analysis could help teachers compare different aspects of classroom context with reference to instructional practices, learner engagement, classroom climate, assistive devices, and general classroom organization. Through systematizing such factors, the analysis could give out the strengths and weaknesses in current enactments of educational practices as well as the extent they addressed the needs of learners with dyslexia. The purpose was to identify recommendations for future directions in increasing minority enrolment and increasing the accomplishment of learners with dyslexia.

### 5.3.1 Instructional Approaches

Analysis of the observation checklists revealed that 60% of the teachers adopted the multi-sensory instructional strategies to address the differences including those of learners with dyslexia by incorporating the use of more than one sense in teaching. Using multiple inputs to teach, helped the learners to internalize the content in different ways; this technique was helpful to learners with dyslexia as they well knew the limitations of reading and writing. For instance, teachers employed phonics embedded visual aids or objects that the learners with dyslexia could touch and see such as the letter tiles facilitated the learners to touch and look at the language in a way that would help them to make connections between sounds and letters. These approaches also included the repetition where learners were encouraged to listen and, in the process, repeat the words in a bid to hasten memory. This strategy reflected evidence that learners with dyslexia were to be taught using structured literacy techniques that used more of their senses in their learning.

On the other hand, 40 % of the teachers who mainly used the lecturer approach restricted the learning experience of learners with dyslexia by relying mostly on speaking. Less of face-to-face in the lectures, which were more passive in nature, did not offer the learning environment that was essential to learners with dyslexia to decode and store information. These teachers mainly relied on reading aloud from texts, which was a big problem for the learners with dyslexia who learnt that decoding words and comprehending texts. Some of the learners were frustrated because what was taught did not offer any form of the visual or even kinesthetic support of the content. Furthermore, where teachers relied heavily on talk-based approaches,

there was little differentiation in how instruction was delivered, making it more difficult for the learners with dyslexia to cope, and often they fell further behind their peers academically.

### 5.3.2 Learner Participation

Learner participation was even in the classrooms, depending on the teaching and learning strategies used. Learners with dyslexia taught with multi-sensory methods indicated a more active participation and learning in classroom activities in the ratios of 75:25. This approach also supports multisensory learning, which research has shown to improve literacy development. By engaging sight, sound, and touch, learners can form stronger connections between abstract concepts and concrete representations, making learning more intuitive and memorable. The teachers who fostered peer cooperation also reported increased engagement since most learners with dyslexia required the support of their peers when engaging in group activities. For example, during group reading activities, the learners with dyslexia engaged more in the activities that were deconstructed into small parts, whereby they could use figures of speech or objects to make sense of the texts. This not only helped to build up their morale, but also assisted in making them feel more accepted by their counterparts.

In a smaller classroom, teachers could more readily differentiate instruction, changing lessons and activities to meet the needs of all learners, including those learners with dyslexia. When necessary, they could offer focused support, more practice, and alternate teaching strategies (Hamad et al., 2018). A smaller, leaner teacher ratio could result in a more peaceful, quiet, and distraction-free learning environment. This could be especially helpful for learners with dyslexia, who might find it hard to focus in loud or chaotic environments. Learners with dyslexia may feel more at ease, participating in class discussions and activities if there are fewer of them competing for the teacher's attention (Khalid & Anjum, 2019). Additionally, they might have more chances to participate actively in their education, which would improve their comprehension and memory of the subject matter.

However, in lesson settings where conventional teacher-centered direct instruction prevailed, the interaction of learners with dyslexia was reduced to only 40%. These learners were seen to switch off when the lessons called for a lot of reading or writing, such as in continuous writing or reading comprehension, which went on for some time. These classrooms lacked features like breaking down instructions or the use of teaching aids, which saw most learners with dyslexia get left behind. Learners were also seen to be yawning or daydreaming when they

were being taught, or failing to grasp what was being taught. This often resulted in their frustration, anxiety, and their decision not to engage because they were in touch with their deficits in comparison to other learners without dyslexia; therefore, there is a need for teachers to embrace diversity and be sensitive to learning differences.

### 5.3.3 Classroom Environment

It was important to identify how the classroom fostered or hampered learners with dyslexia. Analysis of the learning environments of this study revealed that in 70% of the observed classrooms, the physical environment was not properly arranged to cater to learners with special needs. Class desks were set in a line formation, which deprived learners with dyslexia of the kind of setting that made it easy for teachers to identify learners who struggled or for other learners to lend a helping hand. Such a layout was also found to cause learners' isolation, especially those with dyslexia, and these learners were noticed to be frequently off-task, especially where they were seated at the far end of the classroom. Even when the learners' priority was not assigned to the front seat close to the teacher or the board, it was difficult for them to comprehend the teacher's instructions or even participate in lessons adequately. On the other hand, those classrooms that had adopted casual structures of group tables or the horseshoe style enhanced interaction between the teacher and the learners, thus making learners with dyslexia feel accepted in a learning environment.

In the same observation, only 30% of the observed classrooms had implemented any of the accommodations in the physical environment as suggested by the learners with dyslexia, where they had designated quiet corners, cushions, or adjustable desks where they could sit if they felt like they were distracted. These places ensured that the learners with dyslexia were involved in those tasks without interference from the normal classroom noises, and they did not have to struggle much as they had to compare themselves with their colleagues. Furthermore, classrooms with readily available resources like posters containing phoneme charts, sight word lists, and other cues and prompts for spelling and grammar helped the learners to also access the extra amenities on their own. Such changes greatly affected the learning abilities and the learners' interest in class, hence supporting the call for classroom modification to cater for all learners, especially the dyslexic learners.

### 5.3.4 Use of Assistive Tools and Strategies

In terms of the assistive tools and strategies, the use was not very prominent and appeared to be inconsistent between the observed classes. A meager 35% of the teachers indicated that they utilized additional materials, including phonics-based reading programs, colored texts, or even audio-linguistic devices necessary for learners with dyslexia. In these classrooms, teachers often incorporated materials that were simplified so that learners with dyslexia could easily comprehend the content as well as the instructions given to them at their own pace. For example, in audio books, learners were able to listen to and read the text, and that was helpful in both fluencies of reading and comprehension. Furthermore, teachers who adopted augmenting technologies including tablets that contained Apps developed for dyslexia, revealed enhanced learners' literacy development especially in reading and writing due to assistive technologies that enabled learners to engage in personalized learning.

However, only 35% of the classrooms were equipped with these important teaching aids while 65% of them did not have any of these tools. In these classrooms, teachers used pedagogy such as generic textbooks and worksheets that were not Special Education Needs (SEN) friendly to the learners with dyslexia, and thus they struggled to do their classroom assignments. It was observed that these learners had a lot of difficulty while developing their reading comprehension skills especially when tackling long passages without illustrations or audio prompts to ease the decoding process. Learners with dyslexia usually lagged behind other learners without dyslexia if they were not provided with assistive devices that they needed for learning and struggled to get the one-on-one time with the teacher that they needed since classes were large and crowded. This showed the need for schools to purchase assistive technologies and other teaching aids that would help facilitate the delivery of the content where the learners had difficulties in reading and attending school in a culturally sensitive way.

### 5.3.5 Classroom Management and Teacher Support

Support from the teachers as well as the management of classroom also determined the success of inclusive practices. In 50% of the cases observed, teachers had a positive attitude towards classroom management; two thirds of the teachers made sure that the learners with dyslexia were well attended to. These teachers ensured that they adopted proper strategies of teaching to ensure that all the learners were well taken care of since they had different learning abilities. For instance, those teachers who preferred small group teaching learnt how best they could

offer support to learners with dyslexia hence enabling them be as efficacious as other learners. The teachers employed positive reinforcement strategies in equal measure and included the use of words of encouragement and incentives to make learners with dyslexia to continue working hard in the classroom and did not give up easily.

However, in 50% of classes, teachers had challenges regarding integration of the learners with dyslexia with other learners without dyslexia. Many of the teachers found it difficult to cope with the responsibilities of handling many leaners from a diverse background; hence their ability and commitment to the teaching of learners with special needs was compromised. For instance, as the teachers attended to other learners of the same class, sometimes learners with dyslexia were seen to be on their own as they struggled to do tasks which they could not manage. This lack of support hindered the learners and their performances, because those with dyslexia were never assisted in the way they needed to be in order to enhance their learning process. This re-emphasizes the need for sufficient coursework in professional practice to equip teachers with necessary skills of handling classroom needs as well as suggesting the need to employ more support staff like the teaching assistants and special needs coordinators/teachers to handle learners with dyslexia in integrated classrooms.

## 5.4 SUMMARY OF FINDINGS FROM DOCUMENT ANALYSIS

The document analysis provides significant insights into the present condition of inclusive education for dyslexic learners in mainstream primary schools, especially in the South East Region of Botswana. This study analyzed various institutional records, such as learner profiles, professional development logs, school reports, and academic progress documentation, to triangulate key findings regarding the prevalence of dyslexia, educator preparedness, instructional strategy effectiveness, systemic challenges during implementation, and the academic progression of affected learners. These data sources facilitate the comprehension of contextual realities in inclusive environments while also emphasizing the discrepancies in practice among various schools. A thorough examination of these records facilitates a nuanced comprehension of the degree to which inclusive education is implemented for learners with dyslexia, as well as the existing deficiencies in policy and practice.

**Table 5.8: Presentation of findings from document analysis**

| Data documents assessed | Summary of findings |
|---|---|
| Learner records – Remedial IEP Records<br>- To find out the extent of dyslexia prevalence in mainstream classrooms of the South-East region. | Available data from learners' records in the South East Region of Botswana helped in determining the extent of dyslexia in learners in mainstream schools (Mens et al., 2022). The dynamics in dyslexia identification among classrooms and learners showed that the number of learners diagnosed with dyslexia varied greatly among the different schools and was affected by various elements. |
| Teacher training records – Professional development records.<br>- The level of professional development of teachers during training and their preparedness in supporting learners with dyslexia. | Some findings that were realized from the analysis of information contained in existing records regarding the professional development of teachers showed that the training and preparedness of teachers in supporting learners with dyslexia in Botswana, South-East Region differed per school. The teachers' training histories were found to differ in their quality and content. These differences influenced the extent to which teachers supported learners with dyslexia (Makonyango, 2021). In some of the schools, the teachers were trained particularly on dyslexia, thus they applied specific strategies and interventions to learners with dyslexia effortlessly. On the other hand, there were other schools where teachers had attended general inclusive education training, which did not effectively cater for the challenges that came with dyslexia (Karimupfumbi, 2020). |
| Teaching practice records – School reports.<br>- What school records, such as school reports, contain regarding strategies that are used by teachers in support of learners with dyslexia? | Information, including case studies and school reports, proved to be useful sources of information concerning the use of strategies that promoted the integration of learners into mainstream primary schools in the South-East Region (Makonyango, 2021). The information showed that the schools implementing certain teaching practices like Gestalt teaching, multisensory approach, one-to-one instruction, and many others, achieved higher results for learners with dyslexia. The multisensory teaching which involved the use of all the several classifications or ways through which information was passed to the learners' brain, sight, sound, touch, was especially helpful to learners with |

| | |
|---|---|
| | dyslexia |
| Implementation challenges- School records.<br>- To establish the challenges that hinder the implementation of inclusive education services. | Schools' records and other databases revealed many difficulties that schools in the South-East Region experienced while embracing education and learning for learners with dyslexia. One primary difficulty was the shortage of both materials and equipment, such as teaching aids, technologies, and professionals. Schools still excluded learners with dyslexia from the services they required most, such as a speech therapist or an educational psychologist. |
| Learner performance and progress – Results analysis and progress reports.<br>- What progress have learners with dyslexia made so far?<br>- What their IEP records contain in regard to their progress. | Over consecutive academic years, the systematic analysis of learner performance has consistently addressed the primary research question, providing insights into the academic trajectories of learners with learning challenges in general classrooms within the South-East Region. By examining standardized test scores, grade distributions, and other key academic indicators, findings revealed comparative performance trends. Specifically, learners with dyslexia exhibited varied academic outcomes, with fluctuations in their performance relative to their peers.<br><br>Schools that adopted a comprehensive implementation of inclusive education policies demonstrated gradual yet sustained improvements in the reading and writing competencies of learners with dyslexia. Conversely, the same dataset also identified signs of stagnation and, in some cases, regression in academic performance among dyslexic learners in institutions that had only partially integrated such intervention strategies. These findings underscore the critical role of full inclusion policies in fostering academic growth for learners with dyslexia while highlighting the potential limitations of inconsistent implementation approaches. |

Source: Authors own computation

### 5.4.1 Prevalence of Dyslexia in Mainstream Schools

Available data from learners' records in the South East Region of Botswana helped in determining the extent of dyslexia in learners in mainstream school (Mens et al., 2022). The dynamics in dyslexia identification among classrooms and learners showed that the number of learners diagnosed with dyslexia varied greatly among the different schools and was affected by various elements. The higher proportion of learners with dyslexia in those schools indicated that the schools practiced efficient screening mechanisms or that the teachers and parents were well informed of the condition (Makonyango, 2021). From this disparity in identification rate, one could infer that certain schools may be more involved in the identification of learners with dyslexia, with a probable consequent improvement in support and provision to such learners.

Also, these differences in prevalence were indicative of other systemic concerns in the education structure. There was a sharp division in the ability of schools to access resources, and staff trained to diagnose learning disorders such as dyslexia (Mens et al., 2022). On the other hand, Karimupfumbi (2020) established that schools found in less resourced areas had these capabilities hence the low identification of learners with dyslexia. This resulted in shortcomings in support since learners who were not well diagnosed did not get what they required and this affected their learning ability and overall educational process (Nkomo, Dube, & Tautona, 2022).

The study also provided knowledge of whether the number of diagnosed learners with dyslexia had increased or decreased in the current years (Nkomo, Dube, & Tautona, 2022). An increase in the arrow pointed out the increasing awareness of dyslexia and the availability of better diagnostic tools within school settings, whereas a down arrow pointed out either a real decrease in the dyslexia rate or a less effective identification process. It was important for policymakers and teachers because only through the knowledge of such trends could they. It became possible to ensure that all the learners who needed help due to dyslexia were properly identified and provided with the support they needed. These findings, therefore, held greater meaning for the general efficiency of integration of learners with dyslexia in the South East Region. Discrepancies in the way dyslexia was diagnosed across different schools showed that there was need for standard screening and diagnosing procedures that were common to schools. Standardisation would make it possible for all learners to receive the support that they required, irrespective of the schools they were in, and make resource distribution efficient to cater for the schools that required more support for learners with dyslexia.

### 5.4.2 Teacher Training and Preparedness

The study sought to determine the training and preparedness of teachers in supporting learners with dyslexia in Botswana, South-East Region. There were 27 training programs that were found to differ in their quality and content, which influenced the extent to which teachers could be expected to offer support for learners with dyslexia (Makonyango, 2021). In some of the schools, the teachers were trained particularly on dyslexia; thus, they could apply specific strategies and interventions to learners with dyslexia effortlessly.

On the other hand, there were other schools with teachers who had attended general inclusive education training, which may not have effectively catered for the challenges that came with dyslexia (Karimupfumbi, 2020). The difference in the preparation of teachers meant that the education that learners with dyslexia received was a poor one (Boitumelo, Kuyini, & Major, 2020). Not surprisingly, teachers without such training reported lower levels of confidence in different-ability identification, particularly dyslexia, as well as lesser awareness of the specific teaching practices that demonstrated most benefits for such learners. This led to learners with dyslexia failing to get the special provisions they required for proper academic functioning, and this brought about anxiety, poor academic performance, and declining self-esteem.

In contrast, teachers with broad training were likely to promote inclusion effectively to the extent that learners with dyslexia needed the necessary tools and support from the teachers (Kuyini et al., 2024). It was also established that some schools provided more sufficient resources towards the professional development, and others repeated programs for teachers to practice in the aspect of professional practice to update them on the best practices of inclusive education (Boitumelo, Kuyini, & Major, 2020). Schools that provided such professional development to its teachers provided effective learning environment for learners with dyslexia as teachers were equipped to deal with learners' differentiated needs (Mukhopadhyay, Mangope, & Moorad, 2019). On the other hand, schools with little access to continue training adapted poorly to the new changes in the techniques of teaching hence practicing less effective teaching techniques (Kuyini et al., 2024).

These findings implied that increasing the inclusion and utility for learners with dyslexia of the South-East Region could only be made more of a generalized and regular affair of the teacher training interventions. It would be beneficial to make sure all teachers were able to have continuing education on dyslexia that would be of higher quality and specific to their craft; this

would mean there would no longer be a distinction between schools, and thus the gap would be closed. Further, enhancing the professional development of teachers in schools would guarantee that they were prepared to assist learners since teachers were introduced to new practices and technologies in connection with learning.

### 5.4.3 Inclusive Teaching Practices

Previous information, including case studies and school reports, proved to be useful sources of information concerning the use of strategies that promote the integration of learners into mainstream primary schools in the South East Region (Makonyango, 2021). The information showed that the schools implementing certain teaching practices like Gestalt teaching, multisensory approach, one-to-one instruction, and the use of computers, IT aids, and software, achieved higher results for learners with dyslexia. The multisensory teaching, which involved the use of all the several classifications or ways through which information is passed to the learners' brain, sight, sound, and touch, was especially helpful to learners with dyslexia (Mukhopadhyay, Mangope, & Moorad, 2019).

In return, schools that implemented the above inclusive practices had learners with dyslexia with increased engagement and academic achievement. For instance, tools such as text-to-speech applications and audiobooks ensured that the learning needs of a particular learner were met in line with his or her reading skills, despite the knowledge level possessed. Pre-school teachers were able to provide special lessons to cater for learners with dyslexia in their classrooms, so that they would be able to get all the special attention and time required to overcome their difficulties and make them learn and understand that they could do it.

However, the information also revealed that the approaches' deployment in these institutions was also uneven. In some schools that had adopted the strategies, teachers lacked appropriate training or materials to employ multi-sensory ones, or the schools or teachers had no access to the most modern aids. Thus, the learners with dyslexia in these schools would have been provided with less adequate support compared to their counterparts in other well-endowed schools; this meant that the distribution of educational accomplishment would not be even. They found that variation in the types and levels of resources and training needed, which implied that more should be spent so that all schools could offer an effective learning environment to learners with dyslexia.

Specific, inclusive practices that had been tied to positive learner outcomes demanded that evidence-informed practices be adopted in all the schools in the region. It was possible that the teachers received proper training and materials about how to support learners with dyslexia so that the educational environment was conducive to accommodating the learners. As a result, it may be seen that such learners would have better academic results, enhanced levels of participation, as well as increased effectiveness and efficiency within the classroom, thereby promoting equity in the learning system.

### 5.4.4 Challenges in Implementation

The school records and other databases revealed many difficulties that schools in the South East Region experienced while embracing education and learning for learners with dyslexia. One primary difficulty was the shortage of both materials and equipment, such as teaching aids, technologies, and professionals (Mukhopadhyay, Mangope, & Moorad, 2019). Schools were still able to exclude learners with dyslexia from the services they required, such as a speech therapist or an educational psychologist. Lack of these resources implied that it was difficult to provide a learning environment that would be a perfect fit for all the learners, as identified by Mosalagae and Bekker (2021).

Another factor that was discovered to hinder the process of inclusion was large class sizes. When there were several learners in a class, the teacher reached the end of their lesson in attempting to attend to many learners' needs, especially those with academic challenges like dyslexia. The data available suggested that in such contexts, teachers were forced to teach as if there is only one learner in a classroom, which was very unfair to learners with learning disability. This was a major concern pointing towards the need to have policies that were likely to make class sizes smaller or have more support staff to provide equal attention to all the learners as required (Okyere et al., 2019). Parent-teacher participation or lack of the same also came out as issues that affected childcare and development. As mentioned, it could have featured an effective partnership between schools and households to guarantee that learners with reading and writing challenges got adequate support at school as well as from home (Mosalagae & Bekker, 2021). However, the results also showed that in some of the cases, parents were under-involved or even ignorant of how best to facilitate their child's learning. This lack of engagement meant there were gaps in support that adversely affected the academic achievement of the learners with dyslexia.

Another difficulty was the teachers' unwillingness to support and implement the inclusive measures in their classrooms. Some teachers could be resistant to implementing the teaching practices attributed to the perception that the inclusive approach increases their load, while they did not receive sufficient training or support (Chitiyo & Dzenga, 2021). To meet these challenges, a multiple-pronged strategy was needed, which entailed diverting more resources to schools, providing further training to teachers, and parent education and outreach to increase acceptance of the ideas of inclusion among teachers.

### 5.4.5 Student Performance and Progress

Year in and year out, results analysis of learners' performance answered the main research question by highlighting how learners with dyslexia performed in general classrooms within the South East Region. Through comparing test results, grades, and any other academic parameters, the researcher identified the way that learners with dyslexia were performing against the other learners and whether their results had shifted up or down (Chitiyo & Dzenga, 2021). The principles of targeted activities, including the use of specialized reading instruction or coaching of individual learners, revealed that schools that chose to fully implement the inclusion policy yielded slow but steady progress in the reading and writing ability of the learners. However, the same data also established a sign of decline or even regression in the academic performance of the learners with dyslexia in schools that had not fully or had partially implemented such intervention (Makwinja, 2020). This implied that if adequate and consistent support was not given to learners with dyslexia, they would be left behind, enhancing the expansion of achievement gaps. Such findings underlined the need to continue and focus efforts on providing the appropriate support required by learners with dyslexia in order to be able to catch up and perform well in class to the best of their abilities (Mncube & Lebopa, 2019). In addition, the analysis established the disparities across the learning achievements in view of dyslexia intensity, economic status, or parental participation (Mutasa & Munsaka, 2019).

## 5.5 CHAPTER CONCLUSION

This chapter systematically presents the findings of the study guided by the research objectives and sub-research questions. Responses from multiple sample categories, including various question sets, were synthesized and organized in alignment with the research questions, which were formulated to address the study's overarching inquiry.

During the presentation of data, Likert scale responses exhibiting similarity were grouped together. In this process, based on the specific questions posed, responses categorized as "agree" and "strongly agree" were consolidated to represent a positive outcome, while responses labelled as "disagree" and "strongly disagree" were combined to denote a negative result. When deemed necessary, individual responses were highlighted separately to provide a more nuanced interpretation. Additionally, responses classified as indecisive were assumed to indicate a neutral stance, ensuring a comprehensive analysis of participant perspectives.

The next chapter presents the summary of findings, conclusions, and recommendations based on the study findings.

# CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 6.1 INTRODUCTION

This chapter provides a comprehensive synthesis of the findings from the study on instructional approaches for learners with dyslexia in inclusive mainstream primary school settings within the South-East Region of Botswana. It systematically integrates key results, offering targeted recommendations for teachers, policymakers, and other relevant stakeholders. These recommendations are grounded in the collected and analyzed data, as well as the broader discussion of the study's findings. Furthermore, the chapter critically reflects on the implications of these findings, highlighting essential areas for improvement in inclusive education for learners with dyslexia. Additionally, it proposes actionable strategies aimed at enhancing pedagogical practices and policy interventions to support equitable and effective learning environments.

## 6.2 REVIEW OF THE RESEARCH PROBLEM

Chapter 1 of the study provided a comprehensive background, emphasizing the importance of fostering an inclusive classroom environment for learners with dyslexia. It highlighted that for these learners to thrive academically, teachers must possess a thorough understanding of pedagogical methods and instructional objectives tailored to their specific needs. Furthermore, the chapter underscored the necessity for teachers to develop effective strategies for instructing students with dyslexia, ensuring that appropriate learning goals are established to support their educational development. This idea was substantiated by Booth and Ainscow (2018), Landsberg (2019), Chitaika and McKenzie (2016).

The term 'dyslexia' is rarely used in Botswana because many teachers were uncertain about the appropriate terminology for this type of specific learning disability (Landsberg, 2019). Over the past few years, problems in relation to learners with special education needs have been an issue of concern in the school system in Botswana (Haage, 2017; Chitaika & McKenzie, 2016). In the literature review section of chapter 3, it was pointed out that there was inadequate effort made to cater for learners diagnosed with dyslexia due to the absence of adequate awareness created among teachers and caregivers regarding the type of interventions that learners with dyslexia require (Themane &Thobejane, 2019). It has also been noted that insufficient measures have been taken for learners with dyslexia, as not all teachers and caregivers were

informed about the necessary interventions that they must put in place for learners with dyslexia (Ooko, Aloka & Koweru, 2019; Maxwell, 2019; Nkomo, Dube & Tautona, 2022).

There was a need for teachers to help, teach, and support learners with dyslexia, even if they lacked comprehensive training and resources to effectively address the needs of learners with dyslexia (Sleeman et al., 2022; Hettiarachchi, 2021). Substantial measures had to be employed by the teachers to ensure learners with dyslexia were on par with their counterparts with regard to achieving the curriculum outcomes, attainment of the learning outcomes, and compliance with the school rules, regulations, and standards (Ashraf & Najam, 2020; Themane & Thobejane, 2019). This research sought to answer the main research question formulated in Chapter 1 that stated: *How do teachers teach learners with dyslexia in an inclusive mainstream primary school setup?*

## 6.3 SUMMARY OF FINDINGS INFORMED BY THE THEORETICAL FRAMEWORK

This section of the study summarizes the findings of the study as per the study sub-research questions

**Sub-research question 1:** ***To what extent are the teachers able to teach and manage learners with dyslexia in inclusive mainstream primary school settings?***

The researcher noted that most of the teachers agreed that dyslexia was a language-based learning disorder that interfered with spelling, writing, and pronunciation. Results indicated the majority agreement from respondents that dyslexia was a persistent problem for people throughout their lives, but no one agreed on a single cause. Teachers had estimated that dyslexia affects about 10% of the learners' population, but responses on this figure were all over the map. Respondents were in agreement that sensory-rich, multi-component instructional strategies (visual, auditory, kinesthetic, and tactile methods) that aligned with Baddeley's (2012) multi-component theory of working memory (which claimed that using different sensory channels to process information was helpful) were important. These findings suggested that while teachers knew what worked well to support learners with dyslexia, others had little practical knowledge of how to implement these methods because initial teacher training programs and continuing in- service training were lacking (Nelson, 2024).

This study's findings had revealed that some Botswana teachers in the classrooms had adapted their lessons to meet the needs of learners with dyslexia by scaffolding, which implied segmenting tasks into smaller steps, providing explicit guidance and maintaining structured routines. They promoted a feeling of organisation and social support of learners with dyslexia and reduced feelings of isolation and built confidence in an inclusive environment, as advocated by Nkomo, Dube, and Tautona (2022). This research argued that the classrooms ought to be welcoming so that learners felt safe expressing their needs and, in turn, persuading their teachers to opt for alternative means of demonstrating learning, such as administering multimedia assignments and oral presentations. Other studies in similar contexts have corroborated these techniques; for example, research conducted in Zimbabwe (Themane & Thobejane, 2019). Australia (Maxwell, 2019) had also shown integrated practices that supported learners with dyslexia in an inclusive setting.

The study's findings suggested that support for learners with dyslexia in inclusive environments should be planned and resourced extensively. The study indicated that although Botswana teachers have demonstrated remarkable adaptability, there is a need for much greater professional development opportunities. This would mean that teachers could keep up with what was going on in the world of inclusive education, thus creating classrooms that were better able to accommodate the diverse needs of learners throughout the globe.

**Sub-research question 2:** ***What is the relationship between teacher training and its impact on teaching learners with dyslexia in an inclusive mainstream primary school setup?***

With widely varying levels of confidence, respondents were able to identify some dyslexia symptoms. In one example, teachers had a low mean response of 2.50 for identifying symptoms, but a higher mean of 3.42 for distinguishing dyslexia from other learning challenges. This matched Baddeley's Multi-Component Theory, which focused on the limited capacity of working memory systems. Thus, teachers may be unable to accommodate new information regarding symptoms of dyslexia with their current teaching practices. Nevertheless, the teachers felt slightly better prepared to handle learners with dyslexia; they scored a mean of 3.90 but lower scores for perceived effectiveness in helping these learners (mean of 2.98). These findings were consistent with Baddeley's Multi-component theory in that professional development for teachers was crucial to developing their capacity to meet diverse learning needs, also advocating for training as a means to improve the central executive system's ability to reallocate cognitive resources (Gonzalez, 2020).

Respondents agreed that inclusive education was needed, but they were less than sure they had the ability to provide it. A mean score of 3.67 suggested that college training in dyslexia management was inadequate. Working Memory Theory stated that this lack of preparedness would hinder the teachers' capacity to receive and retain effective strategies for the inclusion of learners with dyslexia in the classroom, resulting in an unsuccessful application. Teachers' belief that their current methodologies were not effective for learners with dyslexia was rated with a mean score of 4.03. Moreover, several respondents also stated that learners who had problems with reading were a heavy burden for teachers (mean of 1.94), as the difficulties of inclusive classrooms overburdened them. This implicated the strain on their working memory systems in environments where cognitive demands exceeded their training and resources. This deficit of support and awareness was concerning in that it raised the point about the badly needed resources to build an inclusive learning environment, as per Padhy et al. (2016). Taken together, these results highlighted the importance of training and support systems that helped teachers manage their cognitive resources to enhance their capacity to teach learners with dyslexia as predicted by Baddeley's Multi-Component Theory.

**Sub-research question 3:** ***To what extent do teachers meet the learning needs of learners with dyslexia in an inclusive mainstream primary school setup?***

The study assessed the teachers' perceptions of the effectiveness of their time spent teaching learners with dyslexia and their ability to meet the needs of these learners. Results showed that large majorities (81%) of respondents were not wasting time on learners with dyslexia, and 19% voiced concern that they were wasting their time doing so. This all occurred despite teachers' reservations. The findings showed that teachers who knew about dyslexia and its symptoms could meaningfully help learners who had reading problems. This was consistent with Nelson (2024), suggesting that learners with dyslexia were often without personal support in usual educational settings, underscoring the salience of tailoring interventions.

Based on the study findings, teachers must use adaptable teaching techniques in order to teach learners with dyslexia. To assist learners with dyslexia to understand this research suggested that teaching must be presented logically and in digestible portions. Clear and succinct education and a varied curriculum are crucial. It entailed adapting teaching methods, assessment strategies, and the material being taught to accommodate different learning preferences and styles. The concept of multi-level teaching made instruction inclusive by enabling the curriculum to be tailored to each learner's requirements. According to Themane

and Thobejane (2019), learners with dyslexia benefited from variable pace and various instructional resources, which helped them meet their learning goals more successfully.

To help learners with dyslexia enhance their understanding and retention, this research also recommended numerous sensory learning experiences, which are supported by Baddeley's (2012) Multi-component Theory of working memory. Teachers must use a variety of teaching modes, such as kinesthetic, visual, and aural, in order to create a rich learning environment. It addressed how conventional content may be enhanced with additional resources like audio recordings and graphic assistance. Differentiated, measurable evaluations were also emphasized so that learners may demonstrate their knowledge in ways that suited their communication style. By encouraging teacher cooperation and building a support network, curricular differentiation may be made as successful as possible for learners with dyslexia.

**Sub-research question 4:** ***What strategies can be put in place to enhance the inclusive teaching of learners with dyslexia in a mainstream primary school setup?***

The study assessed teachers' perceptions of how they spent their time in their teaching of learners with dyslexia, as well as their capacity to meet the needs of these learners. Results showed that large majorities (81%) of respondents were not wasting time on learners with dyslexia, and 19 percent voiced concern that they were wasting their time doing so. This all occurred despite teachers' reservations. The findings revealed that teachers who knew about dyslexia and its symptoms could meaningfully help learners with reading problems. This was consistent with literature suggesting learners with dyslexia often lacked personal support in usual educational settings, underscoring the salience of tailoring interventions (Hettiarachchi, 2021; Nijakowska, Tsagari and Spanoudis, 2020).

To effectively educate learners with dyslexia, it was crucial that teachers used flexible teaching strategies. This study proposed that the lessons be broken down into manageable chunks and delivered in a logical order to help learners with dyslexia to understand. A diversified curriculum and clear and concise instruction were important. It involved changing how instruction worked, the techniques used for assessing, and what content was being learned, so that it fitted individual learning styles and preferences. The idea of multi-level teaching allowed the curriculum to be adapted to the needs of all learners, making the teaching inclusive. Themane and Thobejane (2019) highlighted the benefit of flexible pacing and the provision of

varied instructional materials to the learning of learners with dyslexia, so that they could achieve their learning objectives more effectively.

In addition, the present study suggested multiple sensory learning experiences to aid learners with dyslexia in improving comprehension and retention. Baddeley's (2012) multi-component theory of working memory upheld various instructional modalities (e.g., auditory, visual, and kinesthetic) which were needed by teachers to fully develop a rich learning environment. It covered the use of other materials, such as audio recording and visual aids, to supplement standard material. Measurable, differentiated assessments were also stressed so that learners could show they knew in ways that fitted how they expressed their knowledge. The effectiveness of curriculum differentiation was able to be maximized by fostering collaboration among learners and creating a supportive network for teachers to best serve learners with dyslexia.

## 6.4 CONTRIBUTION OF THE STUDY

This study made a substantial contribution to the understanding of pedagogical strategies for supporting learners with dyslexia in an inclusive mainstream primary school environment. The findings indicated that teachers generally recognized dyslexia as a language-based learning disorder that affects spelling, writing, and pronunciation. However, the research identified a gap in practical knowledge and formal training related to the effective implementation of evidence-based instructional practices.

Furthermore, the study advocated for the use of sensory-rich, multi-component instructional approaches, aligning with Baddeley's multi-component theory of working memory. By integrating multiple sensory channels such as visual, auditory, and kinaesthetic modalities, this approach could enhance information processing and retention among learners with dyslexia. The findings underscore the necessity of incorporating such methodologies into teacher training programs to foster teachers' preparedness for inclusive teaching, thereby equipping them with the requisite skills to effectively support diverse learners.

The findings of this study revealed that teachers in Botswana have already adopted adaptive strategies to support learners with dyslexia. These strategies include segmenting tasks into smaller, more manageable steps, maintaining structured routines to enhance learning consistency, and fostering social support systems to mitigate feelings of isolation among learners. The evidence from Botswana aligned with established international practices in

inclusive education, such as early assessment, individualized program planning, and the integration of assistive technology. However, despite the commendable nature of these efforts, the results highlighted an urgent need for continuous professional development to equip teachers with state-of-the-art methodologies and effective strategies for managing the diverse learning requirements of an inclusive classroom. The study contributed to policy and program development aimed at creating equitable learning opportunities for learners with dyslexia, through a focus on these actionable insights. The findings of this research contributed to the design and implementation of targeted teacher training programs aimed at enhancing teachers' understanding of dyslexia, its effects, and effective pedagogical strategies. Furthermore, the study provided research-based evidence to inform the development of inclusive education policies in Botswana. Lastly, the findings served as a valuable resource for awareness-raising campaigns, workshops, and seminars aimed at educating stakeholders about dyslexia and its implications for learners. Through these efforts, the study aimed to improve teachers' knowledge and support mechanisms, ultimately fostering an educational environment that is more inclusive and responsive to the needs of dyslexic learners.

This study contributed to the body of knowledge of teaching learners with dyslexia in mainstream primary schools. The model aimed to enhance the teaching of learners with dyslexia by providing a comprehensive framework for teachers to tailor their instruction to meet the unique needs of these learners. By integrating multisensory approaches, assistive technology, and differentiated instruction, this model sought to improve academic outcomes, boost confidence, and foster a more inclusive learning environment. Through this model, teachers could be empowered with the knowledge, skills and resources necessary to support learners with dyslexia in achieving their full potential

## 6.5 CONCLUSION

*The study concluded that teachers could facilitate the learning of learners with dyslexia in Botswana's inclusive mainstream primary school setting*.

Teachers were aware of the major obstacles to learning presented by dyslexia but were too often not trained, nor did they have the resources to overcome them. While some teachers were using adaptive strategies, the absence of systematic teacher preparation and professional development limited the full realization of evidence-based practices. The practical solutions to support learners with dyslexia provided by aligning teaching strategies with such theories as

Baddeley's multi-component theory of working memory were clear. Training programs could be strengthened, and sensory-rich, multi-component instruction could be promoted to significantly enhance the effectiveness of inclusive education.

*Teacher training was critical to the relationship between the ability to teach learners with dyslexia*.

The study concluded that teachers were somewhat prepared to deal with dyslexia, but they did not receive enough training to deal with it in inclusive classrooms. Results highlighted the need for teachers, learners and practitioners to be given targeted training and resource allocation to enhance their ability and confidence. Teachers could gain the skills needed to create an inclusive classroom by addressing gaps in initial teacher education and through the provision of such continuous professional development. Teachers, parents and other specialists also may collaborate to build a kind of support system that is more established for learners with dyslexia that could nurture them academically and make them feel better about things in general.

*Finally, strategies to improve inclusive teaching must be multi-layered; that is, involving sufficient resources, teacher training, and stakeholder collaboration*.

Financial and technical support should be given by governments and educational institutions in order to help schools acquire the required goods to develop inclusive environments. The study underscored the importance of teacher, parent, and specialist involvement in the development of personalized instructional strategies, including multimodal learning experiences and differentiated assessments. Through these initiatives, teachers would construct inclusive classrooms where learners with dyslexia could excel academically and socially and give everyone an equitable, high-quality education.

## 6.6 LIMITATIONS OF THE STUDY

This study was subject to several limitations, including constraints related to sample size, potential bias, and generalizability. The sample was inherently biased, as participants were primarily drawn from urban schools, with the majority being teachers from government primary schools. Representation from previously disadvantaged rural schools was limited, which may affect the applicability of findings to a broader educational context.

Additionally, the voluntary nature of participation resulted in a self-selected group, potentially leading to selection bias and restricting the diversity of perspectives captured. Consequently, the study's results may not fully reflect the perceptions of all teachers in the South-East Region, as participation was not comprehensive. Furthermore, response bias was a concern, as participants may have tailored their answers based on perceived expectations from the researcher. This was particularly relevant for responses related to knowledge of dyslexia and self-assessment of their ability to identify and manage the condition.

Another significant limitation was financial constraints. As the study was self-funded, the costs associated with printing, editing, and data analysis using statistical techniques were substantial, which could have affected the scope and depth of the research.

### 6.6.1 Overcoming Limitations

To enhance the generalizability and replicability of findings, the researcher expanded the sample to include a more diverse range of schools across multiple educational regions. This broader representation allowed for more reliable conclusions applicable to similar educational contexts.

Moreover, the study's limitations were viewed as opportunities for future research recommendations. The researcher employed rigorous methodological controls to minimize personal influence and prevent undue bias in data interpretation. In addressing financial constraints, applications for research funding and bursaries were submitted to the university's Department of Education, under which the study was conducted.

### 6.6.2 Delimitations of the Study

While the study had notable limitations, the researcher remained committed to the predefined objectives, research questions, and target population. The study specifically examined the teaching of learners with dyslexia within an inclusive mainstream educational setting.

The research was confined to schools in the South East Region, encompassing Gaborone—the capital city of Botswana—as well as peri-urban areas such as Tlokweng and Ramotswa. These locations were selected based on accessibility and feasibility for the researcher, ensuring efficient data collection and analysis. This delineation ensured a focused investigation within

a manageable scope while acknowledging the broader applicability of findings to similar educational settings.

## 6.7 RECOMMENDATIONS

### 6.7.1 Policy and legislation

Despite the challenges teachers and learners with dyslexia faced, there was an urgent need to revise educational policies and legislation in favour of inclusive education. The Botswana Government should set out clear lines of who should be identified, assessed, and supported for dyslexia in mainstream schools. These policies must include provisions of early diagnosis, Individualised Education Program (IEPs), and monitoring of the progress of learners. Legislative measures should also ensure that teacher training programs include modules that specifically complete and train teachers to deal with the different needs and wishes of all learners. The Department of Education should come up with policies and legislation that obligate the schools to execute inclusive education teaching strategies for learners with and without disabilities.

Moreover, financial grants must be specially designated for inclusive educational projects that seek to create dyslexia-friendly resources and technologies. Legislation should enshrine stakeholder collaboration between schools, specialists, and parents. The Botswana government should set national standards of inclusion in education, and education reform agendas should ensure protection and support for the rights of learners with dyslexia, within mainstream education.

### 6.7.2 Continuous professional development/teacher raining

This was the case for comprehensive and continuous professional development (CPD) in dyslexia and inclusive education. Regular, evidence-based instruction like multi-sensory teaching and culturally and linguistically responsive instruction, differentiating assessments, and embedding the most recent research in inclusive education should be provided to teachers. Additional components were required, including practical workshops and peer learning opportunities, to facilitate the effective implementation of these strategies by teachers within their instructional environments.

Additionally, teacher training institutions must restructure their curricula to include training modules on dyslexia and inclusive education. The primary objective of these modules should be to equip pre-service teachers with the theoretical and practical competencies necessary to effectively identify and respond to the diverse educational needs of learners with dyslexia. This entails fostering a deep understanding of the cognitive and linguistic challenges associated with dyslexia, as well as developing evidence-based instructional strategies that promote inclusive and differentiated learning.

By integrating research-informed pedagogical approaches and diagnostic frameworks, these modules should prepare future educators to create supportive learning environments that accommodate the varied profiles of dyslexic learners, ensuring equitable access to quality education. Finally, collaborative partnerships with international organisations and experts on dyslexia education could further improve the quality of teacher training programs so that they could be practiced as per international standards. Educational systems could create a workforce of teachers who are well-prepared to create an inclusive learning environment for all learners by putting teacher training on the priority list.

### 6.7.3 Resources

Resource provision played an important role in improving the teaching of learners with dyslexia in inclusive settings. Dyslexia-friendly materials such as audiobooks, assistive technologies, and tactile learning aids should be made available by schools, to meet a range of learning needs. For the procurement and distribution of these resources, Botswana governments and educational stakeholders need to first prioritise budget allocations for these and make them available in all schools, especially in schools in resource-constrained areas.

Moreover, schools need to develop resource centres that would allow teachers and learners access to teaching aids, assessment tools, and professional support. Non-governmental organisations and private sector partners could also be involved in collaboration by funding innovative programs and donating relevant materials. Schools could create resource-rich environments that would greatly improve the learning experience of learners with dyslexia and help teachers make effective instructional strategies.

### 6.7.4 Support

An effective teaching of learners with dyslexia in inclusive settings requires a robust support system. Teachers, special education experts, counsellors, and therapists on the multi-disciplinary team need to be there to give learners with dyslexia holistic support. Parents should be organized to meet with the parents and teachers regularly to share a support strategy between the home and school.

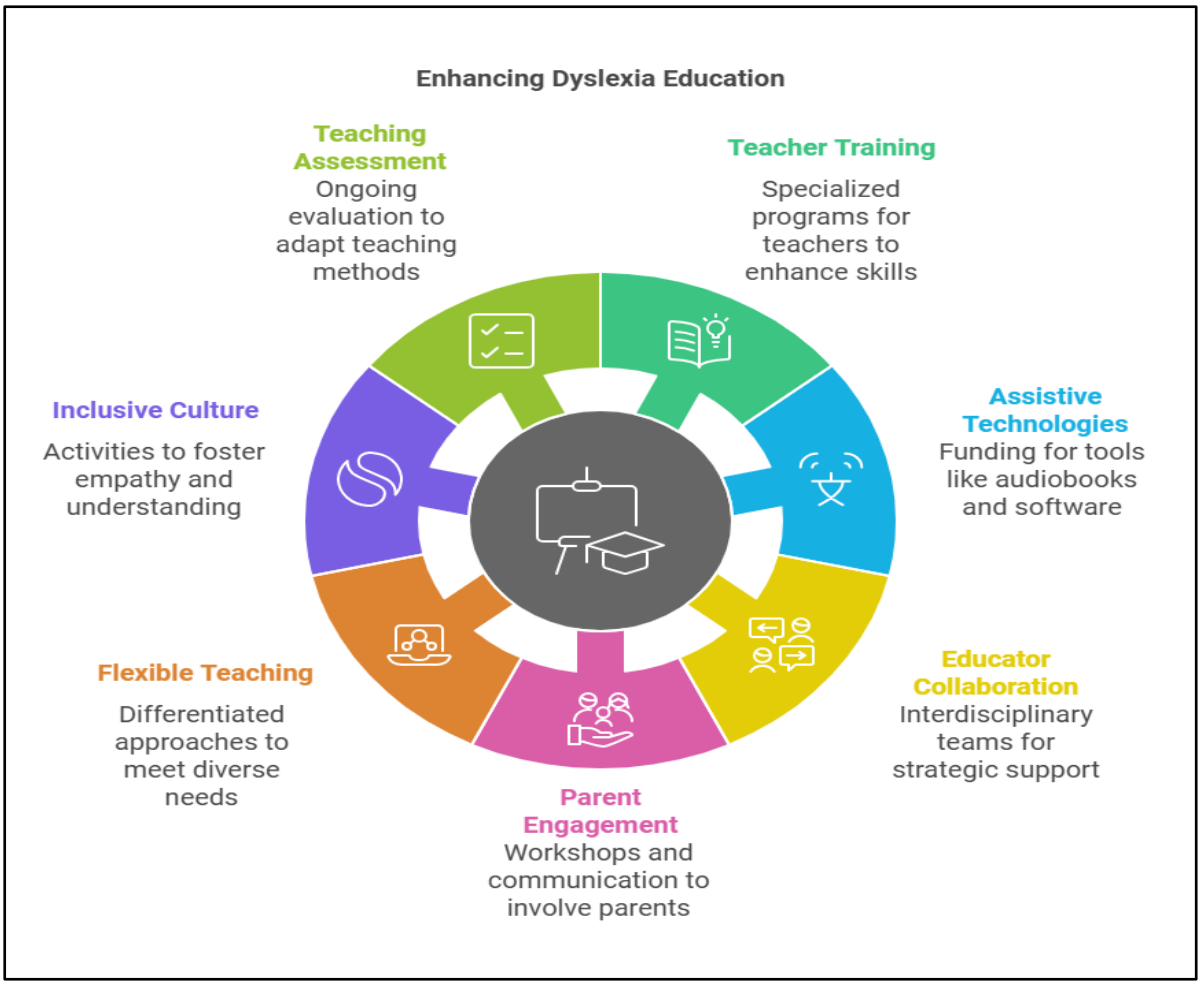
The peer mentoring program could be introduced as a supportive classroom environment in which learners with dyslexia could be included and encouraged. The mental health support services offered at educational institutions were also important, as learners with dyslexia faced emotional challenges. When schools create a strong support network of services, learners with dyslexia are assured that they are getting personal help to progressively learn and be successful academically and socially.

### 6.7.5 Model to enhance the teaching of learners with dyslexia in an inclusive setup in mainstream primary schools

A comprehensive framework for developing an inclusive setup through which the teaching of learners with dyslexia could be enhanced was a model that was elaborate enough to meet the unique challenges of learners with dyslexia and create an educational environment for the same. It was a model that integrated specialized teacher training, resource allocation, collaboration, parental engagement, flexible teaching strategies, inclusive school culture, and ongoing assessment to form a system of supports for the diverse needs of learning. The model was based on evidence-based practices, and stakeholders were involved to provide tailored instruction and needed support to learners with dyslexia to enable them to flourish academically and socially.

Figure 6.1 illustrates a model for an inclusive and effective learning environment that is composed of seven interlinked components.

**Figure 6.1: Masupe's Model to Enhance Teaching of Learners with Dyslexia in an Inclusive Setup**




Source: Author's own computation

**Teacher training:** Specialised training of teachers would provide teachers with knowledge and skills to recognize and support learners with dyslexia with evidence-based strategies. Moreover, this component shows the link between teacher training and how well teachers can teach learners with dyslexia. Current training programs do not enable teachers to develop sufficient confidence to identify dyslexia symptoms and to implement suitable teaching methodologies. Baddeley's theory explained this inadequacy to the extent that it hampered teachers from processing and using new strategies effectively. The study highlighted the need for targeted training programs to address cognitive constraints on teacher preparedness and support teachers in effectively serving learners with dyslexia by linking teacher preparedness to working memory constraints.

**Assistive technology:** Resource allocation was concerned with how assistive technologies and materials could be provided to improve engagement and understanding, such as audiobooks and text-to-speech software. Learners with dyslexia could access literature and information

without having to deal with reading difficulties with audiobooks, or by text-to-speech software that could convert spoken words to improve comprehension and interest. To make proper allocation of these resources, planning, budgeting, and training teachers on how to effectively use these tools, such that there is a conducive learning environment, is required. This also includes ensuring that these technologies are always made available and customized to fit the learners' needs, thereby making learning more inclusive and raising academic outcomes.

**Teacher/educator collaboration**: Teachers and specialists collaborated to develop and implement comprehensive intervention plans that were suitable for learners with dyslexia. The study emphasised the role of collaborative efforts between teachers and a sense of a supportive network sharing best practices and resources to develop an inclusive education culture. The findings also pointed to a need to pay more attention to teacher collaboration and support systems that would help them integrate inclusive strategies effectively.

**Parental engagement:** In an inclusive learning environment, parental engagement was an important factor in increasing a child's educational experience if they had dyslexia. It was about parents actively involved in educational processes with several means, including workshops, communication, and choice-giving, and learners' learning strategies. Workshops could help parents acquire knowledge and tools to meet their children's needs at home and help everyone stay informed about the progress and challenges they could be facing, through communication between teachers and parents. In addition, it provides an environment to share decision relevance with parents, which fosters collaborative action to address the needs of each child. Parental engagement strengthens the partnership with teachers and engenders a more supportive, holistic learning environment that could greatly improve educational outcomes among learners with dyslexia.

**Flexible Teaching:** Advocates for differentiated and multisensory instructional strategies. The approach to flexible teaching strategies focused on teaching to accommodate varied learning styles. There is a need for flexible and differentiated teaching strategies in accommodating learners with dyslexia. These strategies involve, among others, designing down, flexible grouping, and multi-level teaching, which involves adjusting the level of instruction during a lesson, where the teacher alternates between simplifying and enhancing the presentation of the target concept to engage both below-level and above-level learners. In addition, such methods not only make teaching inclusive but also help to improve the learning outcomes of all learners.

**Inclusive culture:** In educational institutions, fostering an inclusive culture is fundamental to creating an environment where all learners, particularly those with dyslexia, feel acknowledged and supported. This necessitates the implementation of targeted initiatives, such as awareness campaigns and comprehensive staff training programs, designed to mitigate stigma and cultivate a positive and accepting attitude toward diversity. They work to promote empathy, raise awareness, and promote acceptance of all learners, regardless of learning differences. It also meant that staff are well-trained and could support diverse learning needs and create an environment where learners would feel safe and included. Through these efforts, an inclusive school culture could promote a school culture that benefits all learners, including learners with dyslexia, and enrich the whole school community by examining the concept of valuing respect, understanding and celebrating individual differences.

**Teaching assessment:** The final point of the model was that teaching practices should be regularly assessed and adjusted so that teaching practices continue to be responsive to the changing needs of learners with dyslexia. Collectively, they constitute a dynamic and inclusive architecture to support educational settings within the mainstream for learners with dyslexia. It is also a tool that could be used to find out how ready teachers are to join the world of work.

## 6.8 SUMMARY AND SUGGESTIONS FOR FURTHER STUDIES

Future research on the pedagogical approaches used in the instruction of learners with dyslexia in inclusive educational settings would explore multiple avenues to enhance understanding of the most effective practices. Qualitative methodologies, such as structured interviews with teachers, parents, and learners with dyslexia, could provide first-hand insights into the challenges and successes experienced within classroom environments. Furthermore, comparative studies of educational practices across different regions in Botswana could facilitate the identification of best practices that may be adapted to local contexts while accounting for cultural and systemic differences. Longitudinal studies tracking the academic progress of learners with dyslexia over time would offer valuable perspectives on the long-term effects of various instructional strategies and interventions. Additionally, research examining the impact of parental involvement on learners' educational outcomes could inform strategies for fostering family engagement in the learning process.

The effectiveness of technology-enhanced learning tools designed specifically for learners with dyslexia warrants further exploration to identify innovative approaches that accommodate

diverse learning needs. Moreover, additional research could investigate how professional development programs may be integrated into specialized teacher training initiatives to assess their influence on instructional effectiveness. Such findings would contribute to the advancement of inclusive education practices and support the continual refinement of pedagogical strategies for learners with dyslexia.

## 6.9 CHAPTER CONCLUSION

This study yielded significant insights into the complexities associated with the education of learners with dyslexia within inclusive mainstream primary schools in the South East Region of Botswana. The findings highlight both the challenges and opportunities inherent in this educational context, contributing to a deeper understanding of effective pedagogical strategies and support mechanisms for learners with dyslexia.

Having thoroughly expounded on this kind of learning disorder, dyslexia, teachers still needed to find ways to fill the gaps in training, resources and practical strategies to help the affected learners achieve their educational goals. The findings underscored the need for multiple component instructional approaches that were consistent with Baddeley's theory of working memory to provide inclusive and supportive learning environments. Targeted teacher training, resource allocation, and collaboration in frameworks that address these gaps could create a positive impact on the educational experiences and outcomes for learners with dyslexia, bringing more quality and equity to the education system.

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Zylstra, C. (2022). Dyslexia in Canada: Diversity in Cultures, Landscapes and Approaches to Education. In *The Routledge International Handbook of Dyslexia in Education* (pp. 39-46). Routledge.

# APPENDICES

## Appendix A: Ethical Clearance Certificate

UNISA university of south africa

**UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE**

Date: 2020/11/11

Ref: **2020/11/11/44979525/49/AM**
Name: Mrs DB Masupe
Student No.: 44979525

Dear Mrs DB Masupe

**Decision:** Ethics Approval from 2020/11/11 to 2025/11/11

**Researcher(s):** Name: Mrs DB Masupe
E-mail address: 44979525@mylife.unisa.ac.za
Telephone: +267-73700002

**Supervisor(s):** Name: Dr. M.K. Malahlela
E-mail address: malahmk@unisa.ac.za
Telephone: 012 481 2755

Name: Prof FD Mahlo
E-mail address: mahlofd@unisa.ac.za
Telephone: 012 481 2756

**Title of research:**

**CHALLENGES IN THE INCLUSION OF LEARNERS WITH DYSLEXIA IN THE MAINSTREAM PRIMARY SCHOOLS OF SOUTH EAST REGION, BOTSWANA.**

**Qualification:** PhD Inclusive Education

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2020/11/11 to 2025/11/11.

*The **medium risk** application was reviewed by the Ethics Review Committee on 2020/11/11 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.

University of South Africa
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2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.
4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
8. No field work activities may continue after the expiry date **2025/11/11**. Submission of a completed research ethics pro gress report will constitute an application for renewal of Ethics Research Committee approval.

*Note:*

*The reference number* **2020/11/11/44979525/49/AM** *should be clearly indicated on all forms of communication with the intended research pa rticipants, as well as with the Committee.*

Kind regards,

**Prof AT Motlhabane**
**CHAIRPERSON: CEDU RERC**
motlhat@unisa.ac.za

**Prof PM Sebate**
**EXECUTIVE DEAN**
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**Appendix B: Permit Letter – Request to Conduct Research**

19 January 2024

Director- Regional Operations
South-East Region
Gaborone

Dear Sir / Madam

**APPLICATION FOR RESEARCH PERMIT- MYSELF**

The above matter refers.

I Mrs. Doreen Boikhutso Masupe of student No: 44979525, currently studying at University of South Africa (UNISA), do hereby apply for permission to conduct research in some schools of South East Region.

The title of my Research is: **Teaching Learners with dyslexia in the mainstream Primary Schools of South East Region in Botswana.** The study will be conducted at the following schools

- Tsholofelo Primary
- Ikageng Primary
- Bophirima Primary
- Masa Primary
- Mophane Primary
- Tshiamo Primary

The research will be done through questionnaires which will be distributed to selected school and to be completed by School heads, HOD-Upper, HOD-Middle and teachers within those departments.

Attached are the necessary documents.

Thank you

For further clarification, please contact

Mrs. Doreen B. Masupe
Researcher & Student
Contact: +267- 71700896
Email: 44979525@mylife.unisa.ac.za
Khutsimasupe@gmail.com

Dr. M.K. Malahlela- Supervisor
Department of Inclusive Education
Email: malahmk@unisa.ac.za
Tel: 012 484 2755

**RESEARCH SCHEDULE**

Below is a schedule of research activities which the researcher will follow

| Date | Activity | Status |
|---|---|---|
| 24.01.2024 | Meeting with school authorities to identify focal person | |
| 26.01.2024 | Meeting with focal person and distribution of consent forms | |
| 01.02.2024 | Distribution of questionnaires | |
| 09.02.2024 | Collection of questionnaires from schools | |
| | | |

**CONSENT FORM FOR HODS (UPPER & MIDDLE).**

Title: **Teaching Learners with Dyslexia in the mainstream Primary Schools of South east Region in Botswana**

DEAR PROSPECTIVE PARTICIPANT

I _____ (participant's name) confirm that I agree to partake in this research and that the researcher has extensively explained the nature, procedures, possible benefits and expected inconveniences of my participation. The researcher explained that the findings will be processed into a research report and assured that my participation will remain confidential and anonymous.

All information gathered during this research work will be used only for the purpose of this study and will be kept confidential at all times. The respondents' privacy and sensitivity will be protected throughout this study. Participants' identities will not be shared with any third parties. No names, identities nor their work place will be allowed to be put on the questionnaires.

_____ _____

Participant's signature Date

_____ _____

Researcher's Names & Surname Date

_____

Researcher's signature

For further clarification, please contact my supervisor on the following:

Dr. MK Malahlela – Lecturer
Department of Inclusive Education
College of Education – School of Educational Studies
UNISA Email: malahmk@unisa.ac.za
Tel: 012 484 2755

CONSENT FORM FOR SCHOOL HEADS

Title: **Teaching Learners with Dyslexia in the mainstream Primary Schools of South east Region in Botswana**

DEAR PROSPECTIVE PARTICIPANT

I _____ (participant's name) confirm that I agree to partake in this research and that the researcher has extensively explained the nature, procedures, possible benefits and expected inconveniences of my participation. The researcher explained that the findings will be processed into a research report and assured that my participation will remain confidential and anonymous.

All information gathered during this research work will be used only for the purpose of this study and will be kept confidential at all times. The respondents' privacy and sensitivity will be protected throughout this study. Participants' identities will not be shared with any third parties. No names, identities nor their work place will be allowed to be put on the questionnaires.

_____ _____

Participant's signature Date

_____ _____

Researcher's Names & Surname Date

_____

Researcher's signature

For further clarification, please contact my supervisor on the following:

Dr. MK Malahlela – Lecturer
Department of Inclusive Education
College of Education – School of Educational Studies
UNISA Email: malahmk@unisa.ac.za
Tel: 012 484 2755

**CONSENT FORM FOR HODS (Teachers).**

Title: **Teaching Learners with Dyslexia in the mainstream Primary Schools of South east Region in Botswana**

DEAR PROSPECTIVE PARTICIPANT

I _____ (participant's name) confirm that I agree to partake in this research and that the researcher has extensively explained the nature, procedures, possible benefits and expected inconveniences of my participation. The researcher explained that the findings will be processed into a research report and assured that my participation will remain confidential and anonymous.

All information gathered during this research work will be used only for the purpose of this study and will be kept confidential at all times. The respondents' privacy and sensitivity will be protected throughout this study. Participants' identities will not be shared with any third parties. No names, identities nor their work place will be allowed to be put on the questionnaires.

_____ _____

Participant's signature Date

_____ _____

Researcher's Names & Surname Date

_____

Researcher's signature

For further clarification, please contact my supervisor on the following:

Dr. MK Malahlela – Lecturer
Department of Inclusive Education
College of Education – School of Educational Studies
UNISA Email: malahmk@unisa.ac.za
Tel: 012 484 2755

## Appendix C: Permission Letter 1

MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT

TELEPHONE: (267) 3931851
(267) 3972454
FAX: (267) 3975899

Republic of Botswana

Director, Regional Operations
South East
Private Bag 00343
GABORONE
BOTSWANA

---

**REF:** SER DPRS 2023/0287

22 January 2024

Doreen B. Masupe
P.O. Box 502248
Gaborone

**PERMISSION TO CONDUCT A RESEARCH**

Reference is made to your letter dated **19 January 2024** requesting to carry out research in **South East Region** is here by granted. The research will be carried out at **Tsholofelo, Ikageng, Bophirima, Masa, Mophane and Tshiamo Primary Schools.** This permit is valid from **January 2024** to **January 2025,**

Your research is titled **"Teaching learners with Dyslexia in Mainstream Primary Schools Sub South East Region, Botswana".** Permission is hereby granted for you to carry out your research as per your request. However, **Covid- 19 Protocols have to be strictly adhered to by yourself.**

**NB: Furthermore, you are requested to submit at least two (2) hardcopies and an electronic copy of the report to the South East Region, Ministry of Education and Skills Development within 3 months of completion of the study. Approval is for academic fulfillment only. Copies should be submitted to all other relevant authorities.**

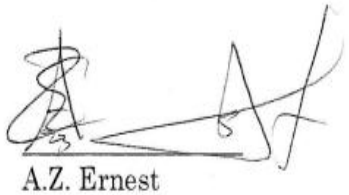
Thank you.

Yours faithfully,

A.Z. Ernest (Mr)
For/ Director, Regional Operations, South East Region

**Appendix D: Permission Letter 2**

**SAVINGRAM**



**FROM:** Director, Regional Operations
South East Region

A.Z. Ernest
**for/Director**

**TEL:** 3972454

**FAX:** 3972915/3975899

**TO:** School Heads
Tsholofelo Primary School
Ikageng Primary School
Bophirima Primary School
Masa Primary School
Mophane Primary School
Tshiamo Primary School

**REF:** SER DPRS 2023/0286 22 January 2024

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**PERMISSION TO CONDUCT A RESEARCH**

**Doreen B. Masupe** is a student at **University of South Africa** who has been granted permission to conduct research study in your school with effect from January 2024 to January 2025. The research is on **"Teaching learners with Dyslexia in Mainstream Primary Schools Sub South East Region, Botswana".**

The researcher has been advised to contact you directly and also thoroughly brief you on the research. **However, all Covid - 19 Protocols should be strictly adhered to by the researcher.**

Thank you.

**Appendix E: Research Questionnaire**

**QUESTIONNAIRE FOR TEACHERS**

**Section A: Demographic Information**

Please tick the appropriate box.

**1. Gender**

| Male | Female |
|---|---|
| | |

**2. Age group**

| 21-30 years | 31-40 years | 41- 50 years | 51- 60 years | 60 + years |
|---|---|---|---|---|
| | | | | |

**3. What is the main language you use to teach?**

| English | Tswana | Both languages |
|---|---|---|
| | | |

**4. What is the highest level of your teaching qualification?**

| Diploma | Bachelor's degree | Honours | Master's degree | Doctorate | Other (specify) |
|---|---|---|---|---|---|
| | | | | | |

**5. My area of specialisation is (please state)**

_____

**6. My professional rank is:**

| Teacher | Senior teacher (without portfolio) | Senior teacher with portfolio | HOD-Middle | HOD-Upper | School Head |
|---|---|---|---|---|---|
| | | | | | |

**7. My experience in the teaching profession**

| 0-5 years | 6-10 years | 11-15 years | 16-20 years | 21-25 years | 26-30 years | Above 30 years |
|---|---|---|---|---|---|---|
| | | | | | | |

**8. Number of learners you teach in class**

| 20-30 pupils | 31-40 pupils | Above 40 learners | Other (please specify) |
|---|---|---|---|
| | | | |

**Section B: Teaching and management of learners with dyslexia**

Please indicate using a cross (x) whether the following statements are true or false. If you are not sure, please indicate so.

| No | statements | True | False | Not sure |
|---|---|---|---|---|
| 9. | Dyslexia is a language-based learning problem. | | | |
| 10. | Learners with dyslexia usually have trouble with spelling. | | | |
| 11. | Learners with dyslexia have trouble with writing. | | | |
| 12. | Learners with dyslexia have trouble with words pronunciation. | | | |
| 13. | Dyslexia affects individuals throughout their lives. | | | |
| 14. | There is a clear cause of dyslexia. | | | |
| 15. | An estimate of about 10% of the school population is affected by dyslexia. | | | |

**16**. How do you manage learners with dyslexia in your class

_____

_____

_____

17. Are there any specific activities you give to your learners with dyslexia, or they do the general work like others

_____

_____

_____

18. Do you ever feel like you are wasting time on learners with dyslexia? **If yes, why**

_____

_____

_____

**I18.**

**b.** If no, why?

_____

_____

_____

**Section C: Teacher training and its impact on teaching learners with dyslexia**

Please evaluate the statements below using the following codes by placing a tick besides the appropriate box:

- SA – Strongly Agree
- A – Agree
- U – Unsure
- D – Disagree
- SD –Strongly Disagree

| No | Statements | SA | A | U | D | SD |
|---|---|---|---|---|---|---|
| 19. | I am able to identify symptoms / characteristics of dyslexia. | | | | | |
| 20. | I am able to identify the characteristics of a learner with dyslexia as opposed to a **learner experiencing challenges**. | | | | | |
| 21. | I able to identify a learner who is in need of a diagnostic assessment with regards to dyslexia. | | | | | |
| 22. | I was trained on how to manage learners with dyslexia. | | | | | |
| 23. | As a teacher, I am able to effectively assist learners with dyslexia in my class. | | | | | |
| 24. | The training I received at college or university gave me enough tools on managing learners with dyslexia | | | | | |
| 25. | I am confident in teaching learners with dyslexia | | | | | |
| 26. | The methodologies I use in class are adequate enough to assist a learner with dyslexia to grasp concepts | | | | | |
| 27. | I am not sure if I am doing enough to assist learners who cannot read | | | | | |
| 28. | Having learners who are unable to read in class poses a lot of work on the teacher | | | | | |
| 29. | Every child deserves a fair chance to learning inspite of the challenges they face. | | | | | |
| 30. | It is refreshing to have learners who are diverse in the classroom | | | | | |
| 31. | The school management is very supportive to teachers implementing inclusive policy in the school | | | | | |
| 32. | There are various strategies put in place to support both the learners and teachers of inclusive education in the school. | | | | | |
| 33. | Are you aware of the available strategies put in place to assist learners with dyslexia | | | | | |

**QUESTIONNAIRE FOR HODS AND SCHOOL HEADS**

**Section A: Demographic Information**

Please tick the appropriate box.

**1. Gender**

| Male | Female |
|---|---|
| | |

**2. Age group**

| 21-30 years | 31-40 years | 41- 50 years | 51- 60 years | 60 + years |
|---|---|---|---|---|
| | | | | |

**3. What is the main language you use to teach?**

| English | Tswana | Both languages |
|---|---|---|
| | | |

**4. What is the highest level of your teaching qualification?**

| Diploma | Bachelor's degree | Honours | Master's degree | Doctorate | Other (specify) |
|---|---|---|---|---|---|
| | | | | | |

**5. My area of specialisation is (please state)**

_____

**6. My professional rank is:**

| Teacher | Senior teacher (without portfolio) | Senior teacher with portfolio | HOD-Middle | HOD-Upper | School Head |
|---|---|---|---|---|---|
| | | | | | |

**7. My experience in the teaching profession**

| 0-5 years | 6-10 years | 11-15 years | 16-20 years | 21-25 years | 26-30 years | Above 30 years |
|---|---|---|---|---|---|---|
| | | | | | | |

**8. Number of learners you teach in class**

| 20-30 pupils | 31-40 pupils | Above 40 learners | Other (please specify) |
|---|---|---|---|
| | | | |

**SECTION B:**

Choose the most appropriate answer by ticking the correct box

Key: SA - Strongly Agree, A – Agree, U – Unsure, D – Disagree, SD – Strongly Disagree

| No | Statements | SA | A | U | D | SD |
|---|---|---|---|---|---|---|
| 1. | I fully understand the concept of dyslexia | | | | | |
| 2. | As a manager, I view inclusion as a waste of time to teach. | | | | | |
| 3. | Learners with dyslexia must be taught separately from the other learners without dyslexia. | | | | | |
| 4. | Teachers spend more time assisting learners with dyslexia than teaching to finish the syllabus | | | | | |
| 5. | I understand the inclusive policy of Botswana and what it intends to achieve | | | | | |
| 6. | I fully understand my role as an instructional leader and its impact on inclusive education | | | | | |
| 7. | I have adequate training on dyslexia as a school manager | | | | | |
| 8. | I need more training on the concept of dyslexia | | | | | |

**SECTION C: Completion**

What are the benefits of teaching in an inclusive setup?

……
……

Are there any strategies in place to support teachers who teach in an inclusive setup in the mainstream?

……
……

If yes, what are they?

……
……

Kindly explain what you understand by the concept dyslexia, in your own words?

……
……

What strategies do you use to ensure all learners are effectively learning in an inclusive setup?

……
……

**Appendix F: Observation Checklist**

**Section A: General Information**

1. School Name: _____
2. Class/Grade: _____
3. Date: _____
4. Time of Observation: _____
5. Number of Learners in Class: _____
6. Number of Learners with Dyslexia: _____

**Section B: Instructional Approaches**

1. Is the teacher using multi-sensory instructional methods (e.g., visual, auditory, tactile)?
   - ☐ Yes
   - ☐ No

2. Which instructional methods were observed during the lesson? (Check all that apply)
   - ☐ Visual aids (pictures, charts, diagrams)
   - ☐ Auditory repetition (reading aloud, songs)
   - ☐ Kinesthetic activities (manipulatives, hands-on activities)
   - ☐ Lecture-based (verbal instruction only)
   - ☐ Group work
   - ☐ Individual work
   - ☐ Interactive technology (smart boards, tablets)

3. Does the teacher adapt lesson content to meet the needs of learners with dyslexia?
   - ☐ Frequently
   - ☐ Sometimes
   - ☐ Rarely
   - ☐ Never

4. How often does the teacher provide additional support or feedback to learners with dyslexia during instruction?
   - ☐ Frequently
   - ☐ Sometimes
   - ☐ Rarely
   - ☐ Never

**Section C: Learner Participation**

2. Do learners with dyslexia actively participate in classroom activities?

- ☐ Yes
- ☐ No

2. What type of participation was observed for learners with dyslexia? (Check all that apply)
- ☐ Verbal responses to teacher questions
- ☐ Group activities
- ☐ Individual activities
- ☐ Peer collaboration
- ☐ Independent work
- ☐ non-participation/distracted

3. Rate the level of engagement of learners with dyslexia during the lesson:
- ☐ Highly Engaged
- ☐ Moderately Engaged
- ☐ Minimally Engaged
- ☐ Not Engaged

**Section D: Classroom Environment**

1. Is the classroom environment adapted to accommodate learners with dyslexia?
- ☐ Yes
- ☐ No

2. Are learners with dyslexia seated in positions that enhance their engagement (e.g., close to the board, teacher)?
- ☐ Yes
- ☐ No

3. Are there visual aids/resources available that support dyslexic learners?
(e.g., word walls, phonetic charts, posters)
- ☐ Yes
- ☐ No

4. Is the classroom free of distractions that may affect learners with dyslexia?
- ☐ Yes
- ☐ No

**Section E: Use of Assistive Tools and Strategies**

1. Are any assistive tools used in the classroom for learners with dyslexia?
- ☐ Yes
- ☐ No

2. What types of assistive tools were observed? (Check all that apply)
- ☐ Phonics-based reading programs
- ☐ Color-coded texts or materials
- ☐ Audio-assisted reading tools
- ☐ Specialized educational software/apps
- ☐ Other (specify): _____

3. How frequently are assistive tools used for learners with dyslexia?
- ☐ Throughout the lesson
- ☐ Occasionally
- ☐ Rarely
- ☐ Never

**Section F: Classroom Management and Teacher Support**

1. Does the teacher provide individualized instruction to learners with dyslexia?
- ☐ Frequently
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

2. Is there evidence of positive reinforcement for learners with dyslexia?
- ☐ Yes
- ☐ No

3. How well does the teacher manage the classroom to ensure inclusivity?
- ☐ Highly Effective
- ☐ Moderately Effective
- ☐ Minimally Effective
- ☐ Not Effective

4. Does the teacher use differentiation strategies to balance the needs of dyslexic learners with the rest of the class?
- ☐ Frequently
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

## Appendix G: 2025 Post Graduate Letter

UNISA university of south africa

0844 M1RST

MASUPE D B MRS
P O BOX 502248
GABORONE
BOTSWANA

STUDENT NUMBER : 4497-952-5

ENQUIRIES NAME : MR P FOLKARD
ENQUIRIES TEL : 0861670411

DATE : 2025-04-16

Dear Student

I wish to inform you that your registration has been accepted for the academic year indicated below. Kindly activate your Unisa mylife (https://myunisa.ac.za/portal) account for future communication purposes and access to research resources.

DEGREE : PHD (EDUCATION) (90019)

TITLE : The Teaching of learners with dyslexia in an inclusive setup in the mainstream Primary Schools of South-East Region, Botswana

SUPERVISOR : Dr MK MALAHLELA (malahmk@unisa.ac.za)

CO-SUPERVISOR : Prof FD MAHLO (mahlofd@unisa.ac.za)

ACADEMIC YEAR : 2025

TYPE: THESIS

SUBJECTS REGISTERED: TFPIE01 PhD - Education (Inclusive Education)

A statement of account will be sent to you shortly.

You must re-register and pay annually between January and March of each year until such time that you can submit your dissertation/thesis for examination. Students registering for the first time for a dissertation or thesis must complete a research proposal in their first year of study. Contact your supervisor(s) immediately after registration.

If you intend submitting your dissertation/thesis for examination please refer to the link: https://www.unisa.ac.za/sites/corporate/default/Apply-for-admission/Master%27s-&-doctoral-degrees/Master%27s-&-doctoral-research-examination-process for the process you need to follow and the relevant dates to tak into consideration. Should you submit for examination after end of February, you must reregister and pay your fees for the current academic year.

Please access the information with regard to your personal librarian on the following link: https://bit.ly/3hxNqVr

Information on the compulsory online African Academic Student Development programme is available on: https://www.unisa.ac.za/sites/corporate/default/Apply-for-admission/Master%27s-&-doctoral-degrees/Academic-research-support

Yours faithfully,

UNIVERSITEIT VAN SUID-AFRIKA
PRETORIA
UNIVERSITY OF SOUTH AFRICA

Prof MM Sepota
Acting Registrar

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

**Appendix H: Language Editing Certificate**

THOTHI
WRITING AND EDITING SOLUTIONS

Registration Number:2018/1578658/07

# Certificate

*This serves to certify that:*

***Doreen Boikhutso Masupe***

Who has written a **Thesis** with a **Title**:

**The Teaching of Learners with Dyslexia in an Inclusive Set –up in the Mainstream Primary Schools of South- East Region, Botswana**

As a requirement for a **DEGREE:**

**DOCTOR OF EDUCATION**

At The

***University Of South Africa( UNISA)***

In the

Department Of Education (Humanities)

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