



AN ANALYSIS OF INTERVENTION PROGRAMMES AVAILABLE FOR LEARNERS WITH DYSLEXIA IN MAINSTREAM PRIMARY SCHOOLS

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Abstract:

The purpose of this study was to analyse the effectiveness of intervention programmes available for learners with dyslexia in mainstream primary schools. A concurrent triangulation design of the mixed methods research approach was employed. Questionnaires were used to collect quantitative data while semi-structured interviews were used to collect qualitative data. A simple random sampling technique was used to select a quantitative sample of 150 teachers. Purposive sampling was used to select the qualitative sample. Quantitative data was analysed through the Statistical Package for Social Sciences (SPSS) version 24. Qualitative data was analysed and interpreted thematically. The study established that there were very limited intervention programmes available for learners with dyslexia at infant than junior level. There were also very few expert teachers to conduct the available programmes at schools. The study recommends the introduction of more individualised intervention programmes at the infant level and the training of more specialist teachers for reading.

Keywords: intervention programme, inclusion, dyslexia, reading, mainstream primary school

1. Introduction

Dyslexia is a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and socio-cultural opportunities (Petrosky, 2010; Shaywitz & Shaywitz, 2020). This means that it is evidenced by persons of otherwise normal intellectual capacity who have not learned to read despite exposure to adequate instruction. Without effective instruction, remedial education and provision of relevant

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resources, learners with dyslexia are at risk of social exclusion, school failure and inability to secure employment later in life (Roitsch & Watson, 2019; Selvarajan & Asanthagumar, 2012). Once learners have been officially identified as dyslexic, there are several approaches that can be adopted to support them in their learning. Peer and Reid (2001) observe three models that can be considered. These are segregation, integration and inclusion. Segregation denotes a traditional model in which a learner with a disability is given additional help outside normal lessons. Integration is a system whereby support is given within the normal teaching-learning time although the assumption will be that the 'problem' lies wholly with the learner and not in the overall curriculum or organisation. Finally, the inclusion model encourages giving support to individual learners and ensuring that the curriculum and environment are modified so that they meet the needs of the learners in inclusive learning environments (Roitsch & Watson, 2019).

The intervention programmes provided for learners with dyslexia in mainstream primary schools of Bubi district in Zimbabwe included the Whole School Remedial Programme (WSRP), clinical remediation, Performance Lag Address Programme (PLAP) and Early Reading Initiative (ERI). WSRP was conducted by regular class teachers, twice or thrice a week, after normal lessons, on selected days. There were no specific instruments that guided the administration of this intervention programme from the Ministry of Primary and Secondary Education (MoPSE) but the Schools Psychological Services and Special Needs Education (SPS/SNE) department adopted other measures to ensure that this service was provided (Manyumwa, Manyumwa & Mutemeri, 2013). The records of remedial sessions and the workbooks of learners were used as evidence of programme implementation (Ndou, & Omidire, 2022).

Mukoko and Mdlongwa (2014), on the other hand, explain a clinical remedial programme as a specialised instruction adjusted to the needs of a learner who does not perform satisfactorily with regular reading instruction. In the district of study, learners who were eligible to participate in this programme were selected through specially designed standardised diagnostic tests, supplied as appendices to the CEO Minute Number 12 of 1987 at the end of their third year in primary school. The third year in primary school in Zimbabwe is the transitional year from the infant to junior grades.

PLAP was another form of intervention which sought to identify ways of improving the performance of learners (Mukoko & Mdlongwa, 2014). The difference between PLAP and usual remediation is that, firstly, the usual remediation procedure works on the weaknesses of learners within their levels of study. The PLAP initiative is based on the concept that the weaknesses of learners developed from concepts missed at lower academic levels or grades, thus affecting their present performance. Secondly, under the usual remediation, a one-to-one situation is expected between the teacher and the student, whereas in PLAP the under-performing learners are handled as a group consisting of learners with commonly identified challenges. Both strategies, however, encourage teachers to adjust the curriculum and materials so that all learners have equal access to high-quality instruction.

ERI seeks to assist learners with reading challenges at an infant level. In this district, it was offered on a full inclusion basis. According to the Ministry of Primary and Secondary Education Teacher's Module (2015), ERI was considered for implementation in Zimbabwe in 2015 after a number of researchers discovered that the teaching of reading had declined over the years, hence the need to offer intervention from early grades. In relation to this, Falth (2013) observes that when intervention is timely for young learners, a downward trajectory related to the acquisition of competent reading skills may be altered. This results in a reduction in the number of learners who may require more intensive special needs education, in the later years.

Supervision and monitoring of the effectiveness of the intervention programmes in place were done by several education officers who included deputy heads, heads of schools, EOs, DSI and the SPS/SNE personnel. In some instances, Teachers in Charge (TICs) were also involved. In relation to this, the Secretary's Circular Minute Number 12 of 2015 acknowledges the crucial role assumed by TICs in monitoring the administration of ERI at the infant level. This legal instrument also emphasises the significance of Continuous Professional Development Training (CPDT) workshops in equipping teachers with the requisite skills for teaching certain academic aspects of reading and writing to learners with dyslexia.

Despite the availability of different intervention programmes, the reading performance of learners with dyslexia across all grade levels in Bubi district continued to plummet, influencing poor academic performance and the development of negative attitudes in various interested stakeholders. This scenario prompted the researcher to analyse the effectiveness of the intervention programmes available for learners with dyslexia in mainstream primary schools.

2. Purpose of the Study

The purpose of the study was to analyse the effectiveness of available intervention programmes for learners with dyslexia in mainstream primary schools.

Based on the statement of the problem and the purpose of the study, the following subsidiary objectives were developed:

- to establish the types of intervention programmes that are available for learners with dyslexia in mainstream primary schools
- to examine the nature of intervention programmes available for learners with dyslexia in mainstream primary schools
- to assess the administration of available intervention programmes for learners with dyslexia.

3. Theoretical Framework

This study was guided by the magnocellular theory of dyslexia. According to Boets *et al.* (2008), proponents of this theory view dyslexia as a consequence of a multimodal deficit

in the processing of transient and dynamic stimuli. Ramus *et al.* (2003) and Stein, (2018) further elaborate that the magnocellular theory integrates all the findings of the visual, auditory, phonological and cerebellar hypotheses in explaining dyslexia. The visual theory stipulates that this learning disability is caused by a visual deficit which gives rise to difficulties with the processing of letters and words on a page. This may take the form of unstable binocular fixations, poor vengeance or increased visual crowding (Ritchey & Goeke 2006). Learners with this problem may confuse similar-looking letters when reading. The rapid auditory processing theory, on the other hand, specifies that the primary deficit of reading in a dyslexic learner lies in the perception of short or rapidly varying sounds (Catherine & Stein, 2012). Learners may show poor performance on a number of auditory tasks including, frequency discrimination and temporary order judgement. The phonological theory postulates that dyslexics have a specific impairment in the presentation, storage and retrieval of speech sounds (Ramus *et al.*, 2003). This is an indirect route which involves translating the letters into sounds and knowing the pronunciation of words from the combination of sounds. Lastly, the cerebellar theory asserts that a mild dysfunctional cerebellum can cause dyslexia (Catherine & Stein, 2012). This implies that affected learners may have poor automatic reading skills and articulation problems.

4. Methodology

This section describes the research paradigm, research approach, design and methods which were considered relevant for this study.

4.1. Research Paradigm

In this research, pragmatism, which involves a combination of positivism and interpretivism, was used. Pragmatism recognises objectivity and subjectivity as two points on a continuum which can be useful at different points even within a single research study (Donaldson *et al.*, 2009).

4.2. Research Approach

In this study, a mixed methods research approach was used. A mixed methods research approach is a procedure that involves combining both quantitative and qualitative research methods, techniques and procedures in a single study (Cresswell, 2012). This approach helps to view phenomena, from multiple perspectives, for better understanding. The mixing of techniques also enhances detailed analysis and the production of rich research outcomes (Lichtman, 2013).

4.3. Research Design

Mouton (2009) defines a research design as the blueprint of the research project that precedes the actual research process. The study used the concurrent triangulation research design. According to Cresswell (2014), concurrent triangulation design involves

the use of two or more methods of collecting data to confirm, cross-validate or corroborate findings. The strategy ensures that the weaknesses of one method are complemented by the strengths of another. This was helpful in the design and validation of instruments as well as generalisation of results.

4.4. Research Methods

Rajasekar et al. (2013) view research methods as systematic plans for doing research. Quantitative and qualitative methods were employed to collect data in this study. A self-designed questionnaire was used to gather quantitative data. The questionnaire items sought to establish the views of participants on the intervention programmes that were offered to learners with dyslexia. Participants who responded to the questionnaire items were selected as mainstream teachers.

Qualitative research methods adopt an inductive research process and involve the collection and analysis of qualitative data to search for patterns, themes and holistic features (Allwood, 2012). Qualitative data is basically non-numerical and reflects the views, attitudes and opinions of participants. This study employed interviews to gather qualitative data. Interviews were conducted to generate research data from heads of schools, the DRT, District ECD trainer and the DSI.

The sampling process that was followed in this study involved selecting the population after a determination of appropriate sampling procedures and samples. The population for this study was made up of mainstream primary school teachers, heads of schools, the DRT, District ECD trainer and the DSI. Participants who responded to the self-designed questionnaire were identified through simple random sampling techniques. To select participants in a single school, the 'hat method' was used to choose 1 teacher from each of the three chosen categories. These categories were composed of teachers that taught Grade 1 and those that taught Grade 3 classes. The other group of participants were those responsible for conducting the clinical reading remedial programme in schools. Bryman (2012) contends that a simple random sampling technique gives every member of the chosen population an equal chance of participating in the study.

The purposive sampling technique was also used to select participants who responded to the interview questions. A quantitative sample was drawn from all the 50 mainstream primary schools found in Bubi District. It was made up of 150 participants. Of these, 50 represented the infant category and were Grade 1 teachers. The other 50 represented the transitional phase and were Grade 3 teachers. The remaining 50 teachers were responsible for conducting the clinical language remedial programme in schools. The qualitative sample was composed of 1 DSI, 1 DRT, 1 District ECD trainer and 10 heads of schools.

4.5. Data Analysis

Quantitative data were analysed through the Statistical Package for Social Sciences (SPSS) version 24. It involved first re-checking the logic of the data that had been collected. This

was closely followed by coding it, and naming of variables. The next process was data entry into the SPSS statistical programme. Errors were also checked in the process of data cleaning. The frequency distribution of each emerging variable was calculated and presented on contingency tables and graphs. Detailed descriptions and analysis of collected data were done using figures and percentages obtained from frequency distributions. Qualitative data were analysed thematically. This involves scrutinising data in search of common meanings and patterns. It can begin with the coding of data, sorting different codes into potential themes and collating all the relevant coded data extracts within identified themes (Nowell *et al.*, 2017).

5. Ethical Considerations

Fouka and Mantzourou (2011) state that 'ethics' denote a system of principles that direct decision-making, concerning what is right and wrong in the conduct of a scientific investigation. In this study, the ethical principles that were considered, included informed consent as well as confidentiality and anonymity. The researcher assisted the participants to make informed decisions to participate by explaining in detail the objectives of the study, its significance and the methods that were to be used in gathering relevant data. Freedom to participate or withdraw participation at any point in the research process was emphasised. The researcher also sought permission from participants to record their responses. The information disclosed to the researcher was used solely for research purposes. Research participants were afforded the freedom to share and withhold information they so wished. Anonymity was protected by not attaching the identity of participants to personal responses.

6. Findings of the Study

The findings are based on the different intervention programmes that were available for learners with dyslexia in mainstream primary schools. In this regard, the research sought, among other aspects, to establish their types, sensitivity to the needs of learners and the extent to which there were learner-centred.

6.1. Availability of Different Types of Intervention Programmes

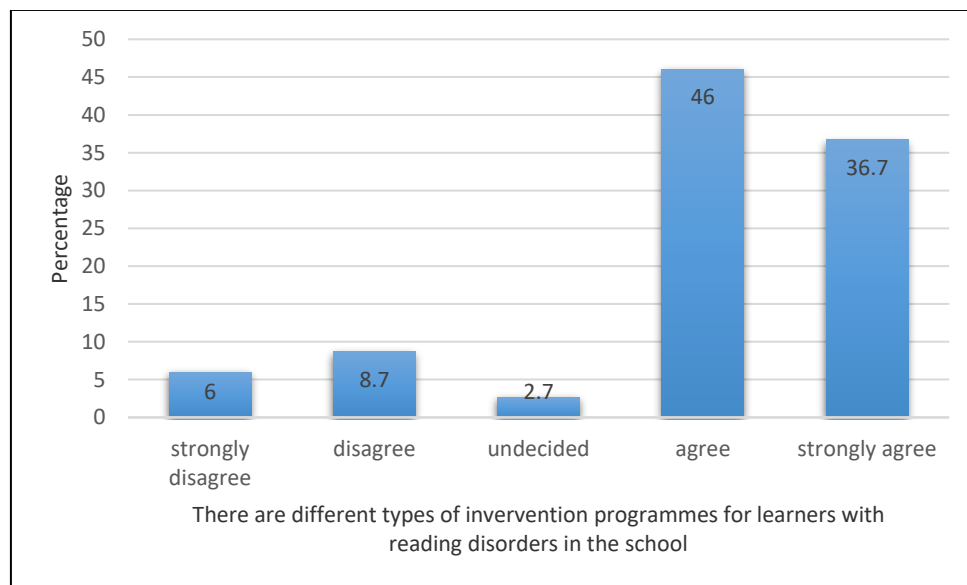
Out of the 150 teachers that participated in this study, 9 (6%) *strongly disagreed* that there were different types of intervention programmes for learners with dyslexia in their schools. Similarly, 13 (8.7%) participants *disagreed* and 4 (2.7%) were *undecided*. The undecided group showed that there were some teachers in schools who were unable to recognise the differences in the availed intervention programmes. This could have been due to their limited involvement or reduced implementation levels of such programmes in certain schools. However, 69 (46%) *agreed* and 55 (36.7%) *strongly agreed* with this notion. Generally, most participants opined that there were several intervention

programmes that were administered for the benefit of the learning of individuals with dyslexia in mainstream primary schools. Two participants said:

“Thank you very much! As a district, we have four programmes that are running and these are generally composed of learning activities that are child-centred. They include the ERI which is administered from ECD A up to Grade 2, and then we have the PLAP programme which is done by the grade 3s up to 7. We also have the in-class as well as the clinical remediation” (DSI)

“We have the ERI, PLAP, clinical and in-class remediation.” (Head 6)

This is supported by literature which states that in Zimbabwe there are several intervention programmes for learners with dyslexia. These are administered either on a partial or full inclusion basis. Learners with mild reading disorders can benefit from assistance given on full inclusion basis while those with more serious problems might require withdrawal from a mainstream class for a specific period of time and be attended to individually (Armstrong, 2011). The quantitative views of the participants are presented in Graph 1.



Graph 1: Different Types of Intervention Programmes

6.2. Administration of the Intervention Programmes

It was further gathered that the administration of the intervention programmes on offer was done, either on a full or partial-inclusion basis. ERI and PLAP were done during the normal teaching process while whole school and clinical remediation programmes were normally provided after a normal day's lessons. The implementation of ERI was enhanced through the use of teaching and learning modules that comprised activities relevant to each academic level. Participants further revealed that the suggested activities provided in these modules specifically assisted learners to develop visual, auditory,

phonological, automatisisation and kinaesthetic skills. This concurs with literature which emphasises that the basis of educating learners with dyslexia is to show links between print, sound, movement and meaning as these improve their reading competence (Kamal, 2014). Two participants said:

“Some of these programmes like PLAP and ERI are conducted during the process of teaching whereas in-class and clinical remediation is done in the afternoon, after normal lessons.” (DRT)

“... the programme has modules that help teachers and learners to adopt teaching and learning strategies that are effective in early reading. The modules are three and each one is specific to a certain level, for example, ECD A, B and Grade 1 and 2. In these modules, there are suggested activities that assist in the visual, auditory and phonological processing of words and information. (ECDt)

It further emerged that in the conduct of PLAP, learners were first assessed and grouped according to their levels of academic performance. From there, teachers were expected to design various lesson plans that were relevant for specific groups. Participants also revealed that the learning activities should assist learners to develop from their last point of success to the levels they were expected to be in, considering their primary school grades. This implied giving different remedies that cater for diversity. It was also gathered that during the implementation of PLAP, teachers used a variety of teaching methods and media. In situations where learners showed confusion in reading similar-looking letters, such as *b* and *d*, they were allowed to use all their learning modalities as well as concrete and abstract learning aids. A participant said:

“During the administration of PLAP, learners are grouped in relation to their potentials then assisted from their last point of success to the level that they are expected to be operating at.” (Head 7)

During in-class remediation, learners with dyslexia were given more individualised instruction than in PLAP to enhance their understanding of the content taught. The class teachers personally offered this service or sought the expertise of other colleagues. It was also observed that participants had different views on the exact time at which in-class remediation was administered in schools. Some said that teachers offered this service during library periods while others said it was done during any spare period as long it was outside normal lessons. In this regard, one participant said:

“In-class remediation is also given by the class teacher usually during the break, lunchtime or when others are doing other school activities.” (Head 2)

It was revealed that dyslexic learners who had more serious reading problems were placed in the clinical remediation programme. This programme was administered by school language remedial teachers. In this regard, literature concurs that this programme should be administered by two teachers in every school which has an enrolment of 500 or less learners. One being responsible for reading remediation while the other is for mathematics. Participants reflected different views on how school remedial teachers were selected. Some said that school heads used their own discretion in doing this while others said that interested teachers volunteered to take up these programmes. It was also revealed that programme implementation was done on two afternoons a week and each session lasted for thirty minutes. In addition, it was gathered that in some schools this programme was conducted at the same time as extra-curricular activities like sports. One participant said:

“Clinical remediation is done twice a week in the afternoon and at our school, each session is one hour long. During the administration of this programme other learners who are not involved will be doing sporting activities or cleaning the school grounds.” (Head 3)

6.3. Learner-centredness of the Intervention Programmes

Participants were asked to reveal their opinions on whether the intervention programmes available for learners with dyslexia were learner-centred or not. Their responses revealed that 1 (0.7%) participant *strongly disagreed* that the intervention programmes offered were learner-centred. Similarly, 17 (11.3%) *disagreed*. The other 12 (8%) were *undecided*. The responses revealed that there were some teachers who were not positive that the intervention programmes administered fully involved learners. On the other hand, the majority, 106 (70.6%) participants *agreed* while 13 (8.7%) *strongly agreed* and 1(0.7%) did not respond to this item. Generally, the study established that most participants were satisfied with the involvement of learners in the implementation of intervention programmes that enhance their participation in the mainstream curriculum. Garrett (2008) highlights the view that a learner-centred learning approach helps to strengthen learner motivation, confidence and responsibility. It further promotes discovery or active learning.

6.4. Target Groups for Specific Intervention Programmes

The study also found out that the availed intervention programmes mainly targeted specific groups of learners with dyslexia. ERI, which is an early intervention strategy, was meant for the infant department, that is, ECD A, B, Grades 1 and 2. Literature observes that without early intervention, the reading gap between struggling readers and their peers without a reading challenge continues to widen over time (Chuunga, 2013). It further emerged that PLAP, in-class and clinical remediation were interventions normally provided to learners who were doing Grades 3 up to 7. PLAP was introduced by the government of Zimbabwe in 2012 as a measure of restoring the academic performance of learners which had declined due to the economic status of the country

during the period of 2006 and 2009. The study further gathered that learners who hardly benefitted from PLAP required more individualised attention. Therefore, these were assisted through in-class remediation. Lastly, most serious cases were considered for clinical remediation. Two participants said:

"...We have the PLAP programme which is done by the grade 3s up to 7. In PLAP children are grouped using their last points of success. For example, children may be at grade 5 level but performing at grade 2, 3 or 4 level so before any service is given there are put in their levels and the teacher is expected to plan for all the levels then implement the programme." (DSI)

"...those who would have failed to benefit from PLAP are further assisted individually by their teacher in a programme called in-class or whole school remediation. Those who do not make it even after this service are then considered for clinical remediation. Most of them will not be able to read or do simple mathematical calculations." (DRT)

6.5. Sensitivity of the Intervention Programmes to Learner Needs

Participants were requested to evaluate the extent to which the intervention programmes in place were sensitive to the specific needs of individual learners. Their responses are shown in Table 2.

Table 2: Sensitivity of the Intervention Programmes to Learner Needs

Q2b	Frequency	Percent (%)	Valid Percent (%)
Strongly disagree	1	0.7	0.7
Disagree	18	12	12.1
Undecided	25	16.7	16.8
Agree	92	61.3	61.7
Strongly agree	13	8.7	8.7
Total	149	99.3	100
System	1	0.7	
Overall total	150	100	

Table 2 shows the responses of participants on the capacity of the intervention programmes to meet the specific individual needs of learners with dyslexia. 1 (0.7%) participant *strongly disagreed* that the intervention programmes offered met this requirement. 18 (12%) also *disagreed*. However, 25 (16.7%) were *undecided*. Being undecided could denote limited knowledge to evaluate the qualities of intervention programmes in relation to the requirements of learners with dyslexia. In contrast, 92 (61.3%) *agreed* while 13 (8.7%) *strongly agreed* and 1 (0.7%) did not respond to this item. This outcome shows that the majority, 115 (70%) of the participants felt that the intervention programmes administered were commensurate with the learners' specific academic needs. Moustafa and Ghani (2016) support this notion by emphasising that effective intervention for learners with dyslexia must meet their specific academic requirements through the

adoption of multi-sensory, systematic, explicit, diagnostic, differentiated, synthetic, analytic as well as learner-centred instruction.

6.6 Ability of the Intervention Programmes to Improve Participation

This questionnaire item sought to establish the participants' views on whether the intervention programmes available for learners with dyslexia had the capacity to assist them to participate in the academic activities that were offered in the mainstream curriculum. In this regard, 3 (2%) *strongly disagreed* that these programmes met this requirement, 19 (12.7%) *disagreed*, 48 (32%) were *undecided*, 60 (40%) *agreed* and 20 (13.3%) *strongly agreed*. While this outcome reveals that the majority, 80 (53.3%) were content with the ability of these intervention programmes to facilitate inclusion, a significant number of those who were undecided on this aspect showed that some mainstream teachers were not aware of the extent to which the intervention programmes in place assisted learners with dyslexia to participate in the mainstream curriculum. Chitsa and Mpofu (2016) argue that the ultimate goal of the intervention programmes in Zimbabwean schools is to promote individual participation of learners with dyslexia in mainstream schools.

7. Discussion

The study established that there were various intervention programmes that were available for learners with dyslexia in mainstream primary schools. These programmes included ERI, PLAP, whole school and clinical remediation. ERI was meant to improve the reading potentials of learners in the infant category while the other three were for learners who were doing Grades 3 up to 7. ERI and PLAP were administered during the lessons while in-class and clinical remediation were done after normal lessons of the day. ERI and PLAP rely on employing differentiated instruction and materials, which are strategies that can be implemented without interfering with the content mastery of other learners. Differentiated instruction involves the teacher pro-actively adjusting, the curriculum, teaching methods, resources and activities to maximise the learning needs of each learner (Mukoko & Mdlongwa, 2014). On the other hand, in-class and clinical remediation are not easily done during normal lessons as they involve intensive specialised remedial instruction adjusted to the needs of learners who do not perform satisfactorily with regular reading instruction (Kaputa, 2016:108). The programmes were basically meant for learners with severe to profound reading problems. Armstrong et al. (2011) maintain that learners with mild reading disorders can benefit from assistance given on full inclusion basis while those with more serious problems might require withdrawal from a mainstream class for a period of time and be attended to individually. Most participants who responded to the questionnaire items felt that all the intervention programmes in place were fairly learner-centred, sensitive to the needs of individual learners with dyslexia and could facilitate their inclusion into mainstream classes. Garretti (2008) highlights the view that learner-centred learning approach helps to strengthen learner motivation, confidence and responsibility. Interviews generally

revealed that the programmes provided had fewer activities that improved auditory processing of information than other sensory modalities. Faith (2013) laments that remediation activities should take cognisance of the auditory processing skill that learners utilise to decode the speech of adults.

8. Conclusion

Based on the findings of the study, it is concluded that there were different types of intervention programmes that were provided for learners with dyslexia. However, the infant department had a single programme, ERI, which mainly catered for those with mild to moderate reading challenges. This denotes the exclusion of those with severe to profound conditions in this category. PLAP, in-class and clinical remediation were meant for learners in Grade 3 to 7. ERI and PLAP were offered during the normal teaching periods while in-class and clinical remediation were administered after the normal teaching periods, usually during extra-curricular activities like sports. Whilst these were commended undertakings, learners with dyslexia who were gifted in other extra-curricular activities were sometimes deprived of an opportunity to do what they were good at. Both class teachers and language remedial teachers were involved in the implementation of the availed intervention programmes. Class teachers were responsible for those learners who did not demand very specialised attention while remedial teachers were assigned more intensive tasks. All four programmes in place were relevant because they had the capacity to enhance the participation of learners with dyslexia in the mainstream curriculum.

9. Recommendations

Based on the findings of the study and the conclusion, the following recommendations are made:

- The District may consider the adoption of more individualised support programmes like in-class and clinical remediation at the infant level so as to complement ERI in meeting the academic needs of learners who have or are at risk of acquiring more serious reading challenges in future.
- Heads of schools may encourage teachers to closely monitor the reading competence of learners, and identify and report cases that need more detailed assessment and intensive intervention.
- Heads of schools may ensure that teachers who administer more intensive intervention programmes have the required skills to assume this responsibility.
- Heads of schools may allocate adequate and suitable time for the administration of all the intervention programmes in place.
- Teachers may enhance their knowledge of dyslexia through improved research.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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