

**SUPPORTING FOUNDATION PHASE LEARNERS WITH
MATHEMATICAL PROBLEMS IN THE BOJANALA DISTRICT,
NORTH WEST**

by

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DECLARATION

I, **Sizakele Junneth Madihlaba**, certify that the research in own work and that all sources have been acknowledged by means of referencing.



Signature

29. 11. 2013

Date

DEDICATION

I am dedicating this dissertation to:

- ♥ My mother Busisiwe Mokoena who has been encouraging and supporting me through my studies;
- ♥ My husband Kotole Madihlaba who helped me with proof reading and finding sources;
- ♥ My two daughters Refilwe and Lebogang who also helped me with proof reading tidying the study room;
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SUMMARY

The purpose of my study was to investigate about the support that Foundation Phase learners with Mathematical problems receive from different role players and to determine difficulties faced by these learners and educators concerning Mathematical barriers. Based on the findings from my study, recommendations were made to the Department of Education and educators who had learners experiencing problems in Mathematics.

This study was of qualitative approach and it was conducted in three different primary schools. In my study, open-ended questions were used in a form of interviews. The interviews took place at the three different schools. Participants were told that their interview was voluntary and they were free to withdraw at any time if they felt uncomfortable. The data was collected by writing response from participants and using tape recorder. It was then transcribed, organised, marked by hand, and coded to produce labels that allowed the key points of the information to be highlighted. In my study, I maintained strict confidentiality to protect identity of participants and research sites. My study provided valuable information for future studies with regard to learners with learning barriers in Mathematics in Foundation Phase.

KEYWORDS

Support, inclusive education, barriers to learning, Mathematics, Foundation Phase, School-Based Support and District-Based Support.

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CHAPTER ONE

INTRODUCTORY ORIENTATION

1.1 INTRODUCTION

According to Salamanca Declaration (1994:11), the fundamental principle of inclusive education school is that all children should learn together wherever possible regardless of any difficulties or differences they may have. Inclusive schools must recognize and respond to the diverse needs of their learners, accommodating both different styles and rates of learning and ensuring quality education to all through appropriate curricula, organizational arrangements, teaching strategies, resources and partnerships with their communities. There should be a continuum of support and services to match the continuum of special needs encountered in every school.

Werts, Richard and Tompkins (2007:5) state that public education for learners with special needs in the United States of America can be traced back to the establishment of free public education in the early 1800s. By the early 1900s, although institutional programmes for learners with sensory impairments and mental retardation were widespread in the United States, only a few public schools served learners with disabilities who did not fit the available curriculum. According to 2003 National Report on Systemic Evaluation Foundation Phase Department of Education (2003:2) in South Africa, the former special education system and the impact of apartheid era were exponential on the lives of learners with disabilities (LDIS). These were the learners who were most vulnerable to exclusion and barriers to learning and racial segregation. They were further placed in separate schools to receive their

education in isolation from their peers, their community and their families. The Department of Education introduced inclusive education to mainstream schools to remedy the errors of the apartheid system.

White Paper 6 (2001:19) outlines that mainstream education's priorities should include multi-level; classroom instruction so that teachers can prepare main lessons with variations that are responsive to individual learner needs, co-operative learning, curriculum enrichment, and also suit learners with behavioural problems. The Department of Education (2008:81) describes educators' role in an inclusive assessment as crucial. What is really required is a conceptual understanding of inclusion and the diverse needs of learners, including those with disabilities. The learning programmes and materials as well as assessment procedures must be made accessible to all learners, and must accommodate the diversity of learning needs in order to facilitate learners' achievement to the fullest. In addition, Department of Education (2005:5) states that high expectation implies that educators must assist learners to reach their full potential. They should measure progress against the previous achievements of a learner and not against other learners. This scenario proves that serious support is needed in the Foundation Phase and educators need to know which part of Mathematics is problematic to these learners.

1.2 MOTIVATION OF THE STUDY

Sousa (2007:20) indicates that some children may exhibit behaviour that looks like a learning disability but may simply be the delay in maturing. Educators are not aware of that fact and they think that those learners are difficult to teach and they will not learn no matter what they do.

Educators in the Foundation Phase spend more time with their learners in classroom unlike other phases where educators spend 2 to 3 hours a week with the learners. Foundation Phase educators can identify learners who are experiencing barriers in Mathematics in their classes faster than educators who are in other phases. The Foundation Phase educators also have enough time to support these learners. Learners, who are screened, identified, assessed and received support from as early as grade 1 will continue to be supported up to the time where they do not need it any more, throughout their education life or they are referred to Resource Centres. North West Department of Education has launched a project called Quality Improvement, Development, Support and Upliftment Programme (QIDS-UP) which started in 2004. Its main objective is to improve numeracy and literacy in the Foundation Phase. Before the school is given this programme, baseline assessment is done to determine learners' performance at that time. After three years of doing the programme, learners are tested again and the results showed a little improvement.

This means there is still a long way to go in improving Mathematics in Foundation Phase and support is needed. Analogically, in any building structure, foundation is very important because if the foundation is not properly constructed the structure will not be strong. The same principle also applies in education. If foundation phase educators do not identify and assist learners at that early stage, it means those learners will encounter problems in Mathematics throughout their schooling years and the overall results will not improve. When the support is started in Foundation Phase, the next phase educators will continue the support and identify new problems that can develop at a later stage of the learners.

1.3 THE PROBLEM STATEMENT

According to Systemic Evaluations of 2001, which was done by National Department of Education, Grade 3 learners scored 30% in Numeracy, and that surprised the whole nation. The second Systemic Evaluations in 2007 (Department of Education 2008:1) indicated that there was 5% improvement which made it 35% but it was still below the benchmark. This evaluation provides the Department of Education, as well as schools and teachers, with necessary information to guide their ongoing interventions aimed at laying solid foundations for learning in the Foundation Phase by 2011.

Against this background, the main research question followed by four sub-questions can be formulated as follows:

What support can be offered to Foundation Phase learners with Mathematics problem?

- What are the difficulties that learners and educators are facing in Mathematics?
- What is the role of educators in supporting Foundation Phase learners who are experiencing barriers in Mathematics?
- What support does the Department of Education offer to Foundation Phase educators who teach learners who are experiencing Mathematics barriers?
- What intervention strategies can be used by educators to support learners who experience barriers in Mathematics?

1.4 THE AIMS OF THE STUDY

The aims of this study are as follows:

- To investigate support that can be offered to foundation phase learners with Mathematics problem;
- To determine difficulties faced by learners and educators concerning Mathematics;
- To examine educators' role in supporting learners who are experiencing barriers in Mathematics;
- To describe the Department of Education's role in supporting educators who are teaching learners who experience Mathematics barriers; and
- To provide strategies that can be used by educators in supporting learners in Mathematics.

1.5 RESEARCH DESIGN AND METHODOLOGY

This research is of qualitative nature and cross – sectional study design will be used. Kumar (2005:93) describes cross – sectional design as best suited to studies aimed at finding out the prevalence of phenomenon, situation, problem, or issue, by taking cross section of the population. They are useful in obtaining an overall 'picture' as it stands at the time. De Vos (2005:135) define cross – sectional study as a design in which a single person, group or event is studied once, subsequent to same agent or treatment presumed to cause damage.

1.5.1 Sampling

Kumar (2005:164) describe sampling as the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown pieces of information, situation or outcome regarding the bigger group. A purposeful sampling has been used. McMillan and Schumacher (2006:319) state that purposeful sampling is done to increase the utility of information obtained from small samples. It requires that information be obtained about variations among the sub-units before sample is chosen. The researcher then searches for information-rich key informants, groups, places, or events to study. In other words, these samples are chosen because they are likely to be knowledgeable and informative about phenomena the researcher is investigating. Accordingly, three primary schools in North West were chosen. The first school in town, second one in the township and the third one in a farm. I have chosen the three schools because these schools do not have the same resources. From all the schools my informants will be three teachers and one Head of Department.

1.5.2 Data collection

Focus group interviews have been used. According to Kumar (2005:124), focus group interviews explore the perceptions, experiences and understandings of a group of people who have some experience in common with regard to a situation or event. McMillan and Schumacher (2006:360) describe a focus group interview as a variation of an interview which is used to obtain a better understanding of a problem or an assessment of a problem, concern, new product, programme or idea. Namely, a purposefully sampled group of people is interviewed, rather than each person

individually. This creates a social environment in which group members are stimulated by one another's perceptions and ideas. A tape recorder and transcript have been used to collect data.

1.5.3 Data analysis

Data collected in providing support to Foundation Phase learners have been analysed.

Data have been analysed by hand using coding and marking reference unit text. The audio taped data were converted to text data and the notes were added to the texted data. The next step involved organizing, coding and categorizing the data. McMillan and Schumacher (2006:367) state that it is impossible to interpret data unless one is also organizing them. Qualitative researchers integrate the operations of organizing, analyzing and interpreting data and call entire process data analysis.

The second step involves coding the data. De Vos, et al. (2005:338) state that coding data is the formal representation of analytic thinking. The taught intellectual work of analysis is generating categories and themes. The researcher applies some coding schemes to those categories and themes, and diligently and thoroughly marks and passages in data using codes.

1.6 ETHICAL ISSUES

Kumar (2005:212) states that in every discipline it is considered unethical to collect information without the knowledge of participants and their expressed willingness

and informed consent. Seeking informed consent is probably the most common method in medical and social research (Bailey 1978:383). Informed consent implies that subjects are made adequately aware of the type of information you want from them, why the information is being sought, what purpose it will be put to, how they are expected to participate in the study, and how it will directly or indirectly affect them. It is important that the consent should also be voluntary and without pressure of any kind. Before collecting any data, I had to get permission from Department of Education Rustenburg Area Office, permission from the principals then lastly from the educators. In addition, I assured them that their identity will not be disclosed to anyone not even the Department of Education. Furthermore, I have explained to them that this study is going to show Department of Education the progress that we have in our schools concerning inclusive education, how capable are we in addressing barriers to learning and development or how backwards are we concerning inclusive education. I will tell them that they must not expect any incentives because I do not have any sponsor to do that for me.

1.7 DEFINITION OF CONCEPTS

1.7.1 Inclusive education

Fredrickson and Cline (2009:71) define inclusive education as a process by which a school attempts to respond to all pupils as individuals by reconsidering and reconstructing its curricula organisation and provision and allocating resources to enhance equality opportunity. Similarly, White Paper 6 (2001:17) states that inclusive education and training is about changing attitudes, behaviour, teaching methodologies, curricula and the environment to meet the needs of all learners.

Furthermore, it is about maximising the participation of all learners in the culture and the curricula of educational institutions and uncovering and minimising barriers to learning; and about empowering learners by developing their individual strengths and enabling them to participate critically in the process of learning.

Vaughn and Schumm (2006:28) describe inclusive education as the education of students with disabilities with their non-disabled peers, with education support and services being provided as necessary. Moreover, Engelbrecht and Green (2007:19) define inclusive education as system of education that is responsive to the diverse needs of learners.

White Paper 6 (2001:8) defines inclusive education and training as

- acknowledging that all children and youth can learn and that all children and youth need support;
- enabling education structures, systems and learning methodologies to meet the needs of all learners;
- acknowledging and respecting differences in learners, whether due to age, gender, ethnicity, language, class, disability, HIV or other infectious diseases;
- broader than formal schooling and acknowledging that learning also occurs in the home and community, and within formal and settings and structures;
- changing attitudes, behaviour, teaching methods, curricula and environment to meet the needs of all learners; and
- maximising the participation of all learners in the culture and the curriculum of educational institutions and uncovering and minimising barriers to learning.

Department of Education (2003:12) define inclusive education as recognising and respecting the differences among all learners and building on the similarities; supporting all learners, educators and the system as whole so that full range of learning needs can be met. Here, the focus should be the development of appropriate teaching strategies that are informed by the diverse learning needs of the learners, and that will be of benefit to all learners and educators.

1.7.2 Barriers to learning and development

Department of Education (2005:5) defines barriers as difficulties that arise within the education system as a whole, the learning site and/or within the learner him/herself which prevent both the system and the learner needs from being met. When, based on objective evaluation made by an educational authority, it is ascertained that teaching and learning are hampered where such needs are met, educationally sound measures must be applied.

Department of Education (2008:11) uses this concept to refer to learners who often faced with challenges in the learning process which are a result of a broad range of experiences in the classroom, at school, at home, in community, and/or as a result of disability. The report of the joint National Commission on Special Needs in Education and Training (NCSNET) and National Commission on Support Services (NCSS) (1997) also refers to these challenges as 'barriers to learning and development'.

1.7.3 Foundation phase

The Department of Education (2002: 101) defines Foundation Phase as the first phase of the General Education and Training Band: Grades R, 1, 2 and 3. Cymru (2011:1) describes the Foundation Phase as a new approach to learning for children from 3 – 7 years of age. It combines what we currently call Early Years Education (for 3 to 5 years-olds) and key stage 1 (5 to 7 years old) of the National Curriculum.

1.7.4 Numeracy

According to Fielder (2007:4), Mathematics and Numeracy are so interlinked that it is very difficult to view them as separate concepts. Numeracy can simply be defined as an ability to use numbers to count, order, solve problems, read data, and calculate, and so on. Numbers may be used without a context of time, for example, what is the length of a carpet required if part of the corridor was 5 m long and the other part of the corridor is 7 m long.

Hughes, Desforges, Mitchell and Carré (2000:31) state that the final report of the Numeracy Task Force recommends that the following definition of numeracy should be used to underpin the National Numeracy Strategy: numeracy is a key proficiency that involves a confidence and competence with numbers and measures. It requires an understanding of number system, a repertoire of computational skills and an inclination and ability to solve number problems in a variety of context. Numeracy also demands practical understanding of the ways in which information is gathered by counting and measuring, and is presented in graphs, diagrams, charts and tables. The proficiency is promoted through giving a sharper focus to the relevant aspects of the National Curriculum programmes of study for Mathematics.

1.7.5 Mathematics

The Department of Education (2011:8) defines mathematics as a language that makes use of symbols and motions for describing numerical, geometric and graphical relationships. It is human activities that involve observing, representing and investigating patterns and qualitative relationships in physical and social phenomena and between mathematical object themselves. It helps to develop mental process and enhance logical and critical thinking, accuracy and problem - solving that will contribute to decision making. Wikipedia Free Encyclopaedia (online) defines Mathematics as a mental activity which consists of carrying out, one after the other, those mental constructions which are inductive and effective, meaning that by combining fundamental ideas, one reaches a definite result.

1.8 CHAPTER OUTLINE

Chapter One consists of introduction, the statement of the problem, the aims of the research, motivation of the study the research method and design which includes sampling, data collection and data analysis as well as ethical issues and definition of the concepts.

Chapter Two comprises literature review on difficulties that are faced by learners and educators concerning Mathematics, the role of educators in supporting Foundation Phase learners who are experiencing barriers in Mathematics and support that the Department of Education offers to educators who are teaching learners who experience Mathematics barriers. It also contains the strategies and support that can be provided to learners who experience barriers to Mathematics.

Chapter Three comprises a description of the research methodology used to collect data for investigation, data collection techniques, the sample of study and procedure followed to analyse and interpret the collected data in order to find answers to the questions.

Chapter Four discusses the results and findings of the investigation.

Chapter Five provides the summary of the literature review, the summary of the findings, recommendations for this study and recommendations for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, difficulties that faces learners and educators concerning Mathematics, educators' role in supporting Foundation Phase learners who are experiencing barriers in Mathematics and support that the Department of Education offers to educators who are teaching learners who experience Mathematics barriers will be discussed. It also contains the intervention strategies and support that can be provided to learners who experience barriers to Mathematics.

2.2 THEORETICAL FRAMEWORK

This study draws on the collaborative model. The collaborative model is based on assumption that shared responsibility and shared contribution between two parties who share same goal yield to success. According to Northern Territory Government (2004:1), collaboration in teaching involves educators planning and working together in schools, working with learners at all stages of schooling and across all learning areas. Smith, Polloway, Patton, and Dowdy (2012:33) describe collaboration as two or more individuals working together for a common goal. Collaboration complements co-teaching because more than one educator is responsible for the teaching of specific class or learners but the only difference is that collaborative special educator may not be in the classroom during teaching and only coordinates the support with the general educator. Iowa Department of Education (2004:2) define co-teaching as two educators physically present in heterogeneous classroom with joint responsibility for classroom instruction. It also adds that collaborative consultation is when a specialist, educator is serving in a consultative role to a core content endorsed by

the educator who carries the primary responsibility for instruction. Condeman and Heidin (2010:19) state that co-teaching occurs as two professionals share responsibilities for all learners within a common space and has three components:

- co-planning;
- co-instruction; and
- co- assessing.

In collaboration or co-teaching, the general educator works with special need educator in supporting learners who are experiencing barriers to learning in regular class. Engelbrecht et al. (2006:127) argue that cooperative partnerships are one of the cornerstones of an inclusive school community. Educators who are teaching classes that include learners with learning barriers should collaborate with people who have expertise in teaching those learners. Educators should also learn to collaborate with each other. Honigsfeld (2010:5) states that it has been documented extensively that teacher collaboration is a necessary element for improved student achievement and ongoing school success.

2.3 Factors contributing to difficulties concerning Mathematics

After the Systemic Evaluation programme that piloted Grade three learners in 2001 and 2007 clarified where areas of weaknesses were, the National Department of Education came up with a plan to improve Mathematics and Literacy in the schools. They introduced Annual National Assessment (ANA), which will guide the District offices, which schools need intervention. The Department of Education (2011: 5) describes the purpose of ANA as to track learners' performance each year in Literacy and Mathematics as the Department works towards the goal of improving learner performance in line with commitments made by government. The ANA

results will be used to monitor progress, guide planning and distribution of resources to help improve Literacy/Language and Mathematics knowledge and skills of learners in the grades concerned. This shows that there is still a problem with Mathematics in schools.

2.3.1 Difficulties faced by learners experiencing barriers in Mathematics

Learners are experiencing difficulties that lead to poor performance in Mathematics. Friend (2008:176) states that learners with learning barriers may have trouble in Mathematics, a disorder sometimes referred to as dyscalculia. Sousa (2007:147) states that students with dyscalculia can also contain developmental reading difficulties, or dyslexia, but these disorders are not genetically linked. Learners with both difficulties will sometimes experience problems in Mathematics. These problems make it difficult for learners to understand Mathematics. It is recommended that learners should understand the basics of Mathematics before they can start with formal Mathematics. It is recommended that they should be able to form and recognize numbers and signs used in Mathematics as early as in grade one.

Mercer and Mercer (2005:405) state that several cognitive factors are needed for a student to progress in Mathematics; to begin formal Mathematics instruction, the student should be able to form and remember associations, understand basic relationships, and create simple generalization. According to Choate (2004:438), learners who did not do well in Mathematics in the lower grades develop negative attitude towards Mathematics and the attitude contributes to their failure to the subject. Some learners with learning problems have history of Mathematics failure. Consequently, they often develop negative attitude towards Mathematics learning

and feel insecure about their capabilities to succeed in Mathematics. Another problem, which is encountered by learners in Mathematics, is language. The Department of Education insists that Foundation Phase learners should be taught in their home language up to grade three. Furthermore, the Department of Education (2010:6) states that the Department's Language in education policy (LiEP) which was adopted in 1997 is underpinned by the principle of maintaining the use of home language of learners as the language of learning and teaching (LOLT) in the classroom especially in the early years of learning, while providing access to an additional language(s). In Mathematics, it becomes a problem because there is limited terminology and the numbers game becomes difficult and long.

Sousa (2007:150) states that Mathematical disorders often arise and learners fail to understand the language of Mathematics, which has its own symbolic representations, syntax, and terminology. Solving word problem requires the ability to translate the language of Mathematics. Morin and Franks (2010:111) add that children with learning disabilities (LDs) or specific language impairments (SLIs) often have difficulty learning the skills and performing the tasks associated with Mathematics, especially beyond the fourth grade. For these learners, language inefficiency, which is often characteristic of LD and SLI is an under-acknowledged impediment to learning Mathematics. Some learners lack confidence in Mathematics because of the inappropriate help they get from home. Hannell (2008:73) states that inappropriate help at home can have a negative impact on pupils' confidence in Mathematics.

Learners do not learn easily from incidental experiences. Maloney, Ansari and Fugelsang (2011:10) state that Mathematics Anxiety (MA) is a condition in which

individuals experience negative effect when engaging in tasks demanding numerical and Mathematical skills. Across a number of studies, individuals High in Mathematics Anxiety (HMA) have been shown to perform worse than their Low Mathematics Anxious (LMA) peers on a wide range of numerical and Mathematical task, ranging from simple tasks such as counting objects to more complex arithmetic problems involving carrying. Another problem is problem solving which involves reading and understanding. According to Department of Education (2009:11), learning without understanding contributes to so many of the problems experienced by learners in Mathematics classrooms. Similarly, Choate (2004:176) concurs that one other area that may cause difficulty is problem solving. The problem might be the reading that learners cannot do or the inability to understand the Mathematical concepts. According to Mercer and Mercer (2005: 435), problem solving relates to both word and computation problem solving activity. This is needed for any task the student finds difficult. Thus word and computation problems both could require reading from the learners in order to solve the problem. According to Choate (2004:290), problem solving is difficult for all learners and particularly for learners with special needs.

Many learners with special needs do not learn easily from incidental experiences to facilitate their learning experiences. They need to be somewhat controlled, explained and repeated until understanding occurs. In addition, Perso (2009:15) states that being numerate requires a certain degree of literacy skill as well as being able to perform the Mathematics. Indeed, the literacy is part of Mathematics since it does not make sense to separate the two. Other problem is carrying and borrowing. Learners find it difficult to borrow from other numbers or carry numbers to the next column, for example borrowing units from tenths or carry units to tenths. Morin and

Franks (2010:116) say that for a child, the process of carrying is an obscure notion that conveys an odd picture. Lifting numbers—an abstract image in itself—and depositing them elsewhere is an ephemeral notion and not likely to cement the concept. Polloway, Patton, Serna and Bailey (2013:217) said the act of borrowing from one place to next maybe one of the most difficult parts of the subtraction process to group. Many learners fail to understand why one cannot switch the 1 and 3 around when subtracting 23 from 41. Choate (2004:260) states that the cause of regrouping difficulty is mechanical or structural, and learners simply learn the procedure incorrectly and use it without regard to the concept.

The last difficulty that is faced by learners is educators that are not properly trained to teach learners with barriers and who have no idea what is learning disability. Engelbrecht, Forlin, Eloff and Swart (2001:80) confirm that educators were trained accordingly although the separate mainstream and special education educator preparation programmes did not provide trainees in mainstream education with the experience to develop the necessary skills and dispositions to handle learners with barriers in their classrooms. Learners are also faced with a problem of educators who have negative attitude to inclusive education. De Boer, Pijl and Minnaert (2011:347) state that educators are negative or undecided in their beliefs about inclusive education and do not rate themselves as knowledgeable about educating learners with special needs. Additionally, they do not feel competent and very confident in teaching pupils with special needs.

2.3.2 Difficulties faced by educators in Mathematics

Educators are not confident that they can teach learners who experienced barriers to learning. They feel that they lack knowledge of teaching these learners. The study by Kgwete (2007:5) reveals that teachers believed that they were failing to meet the needs of all learners, due to their limited skills. Miles (2005:12) adds that in many cases educators lack confidence and the basic knowledge needed to welcome all learners into their classes. Prinsloo (2001:46) indicates that in spite of many attempts of government and Department of Education to train and support educators, they still experience a sense of powerlessness and a sense of not being in control of their situation. Feeling of inferiority and fears of breaching learners' rights result in a lack of motivation and enthusiasm to meet the needs of all the learners in their classrooms.

Overpopulated classrooms make it difficult for educators to observe learners who are having problems in Mathematics and give immediate support to their needs. According to Engelbrecht, Oswald and Frolin (2006:125), educators have big classes (up to 50 and more in some schools) and struggle to facilitate a positive learning environment conducive to the involvement of all the learners in their classes. Large classes with which they (educators) had to cope with contributed further to high levels of stress. Kgwete (2007:5) added that educators mentioned that a high number of students in the classroom made it difficult for them to teach adequately in inclusive classroom. The Department of Education (2003:69) also added that another factor influencing the quality of education is the educator: learner ratio. The average educator: learner ratio is expected to be below 1:40 but there are classrooms that are still overcrowded and this had a negative influence on learner achievement. Classes are packed and individualized teaching is impossible and

learners who are struggling cannot get the attention they deserve. Educators have problems in identifying learners who are experiencing barriers in their classes because of overcrowding, as their main role is to observe the learners and get support for them.

Other problems that are facing educators are learners who are admitted into higher grades having a gap of Mathematical knowledge in lower grades. Learners are promoted to next grades even if they are not ready for that grade. The Department of Education has a rule that learners should progress with their age cohort. Moreover, the Department of Education (2005:20) states that the development needs of learners should not prevent them from progressing with their age cohort, as the value of peer interaction is essential for social development and self-esteem. Learners are not allowed to stay more than four years in one phase. According to Department of Education (2005:10), a learner who does not meet the requirement for promotion can be progressed to next grade in order to prevent the learner being retained in the Foundation Phase for longer than four years, excluding grade R. This gives grade three educators a problem because they end up with learners who are admitted in grade three regardless of their readiness.

Educators are also faced with problem of parents who do not accept that their children have learning problem in Mathematics. Narumanchi and Bhrgava (2011:121) state that parents of learners with special needs go through grief, frustration, denial, and anger before the child's condition is accepted. Mathieson (2007:75) adds that when dealing with parents of learners with special needs as an educator you must be prepared for a variety of reactions: denial, disbelief, grief, self-blame, and even aggression. When those parents are called to school to discuss

their children problems, they do not accept easily that their children have problem and need help.

2.4 The Role of Educators in Supporting Foundation Phase Learners in Mathematics

Educators are expected to screen, identify, assess and support learners in their classrooms. After doing so, the educator must start planning lessons that are suitable for the learners who are identified as having learning barriers. There should be other educators like special need educator to assist them in carrying out the task. These are educators who work together to support learners who experience barriers to learning at school level. Different terms are used for these educators.

2.4.1 The role of School Based Support Teams

The term used for educators who worked together to support learners who experienced barriers at school level differs from country to country. Friends (2008:41) states that teams have several different names, depending on state and local policy: Teacher Assistant Team, Intervention Assistant Team, Student Assistant Team, and Instructional Consultation Team are few common ones. Pierangelo and Guliani (2006:65) state that if there is no progress within a realistic amount of time, the educator may decide to refer the learner to a School-Based Support Team, often known as the Child Study Team (CST), School Building Level Committee (SBLC), Pupil Personnel Team (PPT), or Prereferral Team (PRT) depending on the state in which the learner resides.

Friends and Cook (2008:72) describe Teacher Assistant Teams as a team that serves as one of the earliest examples of a Prereferral intervention assistant model. Vaughn et al. (2006:21) define the support teams as a group of teachers from the same school who meet regularly to discuss the specific progress of learners whom other teachers in the school have brought to their attention. The Support Teams' role is to assist the individual educators who are having learners who are experiencing barriers in their classrooms. According to Creese, Norwich and Daniels (2000:308), Teacher Support Teams (TSTs) are an organized system of peer support that consists of small group of educators who take referrals from individual educators on voluntary basis. They are also an example of School Based Development designed to give support and assistance to individual educators. Forlin (2001:125) adds that the work profile for the support teacher who deals with (learning difficulty) outlined a number of key responsibilities. These can be loosely grouped into four major areas, namely:

- identifying the needs of learners,
- assessment and teaching,
- collaborative planning, and
- Maintaining their teaching expertises.

Special needs educators can collaborate to help learners who are experiencing problems in Mathematics. Henley, Ramsey and Algozzine (2006:241) state that general and special educators can collaborate to teach all learners. Scruggs and Mastrepiere (2005:158) add that the collaborative models in theory, is a means by which special education educators can share their expertise with regular education educator to the benefit of all involved. Thousands, Villa and Nevin (2007:10) add that educators who collaboratively plan and teach can expect improvements in academic

and social skills of learners with learning disabilities and language differences. Frolin (2001:127) adds that the profile for support teacher who is responsible for learning difficulty (LD) additionally require them to collaboratively plan with classroom educators and to work with other specialists in providing programmes for learners with learning difficulties. In order to assist learners who are experiencing barriers to learning educators should work in a group or team. One educator would not be able to assist learner in her/his class alone without the School Level Support Team (SLST).

In some countries, they use coordinators to support educators in their classrooms in teaching learners who are experiencing barriers. Coordinators makes the duty lighter for educators as they can concentrate on coordinating special needs education while the class teacher concentrates on the practical part in the classroom. Pijl and Van Den Bos (2001:112) state that the school's internal support coordinator is responsible for coordinating special needs education in the school. Their role comprises initiating team meetings to discuss the instruction of special needs learner, supporting the classroom educators, collecting and offering specialized learning materials and performing or organizing assessment. Cartledge, Gardner and Ford (2009:249) state that by working together special and general education educators can develop inclusive classrooms centred on the principle that all children can succeed and thereby plan for the success of all learners.

In South Africa, the support teams are called Institutional Level Support Teams (ILSTs). The main duty of support teams is to assist the educators with learners who are experiencing barriers in learning. They assist by working with educators in

developing strategies to address the needs and barriers that are faced by learners. They also assist the schools to accommodate learners who are experiencing barriers. The Department of Education (2008:8) define ILSTs as a team established by institutions in general, further and higher education, as an institution level support mechanism whose primary function is to put in place co-ordinated school, learner, and educator support services. White paper 6 (2001:46) states that at the institutional level, in general, and further education, the Department of Education shall assist institutions to establish Institutional-Level Support Teams. The primary function of these teams will be to put in place properly co-ordinated learner and educator support services that support the learning and teaching process by identifying and addressing learner, educator, and institutional needs.

When the ILSTs discover that the learner's problems needs professional or the learner cannot be accommodated in the full service school, they then refer the learner to District Based Support Team (DBST). Some of South African schools do not have specialists like psychologists, occupational therapists and others; so when a learner needs those people the ILST should refer the learners to District Based Support Team. The Department of Education (2008:80) states that where high – level support cannot be organised in any practical and cost-effective way at institutional level, the DBST is the next level to provide additional support. Loreman, Deppeler and Harvey (2005:84) state that educators who have learners with diverse abilities in their classes will be required to work with other professionals. These include specialist teachers, doctors, psychologists, occupational therapists, and wide variety of other professionals.

2.5 SUPPORT OFFERED BY DEPARTMENT OF EDUCATION TO FOUNDATION PHASE EDUCATORS

Schools cannot function without the support of District Offices and specialists. There are people who should help when coming to referrals. When general educators and the support teams are having problems in helping learners who experience barriers to learning, they should refer them to professionals who are expected to use their expertise to give the learners the support they require. The special schools educators are expected to assist general educators in full-service schools to support learners who are experiencing learning barriers.

2.5.1 Support offered by District Based Support Team

In some schools, the specialists are available. So, the support that is supposed to be offered by specialist at district level is available at school. They are involved in planning the learners Individualized Education Plan (IEP) with the special general educators as well as parents. In schools where there are no specialists, the schools use the District Based Support Team to consult specialists. The Department of Education (2008:89) defines District Based Support Team (DBST) as a group of departmental professionals whose responsibility it is to promote inclusive education through training, curriculum delivery, and distribution of resources, identifying and addressing barriers to learning, leadership, and general management. Their role is to visit schools and work with Institutional Level Support Teams to support all learners who are having difficulties in learning. According to Department of Education (2008:88), District Based Support Teams form a key component in the successful implementation of an inclusive education support system.

According to The Illinois State Board of Education (2007:2), upon completion of the IEP meeting, the district must provide a copy of IEP that documents the determination of eligibility to the parent(s). A copy shall be kept on file by local district. The role of district representative is to make sure that the learners who are experiencing barriers to learning are supported and their requirements are met. According to Ohio Educational Agencies (2008:124), each school district shall adopt and implement written policies and procedures approved by Ohio Department of Education, office for exceptional children, that ensure an individualized education programme (IEP) is developed and implemented for each disabled child. Flem and Killer (2000:206) state that in Norway at district level, support services typically have a primary or sole responsibility for assessing learners with special needs, writing the diagnostic reports for those learners so that they could receive extra resources, and they might be involved in writing Individual Education Programmes for special education learners. In addition, the district is showing more individuality in developing different projects such as specific training programmes. These projects help educators to become more inclusive. There are other projects to support families in order to meet what they see as challenges in realizing inclusion in their communities. According to Forlin (2001:216-217), in Australia support for learners with specific disabilities is usually provided by personnel trained in the specific disability area and is coordinated at district level.

It is stated in the Department of Education (2002:10) document that a DBST could consist of district/regional officials responsible for Education Support, Curriculum, Institutional Development, Special Needs Education, Assessment, Examinations, and Learning Support Materials. As stipulated in White Paper 6 (2001:19), the

Department of Education promised that the district personnel would be trained to give support to educators and schools who are teaching learners who are experiencing barriers to learning. It also states that education support personnel within district support services will be oriented to and trained in their new roles of providing support to all educators. Training will focus on supporting all learners, educators and the system as a whole so that the full range of learning needs can be met. Furthermore, the Department of Education (2008:88) states that DBSTs are also expected to discuss and evaluate the request by school for additional support in consultation with parents/care-givers, educators and Institution-Level Support Team members. In addition, they are required to plan support provision to schools, educators, and learners and to monitor support provision in a mentoring and consultative way. They have to assist educators and schools in assessing and providing learning aids for learners who are experiencing learning barriers and to make sure that learners are fairly assessed.

DBST has the responsibility of training the ILST in schools of how to screen, identify, assess, and support learners with mild barriers. The ILSTs refer the learners who do not respond positively during support sessions to DBST for further assessment and referral to specialist. The Department of Education (2008:91) explains the broad roles of the DBST as training ILSTs in all schools as well as specific principles and approaches to addressing delivery for diverse learner needs. Also, the DBSTs are aimed to assist educators in specific interventions for individual learners with high support needs. To provide direct support to learners in terms of specialised interventions and monitoring whether support-funding measures are being appropriately applied at sites of learning.

DBSTs also give support to educators and learners in full-service schools. The Department of Education (2009:23) states that full-service schools must have support visits by specialised staff from the DBST or special school resource centre for teacher training and part time individual learner intervention. The DBST is to assist general educators and special needs educators to support the learners at school level. They are expected to use their expertise and to use the service that is provided by professionals. Those parents who cannot see private professionals can use the one that is provided by DBSTs. The DBST has to reduce the number of learners who are not properly identified and have been declared as having barriers in learning. They have to educate the educators how to assess and identify the learners.

2.5.2 Support offered by Special Schools.

Schools in South Africa are divided into three groups. We have ordinary schools, full-service schools and special schools. These schools are to cater for different types of learners' needs. Learners who are experiencing barriers to learning have different needs and they require different levels of support. White paper 6 (2001:16) states that in an inclusive education and training system, a wider spread of educational support service will be created in line with what learners require. This means that learners who require low intensive support would receive this in ordinary schools and those requiring moderate support would receive this in full-service schools. Those requiring high intensive support would receive it in special school.

Special schools (SPs) are also called Resource Centres (Rcs) because educators from full service school and ordinary school can use them as resource centre. The Department of Education (2008:9) states that special schools are transformed to accommodate learners who have high intensity support needs, as well as provide a range of support services to ordinary and full service school. Educators with learners who are experiencing barriers in Mathematics can visit special schools for assistance in supporting those learners.

According to Salamanca (1994:12), special schools can also serve as training and resource centres for staff in regular schools. White Paper 6 (2001:21) adds that the new roles for Special Schools would include providing particular expertise and support, especially professional support in curriculum, assessment and instruction, as part of the District Support Team to neighbourhood schools, especially full-service schools. Special schools cater for learners with needs that a general educator cannot meet.

2.5.3 Support offered by Full-Service Schools

Cartledge et al. (2009:55) state that it was just over 30 years ago that the right to a free and appropriate education was granted to learners with disabilities. It was granted after the passing of Education for All Handicapped Children Act of 1974, later renamed the individuals with Disabilities Education Act, IDEA. This Act stopped segregation of learners.

Another Act that called for inclusivity is No Child Left Behind Act of 2001. This Act emphasizes accountability for all learners by requiring disaggregation and review of data for all learners, for example learners in poverty, and learners with difficulties. Smith et al. (2012:90) state that the eligibility criteria covered under IDEA, require that the evaluation be comprehensive enough to gather functional, developmental, and academic data sufficient to determine if the learner has one of the disabilities covered by IDEA, to identify his or her educational needs and present levels of performance, and to determine if the learner needs special education and /or related services. In United Kingdom, the Code of Practice that is used to identify learners with barriers controls them. According to Growth and Millward (2001:174), Code of Practice was introduced for identification and assessment of pupils with special education needs in every school.

Full-service schools are expected to use the service of support and IEP teams to teach learners with learning disabilities. According to Salamanca Statement (1994:7), special needs education incorporates the proven principles of sound pedagogy from which all learners may benefit. It assumes that human differences are normal and that learning must accordingly be adapted to the needs of the child rather than the child fitted to preordained assumptions regarding the pace and nature of the learning process. The full-service schools support the learners who are experiencing barriers in learning using IEPs or ISPs. Class educators helped by co-educators, or educator assistants if they are available, are required to use the IEPs or ISPs in full-service schools to support learners and be guided in using different strategies. The full-service schools support learners by making sure that their needs are met and that they learn like other learners.

Full-service schools are schools that are equipped to teach all learners with or without barriers. According to White Paper 6 (2001:22), full-service schools and colleges are schools and colleges that will be equipped and supported to provide for the full range of learning needs among learners. The Department of Education (2009:3) defines full-service schools as inclusive schools in the broadest sense of the word, embodying the principles of diversity and fostering maximum participation for all in the culture of the school. Full - service school or inclusive school supports learners using the help of School Based Support Team and District Based Support Teams.

2.6 MATHEMATICS INTERVENTION STRATEGIES AND SUPPORT THAT CAN BE PROVIDED TO LEARNERS

Providing intervention strategies and support is regarded as one of the most important aspects in education. Learners learn in different styles and in order to reach them all, educators should use different forms of intervention strategies. Learners with learning problems do not need intervention strategies only but also support from general educator and special need educators. Support for learners who are experiencing barriers to learning is done by collaboration of general education and special need educator because it should help those learners to learn effectively in a general classroom. Their support is based on their individual educational need. Lomofsky and Lazarus (2001:316) state that we need to recognise our interdependence on one another and, collaboratively provide quality education for all our learners.

2.6.1 Intervention strategies for learners with Mathematical challenges

According to Friend, (2011:154) strategies are techniques, principles, and rules that guide students to complete tasks independently. According to the Department of Education (2005:97), inclusive strategies for learning and assessment allow learners to demonstrate a level of competence and to achieve an outcome in a way that suits their needs. In addition, Sousa (2007:32) states that learning strategies are efficient, effective, and organised steps or procedures used when learning, remembering or performing. These tools and techniques might help educators to understand and to retain new material or skill to integrate the new information with what they already know, in a way that makes sense, and to recall the information or skill later. Sousa (2007:35) also added that learning strategies help students become better equipped to face current and future learning tasks. Educators had to know different strategies in order to support learners.

Educators should be very careful when using strategies because learners are unique just like their barriers. What works for learner A might not work for learner B. Bow and Learnind (2007:360) state that learners need to be introduced to strategies that work for them in reading and Mathematics. Learners should be encouraged to use correct strategies and should be monitored that they use them in relevant situations. Mercer and Mercer (2005:441) add that learners need to be helped to discriminate when to use a strategy in order to be able to integrate new learning with the old. Some learners with learning problems learn a strategy and apply it to all situations. For example a learner may learn a count-on strategy and apply it to all addition facts.

2.6.1.1 Cooperative Learning

Learners can be taught by using a strategy like cooperative learning. They can be taught how to work in small groups inside the classroom without disturbing others. Learners who experience barriers can be taught in small groups. They can be given a task to do in that group. Gillies (2007:120) states that extensive research on cooperative learning since the early 1970s has documented the effectiveness of involving learners with special needs in group activities. The Department of Education (2005:93) explains that in cooperative learning, groups are organised and tasks are structured so that learners must work together to reach a goal, solve problem, make decision, or produce product. Furthermore, Gillies (2007:7) states that cooperative learning involves learners working together in small groups to accomplish shared goals. According to Gunning (2002:530), cooperative learning is a way of acquiring skills or information from which learners work together to help each other.

Educators should make sure that groups are very small, about three or four especially in lower grades like grade threes, they should have both boys and girls and mixed abilities. Gillies (2007:7) explains that the optimal size for learning is three or four learners per group. Learners with learning problems should be placed in groups with learners without learning problems; this will help them to learn from their peers who are having no problem in learning. According to Henley, et al. (2006:239) cooperative groups are heterogeneous in composition with a balance between males and female, high and low achievers, active and passive learners. Learners with high ability will help learners with lower ability in doing tasks. Moreover, Gillies (2007:7) states that there is evidence that low-ability learners benefit from being included in

the mixed-ability groups because they are able to take advantage of the additional insights and often the extra tuition their more able peers provide. Cooperative learning teaches learners to listen to others and give their own opinions in discussions. Tileston (2004:39) agrees that cooperative learning settings, in which learners are put heterogeneously to practice the learning, were found to have positive effects on achievement for at risk learners. According to Gillies, Ashman and Terwel (2008:244), when learners interact cooperatively they learn to listen to what others have to say, give and receive information, discuss differing perspectives and, in so doing develop mutual understandings of the topic.

Educators should keep in mind that learners would not be able to work in groups profitably if they are not trained to do so. Learners should be first taught that they are to work together as a team and share the resources. Gillies (2007:5) explains that learners need to be taught how to communicate effectively with each other so they know how to express their ideas, acknowledge the contributions of others, deal with disagreements, and manage conflicts. In addition, they need to know how to share resources fairly, take turns, and engage in democratic decision making. Learners should also be taught that they are accountable for any results from their groups. Gillies (2007:5) states that learners should understand that they would be accountable for their individual contributions to the group, that free loading will not be tolerated, and that everyone must contribute.

Cooperative learning has advantages and disadvantages. Learners who work in-group learn to tolerate and respect each other. Henly, et al. (2006:239) explain that the benefit from cooperative learning include:

- increased learners motivation;
- higher test scores; and
- enhanced social skills.

Gillies (2007:50) added that there is no doubt that when learners work cooperatively, they learn to listen what others have to say and how they say it, share ideas and perspectives, give and receive help, seek ways resolving difficulties, and actively work to construct new understandings and learning. Henley, et al. (2006:239) said that in cooperative learning, groups learn that they sink or swim together.

The disadvantages are that grade three learners are still very young to work alone without an educator, so they will need more control and training. However, Gillies (2007:7) argues that placing learners in small groups and telling them to work together does not guarantee that they will work cooperatively. Gillies, et al. (2008:246) added that elementary learners rarely worked cooperatively in small groups despite being seated in small groups.

2.6.1.2 Peer Tutoring

Some learners learn more easily and better from their peers and some talk freely to their peers than their educators. According to Kroeger and Kouche (2006:8), the Class Wide Peer Tutoring (CWPT) approach permitted educators to address a challenging Mathematics curriculum and simultaneously attend to a wide diversity of Mathematics skills in the classroom. Obiako and Ford (2002:87) add that Class Wide Peer Tutoring (CWPT) is an effective instructional intervention that is used to teach a variety of content areas, for example spelling, Mathematics and reading. Vaughn, et al. (2011:381) also maintain that effective ways to facilitate learning of Mathematics

for learners with difficulties is to engage peers in the process. One way is through peer pairing in which two learners work together (-usually a strong learner in Mathematics is paired with a less able learner-). Peer tutoring also help learners who are shy to talk as the learner will be compelled to answer his /her peer. Tileston (2004:120) states that peer tutoring may be an informal pairing of learners with disabilities.

Peer tutoring provides individual teaching which is impossible for educators in big classes. When a learner who experiences barriers to learning is taught by her/his peer, it gives that learner individual teaching. According to Henley, et al. (2006:237), peer tutoring provides individualized instruction. Thousand, et al. (2007:49) agree that peer tutoring helps to individualize learning and offer more opportunities for tutees to respond to and practice academic content than a conventional educator. Tileston (2004:38) avers that peer tutoring is an individual instruction of one learner by another and had a positive effect on learning particularly in Mathematics, spelling and reading.

When learners are with their peers, it is easy to admit their weaknesses to their peers than to educators. According to Henley, et al. (2006:237), the non-threatening aspect of peer tutoring encourages learners to admit a lack of understanding without concern about adult evaluation. Working with other learners provides a youngster with opportunities to discuss, question, practice and evaluate with immediate feedback. Peer-tutoring benefits tutees and tutors. Cartledge, et al. (2009:247) state that peer tutoring is another flexible strategy that can be used with a variety of academic content. It works as reinforcement to learners who become tutees.

According to Henley, et al (2006:237), not only learners who are having problems benefit from peer tutoring. One of the best ways to learn something is to teach it to someone else. Therefore, it can be effective to learners with or without learning disabilities. Thousand, et al. (2007:12) argue that in peer tutoring not only do tutees experience learning gain, but tutors report understanding the content at a deeper level than before teaching.

The disadvantage of this strategy is that sometimes the tutors are not clear of what they are supposed to do or they do the work for the tutees. Tileston (2004:120) stipulates that the potential problem with peer tutoring should be acknowledged. These include overuse of some students as tutors, lack of training of tutors in appropriate techniques, using peer tutors for activities and instruction that should be provided by the educator, and failing to monitor the success of the peer tutoring effort.

2.6.1.3 Differentiation Instruction

Another strategy that can be used is differentiation instruction. Educators should make sure that they know their learners' needs and know how to change instruction to meet those needs. Tileston (2004:10) defines differentiation as an educator's response to learners' needs. In addition, Thousand, et al. (2007:2) define differentiated instruction as a way for educators to recognize and react responsively to their learners' varying background, knowledge, readiness, language, preferences in learning, and interest. They also describe it as teaching philosophy based on the premise that educators should adapt instruction to learners' differences, because 'one size does not fit all'. Westwood (2001:5) adds that the need for differentiation in

teaching and assessing is created by the fact that all learners are different. According to Kroeger and Kouche (2006:12), with the demand of No Child Left Behind, it is important to address differentiation and the needs of all learners. Kise (2007:1) states that differentiation is tailoring to meet individual learners' needs, styles and interests. Henley, et al. (2006:271) state that an educator differentiates his/her instruction by making adaptations which fit each learner's need, styles, and abilities.

An educator who uses differentiated instruction should know the learners well. Differentiated instruction can be used after the learners have been in a class for a while and they have been assessed and identified. The educator should also be sure what does she/he wants to differentiate in the lessons. As Preszler (2006:4) argues, additional work and effort are required up front; the payoff comes later in the lesson of study or even in the school year. The pay off comes with learners achieving more in your classrooms, becoming more involved in classroom discussions, smiling more during their school days, and even scoring higher on various assessments. The educator should also plan the lessons in advance with differentiation strategy in mind. Evers and Spencer (2011:310) explain that to differentiate instruction requires a thorough knowledge of each learner and how each learner learns best. When educators and support teams plan the support lessons for learners they should make sure that the lesson, assessment task and resources are going to give the learner the much needed support t. Browder and Spooner (2011:35) state that a review of the materials used in the instruction and assessment tasks is necessary to promote differentiation.

Educators sometimes have to differentiate curriculum in order to meet the learners' needs. Differentiated curriculum does not mean changing the curriculum but to make it understandable to those who are experiencing barriers. The most important part to be differentiated is content. Tileston (2004:1) states that the classroom educator has the task of differentiating curriculum every day in order to meet the needs of all the learners. Westwood (2001:4) explains that differentiation in curriculum content usually means learners with learning difficulties are required to cover less material in the lesson. In addition, Conklin (2007:7) contends that the more we understand about how learners learn, the more we understand why curriculum needs to be differentiated. Learners make meaning out of what is taught in classrooms based on their prior understandings, learning styles, attitudes, and beliefs. Differentiated curriculum considers these.

The Department of Education (2011:4) adds that an important aspect to be differentiated in the curriculum is the content. This can be done by adapting the content of the curriculum in such a way that it is manageable for a wider range of learners. This should not be seen as watering down of the curriculum but rather as a graded process where learners are taken by a different route to a similar endpoint. Drift (2012:37) proposes that the learners' curriculum should be differentiated to support their learning, adapt the activities, presentation, teaching styles, and timing, enabling the child to achieve the target skill or concept. Nevertheless, there is no guarantee that the support that is given to learners who experience barriers will surely help them to learn.

The advantage of differentiated instruction is that when it is used, it improves the results and some learners who experience barriers perform better than before. Thousand, et al. (2007:7) state that many adopt differentiated instruction because of the research that shows positive academic and behavioural outcomes for diverse learners increased. They also added that when differentiated instruction and co-teaching is combined, the results show an increased learners performance on high stakes assessments.

The disadvantage is that differentiated instruction only works in smaller classes. With bigger classes of more than 40, it will be difficult to manage this strategy. Westwood (2001:9) also concurs that it is manageable in smaller class size which contains five learners or less; most educators will probably manage to differentiate and individualize their class size and they will most certainly get demising returns for their efforts.

2.6.1.4 Use of Manipulatives Objects

Learners who are in the Foundation Phase should be allowed to use manipulatives objects in their classes because they play a key role in Mathematics understanding. Boggan, Harper and Whitemire (2009:9) define manipulatives objects as “-physical objects that are used as teaching tools to engage learners in the hands-on learning of Mathematics-.” They help the learner to link real life issues to Mathematics and can come in a variety forms. They should be in bright colours and be big enough for the learners to handle and be safe. They should be appropriate for the learners and be chosen to meet the specific goals and objectives of the Mathematical programme. In addition McNeil, Uttal, Jarvin and Sternberg (2009:173) state that one straight

method for activating real-world knowledge when learners are solving word problems is to provide them with supplemental materials, such as concrete objects, to reinforce the real-world scenarios described in the problem. Learners should be made aware that the manipulatives objects are not toys only but also learning aids. They should be allowed to first manipulate them when they are given them for the first time. Boggan et al. (2009:4-5) state that it is important for teachers to allow their learners to have free time to play with manipulatives objects. After the learners have explored the manipulatives objects “the materials cease to be toys and assume their rightful place in the curriculum.

Learners in grade three may understand Mathematical concepts better if they are introduced to them using manipulatives objects and at later stage, pictures may be introduced and when they understand the concepts abstract concepts may be used. Evers and Spencer (2011:314) state that one way to simplify learners understanding of abstract concepts is to transform them into concrete manipulatives. This process is known as the Concrete –Representational Abstract (CRA) sequence of instruction. They further explain that CRA involves utilizing concrete manipulatives objects. Once the learner has mastered the Mathematics concept using manipulatives objects, the object are replaced with pictorial representations, such as a picture of the object.

Learners who experience barriers should be allowed to use counters in Mathematics until they are able to calculate without them. Learners in Foundation Phase rely on concrete to do any calculation. According to Tileston (2004:14), tutoring based on concrete representational- abstract method for Mathematics instruction can be used in school. This method involves using manipulatives objects to provide for concept

understanding. Henley, et al. (2006:103) state that during the primary school years, (-age seven – eleven-) most children are concrete operational thinkers. A child can mentally manipulate such symbols as numbers and words, but the child's thoughts are still tied to concrete here- and now experience.

Boggan, et al. (2009:1) add that the idea that learners start off as concrete thinkers has been translated into teaching methods that focus on using concrete objects to teach Mathematics. Vaughn, et al. (2011:385) state that it is an important thing to remember as an educator to begin with concrete and then move to abstract when teaching new Mathematics concepts or when a learner is having difficulty in learning Mathematics concepts. Furthermore, Yeo (2003:34) adds that educators should encourage and help learners to use concrete materials to foster thinking. The Department of Education (2011:5) states that certain learners might need to work with objects such as small stones as counters before they are ready to work with abstract numbers. Gurganus (2007:270) adds that a more mathematically powerful approach to addition and subtraction concepts is to present problem situation orally and with the use of objects until learners can describe and manipulate the concepts.

Advantage of using manipulatives objects is that they help learners to gain more understanding of the concept they are dealing with. According to Boggan, et al. (2009:4), the effective use of manipulatives objects can help learners to connect ideas and integrate their knowledge so that they gain deep understanding of Mathematical concepts. They also consulted a number of additional studies which confirm that learners who use 'manipulatives objects in specific Mathematical

subjects are more likely to achieve success than learners who do not have opportunity to work with manipulatives objects.

The disadvantages of using manipulatives objects are that there is no proof that every learner will learn Mathematics using this strategy. There will be still learners who experience barriers in learning Mathematics and who will need referral. At the same time, educators might use the concrete method wrongly and mislead the learners. As Boggan, et al. (2009:5) argue, there has been considerable research showing that merely using manipulatives objects to teach Mathematics does not guarantee that learners will learn. They also add that there are probably as many wrong ways to teach with manipulatives objects as there are to teach without them. If the manipulatives objects are left unattended, younger learners can chew, and put them in their noses and ears.

2.6.1.5 Mnemonic Strategy

Strategies like mnemonic can be used for information that learners have to keep in mind and to recall it whenever doing certain tasks. Vaughn, et al. (2011:385) describe mnemonic devices as memory triggering technique that help one to remember and retrieve information by forming association that do not exist naturally in the content. Ellis (2005:37) describes mnemonics as a technique to improve memory. Mercer and Mercer (2001:168) explain that mnemonic devices can be used to help learners to remember key information or steps in learning strategy. Keetabi and Amiryousefi (2011:179) describe mnemonics as techniques or devices, verbal or visual in nature, that serves to improve the storage of new information, and the recall of information contained in memory. Similarly, Zisimopoulos (2010:119) describes

mnemonic strategies as a systemic procedure for enhancing memory by providing effective cues for recall as a “cognitive cuing structure” such as word, sentence, or picture devices. Peg word is another mnemonic strategy. According to Kleinheksel and Summy (2005:32), the peg word method is used when numbered or ordered information needs to be remembered.

Educators use mnemonics strategy to help learners to store certain information in their minds and be able to recall it when needed. Educators should encourage learners to use mnemonics strategy profitable. Kleinheksel and Summy (2005:33) state that the intended use of mnemonics is to enhance the recall of information from any lesson for which memory is needed. They also add that learners and educators need to work together so learners can obtain the maximum academic benefit from mnemonics strategies. Educators should allow learners to choose their own strategy of mnemonics. This will give them confidence that they can learn new things on their own. They should only help when they see that learners are having difficulties in finding their own. Keetabi and Amiryousefi (2011:180) state that learners themselves should be encouraged to find their mnemonic devices; if they cannot, the teacher can offer one. They also added that the choice of strategies, however, depends on the learners’ proficiency and learning style. Mnemonics does not help learners in all the concepts that learners must learn; other strategies should be considered when lessons are planned for the learners. Scruggs, Mastropieri, Barkley and Marshak (2010:84) state that it must be considered that mnemonics strategies do not address all objectives and should not be considered a panacea for all aspects of school learning.

The advantages of mnemonics are their effectiveness in helping learners to recall information learned. According to Keetabi and Amiryousefi (2011:180), mnemonics devices can be very effective, motivates learners, and make the classroom more interesting. Kleinheksel and Summy (2005:30) state that mnemonics strategies are enjoyable, engaging, and highly successful with many learners. Zisimopoulos (2010:129) state that mnemonic strategies can enable learners to learn new skills or information in a way that is more meaningful to them through acoustic-imaginable link.

The disadvantages of mnemonics strategy are that it sometimes consumes too much teaching time and learners tend to hold to on it even when it is no longer necessary. Zisimopoulos (2010:120) states that the use of strategies, such as peg word strategy, for solving basic Mathematics facts directly interferes with fluency in such facts. It is considered important that once learners acquire basic Mathematics facts, the use of time-consuming strategies be faded. Scruggs, et al. (2010:82) state that mnemonic is time consuming but becomes easier as the process of creating them is mastered.

2.6.2 Support for learners with Mathematics challenges

Learners who are experiencing barriers in Mathematics need to be supported in order to overcome their barriers. Educators in grade three are expected to provide that support to those learners. Educators will be able to support these learners if they are also supported by School Based Support Team, (SBST) parents and District Based Support - Teams (DBST).

In order for the educators to support these learners, there should be cooperation between general educators, special need educators, co-educators, School Based Support Teams and parents of those learners. School Based Teams should make Individualized Education Plan (IEP). Henley, et al. (2006:399) describe IEP as a management tool designed to ensure that special education services match the learners' individual needs and that special education services are monitored. Tileston (2004:48) state: that IEP should contain:

- annual goals and short-term instructional objective;
- indicate the specific special education and related services to be provided;
- outline the length of time those services will be provided; and
- specify the criteria and evaluation procedures which signify the child's educational goals are being met.

The IEP is a national term from which Individual Support Plan (ISP) emanates. The Department of Education (2008:18) states that once the educator identifies a learner as having special educational needs, she/he draws up an individual support plan to keep track of support given and progress made. In some school, co-educators, or co-teaching are used to help general educators in the classroom. Evers and Spencer (2011:60) describe co-educators as teams who originally collaborated with general educators and special needs educators to provide direct instruction to learners with Individual Education Plan. Henley, et al. (2006:232) state that co-teaching means that general educator and special needs educators work together in the regular classroom. According to Conderman and Hedin (2012:19), co-teaching occurs as two professionals share responsibilities for all learners within a common space and has three components: co-planning, constructing and co-assessing.

The School Based Support Teams forms an Individualized Education Plan Team because IEP should be made for every learner who experience barriers to learning in the school. This plan should be followed by class educator in the class with the help of co-educators where they are available. The IEP Teams'- responsibility is to monitor the plan and offer help to the class educator. Browder and Spooner (2011:42) state that IEP is developed by multidisciplinary team. This team must include the Local Education Agency (LEA) representative, at least one special education educator, at least one regular education educator- (if the learner is or may be participating in the regular education environment), someone who can interpret the assessment results related service providers are requested by the parent or agency, for example, occupational therapist, physical therapist, speech -language pathologist.

Tileston (2004:87) adds that the IEP committee makes decisions regarding the special education needs of learner. It determines if a learner has disability, if a special education programme is needed, and if modifications in regular education are required. The Individualized Education Plan should be developed after the learner has been assessed and the needs of the learner are discovered. According to Browder and Spooner (2011:43), the IEPs are developed by the IEP team, using information from assessments conducted in all areas of the learners' problem. They also add that (2011:53) the IEP must include information on how the learner will be educated with other learners with or without disabilities.

Parents should be involved when the IEP team plans the IEP for the learner. Browder and Spooner (2011:85) state that the Individual with Disabilities Education

Act (IDEA) requires that parents receive regular reports of learner's progress on the annual goals. Henley, et al. (2006:398) add that one of remarkable aspects of the IDEA is that parents are required to collaborate with educators to determine the appropriateness of learners' Individual Education Programme. Browder and Spooner (2011:59) also add that one way to form a partnership with parents for the IEP process is to involve parents early in the process.

The Department of Education (2008:3) came up with a strategy called National Strategy on Screening, Identifying, Assessment and Support (SIAS). This strategy introduces new roles and responsibilities for the education support system in South Africa, including the District Based Support Teams, Special School Resources Centres, full-service schools and the Institutional-Level Support Teams.

Each school is supposed to have School Based Support Team which will help educators to give learners the support they need. Educators assess learners when they come to school for the first time then they will decide which learners need support and where. It is stated in the White Paper 6 (2001:32) that with respect to the school system, early identification of barriers to learning should focus on learners in the Foundation Phase (Grade R-3). If the learner is experiencing barriers to learning, the learner and the parent should be called and be interviewed to gain more information about the learner. Department of Education (2008: 27) state that the educator should observe, conducts classroom assessment, read learner's profile, screens and conducts learner parent interviews to inform lesson planning. The ILST completes the Support Needs Assessment in consultation with parents and plans first steps for Individual Support Plan (ISP). Observing learners helps the

educators and the School Based Support Teams to understand the learners' barriers. Furthermore, Drift (2012:37) states that observation will highlight what the learner can do and what should be done in a variety of situations, for example self chosen activities and structured activities. The teams should help these learners by making curriculum easier. According to Logan (2006:93), special needs assistants (SNAs) are usually appointed to support and take care of a specific learner or learners with special educational needs.

Mention has been made that when learners are supported, different types of learning intervention strategies will be used. Strategies like cooperative learning will be used where learners are taught in small groups. Co-teaching works well in this strategy because when the general education educator is busy with the other group, the co-educator will be assisting the other. Peer tutoring can also be used where learners are taught by other learners and that promotes individual teaching. Shy learners participate better when they are with their peers than when they are with an educator. Differentiation instruction can be used because it differentiates the curriculum and the concepts that are taught to learners to meet the learners' educational needs. Concrete or Manipulatives objects can also be used to help the learners to add, subtract, divide, and multiply. Mnemonics can be used to help learners to memorise concepts that will be needed in later stage.

However, there is no guarantee that the learners who are experiencing barriers to learning can learn even if all the above steps are followed. Logan (2006:93) states that an increase in personnel and support to mainstream schools cannot guarantee the delivery of an effective and appropriate education to pupils with special

educational needs. He pointed out that limited training is available and there is currently no provision for training of class educators who are expected to work and supervise the work of learners who are experiencing barriers to Mathematics.

CONCLUSION

Learners who experience barriers in Mathematics need as much support as those who have other learning barriers. This chapter focused on hints to support learners with learning problems in Mathematics. The collaboration of general educators, special need educators, and the Department of Education is believed to be the main intervention to help learners with learning barriers. The intervention strategies that can be used for these learners and their advantages and disadvantages were also highlighted.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the research design, which is a strategy that was used to answer the research question. It presents the research site where the data were collected. Selection criteria and sampling explain how the participants were selected and why were they selected. Data collection explains which method was used to collect data. Data analysis explains how data were analysed and clarifies the following concept methods to ensure trustworthiness and ethical issues.

3.2 THE RESEARCH DESIGN

Johnson and Christensen (2012:296) state that research design refers to the outline, plan, or strategy you are going to use to seek an answer in your research question(s). Creswell (2012:23) adds that research designs are the specific procedure involved in research process.

This research is of qualitative nature and cross-sectional study design was used. Creswell (2012:16) states that qualitative research is best suited to address a research problem in which one does not know the variables and need to explore. Gay, Mills and Airasian (2011:7) describe qualitative research as the collection, analysis and interpretation of comprehensive narrative and visual data to gain insights into a particular phenomenon of interest. Cross-sectional design was used in this study. It examines the current attitudes and provides information in a short time. Kumar (2004:93) describe cross – sectional as best suited to studies aimed at finding out prevalence of phenomenon, situation, problem, or issue, by taking cross

section of the population. They are useful in obtaining an overall 'picture' as it stands at the time. Johnson and Christensen (2012:361) said in cross-sectional research, data are collected from the research participants at single point in time or during a single brief time. Cohen, Manion and Morrison (2011:267) state that a cross-sectional study is a 'snapshot' of a population at a particular point in time.

3.2.1 Research site

The researcher has chosen three primary schools as research sites for the purpose of this research. The schools are all in North West Province, within the vicinity of Rustenburg town. They all fall under Bojanala Region. The first primary school is in town; second one in township and the third one on a farm. To adhere to ethics, the researcher did not name the schools but called them town school, township school, and farm school. The researcher selected the three schools based on their environmental differences.

These three schools differ vastly as far as availability of resources is concerned. The school in town has all the resources required in a normal school; it has a library, learning and teaching aids. The classrooms are not overcrowded because the school can hire extra educators paid by School Governing Body. On the contrary, the township school is better than the farm school concerning resources because it has few teaching and learning aids with a small library. The classrooms are overcrowded with more than fifty learners. The third school, which is a farm school; it lacks most of the necessary resources that are required in a normal school. In the farm school, learners are not more than thirty in each class.

3.2.2 Selection criteria and sampling

The aim of the study is to determine difficulties faced by learners and educators concerning Mathematics and the support they receive from Department of Education. The researcher chose participants who have experience in teaching grade three learners. Kumar (2005:164) describes sampling as a process of selecting a few (sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the relevance of an unknown piece of information, situation, or outcome regarding the bigger group. The participants were chosen using the purposive sampling. The schools that I chose are distant from each other and in three different circuit offices. This variety made the data rich because different inspectors head different circuits. Grade three learners are taught in their home languages. The town school uses English as home language, whereas the township and farm schools are using Setswana as home language. In purposive sampling, the researcher chose the specific population and site that will fit in her study. According to Creswell (2012:206), purposeful sampling researchers intentionally select individuals and sites to learn or understand the central phenomenon. Johnson and Christensen (2012:231) agree that in purposive sampling the researcher specifies the characteristics of the population of interest and locates individuals with those characteristics. The participants from all the schools were females. It was just a coincidence that in all the schools the grade three learners were taught by females. From each school, three educators were selected. In the farm school, all Foundation Phase educators from grade one to grade three were selected since they are following multi-grade system and every year they rotate the grades. One Head of Department from each school was also selected. All the participants were interviewed in the schools where they are working.

3.3 DATA COLLECTION METHOD

3.3.1 Data collection technique

The data were collected through focus group interviews. Focus group interviews were used because they are more of a discussion than interview. In focus groups, the researcher interviews a number of people at once and that saves time. Creswell (2012:218) states that focus group interviews are useful when the time to collect information is limited. According to Cohen, et al. (2011:436), focus groups are a form of group interview, though not in the sense of backward and forward between interviewer and the group. The reliance is on the interaction within the group which discusses a topic supplied by the researcher yielding a collective rather than an individual view. Participants were asked open-ended questions, which allowed them to elaborate on their answers, and gave the researcher more inside information. Open-ended questions provide qualitative data because discussion is encouraged rather than answering fixed questions (Johnson and Christensen 2012: 202). In the same way, Menter, Elliot, Hulme, Lewin, and Lowden (2011:148) describe focus group as a small group of people with similar characteristics selected from a wider population that is covered to elicit, via moderated discussion, relating to particular topics that are relevant to research being conducted. In addition, Gay, et al. (2011:388) state that focus group is a group interview where the researcher is trying to collect shared understanding from several individuals as well as to get views from specific people.

Kumar (2005:124) states that focus group interviews explore the perceptions, experience, and understandings of a group of people who have common experience regarding a situation or event. Furthermore, MacMillan (2006:360) describes focus

group interview as a variation of an interview which is used to obtain a better understanding of a problem or an assessment of a problem, concern, new product, programme or idea. MacMillan elaborates that purposeful sampled group of people are interviewed, rather than each person individually. This creates a social environment in which group members are stimulated by one another's perception and ideas. This means the researcher can increase the quality and richness of data through a more efficient strategy than one- on -one interview.

3.4 DATA ANALYSIS

Data collection and analysis are the processes that are very important in research because they require the researcher to know and understand the data. This requires the researcher to organise the large quantity of information gathered. Check and Schutt (2012:300) describe data analysis as a technique used to search and code textual, aural and pictorial data and to explore relationships among the resulting categories. According to Cohen, et al. (2011:537), qualitative data analysis involves organizing, accounting for and explaining the data. The data are organized in such a way that it makes sense in terms of the participants' definitions of the situation, noting patterns, themes, categories, and regularities. Johnson and Christensen (2012:520) describe coding as a process of marking segments of data (usually text data) with symbols, descriptive words, or category names. According to Bell (2010:221), codes are usually attached to "chunks" of varying size- words, phrases, sentences or whole paragraph, connected or unconnected to specific setting. She added that coding allows one to 'cluster' key issues in one's data and allows one to take steps toward conclusion. Data collected in this study were analysed by hand using coding and marking referencing unit of text. The audio taped data were subsequently converted to text data. The notes that were made during interview

were added. A space was left on the margin for notes during analysis. The data were read and it was divided into segment of information. The segments of information were labelled with codes. Similar codes were grouped together. This process reduced overlapping and redundancy of codes. Then the codes were collapsed to themes, which are also called categories. McMillan and Schumacher (2006:370) describe category as a more general and abstract entity that represents the meaning of similar topics. From the categories, sub-categories emerged and were used with literature review to determine how the results compare with existing research.

3.5 METHODS TO ENSURE TRUSTWORTHINESS

A researcher should understand the importance of results and findings of a research as they can be used by other people in their research; therefore, the results and findings should be credible, trustworthy and reliable. According to Shenton (2004:63-64), many naturalistic investigators prefer to use different terminology to distance themselves from the positivists paradigm. According to Tobin and Begley (2004:389), the terms validity, reliability and generalizability were discarded after innovative challenge and they refined their concept of trustworthiness by introducing criteria of credibility, transferability, dependability and confirmability. One such author is Guba, who proposes four criteria that he believes should be considered by qualitative researchers in pursuit of a trustworthy study. By addressing similar issues, Guba's construct correspond to the criteria employed by the positivist investigator. Also Lincon and Guba (1985:290 in de Vos, et al. 2010:346) state that every systematic inquiry into the human condition must address the issues. Although Lincon and Guba matched these terms to the conventional positivist paradigm- internal validity, external validity, reliability, and objectivity-, they then demonstrate how inappropriate these constructs are to naturalistic or qualitative enquiry. Lincon

and Guba thus propose four alternative constructs that more accurately reflect the assumption of the qualitative paradigm. These constructs are:

- a) Credibility: this is the alternative to validity, in which the goal is to demonstrate that the inquiry was conducted in such a manner as to ensure that the participants was accurately identified and described. The participants who formed the participants of this study are best situated because they are all primary school educators in Foundation Phase.
- b) Transferability: This is the alternative to external validity or generalisability, in which the burden of demonstrating the applicability of one set of findings to another context rests more with the investigator who would make the transfer than with the original investigator. The findings from my study can be applied to other situation and wider population.
- c) Dependability: this is the alternative to reliability, in which the researcher attempts to account for changing conditions in the phenomenon chosen for study as well as changes in the design created by increasingly refined understanding of the setting. This represents a set of assumptions very different from those shaping universe where inquiry could, quite logically, be replicated. This assumption of an unchanging social world is in direct contrast to qualitative/interpretive assumption that the social world is always being constructed, and the concept of replication is itself problematic. My study will ensure dependability because the research process was logical and clearly documented.

d) Confirmability: the final construct, confirmability, captures the traditional concept of objectivity. Lincoln and Guba stress the need to ask whether the findings of the study could be confirmed by another. By doing so, they remove evaluation from some inherent characteristic of the researcher (objectivity) and place it squarely on the data themselves. Thus the qualitative criterion is: Do the data help confirm the general findings and lead to the implications? This is the appropriate qualitative criterion. To ensure confirmability in this study, the documented data were checked and rechecked throughout the study.

3.6 ETHICAL ISSUE

It is not right to conduct a research and violate other people's rights. Participant who participated in this research did so willingly and their identity was protected. The site and participants names are not mentioned in this study. Kumar (2015:212) states that in every discipline it is considered unethical to collect information without the knowledge of participants and their expressed willingness and informed consent. Seeking informed consent is probably the most common method in medical and social research (Bailey 1978:383). Informed consent implies that subjects are made adequately aware of the type of information you want from them, why the information is being sought, what purpose it will be put to, how they are expected to participate in the study, and how it will directly or indirectly affect them. It is important that the consent should also be voluntary and without pressure of any kind. First I obtained permission from Department of Education Rustenburg Area Office, permission from the principals then lastly from the educators. I have assured them that their identity

will not be disclosed to anyone not even to the Department of Education. The principle of confidentiality was strictly applied. Johnson and Christensen (2012:116) describe confidentiality as not revealing the identity of the participants other than the researcher and his/her staff. According to Gay, et al. (2011:21) confidentiality means that researchers protect confidentiality when they know the identities of study participants but do not disclose that information. I have explained to them that this study is going to show the Department of Education the progress that we have in our schools concerning inclusive education, how capable are we in addressing barriers to learning and development or how backwards are we concerning inclusive education. I have told them that they must not expect any incentive because I do not have any sponsor to do that for me.

3.7 CONCLUSION

In this chapter, the researcher discussed the strategy in which the research was conducted. The way in which the data were collected and analysed was also discussed. The researcher mentioned the importance of credibility, trustworthy and confidentiality in the research process. All these three factors are some of the cardinal key factors, which, the researcher should observe all the time when conducting research.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 INTRODUCTION

This chapter provides the findings which emerged from the interviews that were conducted in three different schools from the educators who have experience in teaching grade three. The educators all participated actively during interviews. The results in this chapter explain the support that is provided or not provided to Foundation Phase learners with Mathematics problems.

4.2 Barriers faced by Foundation Phase learners in Mathematics

Learners' barriers in Mathematics were almost the same in the three different schools. Educators said learners were experiencing barriers in word 'sums'. The learners do understand the word 'sums'. The problem is that in grade three they use home language as a language of learning and teaching. In town schools they say 80% of their learners are speaking black languages and they are taught English as a home language. In contrast, farm school and township school, they said all their learners are black but they do not know Setswana and they are taught in Setswana. This is as a result of rapid economic development in North West specifically in Rustenburg. Parents are from different parts of Southern Africa including neighbouring countries like Lesotho, Mozambique, Zimbabwe and others. This situation causes a language barrier as it is difficult for educators because they do not know the learners' languages and they cannot help them.

The educators mentioned that addition with carrying was another barrier. The learners just add and write the number as it is in units without carrying the tenth to tenths. They do the same in subtraction trying to subtract a bigger number from a smaller number because they did not borrow. However, they do not know how to borrow from the tenths. They rely on manipulatives objects which make it difficult for them to pass speed tests because there is stipulated time for speed test. The other barrier that was mentioned was number formation. The learners find it difficult to find numbers that form a certain number. The learners are having problem in counting forward and backward. They cannot tell which number follows which number. Counting backward is difficult from 10 to 0.

4.3 Support that is offered by educators to learners

Educators said they do offer support to learners even though it is not enough because of little time they have in classes and the overpopulated classrooms. In town school they do have a special need educator who helps the educators to support the learners by planning with the educators for intervention lessons. Learners who are not showing any improvement are referred to a specialist who works with the school and the parents pay for the consultation. However, in township and farm school they do not have special need educator and no specialist working them. They rely on Department of Education which does not send specialist to school. Parents of farm schools cannot afford to pay a private specialist. In a township school some of the parents afford to pay private specialist especially those with medical aids.

Township and farm school educators they use different strategies to support the learners. It is sometimes difficult because they do not know what the learner's problem is and what they should do to help because they are not trained to support learners experiencing barriers. Not all of these learners are helped; some they progress to the next grade without knowing previous grade's work. According to Department of Education, learners are not supposed to spend more than four years in one Phase.

4.4 Support that is offered by Department of Education

All the educators said they have never attended formal in-service training in inclusive education. North West Department of Education does have Inclusive Department at the circuit office and the District Based Support Team. Farm school educators said they are visited once in year and all the reported problems are not solved. They were promised that a specialist will come and assess the learners but up to the day I interviewed them no one had ever come to evaluate the learners.

Township educators said the DBST working with circuit office they do give them help with learners who are experiencing barriers though they feel it is not enough because there are still big numbers of learners experiencing barriers. They do not visit them as much as they wish. The town school said they receive very little support from the Department of Education as they rely on private specialist for help.

4.5 Barriers that limit educators to support the learners

The educators felt that their greatest problem is that they are not trained to teach learners who are experiencing barriers. The little training that they were given was

during Curriculum and Assessment Policy Statement (CAPS) training which lasted forty five minutes. The number of learners in the classroom makes it difficult to intervene and support learners who are experiencing barriers in Mathematics. They said time is not enough to teach and do the intervention. There is no free time in the timetable and most of the grade threes are tired after 12:00. These learners are using common transport after school and they cannot be kept at school. Farm school educators mentioned that learners walk home in groups so if they keep the grade threes they will be left at school by the older learners and it will be not safe for them go back home alone later.

Township and farm school's educators complained about resources. They mentioned that resources like computers with programmes to improve Mathematics are not available. They also mentioned that learners sometimes 6-8 learners share a table that is supposed to be shared by four learners. The learners are just under the chalkboard giving educators very little or no space at all to move between them to help them. Other problems faced by the township and farm school educators are late coming and absenteeism. When the learners come late almost every day she/he loses more work in Mathematics which is done during the first two periods. The last problem for farm school educators is that most of the parents are not educated and helping their learners at home with extra work is impossible.

4.6 Strategies that are used by foundation phase educators to support learners

Educators said they use different strategies like differentiating method, peer tuition, individual attention and group work. They give the learners extra work and not all of them have people to help them at home. In many cases, they come back with

undone work especially farm and township learners. Educators said individual attention becomes a problem when they are having large numbers because young children cannot sit quietly and do the given work without supervision and the class becomes noisy. They felt that it was going to be better if they were given assistants to supervise when they help the struggling learners. Also, they felt it was going to be better if they were guided on how to support these learners.

4.7 How effective is individualized support programme

According to town educators, individualized support programme is very effective. They say it gives learners enough attention and to move at their own pace without pressure from peers and educators. Their progress is easily monitored. Referral is done immediately if the learner does not show any desired progress. Township school educators said they think it can work for them if only they have less numbers of learners than what they are having now. The few minutes they use to help a struggling learner makes a big difference to some of the learners. Farm school educators said individualized programme can work for them too if only there was special need educator who will help them in planning it. They do not have any idea how to plan it as they do not know where the learner's problem is and they lack training. They felt that first there must be somebody who must diagnose the problem then come up with the way to overcome the barrier. They only observe the learners and they can see that the learners are struggling but they do not know how to help. They are also aware that their teaching method does not benefit all the learners in their classes.

4.8 CONCLUSION

Grade three learners do have barriers in Mathematics and they need support to overcome their barriers. Educators have barriers that are limiting them to support the learners. They do support learners even though it is not easy because they lack training. They do use different intervention strategies to support the learners. They do think that individualized programme can help in supporting the learners. The Department of Education support is not doing enough.

CHAPTER FIVE

SUMMARY AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter Five is a summary of the purpose of the study, summary of literature review summary from the findings, conclusion drawn from findings and recommendations for this study. Recommendation for further study and conclusion will also be highlighted.

5.2 PURPOSE OF THE STUDY

The purpose of this study was to find out support that Foundation Phase learners with Mathematical problem receive from different role players and to determine difficulties faced by these learners and educators concerning Mathematical barriers.

5.3 SUMMARY OF LITERATURE REVIEW

The literature study revealed that supporting learners who are experiencing barriers in Mathematics is not meant for one educator but for several educators working together towards a common goal. It showed that collaboration and co-teaching will lead to a better support for these learners. The explanation of collaboration was given as when people work together for a common goal and co-teaching is when two educators working in one class assist one another in teaching. It was further echoed that special needs educators can collaborate with multiple general educators to support learners experiencing barriers in Mathematics. This was strengthened by Iowa Department of Education (2004:2) which states that the collaboration model allows a special needs educator to collaborate with multiple general education

educators, without being physically present at the same time. The co-teaching was explained as when educators share the class and assist each other in supporting learners. The confirmation was made by Conderman and Hedin (2010:19) when stating that co-teaching occurs as two professionals share responsibilities for all learners within a common space and has three components: co-planning, co-teaching and co-assessing. A stance was taken in order for inclusive education to be successful educators have to collaborate. As Engelbrect, et al. (2006:127) emphasized, cooperative partnerships are one of the cornerstones of an inclusive school community. In addition, Henley, et al. (2006:241) also posited that general and special educators can collaborate to teach all learners. Thousands, et al. (2007:10) also contributed that educators who collaboratively plan and teach can expect improvements in academic and social skills of learners with learning disabilities and language differences.

The literature study also revealed that poor performance in Mathematics is a result of different kinds of learning barriers that are faced by learners; for example, when a learner is having difficulty in learning Mathematics facts and understanding numbers. If a learner cannot understand the numbers then counting will be difficult and solving Mathematics problems will also be difficult. This confirmation was made by Friend (2008:176) when stating that learners with learning barriers may have trouble in Mathematics, a disorder sometimes referred to as dyscalculia. Some of these learners sometimes have problem in reading which makes it difficult for them to do word sums. Souse (2007:147) corroborated that learners with dyscalculia can also contain developmental reading difficulties, or dyslexia, but these disorders are not genetically linked. It is clear that learners with both difficulties will sometimes experience problems in Mathematics.

It is important that learners should have several cognitive factors before the learner can start with basic Mathematics. Without those crucial basic cognitive factors, the learner will experience barriers to Mathematics and this will have negative impact in the future studies in Mathematics. Mercer and Mercer (2005:405) confirmed that several cognitive factors are needed for a learner to progress in Mathematics instruction; the learner should be able to form and remember associations, understand basic relationships, and create simple generalization.

It was clear from literature review that fears, anxiety and negative attitude towards Mathematics are also factors that contribute to poor performance in Mathematics. Learners develop fear for Mathematics which leads to anxiety and negative attitudes towards Mathematics which leads to poor performance in Mathematics. This was echoed by Choate (2004:256) when saying that some children develop fear (or phobia) of Mathematics because of negative experience in their past or simple lack of self-confidence with numbers. He further emphasized in (2004:438) that learners who did not do well in Mathematics in the lower grade develop negative attitude towards Mathematics and the attitude contributes to their failure to the subject. Ansari, et al. (2011:10) describe Mathematics Anxiety (MA) as a condition in which individuals experience negative effect when engaging in tasks demanding numerical and Mathematical skills.

It was ascertained that reading problems cause barriers in Mathematics. Learners who have problems in reading will in most cases experience a barrier in Mathematics that involves reading. It is of major importance that learners understand what they are reading about so that they can be able to understand and solve the Mathematical problems. This was emphasized by Perso (2009:15) when saying that being numerate require a certain degree of literacy skill as well as being able to perform

the Mathematics. Indeed, the literacy is part of Mathematics since it does not make sense to separate the two. Mercer and Mercer (2005:435) concur that problem solving relates to both word and computation problem solving activity. This is needed for any task the learner finds difficult. Thus word and computation problems both require reading from the learners in order to solve the problem.

It is evident that lack of skills of educators who are teaching learners experiencing barriers in Mathematics is another cause of poor performance in the subject. Some of the educators do not have any clue in supporting learners who are experiencing barriers in Mathematics and because of skill deficiency they do not welcome those learners in their classrooms. They still feel that learners who experience problems in Mathematics should be taught in separate classes. This was also collaborated by Engelbrecht, et al. (2001:80) when saying that educators were trained accordingly although the separate mainstream and special education with the experience to develop the necessary skills and dispositions to handle learners with barriers in their classrooms. This was confirmed by Miles (2005:12) when mentioning that in many cases educators lack confidence and the basic knowledge needed to welcome all learners into their classes. Educators themselves are not confident in teaching these learners.

Educators feel that they are not doing justice to these learners when they teach them. Kgwete (2007:5) echoed the same sentiment mentioned by educators when he says that educators believed that they were failing to meet the needs of all learners, due to their limited skills. Prinsloo (2001:46) emphasizes that in spite of many attempts of government and education department to train and support educators, they still experience a sense of powerlessness and a sense of not being in control of their situation. It was also observed by Leung and Mark (2010:829) that

most of the participating educators in inclusive education created certain barriers, such as insufficient related to inclusion, limited training of curriculum design of inclusion, and a lack of information about learners with special needs. This was suggested by De Boer, et al. (2011:347) when mentioning that educators are negative or undecided in their beliefs about inclusive education and do not rate themselves as knowledgeable about educating learners with special needs.

It was cited that overpopulated classrooms made it difficult for educators to support learners who experience barriers in Mathematics and also hinder them in implementing the intervention strategies to assist learners in their classrooms. This was confirmed by Engelbrecht, et al. (2006:125) when alluding that educators have big classes (up to 50 and more in some schools) and struggle to facilitate a positive learning environment conducive to the involvement of all learners in their classes. Kgwete (2007:5) also concurs that that educators mentioned that high number of learners in the classroom made it difficult for them to teach adequately in inclusive classroom. The Department of Education (2003:69) also pointed out that another factor influencing the quality of education is the educator: learner ratio. The average educator learner ratio is expected to be below 1:40 but there are classroom that are still overcrowded and this had a negative influence on learner achievement.

Educators who cooperate at school level to provide support to learners experiencing barriers in learning are called support teams. The term used for these educators differs from country to country due to different educational policies, acts and laws. This was elaborated by Friend (2008:41) when saying teams have several different names, depending on state and local policy: Teacher Assistant Team and Intervention Assistant Team. Not every school has the school level support team and not every school has functional support team.

In order for learners who are experiencing barriers in Mathematics to be supported, there must be individualized programme or plan for each and every learner which will be a guide for educators providing support. For this to be effective, the learner should be assessed and evaluated so that a suitable programme can be drawn with the help of school level support team and special need educator. Individualized programme was clarified by Polloway, et al. (2013:33) as programme that is intended to serve as a guiding document for the provision of an appropriate education. Smith, et al. (2012:91) elaborated that the individualized programme document is a programme that contains summary of the learner's strengths, limitations, needs and corresponding special education and related service planned to address those needs.

Different intervention strategies should be used in teaching learners who are experiencing learning problems. Every learner with special needs is unique just like his/her needs. It is well accepted that these strategies will not serve as a panacea to all learners who experience barriers in Mathematics. This was echoed by the Department of Education (2005:97) when saying that inclusive strategies for learning and assessment allow learners to demonstrate a level of competence and to achieve an outcome in a way, that suit the learner's needs. It was also factually explained by Uranus (2007:108) that strategies are an individual approach to a task, including how learners act and planning execution, and evaluating performance on the task. Strategies allow learners to acquire, store and use information in a variety of new settings, thereby gaining more information and more control of their learning.

5.4 SUMMARY FROM FINDINGS

Most of the findings labelled in Chapter Four reveal that not only learners who experience barriers in Mathematics need support but also educators. It was discovered that barriers faced by Foundation Phase learners are educators who educate them without training and skills in inclusive education. The educators are not sure of what they are doing concerning support of these learners. Word sum is another barrier. Word sum is a problem because the learners have language problems. They do not understand the sums. The Department of Education insists that learners should be taught in their home language in Foundation Phase. Learners are not all speaking the same home language in one school and that creates a barrier. Another barrier is regrouping. Learners forget to carry or borrow when doing the sums that need regrouping. The participants spoke about learners using manipulatives when they are not supposed to use them or I can say over using manipulatives. Educators mentioned that learners cannot count backwards and forwards. Learners who cannot count rationally cannot solve problems.

Number formation was found to be another problem for Foundation Phase learners. Without proper understanding of number formation, learners will not be able to compute effectively.

Fear of learning Mathematics was found to be another barrier. Learners believes that Mathematics is a difficult subject and that create negative attitude towards Mathematics. Educators complained of learners who come to grade three not ready for grade three Mathematics. They said the course of this is learners who were promoted from previous grade not meeting the pass requirement in Mathematics. They also mentioned that learners who start school at the age of five and half are the

ones with learning problems than those who come at six years. That implies that the five and halves are not ready for school. The last barrier mentioned was place value. The participant said that learners who do not understand place value have problem in doing the sums that need regrouping.

The educators are aware that their role is to support learners who are experiencing barriers to learning but they do not know how to do it. Educators felt that to do support without the help of somebody with special need expertise does not reach the set goals. They said they do offer these learners support though they do not know whether they are doing the right thing or not. Only the educators in town school have a special need educator who helps them in supporting the learners. They complained about the big numbers they are having in their classrooms and that support is impossible for them. The participants mentioned that they use different teaching strategies to support the learners. Participants mentioned that they rely on the Department of Education to support them so that they can be able to support learners who are experiencing barriers in Mathematics. Participants mentioned that they use different types of teaching strategies even though they do not know what the learner problem is. They also mentioned that the support they give learners has very little effect on the learners. They also mentioned that they do have ILST at their school and they do not know what their duties are and is not functional. Learners' names were sent to DBST to come and help but they never came. Participants mentioned that some of their learners progressed to next grade without knowing the previous grade work. The situation is exacerbated by the Department of Education which does not allow learners to stay in one phase for more than four years and learners should move with their cohort.

The role that is played by Department of Education in supporting educators is very minimal. Educators felt that Department of Education itself does not have people who are qualified to do the support. They do not respond when asked to intervene. They did not train the ILST at schools; that team do not know their duties. They feel if Department of Education can give them support they deserve, it will be easy at schools.

Another barrier that limits educators to support the learners is found to be educators themselves. They feel that they are not well equipped with correct training to educate learners who are experiencing barriers. They also mentioned a large number of learners in their classrooms. Time was another barrier. They mentioned that their timetable does not have special time for them to support those learners. They are to do support during normal teaching time which is just impossible according to them. They also mentioned lack of resources that they are to use to teach the learners experiencing barriers in Mathematics. The educators mentioned late coming and absenteeism as the other barrier. Learners who are coming late to school lose some of the day's work. The learners absent themselves from school which affect their performance because they lose some of the work prepared for them. The participant said that some of the parents are not educated and helping their children at home with home works is a problem. Some parents are not involved in their children's school activities.

Strategies that are used by educators in educating the learners experiencing barriers in learning were mentioned. Group work has been used where educators used learners without barriers to help those with barriers. Differentiated method is used but for only few minutes per lesson. One of the participant mentioned that she uses the strategy for few minutes because the number of learners is very big and she

cannot concentrate on few learners and leave the rest of the class. Participants mentioned individualized teaching as helping tool in supporting learners experiencing barriers.

The effectiveness of individualized support programme brought different views from the participants. Some of the participants said they have never used individualized programme; they only heard about it. The participants thought it will help because as an educator you will know what you are correcting. Other participants said “it will work only if there is somebody trained to teach these learners”, while the other one said “it will work when followed well”. Other participants felt that it can work if the learners experiencing barriers to learning are taught in a separate classroom from learners who are not experiencing barriers in learning. Participants thought that the individualized programme can work well if there is an assistant educator in the class to assist the educator. They also felt that sometimes the programme is forgotten because of huge work load in their classes. They also felt that individualized programme should be planned with educator who has special needs qualifications. The participants agreed that the programme can be beneficial to learners because the learners progress at their own pace, their progress can be monitored and they can gain confidence along the way. Learners with serious problems can be referred to specialist very early. Some participants felt that not every learner benefit from this programme. The learners stay for a long time and still do not progress. The programme can work if there is an assistant in the classroom who will be busy with other learners while the educator is busy with the learners experiencing barriers.

5.5 CONCLUSIONS DRAWN FROM FINDINGS

Foundation Phase educators are aware of the barriers that their learners face in Mathematics. They do offer them support though they are not sure whether they are doing the right thing. Town school educators are privileged because they have a special needs educator who helps the educators to support learners experiencing barriers in Mathematics. They also know the procedure that they should follow when a learner is identified as experiencing barriers in Mathematics. Furthermore, different teaching strategies are used when learners are given support. The Department of Education is blamed for not giving them full support. The schools have ILST but they are not functional because DBST never trained them as stated in the White paper 6.

5.6 RECOMMENDATIONS EMANATING FROM THIS STUDY

Educators should be assisted in developing classroom strategies that will help them in supporting learners who are experiencing barriers in Mathematics. The Department of Education and ILST should be helping educators to develop Individual Support Plan for each and every learner who is identified as having learning problems. When educators are assisted in developing classroom learning strategies they can use them in supporting learners who are experiencing barriers in Mathematics.

Educators should use different strategies to support learners who are experiencing barriers in Mathematics. They should plan their support with special needs educators who will assist them using their expertise in inclusive education. Souse (2007:32) states that learning strategies are efficient, effective, and organised steps or

procedures used when learning, remembering or performing. These tools and techniques might help educators to understand and retain new material or skill to integrate the new information with what they already know, in a way that makes sense, and to recall the information or skill later. The Department of Education (2005:97) states that inclusive strategies for learning and assessment allow learners to demonstrate a level of competence and to achieve an outcome in a way, that suit their needs. Souse (2007:35) states that learning strategies help learners become better equipped to face current and future learning tasks.

In schools where there are no special need educators the Department of Education should use the District Based Support Team to assist educators in planning support for learners experiencing barriers in Mathematics using different learning strategies. Learners' needs are not the same and strategies that will be used to support them will not be the same as well. Learnind (2007:360) states that learners need to be introduced to strategies that work for them in reading and Mathematics. Learners should be encouraged to use correct strategies and should be monitored that they use them in relevant situations.

5.7 RECOMMENDATIONS FOR FURTHER STUDY

The findings of this study suggest that there is scope for further study in order to determine:

- how collaborative teaching and co-teaching could be extended to other subjects in the inclusive classroom?;

- how can specialist doctors, psychologist, occupational therapists and a wide variety of other professionals can be included in the learning support within the classroom?; and
- the effectiveness of Department of Education in supporting educators who are teaching learners experiencing barriers in Mathematics in other Provinces.

5.8 CONCLUSION

This study was embarked on to find out how Foundation Phase learners with Mathematics barriers are supported in the Bojanala District, in North West. The purpose was achieved through interview and literature review. Some of the participants do not have any clue of what should be done when supporting learners experiencing barriers in Mathematics. They are doing what they think should be done without any training or help from special needs educator, ILST or DBST. What they do does not yield any good results. The learners still proceed to the next grades without knowing previous grades work. In one school the educators are privileged because they do have special needs educator. They know the procedures to follow before the learners can receive support and there is progress. Learners who need specialists' intervention parents pay for the consultation.

Participants do use different strategies to teach the learners although some of strategies are difficult to follow to the latter because of the numbers of the learners in their classrooms are too big. Participants said the lack of Department of Education support to them makes them fail to support learners experiencing barriers in Mathematics.

It is obvious that there are multiple barriers that affect the support of learners by educators in the Foundation Phase in Mathematics. The Department of Education should play a visible role in supporting the educators who are teaching learners who are experiencing barriers in Mathematics.

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APPENDIX A: INTERVIEW QUESTIONS

1. According to your observation what barriers are experienced by Foundation Phase learners in Mathematics?
2. Describe your role as an educator in supporting Foundation Phase learners who are experiencing barriers in Mathematics.
3. Tell me about the barriers that limit you from providing support to these learners.
4. Is there any support that you offer to learners who are experiencing difficulties in Mathematics?
5. What intervention strategies do you use to support these learners?
6. What is your view about the effectiveness of the Individualized Support Programme that is used to support learners who are experiencing barriers in Mathematics?
7. What role is played by Department of Education in supporting educators who are teaching learners with learning barriers?

APPENDIX B: LETTER TO NORTH WEST DEPARTMENT OF EDUCATION

P.O. Box 361
Waterfall Mall
0323
2013-04-14

The Area Manager
Rustenburg Area Office
Private Bag X 82108
Rustenburg
Madam

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR SCHOOLS

I am a student at the University of South Africa doing Masters Degree in Education (Specializing in Inclusive Education). My research title is "Providing Support for Foundation Phase learners with Mathematical problems in the Bojanala District, North West." The purpose of this study is to investigate the support that is provided to Foundation Phase learners with Mathematical problems and to determine difficulties faced by these learners and educators concerning Mathematics.

I am required to conduct research as part of the requirements for my degree. I hereby request to conduct research in three of your school namely, [REDACTED] [REDACTED] primary schools.

If the permission is granted, please note that the participants:

- Will not be obliged to partake.
- They can withdraw any time.
- Their identity as well as the schools will not be revealed.
- There will be no compensation offered
- Research outcome will be shared with Department of Education.

My credentials can be verified with Prof VG Gasa who is my supervisor at UNISA.

Thank you
Yours faithfully

Sizakele J. Madihlaba (Mrs)
Cell: 082 465 6854
Email siju@mweb.co.za

APPENDIX B 1: PERMISSION FROM DEPARTMENT OF EDUCATION



education

Lefapha la Thuto la Bokone Bophirima
Noord-Wes Departement van Onderwys
North West Department of Education
NORTH WEST PROVINCE

McGregor Street,
Rustenburg 0299
Private Bag X82103,
Rustenburg 0300
Tel.: (014) 592-7559/84
Fax.: (014) 592-7590/2
e-mail: mpaledi@nwpg.gov.za

OFFICE OF THE AREA MANAGER: RUSTENBURG AREA OFFICE

To : Mrs Sizakele J. Madihlaba

From : Mrs. M.J.Paledi
Area Manager

Date : 22 April 2013

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR SCHOOLS.

Permission to conduct research in three schools within Rustenburg Area is hereby granted. This is in line with what you indicated will be done / not done.

You are also requested to meet with principals of the three schools and arrange suitable time for this so teaching and learning are not compromised.

Hope you find this in order.

Sincerely

Mrs. M.J. Paledi
Rustenburg Area Manager

CC Ms. Mokhutle – Director Professional Support Service
Area Management



APPENDIX C: LETTER TO THE PRINCIPALS

P.O. Box 361
Waterfall Mall
0323
14 April 2013

Dear Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR SCHOOL

I am a student at the University of South Africa doing Masters Degree in Education (Specializing in Inclusive Education.

My research title is 'Providing Support to Foundation Phase Learners with Mathematical barriers in the Bojanala District, North West.' The purpose of this study is to investigate support that is provided to Foundation Phase learners with Mathematical problems and to determine difficulties faced by these learners and educators concerning Mathematics.

I am required to conduct research as part of the requirements for my degree. Therefore, I hereby request permission to conduct research in your school The Department of Education: North West has already granted me permission and the letter is attached.

If the permission is granted, please note that the participants:

- Will not be obliged to partake
- They can withdraw any time
- Their identity as well as the school will not be revealed
- There will be no compensation offered
- Research outcome will be shared with Department of Education.

My credentials can be verified with Prof VG Gasa who is my supervisor.

Thank you
Yours faithfully

.....
Sizakele J. Madihlaba (Mrs)
Cell 082 465 6854
Email siju@mweb.co.za

APPENDIX C 1: PERMISSION FROM SCHOOL A

PRINCIPAL

TO: SIZA MADHANI

DATE: 2013 MAY 13

SUBJECT: PERMISSION TO CONDUCT A RESEARCH IN OUR SCHOOL.

Dear Siza

This committee serves to acknowledge receipt of your memo requesting for our school to participate in your research programme with your studies for a Masters degree through UNISA.

Kindly note that permission is granted for such with a notion as given by the department of education that this process should not in any way interfere with learning and teaching.

The following teachers have accepted and shown interest in assisting in this endeavour:



Thank you in advance and good luck in your endeavour.

Yours faithfully


MIRIAM
PRINCIPAL

APPENDIX C 2: PERMISSION FROM SCHOOL A

Mrs Sizakle J. Madibela
P.O. BOX 361
Waterfall Mall

15 MAY 2013

Madam

Re:REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN OUR SCHOOL

Your letter dated 14 April 2013 refers.

This communiqué serves to confirm that permission has been granted to you to conduct a research in our school as outlined in the letter stated above.

We will appreciate it if such research does not disturb the normal teaching and learning activities at our school.

Wishing you all of the best in your studies.

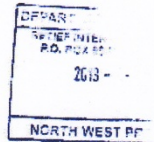


M.M. SETONE
Principal

Cell: 082 934 2489

E-Mail: retic@school@gmail.com

FAX: 086 536 9952



APPENDIX C 3: PERMISSION FROM SCHOOL C

To : Mrs. Strakele J. Madhoko

From: Mrs. [REDACTED]

Date: 23 May 2023

SUBJECT: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN MY SCHOOL.

The above matter refers.

Permission to conduct a research in my school is hereby granted.

You are requested to meet the educators you are going to work with and arrange suitable time for this, so that teaching and learning are not compromised.

Hope you find this in order.

Yours Sincerely,

[REDACTED]

APPENDIX D: EDUCATORS CONSENT LETTER

P.O. Box 361
Waterfall Mall
0323
14 April 2013

Dear Participant

I am a student at University of South Africa doing Masters Degree in Education, specializing in Inclusive Education.

My research title is "Providing Support for Foundation Phase learners with Mathematical problems in the Bojanala District, North West. The purpose of this study is to investigate support that is provided to Foundation Phase learners with Mathematical problems and to determine difficulties faced by these learners and educators concerning Mathematics.

You were selected as a possible participant in this study because you are a foundation phase educator who is teaching Mathematics in grade three classes.

Please note as a participants:

- You are not be obliged to partake
- You can withdraw at any time you wish
- Your identity as well as your school will not be revealed
- There will be no remuneration offered
- Research outcome will be shared with Department of Education on anonymity basis.

My credentials can be verified with Prof VG Gasa who is my supervisor at UNISA.

Thank you

Yours faithfully

Sizakele J. Madhlaba (Mrs)
Cell: 082 465 6854
Email siju@mweb.co.za

Agreement to participate

I have read the above letter and I agree to participate in the study as described.

Date

Participant's signature

Date

Witness's signature