

**EXPLORING DIFFERENTIATED TEACHING
IN A GRADE 4 CLASSROOM**

by

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DECLARATION

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ABSTRACT

Societies are becoming more diverse and multicultural. Therefore both in South Africa and internationally, the education system must constantly be restructured to accommodate a diversity of learners; focusing on each learner's unique learning abilities and needs. Given the benefits of differentiated teaching for effective learning, this study aimed to explore the use of differentiated teaching strategies and procedures to improve my teaching practice. Consequently, it also aimed to explore the influence that this may have on supporting the learners' learning by focusing on their interests, readiness levels and learning preferences. This research study was based on a social constructivist perspective that views cognition, learning and instruction as intertwined.

The study was embedded within a paradigm of praxis, with an action research as research design while a qualitative research methodology was employed. Purposeful sampling was used to select nine of my grade 4 learners to act as participants for the grade 4 class. Data was collected in the form of reflective drawings, a focus-group interview and accompanied activities, and a research journal. Furthermore, the data was analysed, using a thematic analysis coding scheme, to identify and interpret significant themes.

The research findings indicated that the differentiated teaching strategies and procedures enhanced my grade 4 learners' learning as they realised their own strong points and learning potential. The teaching strategies also demonstrated the potential to facilitate the development of my learners' knowledge of their own interests and learning preferences and allowed them the incentive to develop a sense of self efficacy. In addition to this, the research process demonstrated the ability to support me in fulfilling my role as primary supporter in the learning support network and enhance my teaching practice. The information gained from this study will be used to inform my future teaching practice. I now realise the value of employing differentiated teaching strategies and procedures into my lessons, as well as the importance of reflecting on my teaching process and considering the uniqueness of each learner in my class. Additionally, teacher training institutes may benefit from the information gained from this research study, for improving teaching practice. Findings attained from this study also have the potential to inform future cycles of action research or alternatively to be used for other research within the field.

Keywords: Differentiated teaching, learning preferences, learner interests, learner readiness levels, social constructivism, action research, the grade 4 learner, middle childhood years

OPSOMMING

Die samelewing raak gaandeweg meer divers en multikultureel. Die onderwysstelsel, beide in Suid-Afrika en internasionaal, moet daarom voortdurend geherstruktureer word om te verseker dat die diversiteit van leerders geakkomodeer word deur te fokus op elke leerders se unieke leervermoëns en -behoefes. Gegewe die bewese voordele van gedifferensieerde onderrig, het hierdie navorsingstudie gepoog om die gebruik van gedifferensieerde onderrigprosedures en strategieë vir die verbetering van my onderrigpraktyk te ondersoek. Die studie was ook daarop gemik om die invloed wat gedifferensieerde onderrigprosedures op die ondersteuning van my leerders se leerproses het, na te vors deur te fokus op hulle belangstellings, gereedheidsvlakke en leervooreure. Hierdie navorsingstudie is gebaseer op 'n sosiaal-konstruktivistiese leerperspektief wat kognisie, leer en onderrig as geïntegreerd beskou.

Die studie het van 'n kwalitatiewe navorsingsmetodologie gebruik gemaak en is binne 'n paradigma van praxis ('praxis') ingebed, met aksienavorsing as navorsingsontwerp. Doelgerigte steekproefneming is gebruik om nege van my graad 4 leerders te kies om as deelnemers namens die graad 4-klas op te tree. Data is in die vorm van leerders se reflektiewe tekeninge, 'n fokusgroep-onderhoud met bygaande aktiwiteite, en 'n navorsingsjoernaal ingesamel. Verder is die data met behulp van 'n tematiese koderingskema geanaliseer om belangrike temas te identifiseer en te interpreteer.

Die navorsing het aangedui dat die gedifferensieerde onderrigprosedures en strategieë wat gebruik is, my graad 4-leerders se leerproses versterk het, aangesien hulle bewus geraak het van hulle eie sterkpunte en leerpotensiaal. Die onderrigstrategieë het ook die potensiaal getoon om die leerders se bewustheid van hulle eie belangstellings en leervooreure te ontwikkel, en hulle is ook toegelaat om 'n sin van bekwaamheid te ontwikkel. Benewens hierdie aspekte, het die navorsing ook getoon hoe gedifferensieerde onderrigprosedures my kan ondersteun om my rol as primêre hulpverlener in die leerondersteuningsnetwerk te vervul en my onderrigpraktyk te verbeter. Die inligting wat met die navorsing verkry is, sal in die toekoms gebruik word om my onderwyspraktyk toe te lig. Ek besef nou die waarde daarvan om gedifferensieerde onderrigprosedures in my lesse te gebruik, asook die belangrikheid van refleksie op my onderrigproses en die inagneming van die uniekheid van elke leerder in my klas. Onderwysopleidingsinstellings kan die inligting deur hierdie navorsing verkry gebruik vir die verbetering van onderwyspraktyk. Afgesien van die bogenoemde, kan die inligting ook toekomstige siklusse van aksienavorsing toelig en met vrug vir verdere navorsing in die veld gebruik word.

Sleutelwoorde: gedifferensieerde onderrig, leervooreure, leerderbelangstellings, leerdergereedheidsvlakke, sosiale konstruktivisme, aksienavorsing, die graad 4-leerder, middel kinderjare

DEDICATION

For my grade 4 learners of 2013 without whom this study would not have been possible. Thank you for sharing your thoughts, feelings and opinions with me.

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TABLE OF CONTENTS

<i>Declaration</i>	<i>i</i>
<i>Abstract</i>	<i>ii</i>
<i>Opsomming</i>	<i>iii</i>
<i>Dedication</i>	<i>iv</i>
<i>Acknowledgements</i>	<i>v</i>
CHAPTER 1	
CONTEXT AND RATIONALE FOR THE STUDY	1
1.1 INTRODUCTION	1
1.1.1 Motivation for the study	1
1.2 PROBLEM STATEMENT.....	4
1.3 RESEARCH PLAN.....	6
1.3.1 The theoretical framework.....	6
1.3.2 Introduction of the researcher.....	7
1.3.3 A paradigm of praxis	8
1.3.4 Research design	9
1.3.5 Research methodology	10
1.3.6 Action research and intervention plan	11
1.3.7 Research procedure	13
<i>1.3.7.1 Research setting and target population group</i>	<i>14</i>
<i>1.3.7.2 Selection of participants</i>	<i>14</i>
<i>1.3.7.3 Method of data collection.....</i>	<i>15</i>
1.3.8 Data analysis.....	16
1.3.9 Ethical considerations.....	16

1.4 CLARIFICATION OF CONCEPTS	17
1.4.1 Differentiated teaching	17
1.4.2 Learner readiness	17
1.4.3 Learner preferences	18
1.4.4 Learner interest	18
1.4.5 Grade 4 learner	18
1.5 STRUCTURE OF THE PRESENTATION	19
1.6 SUMMARY OF THE CHAPTER	20
CHAPTER 2	
LITERATURE REVIEW	21
2.1 INTRODUCTION	21
2.2 A SOCIAL CONSTRUCTIVIST APPROACH TO TEACHING AND LEARNING	21
2.3 INCLUSIVE EDUCATION AND LEARNING SUPPORT	28
2.4 THE SOUTH AFRICAN EDUCATION	36
2.5 THE MIDDLE CHILDHOOD YEARS	38
2.6 DIFFERENTIATED TEACHING	44
2.6.1 A background to differentiated teaching	44
2.6.2 How to differentiate teaching	46
2.7 SUMMARY OF CHAPTER	53
CHAPTER 3	
RESEARCH DESIGN AND METHODOLOGY	54
3.1 INTRODUCTION	54
3.2 RESEARCH PARADIGM	54
3.3 RESEARCH DESIGN	56

3.3.1 Individual teacher as a type of action research.....	57
3.3.2 My action research and intervention plan.....	59
3.3.2.1 <i>Pre-assessment</i>	60
3.3.2.2 <i>Learning styles and multiple intelligences</i>	60
3.3.2.3 <i>Learning centres</i>	62
3.3.2.4 <i>Flexible grouping and cooperative learning</i>	62
3.3.2.5 <i>Scaffolding</i>	65
3.3.2.6 <i>Bloom’s taxonomy</i>	65
3.3.2.7 <i>Tiered assignments or lessons</i>	66
3.3.2.8 <i>The KWLS technique</i>	66
3.3.3 The context of the study	67
3.4 RESEARCH METHODOLOGY	68
3.5 RESEARCH METHODS	70
3.5.1 Selection of participants	70
3.5.2 Methods of data collection	71
3.5.2.1 <i>Gathering data regarding learners learning preferences, interests and readiness levels through activities, questionnaires and inventories</i>	71
3.5.2.2 <i>Keeping a reflective research journal</i>	73
3.5.2.3 <i>Observation of learners through classroom interactions and –activities and the studying of work books</i>	73
3.5.2.4 <i>Reflective drawing</i>	74
3.5.2.5 <i>Focus group interview</i>	74
3.6 METHODS OF DATA ANALYSIS	78
3.7 VALIDATION AND RELIABILITY OF THE RESEARCH STUDY.....	80
3.8 ETHICAL CONSIDERATIONS	82

3.9 SUMMARY OF THE CHAPTER	83
CHAPTER 4	
RESEARCH FINDINGS AND DISCUSSION	84
4.1 INTRODUCTION	84
4.2 THE PROCESS OF STRUCTURING THE DATA	95
4.2.1 Focus group interview transcriptions	96
4.2.2 Activities during focus group	100
4.2.3 Excerpt from my reflective research journal	102
4.2.4 Mind map illustrating my thought process and the refinement of the thesis (Phases three and four)	104
4.3 DISCUSSION OF RESEARCH FINDINGS	104
4.3.1 Participants' readiness levels.....	105
4.3.2 Learning hurdles (Barriers to learning)	107
4.3.3 The importance of fun	109
4.3.4 Participants' interests.....	112
4.3.5 Learning preferences	115
4.3.6 Parent involvement.....	119
4.3.7 Reflection on the results of the data	121
4.3.8 Summary of findings	122
4.4 SUMMARY OF THE CHAPTER	123
CHAPTER 5	
CONCLUDING REMARKS, IMPLICATIONS, LIMITATIONS AND STRATEGIES	124
5.1 INTRODUCTION	124
5.2 CONCLUDING REMARKS	124

5.3 IMPLICATIONS	127
5.4 LIMITATIONS	128
5.5 STRENGTHS OF THE STUDY	129
5.6 FURTHER RESEARCH POSSIBILITIES	130
5.7 CONCLUDING REFLECTIONS ON THE TOTAL RESEARCH PROCESS.	131
REFERENCES	133

LIST OF ADDENDA

Addendum A: Letter of Ethical Clearance from Stellenbosch University	152
Addendum B: Letter of Ethical Clearance from the Western Cape Education Department	154
Addendum C: Informed consent form for parents.....	155
Addendum D: Assent form for learners	159
Addendum E: Letter of consent from principle.....	161
Addendum F: Timetable of Intervention Plan	163
Addendum G: Examples of lesson plans.....	167
Addendum H: Pre-assessment time.....	173
Addendum I: Instruction page – learning centres.....	174
Addendum J: KWLS chart	175
Addendum K: Questionnaires	176
Addendum L: Reflective drawings.....	191
Addendum M: Interview Guide and accompanied activities	192
Addendum N: Guidelines for parents.....	198

LIST OF FIGURES

Figure 1.1: The Spiral of Action Research Cycles	9
Figure 1.2: Action Research and Intervention Plan.....	12
Figure 2.1: Important Vygotskian concepts linked with their educational implications.	23
Figure 2.2: Triadic Representation of Medication.....	24
Figure 2.3: The Zone of Proximal Development.....	26
Figure 2.4: The Medical Model of Disability.....	31
Figure 2.5: The Social Model of Disability	31
Figure 2.6: Differentiated Teaching Model	47
Figure 2.7: The interdependent relationship between learning components in the curriculum.....	48
Figure 3.1: Visual Auditory Kinaesthetic Model	61
Figure 3.2: Demonstrating the understanding of how different games are played through multiple intelligences.....	62
Figure 4.1: Illustration of my thought process and selected themes.....	104

LIST OF TABLES

Table 2.1: The Difference between Mainstream and Inclusion.....	30
Table 3.1: Grouping of learners.....	63
Table 3.2: Bloom’s Taxonomy	65
Table 4.1: Excerpts from the focus group interview indicating how I incorporated the first two phases of the thematic analysis process	96
Table 4.2: Excerpts from the focus group interview: reflective drawings.....	99
Table 4.3: Excerpts from the different activities with regards to multiple intelligences, learning styles, subject interests and grouping	100

CHAPTER 1

CONTEXT AND RATIONALE FOR THE STUDY

1.1 INTRODUCTION

This action research study has as aim to explore how differentiated teaching might impact learners' learning in my own classroom. The study will focus on both advancing my teaching practice and striving towards optimal learning for my grade 4 learners through this process.

This first chapter will provide a framework for the research study by presenting the problem and research questions, explaining the importance of the study, informing the research, as well as briefly discuss the research design that will be employed to investigate differentiated teaching to support learning in the classroom. In conclusion significant concepts for the study will be clarified and the remaining structure of the research study will be introduced.

1.1.1 Motivation for the study

The educational, social and political needs of societies are continually changing as societies become more diverse and multicultural. In the educational arena this results in traditional classroom conventions becoming outdated as learners enter the contemporary classroom from diverse backgrounds with different life experiences, skills, abilities and interests (Anne Arundel County Public School (AACPS), 2000; Ferguson, 2008; Swart & Pettipher, 2011). Schools are changing as teachers, parents, communities and politicians are trying to prepare for the challenges and promises of the 21st century (Ferguson, 2008). Therefore all schools need to support the concept of equal education for all by ensuring access for all learners, in other words, the education system must be restructured to function in such a way to accommodate a diversity of learners by emphasising each learner's learning (Donald, Lazarus & Lolwana, 2010; Swart & Pettipher, 2011). In 1990 the World Conference on Education for All (EFA) created awareness for learner diversity that needed to be accommodated more successfully in classrooms around the world. This inclusive education approach was shaped as an international policy at the World Conference on Special Needs Education 1994 in Salamanca, Spain (Hick, Kershner & Farrell, 2009, in Swart & Pettipher, 2011). Emphasis was placed on developing inclusive education systems that "recognise and respond to the diverse needs of their students, accommodating both different styles and rates of learning and ensuring quality education to all through appropriate curricula, organisational arrangements, teaching strategies, resource use and partnerships with their communities" (UNESCO, 1994, pp. 11-12).

Since the 1990's, education in South Africa has undergone tremendous changes. A new era was entered in 1994, when democracy was introduced, and transformation of the education system resulted. The Constitution provides the guiding principles for developing a democratic society and emphasises that the

disparities of the past should be addressed in order to reach a just society for all (Department of Basic Education, 2011a; Swart & Pettipher, 2011). This has led to new policy documents and legislation in education being developed, of which The White Paper on Education and Training and the South African Schools Act, published in 1995, facilitated the paradigm shift to inclusive education. Its practical implementation was elaborated on in the report issued by the National Commission on Special Needs in Education and Training (NCSNET) and the National Committee on Education Support Services (NCESS) in 1997 (Swart & Pettipher, 2011). Education White Paper 6 (Department of Education, 2001) commands that the education and training system must change to accommodate the full range of learning needs, with particular attention to strategies for instructional and curriculum transformation (Donald et al., 2010). Important principles of achieving equality, non-discrimination and the maximum participation of all learners in the education system, mentioned in Education White Paper 6, also underlie the new Curriculum and Assessment Policy Statement (Department of Basic Education, 2011a).

It is important to link the implementation of inclusive education in South Africa, with the global discourse on inclusive education, to prevent a narrow focus on inclusive education as the brainchild of the democratic government to address disparities inflicted by the apartheid education system (Engelbrecht, 2006). It should be recognised as an international movement, emphasising the diverse abilities and needs of every learner and not a narrow focus on disability only.

It therefore includes all learners and not just a few, as every learner is subject to exclusionary pressures at some point in their school careers (Dyson, 2001; Swart, 2004; Swart & Pettipher, 2011). Not only does it welcome and celebrate differences, but inclusion recognises the individual needs of all. The diversity within South African society can therefore add to the complexity of inclusive education, but also be an important tool in transforming South Africa into a truly democratic society (Swart & Pettipher, 2011). Thus in the South African context the philosophy of inclusive education recognises diversity and embraces the democratic values of equality and human rights. Research, however, indicates that societal changes and management of diversity in schools have had a negative impact on the implementation of inclusive education and accommodating all learners in inclusive school communities remains a challenge (Engelbrecht, 2006), but differentiated teaching presents a means to address learner diversity in the classroom in more meaningful ways (Walton, 2012).

Teachers therefore play a crucial role in the transformation of the education system. Currently South African teachers are, however, challenged by the implementation of a demanding new curriculum and high expectations that must be met when it comes to the class's performance on high stakes testing such as The Annual National Assessment and The Annual Provincial Literacy and Numeracy Tests. They are held accountable for their learners' overall learning. Teachers not only have a very difficult and demanding profession, but they often lack the necessary support and training to accommodate the diverse learners in their classes and differentiate their teaching meaningfully (Tomlinson, 2000). Therefore many teachers are

aware of the content and standards that must be met, but they use a ‘one-size-fits-all’ approach to teaching and learning. This means that teachers expect all their learners to learn the same content and do the same assessments without differentiating successfully to address differences in the classroom. This approach does not guarantee optimal learning for all learners as it shows little regard for learner differences (Tomlinson, 2000, 2001). Therefore differentiated teaching must be implemented as an important tool to help meet the needs of all the learners, as this approach keeps the focus on the learner, where it belongs and takes each learner as far as he/she can go in realising own learning potential (Tomlinson, 2000).

South African statistics (Fleisch & Shindler, 2007; Statistics South Africa, 2012) indicate that we live in a diverse country, which is reflected in our classrooms. We therefore need to be aware of the fact that the learners in our classrooms come from diverse backgrounds as teaching is influenced by teachers’ perceptions of learner diversity (Meier, 2005). We can no longer teach and expect learners to all learn in the same way (Tomlinson, 1999a, 2001) as ‘teaching to the middle’ can cause advanced learners and struggling learners to fail or underachieve. The advanced learners must always be challenged otherwise they will become mentally lazy (Tomlinson, 2001). Ornstein and Thompson (cited in Tomlinson, 2001, p.11) state that it has been proven that the brain, like a little-used muscle, loses its tone, without use. In other words, if learners are successful, without making an effort or without being challenged, they will lose some of their brainpower. But on the other side of the continuum, if the learner becomes frustrated, because the learning is too difficult, he/she will give up.

Advanced learners will be challenged by differentiated teaching providing them with the stimuli to develop a sense of self efficacy. Learners who struggle will be empowered if teachers focus on their strengths and learning is relevant to their lives (Tomlinson, 2001). If a teacher can respond to their needs and preferences, through differentiated teaching, learners will be more successful. The teacher’s response will give them confidence in their ability to learn.

For inclusive education to be effective in South Africa, the curriculum and teaching strategies must be made more meaningful for everyone (Swart, 2004). I therefore believe that differentiated teaching will provide a platform for transformation and contribute to an inclusive education system, as it caters for the unique needs of individual learners by activating personal responsibility for learning and making learners aware of their preferences and developing their individual strengths in order to succeed academically (Department of Education, 2001). But it is just as important that teachers are supported in their attempts to differentiate their teaching (Tomlinson, 2000) as “transformation must not only exist in the minds of people; real transformation takes place when there is action” (Naicker, 2005, p.251).

Teachers therefore need support to transform their teaching practice in order to accommodate diverse learning needs in their classrooms. While differentiation is acknowledged to be a compelling and effectual means of implementing inclusive education, currently, the emphasis has been on theory, with a distinct gap in the literature regarding the use and effectiveness of a differentiated model of teaching (Subban, 2006). I

wish to create awareness for the wider definition of inclusive education (Engelbrecht, Oswald & Forlin, 2006), by specifically exploring the changing role of the teacher as mediator and supporter of learning in the classroom (Landsberg, 2011), through differentiated teaching, to the benefit of all teachers and all learners.

1.2 PROBLEM STATEMENT

In order to accommodate and meet the academic needs of all the learners, teachers need to differentiate their teaching, as through differentiated teaching, instructional methods gets varied to accommodate the learning abilities and styles of diverse learners (AACPS, 2000). But it is not self-evident how to successfully implement differentiation and how it can support and enhance the learning of all learners in the classroom.

In general teachers are aware of the term ‘differentiation’ and it is mentioned in the Curriculum and Policy Statements (Department of Basic Education, 2011a), but it seems as if teachers prefer the easier and well-used ‘one-size fits all’ approach to teaching. Tomlinson (1999a) argues that, although most teachers realize that learners deserve individual attention with regard to their different needs, the majority teachers still ‘teach to the middle’. Teachers find it difficult to employ differentiated teaching in their classrooms, despite understanding differentiated teaching as being the best option to support learning. Teachers want their learners to be successful and to achieve, but they do not know how to employ differentiated teaching (Hess, 1999). In South Africa in particular support and training opportunities are limited. This makes teachers feel incompetent and unprepared to implement new strategies.

Implementing new strategies is particularly difficult in grade 4 as the mere transition from grade 3, which forms part of the Foundation Phase of schooling, to grade 4 in the Intermediate Phase already poses challenges for learners, teachers and parents. Learners no longer only have to learn the basic skills such as how to read, but they must now read to learn (Lerner & Johns, 2012). Teachers need to spend a lot of time introducing learners to the new subject content, teaching them how to learn and convincing parents that their child will cope with the work load. Basic Education Minister Angie Motshekga confirmed these concerns in her speech at the release of the Annual National Assessment results in 2011, when she said; “The curriculum review process in 2009 alerted us to the fact that there is far too big a leap between the Foundation Phase (Grades 1-3) and the Intermediate Phase (Grades 4-6). Learners jump from three subjects to eight. This may account for the drop in results that we see as children move up the grades” (Department of Basic Education, 2011b).

Curriculum policy and guideline documents, seek to address concerns of transition between grades and phases (Themane & Mamabolo, n.d), as within the CAPS Foundation Phase learners are now required to take four subjects to help them cope better with the work load expected of them in the higher grades (Department of Basic Education, 2011b). Likewise the total of Intermediate Phase subjects has been reduced from eight Learning Areas to six subjects to ensure that “emphasis on the foundational skills will continue to be

strengthened” (Motshekga, 2011, in Department of Basic Education, 2011b). But without the necessary support grade 4 teachers may remain resistant to implement new strategies.

The teacher’s role has changed from transferring knowledge to learner-centred teaching (Landsberg, 2011). According to the Draft Guidelines for the Implementation of Inclusive Education (Department of Education, 2002) and the Responding to Diversity document (Department of Basic Education, 2011c) teachers should accept responsibility for the diverse abilities and needs of the learners in their classrooms by taking barriers to learning, different intelligences and learning styles in their classrooms into consideration. This means that the point of departure for learning support in inclusive education in South Africa is that every learner can learn and need support (Landsberg, 2011). Learning support therefore starts with the teacher as it has increasingly become the task and responsibility of teachers to develop strategies, as they have the most detailed knowledge of the learners’ needs, in an attempt to facilitate quality education (Botes & Mji, 2010). The teacher in the classroom is therefore integral to the learning support network. However, if teachers are expected to identify and meet the whole range of diverse needs in the mainstream, they are also entitled to support (Halliday, 1998). According to policy documents support needs to be given by the school-based support team and the district-based support team to successfully involve all the learners in the learning process (Donald et al., 2010; Landsberg, 2011). However, speaking from my own experience, support offered to me as the classroom teacher from both the district-based and school level’s side remains limited seemingly due to a lack of resources and shortage of qualified staff.

Differentiated teaching can therefore be seen as a means to support and guide the teacher in their role to support all learners in reaching their full potential, but how to implement differentiation in South African classrooms remains the question, as support is limited, the amount of learners per classroom is growing, and in reality it can be difficult to achieve differentiation with only one teacher in the classroom (Walton, 2012).

In light of the above challenges, this study therefore has two important aims; (1) to improve my teaching practice through differentiated teaching and (2) to support learning in my class through differentiating my teaching, by focussing on learner readiness, interest and learning preferences.

According to the above problem configuration and aims of the study, the primary research question this study wishes to answer is as follows:

How will the incorporation of differentiated teaching improve my teaching practice to ensure support for learning in my classroom?

With the sub-question:

How will my learners’ learning improve by supporting them through differentiated teaching, focusing on learner readiness, interest and learning preferences?

1.3 RESEARCH PLAN

In order to answer the above mentioned research questions successfully, I have to put a research plan in place. A research plan explains the ‘what’ and ‘how’ of a research study (Cohen, Manion & Morrison, 2011). The following section aims to provide an outline of the research plan which includes the theoretical framework chosen for the study, an introduction to me as the researcher, the paradigm of praxis, along with the research design and methodology, an action and intervention plan which I aim to follow and the research method and data analysis. I conclude with a discussion on the ethical considerations for the study.

1.3.1 Theoretical framework

A theoretical framework acts as the underlying foundation to a study and guides almost every aspect of the research (Agherdien, 2007). I chose Vygotsky’s theory of social constructivism as the theoretical perspective to frame this study, as the understanding of human cognition and learning is seen as social and cultural, rather than as an individual phenomenon (Kozulin, Gindis, Ageyev & Miller, 2003). This implies that learning originates from a social environment, like my classroom to be followed by processes of internalisation by each individual learner should my teaching be effective in mediating the best possible learning opportunity for every learner in my classroom. If individual learning needs are not appropriately met, learning will not be successfully internalised. This research study therefore aims to support all the diverse learning abilities and needs in my classroom through differentiated teaching while simultaneously investigating the outcomes of such a process.

In light of the above it is evident that social constructivism views cognition, learning and instruction as intertwined (Kozulin, 2003). This has particular implications for teaching and learning in my classroom where differentiated teaching is seen as the support through which I will cater for the different cognitive levels and learning preferences of my learners. This study will in particular deal with these concepts within the theoretical framework provided by social constructivism (Merriam, 1998, in Agherdien, 2007) in order to reveal a different view of my classroom and the interactions between my learners and me.

Within Vygotsky's writings several themes can be recognised (Woolfolk, 2010). For the purpose of this study I will underscore the following concepts: social interaction, mediation, cultural tools, the zone of proximal development (ZPD) and scaffolding. These concepts will be briefly explained in the following paragraph and discussed in more detail in Chapter 2 as part of the literature overview.

According to Vygotsky’s theory on learning and development cognitive development takes place from ‘the outside in’ (Moll, 1989, in Donald et al., 2010, p.54), through *social interaction* (Donald et al., 2010), where every function in the learner's cognitive development appears twice: first, on the social level (interpsychological) and later on the individual level (intrapsychological) (Vygotsky, 1978, in Woolfolk, 2010). Social constructivists therefore focus on the need for intentional *mediation* and interactions within

meaningful physical, social and cultural contexts (Kugelmass, 2006). As mediation makes use of different *cultural tools* of thought, learners become able to carry out thinking independently and transforming the cultural tools of thought to their own purposes through a process of internalisation (Rogoff, 2003). Tasks and instructions therefore need to be directed at a level that is neither too difficult nor too easy, but still remaining within the learner's capability level, namely, within the *zone of proximal development* (ZPD), for effective learning to occur (Watson, 2000). *Scaffolding* can then be seen as a strategy to access the ZPD, as it brings about abilities that have been developing and thus reveals the hidden potential of a learner (Gindis, 1999). Teachers can connect with each learner's potential in the ZPD (Donald et al., 2010) through differentiated teaching. The importance of the above mentioned concepts in contemporary education highlights why social constructivism is seen as an appropriate theoretical approach to understand learning and development and enable optimal learning.

1.3.2 Introducing the researcher

All the world is a stage, and all the men and women merely players. They have their exits and entrances. Each man in his time plays many parts - Shakespeare -

In life we do not fulfil just one role, for people have many different roles to play. Currently I take on the roles of fiancé, daughter, sister, aunt and friend, but my life is predominantly defined by my professional role as a grade 4 teacher. According to a 2000 document of the then Department of Education teachers were expected to take on different sub-roles as well, which included being a mediator of learning; interpreter and designer of learning programmes and materials; leader, administrator and manager; assessor; community member and pastoral caregiver; student, researcher and lifelong learner, as well as a subject, discipline and phase specialist (Department of Education, 2000). Currently in a more recent document on teacher education "Minimum Standards for Teacher Education Qualifications" it is clear that these roles should be dispersed across a school setting since the expectation cannot be that each and every teacher should accept responsibility for all of these roles (DHET, 2011). However, I see as one of my prominent roles that of being a phase specialist in helping my grade 4 learners to successfully bridge the gap between grade 3 and 4. Simultaneously this has always been my biggest concern as I have often doubted my abilities in successfully introducing *all* the learners to *all* the new subjects and teaching them how to individually study best for examinations to reach results that are portraying their abilities. This particular challenge motivated me to further my studies in education and I became a student once more. Thus for the completion of my master's degree I'll take on the temporary role of student and researcher. More specifically for this thesis I need to become both teacher (interventionist) and researcher given the action research design of my study.

In this study my own subjectivity cannot be ignored. All the different roles I need to play, as well as my previous personal, social, cultural and historical experiences will have an influence within my research endeavour (Thrift & Amundson, 2005). My own biases and interests will be reflected in how I see my research and interpret the findings of the study. Objectivity will therefore be hard to claim. Cohen et al.

(2011) argue that we will find it challenging to be completely objective of the world that we are researching, seeing that we form part of it; other people's perspectives are just as valid as ours. I am, however, serious to make a difference in the learning and lives of all of my learners and will attempt, through a process of reflexivity, to understand the learning process of my learners better and in the same sense support my growth as teacher while busy with this research study (Hamilton, 1994; Jacob, 1987; Lincoln & Guba, 1985, in Hatch, 2002). To support my intention I can quote from Agar (1993 in Cohen et al., 2011, p.181) who contends as follows: "Through qualitative data collection the intensive personal involvement and in-depth responses of individuals secure a sufficient level of validity and reliability".

Towards the end of the study I hope to be able to take on the important role of transferor of knowledge by passing on the practical knowledge that I have gained from this study to other teachers in order to support them in making a difference in their practice (Department of Education, 2000). Next I will discuss the paradigm of praxis, the chosen paradigm for this research inquiry.

1.3.3 A paradigm of praxis

According to Kurt Lewin (1951) "there is nothing so practical as a good theory" (in Brydon-Miller, Greenwood & Maguire, 2003, p.15). But action research (the chosen research design for this study) goes beyond the notion that theory can inform practice, to recognising how theory can and should be generated through practice as well (Brydon-Miller et al., 2003), admitting that it is a conjunction of theory and practice (Ball & Wells, 2006). In other words, I will view theory and practice as a reflexive relationship (Hills & Mullet, 2000), and not only take what I have learnt in theory and put it into practice in my classroom, but also study the outcomes of this research process by attempting to add the practical knowledge that I have gained to theory.

I therefore see the paradigm of praxis as the most appropriate epistemological framework for my research study which will focus on exploring differentiated teaching in my classroom, as it is informed by both a theoretical and experience (practical) component building on one another and mediated by dialogue (Hills & Mullet, 2000). In an attempt to answer my research questions I will therefore employ a paradigm of praxis in studying my own practice, and at the same time "reject the notion of researcher neutrality, understanding that the most active researcher is often one who has most at stake in resolving a problematic situation" (O'Brien, 1998, p.7).

By theorising the relationship between theory and practice our thinking about research reorients from searching for understanding and explanation to ethical action toward societal good (Hills, 1999, in Hills & Mullet, 2000). As such, critical thinking through my own practice, as both a teacher and a researcher, forms an important part of the research (Ainscow, Booth & Dyson, 2004). Self-reflectivity is valuable as it changes the practice in a controlled way (McIntyre, 1993, in Macintyre, 2000) and adds to the merit of the action research process (Macintyre, 2000).

1.3.4 Research design

As indicated before, my research will be conducted as an action research study. According to Altrichter, Kemmis, McTaggart and Zuber-Skerritt (2002) action research has been recognised for “its breadth as a field of research practice and its depth as a discourse of theoretical insight” (p.125), but within this complex field it cannot be recognised or explained by only one widely accepted definition. One such way of explaining action research can be by means of a diagrammatical model as a spiral of cycles (Figure 1.1). Each spiral consists of four phases, namely, planning, acting, observing and reflecting (Altrichter et al., 2002; Zuber-Skerritt, 1996, 2001).

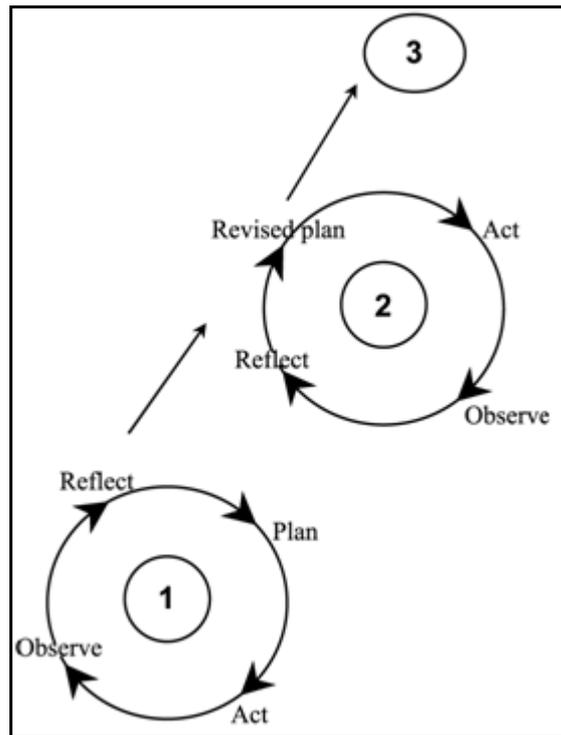


Figure 1.1: The Spiral of Action Research Cycles (Zuber-Skerritt, 2001, p.20)

Within the first cycle action research pursues change and understanding by action and critical reflection. Within the later cycles, after the action has been modified and the research process has been repeated, cycles, methods, data and interpretation are refined by understanding which was developed in the earlier cycles (Dick, 1991, in Altrichter et al., 2002; Zuber-Skerritt, 1992). Action research takes on a methodical, continuous and iterative approach (Altrichter et al., 2002; Riding, Fowell & Levy, 1995) and is simple and helpful in explaining how the research involves reflection and action, research development, intellectual inquiry and improvement of practice (Altrichter et al., 2002).

Within the school context action research is designed to bring the practising classroom teacher into the research process “to bridge the gap between research and practice” (Somekh, 1995, in Cohen et al., 2011, p.345). Action research should not only contribute to practice, but to theory of education and teaching as well, in order to make educational practice both accessible and reflective (Riding et al., 1995; Somekh,

1995, in Cohen et al., 2011). By taking on the roles of both producer and user of educational theory, the teacher learns about their own teaching practices by observing and assessing the learners' improved learning which is related to their own teaching (Riding et al., 1995).

As the cyclical nature of the action research design entails continuous reflection and adaptation it seems to be the most appropriate design for this particular research study. Through one cycle of an action research process I will be able to accommodate the aims for this study, namely to improve my teaching practice and my learners' learning by differentiating my teaching. The insights gained from this initial cycle will then be used to conduct an inquiry process, of which the results and conclusions will be available for planning of the second cycle in order to take the research further for future action (Riding et al., 1995).

According to Little (2001) action research enhances decision making and accountability. This makes it very useful for implementing new practices in the classroom (Baumfield, Hall & Wall, 2008). I therefore chose "individual teacher research" (Ferrance, 2000, p.3) with an emphasis on the practical goal, (Baumfield et al., 2008; Carr & Kemmis, 1986, in Zuber-Skerritt & Perry, 2002; Cohen et al., 2011; Kemmis & McTaggart, 2005; Macintyre, 2000; Zuber-Skerritt, 1996) as my research design, for I will be individually focussing on the single topic of practically improving my teaching practice and optimising learning in my classroom (Ferrance, 2000). This type of action research is thus relevant as it tends to involve the use of "qualitative interpretive modes of inquiry and data collection by teachers with a view to teachers making judgements about how to improve their own practices" (Kemmis & McTaggart, 2005, p.561). Through the means of action research and drawing on teachers' informed judgement, (Grundy, 1987, in Cohen et al., 2011) teachers develop "practical wisdom" (Elliot, 1991, in Macintyre, 2000, p.xii) and "situational understanding", (Elliot, 1993, in Macintyre, 2000, p.xii) which then promotes their professionalism.

After choosing an appropriate research design, a methodology needs to be selected to clarify which processes and research procedures will accommodate this action research inquiry.

1.3.5 Research methodology

According to Mason (1996, in Silverman, 2000, p.101) "your choice of methodology is likely to reflect your own biography and the knowledge and training your education has given you". Part of my role as a teacher is to transform knowledge and ensure understanding in the classroom through quality education and active participation of individual learners. Therefore, taking on the dual role of teacher (interventionist) and researcher in this action research study, qualitative research seems most appropriate as emphasis is placed on meaning and understanding and it is "concerned with the quality or nature of human experiences and what these phenomena mean to individuals" (Draper, 2004, p.642).

Qualitative research is based on a constructivist philosophy that assumes reality to be an interactive social construction where the subjective experiences of the learners that are involved, (McMillan & Schumacher, 2001) in the context of their everyday lives, are seen as important for each learner's meanings,

understandings, behaviours and explanations (Draper, 2004). Data is therefore obtained by an active participatory researcher through flexible research strategies, techniques and self-reflection in a natural setting (Denzin & Lincoln, 2003; McMillan & Schumacher, 2001) to represent reality rather than conquer truth (Draper, 2004).

Through a Vygotskian social constructivist's perspective on teaching and learning (Kozulin, 2003) qualitative research "builds a complex, holistic picture and detailed views" (Draper, 2004, p.642) of the learners involved in the study. It therefore seems most appropriate for my specific study and will therefore act as the chosen methodology. This methodology will be discussed in more detail in Chapter 3.

1.3.6 Action research and intervention plan

In order to successfully differentiate my teaching for optimal learning I have to have an intervention plan in place. This intervention plan can be visually explained by the diagram as indicated in Figure 1.2:

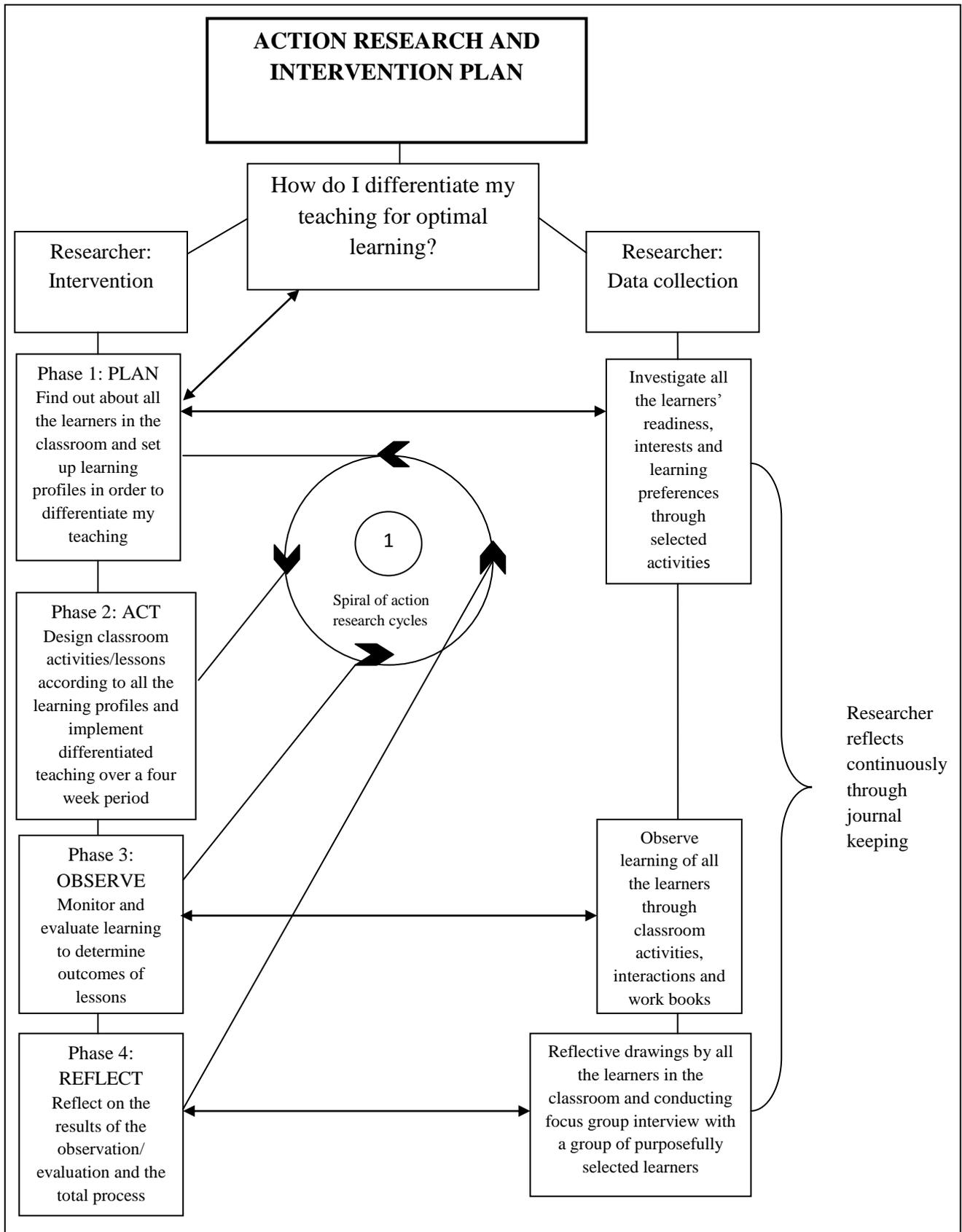


Figure 1.2: Action Research and Intervention Plan

As Figure 1.2 shows, a research plan needs to be in place to address the research questions in my study. This specific research plan will act as an action intervention strategy as I attempt to adapt my teaching practice. I

will keep a journal deemed necessary for continuous reflection during all the stages of the action research process, so as to enhance my own learning and that of my learners. The plan focuses on the application of differentiated teaching strategies and procedures, over a four week period, to optimise the learning of all the learners in my classroom. Firstly I will get to know the learners in my classroom better by asking them to complete activities, questionnaires and inventories to determine their interests, readiness and learning preferences (Tomlinson et al., 2003; Unesco, 2004). The knowledge gained from the procedures will then be used to set up individual learning profiles, which in their turn will inform my teaching and the differentiation of the curriculum. Certain teaching strategies and procedures will be embedded into the content prescribed by the new school curriculum, as set out in the CAPS documents (Department of Basic Education, 2011a), and recommended by the Responding to Diversity document (Department of Basic Education, 2011b). These differentiated teaching strategies and procedures will entail multilevel teaching where my learners will be divided into groups (low, middle and top groups) according to their readiness to learn. These cluster groups, with the purpose of instruction, will be flexible as they will change after each week's test. Learners will not be labelled as each test is on a different subject and therefore different learners will need support and enrichment (Walton, 2012). During weeks not allocated for writing tests learners will be divided into heterogeneous groups which will allow for cooperative learning and peer tutoring. The grade assistant, who joins our class for about an hour a day, will help with individual assistance and enabling learning through scaffolding (Walton, 2012). While teaching, especially when a new concept is being introduced, I will make sure that I differentiate my teaching in order to accommodate all the different learning preferences in my class, including catering for multiple intelligences. I will also vary the complexity of questions and tasks by using Bloom's taxonomy as a guide (UNESCO, 2004). It is also important to keep the different interests in my class in mind as to stop them from getting bored and ensure class participation, which is necessary for optimum learning success (Department of Basic Education, 2011b; Walton, 2012). These differentiated procedures thus aim to support and promote quality education for all my learners focussing on their learning preferences, interests and readiness. Classroom interactions and activities will be observed throughout the implementation process and learner work books will be studied for potential improvement in learning outcomes. During the reflection phase all the learners will be asked to make reflective drawings and then a focus-group interview will be conducted with a group of purposefully selected learners. These strategies will be further explained in detail in Chapter 3. After the research design, research methodology, and intervention plan are all in place, certain qualitative research methods will be employed to carry out the plan.

1.3.7 Research procedure

Seeing that this research study focuses on exploring differentiated teaching in the classroom, the research setting and target population group; selection of participants and the methods of data collection are of particular importance and will be discussed next.

1.3.7.1 Research setting and target population group

According to Holliday (2007) the setting must provide richness and boundaries, and an environment in which the research questions can be addressed and relevant data can be collected. The setting should also be of manageable size and be accessible to the researcher to assume the necessary roles. Since I am going to undertake action research and need to take on the dual role of teacher and researcher, my own classroom, which forms part of a government primary school situated in a semi-urban setting in the Western Cape Province, will serve as the ideal context for the research.

My grade 4 class, being of a manageable size of 29 learners, and one of two multicultural English medium classes compared to the four Afrikaans medium classes in the grade, will be my target population for this research. This grade seems most appropriate for researching learner readiness, interests and learning preferences, as this is the first year of the Intermediate Phase where learners are introduced to different subjects and the writing of formal tests and examinations. They thus have to study for the first time and can benefit from knowing their preferred way of learning. Parents will also benefit from the outcomes of the intervention as I will be more knowledgeable regarding their children's learning preferences and interests and better able to help them in supporting their children to successfully prepare for tests and examinations.

1.3.7.2 Selection of participants

This research study will allow for all 29 learners in my class to participate, as I have a diverse group of learners with unique learning abilities and needs and I want to grant them the opportunity to benefit from differentiated teaching to optimise their learning. As their teacher I am already involved in the classroom as research setting and therefore also in the daily lives of the participants (McMillan & Schumacher, 2001). Seeing that my research role will not change this, the research will therefore not be harmful to them as they will proceed with their normal school day routines. In fact they can only benefit from knowing their preferred learning ways when it comes to studying for their first examination. However, seeing that they will be asked to complete questionnaires and activities regarding their learning preferences and learner interests and their work books and report results will be used as data to determine readiness levels all the learners' assent and their parents' consent need to be obtained.

During the reflection phase of the action research cycle at the end of the study, a sample of nine learners will be selected from the target population to participate in a focus-group interview. I will make use of purposeful sampling to select the group (McMillan & Schumacher, 2001). Learners will be selected from the different groups representative of different readiness levels, learning preferences and interests. The selected learners (participants) will help me to evaluate the outcome of the process. Informed assent (learners) and consent (parents), as mentioned above, will also be sought before the participants will be invited to participate in the focus group interview.

1.3.7.3 Methods of data collection

“Through our... choice of method we largely create the world we later discover” (Cooperrider & Srivastva, 2001, in Bockenek, 2005, p.35). Research methods therefore play an important role as the matching of research methods to the research questions determines the research outcomes. My choice of appropriate strategies and instruments will enable me to gather valuable data to inform and carry out the research process (Cohen et al., 2011). Data will be collected during the first, third and fourth phases of the action research cycle, as shown in Figure 1.2. The following data gathering procedures will be used:

Phase 1: Data will be gathered regarding learners’ learning preferences (in the form of *Learning Preference Inventories* including self-knowledge of learners, and an *Intelligences’ Hunt* using Gardner’s Multiple Intelligences); interests (in the form of partner interviews using a *Venn Diagram*, *Interest Inventory* and *Learner Search*) and readiness (in the form of the *KWLS technique* and asking the five most difficult questions of a theme/module first as baseline or pre-assessment, and observations of the previous term’s work in work books and report results). This data will only be used qualitatively to be able to form an idea of each learner’s readiness, interest and learning preference and to set up a learning profile for each learner (Tomlinson, 2000; UNESCO, 2004). These data gathering procedures will be further explained in detail in Chapter 3.

Phase 3: Observation of learning through classroom interactions and activities and the studying of work books will occur, which will be further explained in Chapter 3. I specifically chose observation as a means of data collection for it allows me the opportunity to rely on my own account when gathering ‘live’ authentic data and gives me a fresh outlook towards learner behaviour which would otherwise have gone unnoticed (Cohen et al., 2011). Observation thus provides for more than just an insight into my research situation, but ‘a reality check’ (Robson, 2002, in Cohen et al., 2011, p. 456) of my classroom.

Phase 4: Towards the end of my research study I will make use of reflective drawings (all the learners will participate) and a focus-group interview (only a sample group will participate) to evaluate the outcome of the process. Seeing that the participants, who are children (learners), are regarded as “the best sources of information about themselves” (Docherty & Sandelowski, 1999, in Cohen et al., 2011, p. 433) a focus group, as a form of group interview, seem the appropriate choice. This will allow for the participants to interact with each other and data to emerge from the views of the participants rather than the researcher’s agenda, (Cohen et al., 2011) which makes it suitable for a more objective evaluation of the outcome of the research process.

Researcher’s reflective journal: A reflective journal will be kept throughout the research process to record observations, interactions and experiences, and reflections for validating the data about my teaching. Keeping a journal will allow me to integrate my thinking and feelings with what I am actively doing and researching, thereby supporting as well as challenging my own findings from other data gathering procedures (Baumfield et al., 2008). It thus has components of a research log and research diary both of which reliefs

me from relying on my memory and allows me to see how my understanding of my teaching process has developed during the research period (Baumfield et al., 2008).

The above-mentioned data collection methods will be described in more detail in Chapter 3.

1.3.8 Data analysis

The data obtained from the above mentioned collection process will be analysed qualitatively to identify certain themes and categories (Strauss & Corbin, 1990). Although there is no single or correct way of analysing qualitative data I must still make sure that it is fit for my intended purpose (Cohen et al., 2011). Therefore, analysis of the first phase will be done immediately after gathering the data, as the sole purpose of this phase is to obtain data about the learners in order to set up learning profiles to frame the intervention. The rest of the data will be analysed to reveal themes by employing the thematic analysis method as described in Braun and Clark (2006). Thematic analysis is a research technique that refers to “identifying, analysing, and reporting patterns (themes) within data” (Braun & Clark, 2006, p.79). Data gets organised and described in ‘rich’ detail, often interpreting various aspects of the research topic as well (Boyatzis, 1998, in Braun & Clarke, 2006, p.79). Hence when exploring the data I will intentionally look for patterns, using a coding scheme, which can provide answers to the research questions (Silverman, 2000; Strauss & Corbin, 1990). After analysing the research data from the focus-group interview all the data will be integrated into broad themes to provide a holistic view and interpretation of the research process (Holliday, 2007). This will help to address the research questions, as well as draw conclusions about the entire process and make recommendations for the next cycle of action research. However, it is important to remember that “human communication is not linear” and therefore my “interpretation of meaning should not be linear either” (Henning, Van Rensburg & Smit, 2004, p.105). In other words I should take all factors into account when interpreting the data.

1.3.9 Ethical considerations

As action research is carried out in real-world circumstances, more specifically my classroom, and it involves communication among minors (the learners) involved, I, as the researcher, must pay special attention to ethical considerations in my research work (O’Brien, 1998).

Permission to proceed with the research will be obtained from the principal of the primary school, the ethical committee of Stellenbosch University, and the Western Cape Education Department. Both informed assent and consent to participation in the research will be gained from the learners and parents. Careful consideration will be given to the protection of the anonymity of the learners and the primary school that will be involved.

The learners will not be under any obligation to participate and will do so on a voluntary basis. If participation is agreed upon they will be assured that their identities will be protected as will they be allowed

to withdraw from the research study at any stage and time (Cohen et al., 2011). Both learners and parents will be informed of these ethical considerations before they are expected to sign the assent and consent forms of participation respectively (McMillan & Schumacher, 2001).

Details as to how these principles form part of the research process will be discussed in Chapter 3.

1.4 CLARIFICATION OF CONCEPTS

1.4.1 Differentiated teaching

According to Tomlinson (2000) differentiated teaching is not a strategy but the way in which we think of our learners, teaching and the learning process. In order to define and differentiate one's own teaching correctly, it is the responsibility of the teacher to get to know his or her learners (Manning, Stanford & Reeves, 2010). Differentiated teaching is therefore responsive teaching rather than 'one size fits all teaching', consequently starting where the learners are and reaching the capacity of each learner by bridging the gaps in understanding (Cox, 2008). Through this way of teaching teachers start to know their learners by changing the classroom environment, to see their learners' readiness levels, learning preferences and interests, and needs more clearly (Cox, 2008). This can be done by grouping learners accordingly and organising teaching around a flexible content, process and product (Levy, 2008). Content refers to what we teach and a learner learns, and is differentiated by interest; process refers to the way we teach and the activities a learner engages in while learning, and is differentiated by readiness; and product refers to the activities completed during lessons which demonstrate how learning has occurred, and is differentiated by learning preferences (Cox, 2008; Levy, 2008; Ellis, Gable, Gregg & Rock, 2008, in Manning et al., 2010). With the tools of differentiated teaching, we can keep the focus on teaching all the learners equitably and take each learner as far as he or she can go on their educational path (Levy, 2008) which will result in the teacher's "growth towards professional expertise" (Tomlinson, 2000, p.31). Differentiation is therefore doing "whatever it takes to ensure that struggling and advanced learners, students with varied cultural heritages, and children with different background experiences all grow as much as they possibly can each day, each week, and throughout the year" (Tomlinson, 1999b, p.2).

1.4.2 Learner readiness

Cox (2008, p.53) defines readiness as a concept that "has to do with a learner's current preparedness to work with a prescribed set of knowledge, understanding, and skill". This means that if a learner finds the work too easy he/she may become bored, and if a learner finds the work too difficult he/she may become unmotivated, frustrated and even confused (Byrnes, 1996, in Tomlinson, Brighton, Hertberg, Callahan, Moon, Brimijoin, Conover & Reynolds, 2003). The result, however, remains the same, namely that neither will produce positive achievement and learning will not occur (Cox, 2008; Tomlinson et al., 2003). Therefore the academic content and work needs to be a little above the learners' current level of functioning, meaning

teachers should teach within a learner's zone of proximal development (ZPD). A learning support, scaffolding and mediation system needs to be in place to bridge the gap between the current and proximal level of academic functioning, before a readiness match can be made which will maximise challenge, academic growth and attitude towards learning (Cox, 2008; Manning et al., 2010; Tomlinson et al., 2003; Tomlinson, 2004). Therefore an approach of using single tasks for all learners of varying readiness levels is seen as a mismatch between task and learners as the task itself is outside most learners ZPD (Tomlinson et al., 2003). Seeing that all learners do not have the same ZPD and readiness levels it is important for us as teachers to differentiate our tasks and teaching.

1.4.3 Learning preferences

Learning preferences do not only refer to learners' preferred ways of learning, but to 'states' which vary across time, subjects and contexts (Curry, 1983, 1990; Riding, 1997, in Kanevsky, 2011, p.280). It is therefore clear that learners do not all learn in the same way, for example, some learners may learn best alone while others learn best in groups; some may prefer learning small bits of information by working at their own slower speed while others like competing with the class by working at a fast speed (Cox, 2008; Kanevsky, 2011). By focusing on learners' learning preferences teachers increase efficiency of learning (Manning et al., 2010; Tomlinson, 2004) and convey a message of care to learners about understanding what and how they want to learn (Kanevsky, 2011). Therefore addressing a learner's preferences during academic lessons will most likely improve achievement even if the final assessment of the work covered during the lessons is not a match for the learner's preferences (Tomlinson et al., 2003).

1.4.4 Learner interest

The topics and content that any particular learner is interested in at any point in time is known as that learner's interest. Using learners' interests can be seen as a way for a teacher to engage a class in the learning process and promote learner creativity, satisfaction and independence (Tomlinson et al., 2003). Cox (2008, p.53) argues that "if you can relate the knowledge to be learned to a learner's interests, you have an advantage to gaining the learner's attention". Therefore as a greater emphasis is placed on learners' interests the motivation of learners heightens (Reeve, Deci & Ryan, 2004, in Manning et al., 2010; Tomlinson, 2004) in completing tasks or studying which optimises learning. Even if learners do not have particular strong personal interests, links to prior experiences and choices can be used to build their interest (Tomlinson et al., 2003).

1.4.5 The grade 4 learner

In the South African school system grade 4 forms part of Intermediate Phase in the Primary School. This phase includes grades 4, 5 and 6 with grade 4 being the first year in the phase. After this phase the learners

enter the Senior Phase of which grade 7 is the only phase that still form part of the Primary School. For grade 8 and 9 of the Senior Phase learners enter the High School.

Most learners turn ten years old during their grade 4 school year, which put them in the age period commonly referred to as the middle childhood years (Charlesworth, Wood & Viggiani, 2011; Louw, 1997). These years (ranging between approximately the ages of six and twelve) are less obviously set apart than the infant or adolescents years; but even though Sigmund Freud was of the opinion that this phase is a rather uneventful one, today, in the twenty-first century, middle childhood is known as a potentially tempestuous time in learners' lives (Charlesworth et al., 2011). Seeing that school instruction plays the most important part in contributing to learners development during this period (Vygotsky, 1978; 1986, in Karpov, 2003) it is necessary for me as a grade 4 teacher to concentrate on the role that development plays in my learners' lives as this is a phase of significant emotional, social, cognitive and physical development.

During the physical development of the middle childhood years the central nervous system, which is important to the learner's social and cognitive development develops, and an increase in power, coordination and muscle control occurs (Louw, 1997). On a cognitive developmental level learners' selective attention and memory span increases (Louw, 1997). Learners are thought to be functioning developmentally at what Piaget (1952; 1972 in Louw, 1997) termed the concrete operational stage where logical thinking about concrete objects develop. This means that learners develop reversibility, decentration and the ability to categorise objects according to class (Louw, 1997). Middle childhood is therefore a critical time for learners to gain a sense of self-confidence and advance conceptual thought (Charlesworth et al., 2011). This makes it my task as teacher to nurture an environment where the learners' expanding cognitive abilities to understand people and situations are supported as learners become much more aware of different aspects of diversity (Charlesworth et al., 2011).

On a social and emotional development level learners start to become eager and curious about learning. They develop relatively permanent attitudes about the school and learning as they become progressively aware of the fact that they are evaluated on the basis of what they are able to do (Charlesworth et al., 2011). Erikson (1963; 1968 in Louw, 1997), who calls this the Industry versus inferiority stage of psychosocial development, argues that successful mastery of learning skills lead to feelings of efficiency whereas failure leads to feelings of incompetence, which plays a significant part towards optimal learning in the grade 4 class.

1.5 STRUCTURE OF THE PRESENTATION

What follows is a summary of the manner in which this thesis is structured:

Chapter 1 attempts to inform the reader of the background and context of the study by providing an outline for the research process. The theoretical framework of the inquiry and an introduction to the researcher are

presented. It also includes the problem statement, research aims, and research questions. The research design, methodology and relevant concepts are briefly discussed.

In **Chapter 2**, a review of the literature, as it relates to differentiation and this action research study, will be explored.

Chapter 3 will aim to provide a detailed exploration of the inquiry, which includes the research design and methodology of the study. The action plan for the research intervention gets discussed in detail in this chapter. It also incorporates a detailed explanation of the research setting, selection of the participants, the sampling and manner in which data were collected, recorded and analysed. Issues of validity and reliability, as well as the ethical considerations relevant for the study, will also be included in this chapter.

In **Chapter 4**, the implementation of the action plan of the study, as well as the findings, will be reported. The process will be recorded, interpreted and discussed in detail.

Chapter 5 will offer broad conclusions to the study. Interpretation of the findings, a description of both the limitations and strengths of the study will be referred to, and recommendations for future research, regarding the next action research cycle, through reflections of the researcher will be made.

1.6 SUMMARY OF THE CHAPTER

This first chapter provided an explanation of the motivation for the study, and it also presented the problem statement, aims of the research, and the research questions. The research design and methodology were discussed, and the methods of data collection and analysis were briefly explained. Important key concepts related to the title were clarified, and the chapter came to a close with an outline for the structure and presentation of the remainder of the thesis. The next chapter gives an overview of the literature studied in order to reach greater understanding of the phenomenon of differentiated teaching in a grade 4 classroom.

CHAPTER 2

LITERATURE REVIEW

If a child can't learn the way we teach, maybe we should teach the way they learn - Ignacio Estrada -

2.1 INTRODUCTION

A literature review not only provides a source for the planning and implementation of a research study (Henning et al., 2004), but also “forms an important chapter in the thesis, where its purpose is to provide the background to and justification for the research undertaken” (Bruce, 1994, in Ridley, 2008, p.3). It thus supports the motivation, aim, and problem statement of a study, all of which were briefly discussed in Chapter 1. As my research study is dependent on what others have done before me and therefore does not stand alone, but forms a small piece in a complicated jigsaw puzzle, it is important for the reader to be aware of the whole jigsaw puzzle and not simply the details of my particular ‘piece’ (Ridley, 2008). Therefore this literature review will aim to contextualise my work, by describing the bigger picture that provides the background and creates the gap for my research to bring the reader up to date with the topic in a logical and organised way (Ridley, 2008).

This chapter aims to provide a review of the literature on inclusive education, learning support and differentiated teaching as teaching approach and support strategy in the classroom. The middle childhood developmental phase will also be discussed as the study focuses on grade 4 learners in one classroom as participants. As this study focuses on optimising learning in the classroom, it begins with a detailed account of the chosen theoretical framework, namely Vygotsky’s social constructivist theory on learning and development. Social constructivist theory assumes that knowledge and meaning are created through a learner’s social interaction and social experiences with others (Donald et al., 2010). The chapter will be concluded with an in-depth overview of differentiated teaching with a specific focus on how to differentiate by focussing on learning preferences, learner readiness and learner interests. The purpose of this chapter is thus to share the researcher’s frame of reference with the reader, in other words, share that which informed the goals of this specific study and directed the exploration of the research problem.

2.2 A SOCIAL CONSTRUCTIVIST APPROACH TO TEACHING AND LEARNING

According to Phillips (2000, in Richardson, 2003) constructivism as a learning theory has received attention for a number of decades, whereas constructivist teaching, as a theory and practice, only goes back for more or less a decade (Richardson, 2003). Constructivists believe that learning is a process whereby learners actively construct new meanings within the context of their current knowledge (Donald et al., 2010). Knowledge is thus not something that can be simply given by the teacher to the learners. Our responsibility

lies with facilitating the discovery of the learners' own truths through an active, mental process of development (Cooperstein & Kocevar-Weidinger, 2004).

Atwell (1987) and Fosnot (1989) were some of the authors who vouched for teaching in a constructivist manner (Richardson, 2003). This way of teaching leads to a paradigm shift. When we look at the teaching and learning process through a constructivist lens we have a different view of the classroom and of the interaction that happens between learner and teacher, as the focus is on who the learner is rather than what he/she is not. With this brief overview of constructivist views of learning and teaching in mind we can begin to understand why constructivism forms the underlying principle for many studies in the educational field.

Social constructivism can be viewed as an extension of constructivism and provides the framework for teaching approaches that developed from the sociocultural theory of the well-known Russian psychologist, Lev Vygotsky, and his colleagues (Moll, 1990, in Kugelmass, 2006). Social constructivists, like Vygotsky, choose to "focus on the need for intentional mediation and interactions within meaningful physical, social and cultural contexts" (Kugelmass, 2006, p.3), rather than assuming that development originates from within the individual (Kugelmass, 2006). Social constructivism hereby emphasises the importance of the above mentioned contexts in the construction of knowledge and meaning, by viewing learning as a meaning-making process where knowledge is seen as inseparable from the teacher and learner's experiences and culture (Donald et al., 2010; Gallagher, 2004, in Kugelmass, 2006; Von Glaserfeld, 1995, in Kugelmass, 2006). De Corte (1996) agrees with the above in that he characterises a social constructivist view on effective learning as "a constructive, cumulative, self-regulated, goal-directed, situated, collaborative and individually different process of meaning construction and building of knowledge" (p.9). Social constructivist theories therefore "ask us to consider how we define ability and competence in our classrooms and our research, and how our teaching, assessment, and interactional practices may shape the interpretations we reach about a learner's learning" (Collins, 2013, p.3).

Today Vygotsky's theories have been revised and adapted to capture the attention of the contemporary teacher (Kozulin, 2003; Panofsky, 2003). These theories help us to identify what are expected of teachers, and what concepts are essential in the relationship between learning and development, for optimal development to occur (Kugelmass, 2006). What follows in Figure 2.1 is an exposition of the important concepts (social interaction; mediation and cultural tools; internalisation and externalisation, the zone of proximal development (ZPD) and scaffolding) connecting Vygotsky's ideas and their educational applications (Kugelmass, 2006). This will be followed by a discussion of these concepts.

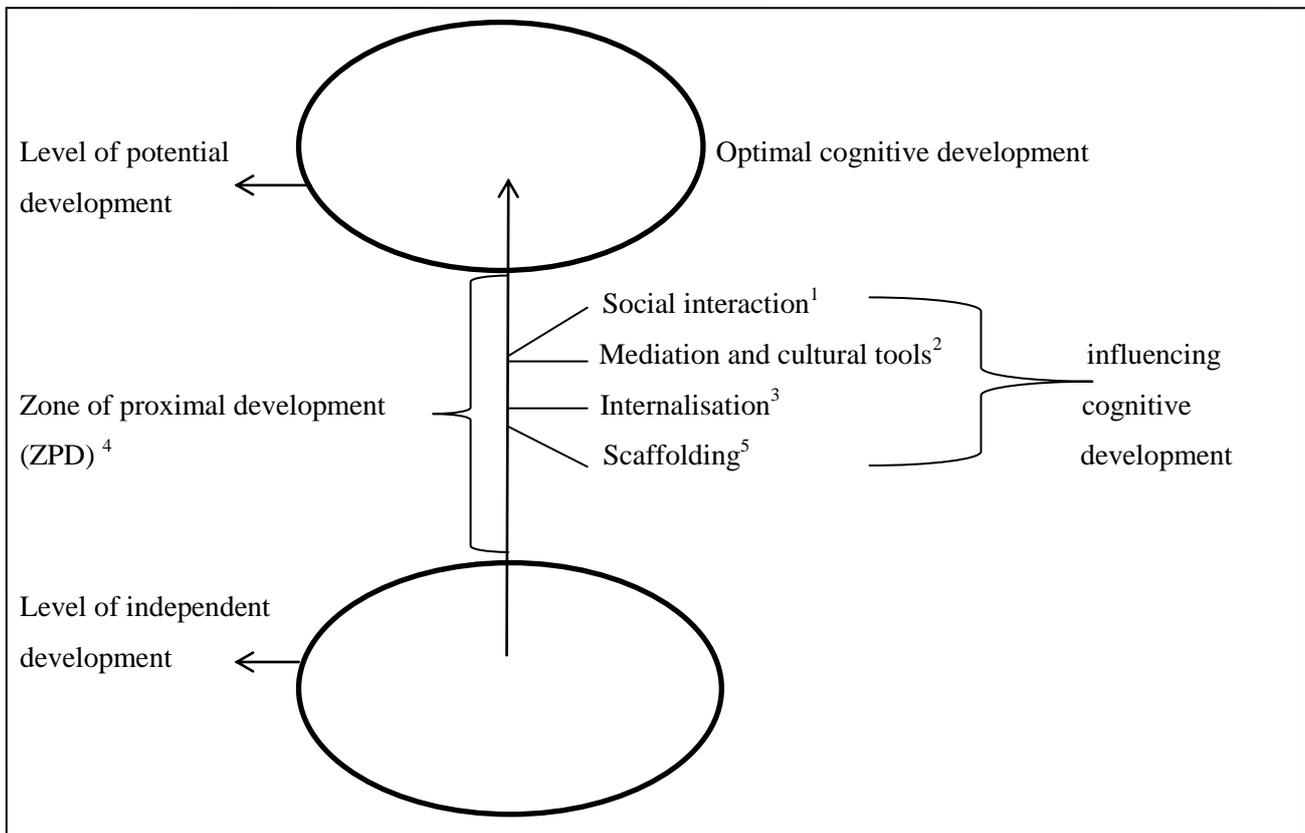


Figure 2.1: Important Vygotskian concepts linked with their educational implications (Adapted from <http://rantingmath.wordpress.com/2012/10/14/vygotsky-socialcultural-theory-of-development-and-zpd/> on 15 June 2013)

One of Vygotsky's main contributions was pointing out how learning and development are profoundly influenced by **social interaction**¹, as learners construct shared meanings through social and cultural interaction with peers and teachers rather than individually (Kozulin et al., 2003). Social interaction is an activity which learners naturally recognise as important for their own cognitive and psychosocial development as learners do not only have the opportunity to bridge the gap in their understanding by adapting old ways of learning and understanding concepts, but also have the prospect of developing new meanings and knowledge (Donald et al., 2010). At the centre of Vygotsky's focus on social interaction lies the belief that meanings cannot be separated from their social contexts as they are constantly developed and changed in interaction with the environment (Donald et al., 2010). Vygotsky argued that learning precedes development whereby "every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological)" (Vygotsky, 1978, in Zuckerman, 2003, p.186). Seeing that social interactions create our cognitive structures and thinking processes to optimise different learning opportunities (Kozulin, 2003) the responsibility lies with me, as a teacher, to nurture meaningful interaction in the classroom by recognising that my learners and I are influenced by different social contexts (Donald et al., 2010).

Vygotsky's theory therefore promotes environments in which both the teacher and learners play an active role in their own education as the teacher collaborates with the learners to create meaning in ways that can invite learners to make it their own (Hausfather, 1996, in Riddle, 1999). Therefore like the environment, the instructional design of learning material to be internalised should be organised according to learners' learning preferences, interests and readiness levels to promote and encourage learner (social) interaction and collaboration. In this way the classroom becomes a community of learning and development (Riddle, 1999).

According to Vygotsky, **mediation**² can be seen as the 'engine' that drives learning and development (Donald et al., 2010). Mediation is therefore the process through which the learner can take ownership of cognitive tools in order to create knowledge (Donald et al., 2010; Kozulin, 2003). However, the learner cannot successfully do this on his or her own. This is where the role of the classroom teacher, or a peer, who has already acquired the cognitive tools to create knowledge, come in. As the teacher, I can mediate the learning process by differentiating my teaching to suit the particular learner's learning needs and thus actively support the learner to internalise the cognitive tools to make higher cognitive functions possible (Donald et al., 2010) as shown in Figure 2.2.

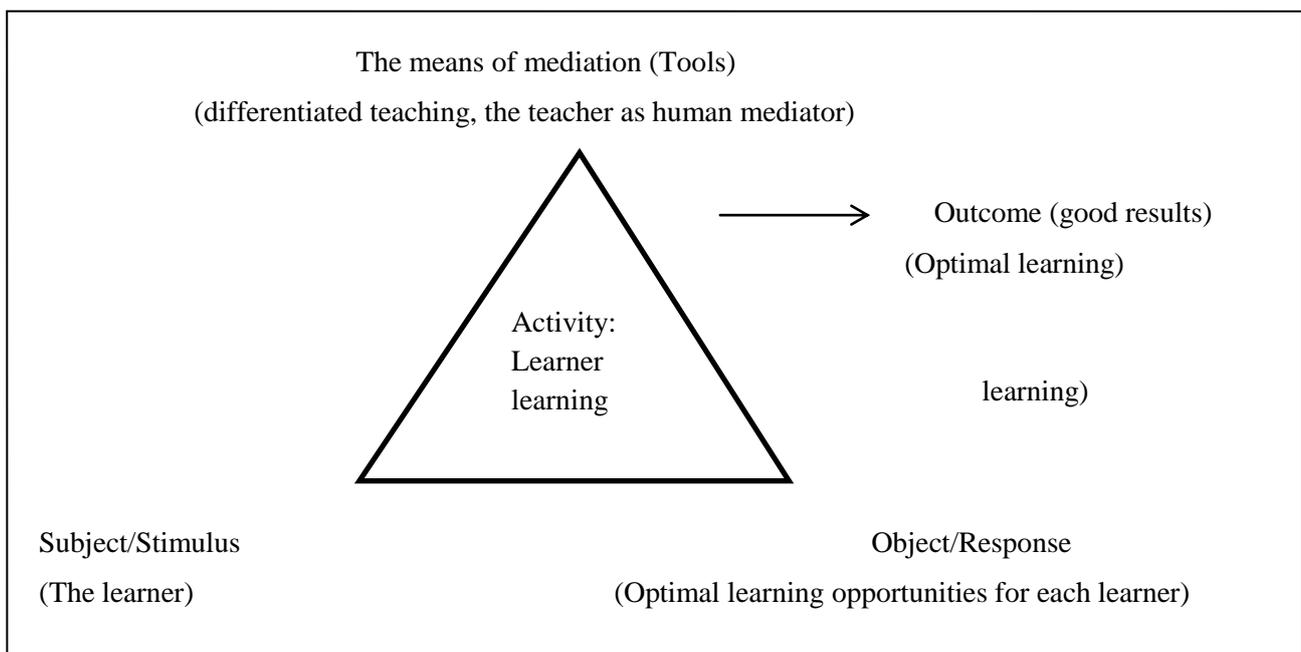


Figure 2.2: Triadic Representation of Mediation (Adapted from Donald et al., 2010, p.56)

The above figure represents how the learner interacts with the classroom (including the culture and specific ways) and subject content through mediation. The relationship between the learner and classroom/subject content is therefore mediated through social-cultural relationships, as indicated by the top of the triangle in Figure 2.2 (Donald et al., 2010). This shows how a learner can achieve more with support than on his/her own.

What mediation is and *how* it occurs is seen as equally important (Donald et al., 2010). Through the *content* of mediation the learner learns to adapt his/her present meanings to new meanings in order to fit what is more widely understood. Through the *process* of mediation, on the other hand, the learner is challenged to develop a new way of thinking to reach a higher level of understanding (Donald et al., 2010). Teaching can therefore not just be about ‘spoon feeding’ information to learners. The learning process has to involve a purposeful effort to challenge and support learners to internalise information in increasingly more effective ways so as to optimise understanding and learning (Donald et al., 2010; Kozulin, 2003).

Although social interaction and human mediators, as mentioned above, is important for cognitive development to occur, Vygotsky viewed the symbolic mediators, which represent the ‘tools’ that may be employed in the mediation process (Kozulin, 2003) that particular cultures provide to support learning, as just as important in the cognitive development of learners (Woolfolk, 2010). **Cultural tools**² are known as tools such as computers, rulers and scales; and symbol systems such as language, numbers, works of art and graphs; which allow for human societies to communicate and learn by creating knowledge as it is passed from adult or more knowledgeable peer to child through both formal and informal interactions (Woolfolk, 2010; Karpov, 2003; Kozulin, 2003). However, within the context of this particular study the tools that will be used to mediate learning will be me, the teacher, as the human mediator, as well as the teaching strategies fundamental to differentiated teaching.

According to Vygotsky, a child’s cognitive learning and development is dependent on their ability to master symbolic mediators and internalise psychological tools (Kozulin, 2003). However, if I, as the teacher, do not effectively explain the use of these symbolic tools to my learners and the acquisition thereof do not occur as a form of deliberate action and **internalisation**³, these psychological and cultural tools would be ineffective to them (Kozulin, 2003). As mentioned in Chapter 1, this emphasises the important role that the teacher plays as both human mediator and primary link in the support network. Since classroom teachers have first-hand experience to notice and identify problems or situations that need to be addressed to improve their learners’ learning it is our responsibility as teachers to recognize barriers that are negatively affecting our learners’ learning. Reflection and research are called for to make changes in delivering the curriculum where warranted.

Language and other cultural tools can thus firstly be viewed as external to the growing mind, secondly as a move through an intermediate stage of ‘verbal thought’ (Vygotsky 1987, in Wegerif, 2000, p.9) and finally become fully internalised in the structures of ‘pure thought’ (Wegerif, 2000). ‘Verbal thought’ is therefore viewed as a stage between the external ‘dead’ word on the one side and true internal thought on the other (Vygotsky, 1987, in Wegerif, 2000, p.9). Vygotsky argued that ‘the higher mental faculties’ are internalised forms of social interaction (Vygotsky, 1991, in Wegerif, 2000, p.9) whereas Kozulin (2003) viewed the process of internalisation as the vital element in the creation of higher mental functions.

As “we all continue to use outer speech in social interaction” (Donald et al., 2010, p.55), we develop new ways of thinking and understanding to connect outer with inner language (Donald et al., 2010). Cognitive development through internalisation can therefore be mediated by me, the teacher, when used in small groups and finally used by individuals working alone and speaking silently to themselves (Wegerif, 2000). Again, this highlights the important role of the teacher in the mediation process, as intentional instruction, where the teacher explains and reorganises information in such a way that it will make sense to the learner; facilitates internalisation (Lantolf, 2003).

A key to understanding mediation is Vygotsky’s well-known concept, **the zone of proximal development (ZPD)**⁴ (Donald et al., 2010; Gindis, 1999). It is seen as the crucial space where a learner cannot fully understand something on his/her own, but has the potential to do so through interaction with the teacher or a more advanced peer/ class member (Vygotsky, 1978, in Woolfolk, 2010).

Figure 2.3 illustrates the ZPD, representing the gap between what a learner can achieve with assistance and support and what the learner can accomplish on his/her own (Kugelmass, 2006).

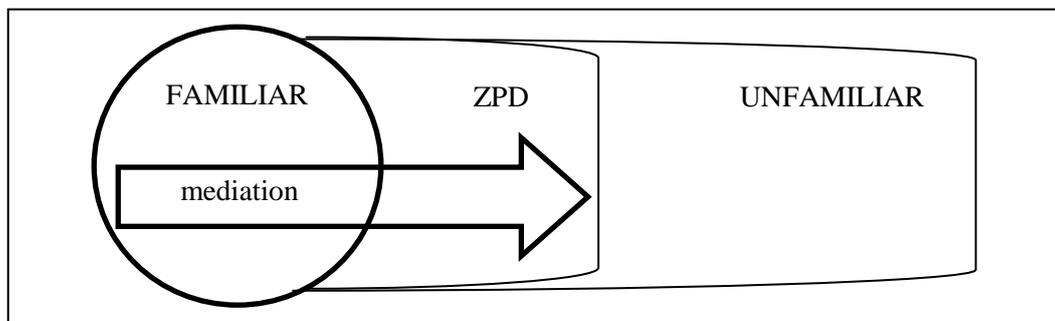


Figure 2.3: The Zone of Proximal Development (Adapted from Donald et al., 2010, p.56)

The support of a teacher is developmentally needed to guide a learner to establish more advance ways of knowing. This specifies the interactive nature of learning and teaching in a social constructivist classroom where the role of the teacher has shifted from the traditional didactic teaching format, where the teacher is just seen as the conveyor of information, to being an active mediator of his/her learners’ learning (Donald et al., 2010; Ferguson, 2008; Kugelmass, 2006). However, interaction needs to be intentional and must occur within a learner’s ZPD in order to connect with his/her potential. In other words, by intentionally mediating, the teacher tries to connect with the learner’s potential in the ZPD, for if left to chance, interaction may not be meaningful and the goal to optimise learning will fail (Chaiklin, 2003; Donald et al., 2010; Lidz & Gindis, 2003).

As a teacher I have come to realise how presenting a concept too far beyond learners’ understanding demotivates them and I end up losing their attention and interest in the lesson. The same accounts for presenting something too familiar. By actively mediating lessons and differentiating my teaching according to the learners’ readiness levels, interests and learning preferences I can engage each individual learner in the critical space of his/her potential development. These strategies will optimise learning by allowing for new

levels of cognitive functioning and understanding to be reached (Donald et al., 2010). As Vygotsky (1987, in Chaiklin, 2003, p.40) stated “what the child is able to do in collaboration today he will be able to do independently tomorrow”.

Linking to what was mentioned about Vygotsky’s important notion of mediation is Bruner’s idea of **scaffolding**⁵. According to Donald et al. (2010), “scaffolding is mediating the appropriate structures and/or strategies of a particular area of knowledge”. When a teacher scaffolds learning opportunities for their learners they support them in reaching a higher level of understanding. Just as a scaffold is a temporary structure to support a building until it is completed, the process of scaffolding, when it comes to teaching and learning, is also temporary as the mediator slowly withdraws support once a learner starts to complete the learning process. Scaffolding is thus initially directed ‘from the outside in’, but as the learner begins to master the content taught, the learner starts to actively construct knowledge ‘from the inside out’ (Donald et al., 2010, p.87).

Vygotsky states that a learner’s hidden potential is revealed through scaffolding (Gindis, 1999). Therefore, as a teacher, my job is to awaken and enhance abilities that have been developing but have not yet matured (Gindis, 1999). In order to do this I first need to understand the forms of thinking that underlie what skill is being taught or subject being introduced before identifying the learning strategies to be ‘scaffolded’. By compiling a learning profile of each learner in my class I will be able to form an idea of their learning preferences, learner interests and readiness levels and so be able to identify which learning and teaching strategy might be most helpful to them. This will also allow for modification of the scaffolding procedure as I will have a better idea of both the individual differences and similar needs that might exist among the learners in my class. This will give me the opportunity to connect with a specific learner as well as groups of learners (Donald et al., 2010).

As mentioned, the way that I choose to incorporate scaffolding in my class will depend on the skill or subject (curriculum) being taught. It is therefore important to reflect on my scaffolding methods as I may have to modify what I am teaching as I proceed to optimise individual learning and the connection between my class and me. Giest and Lompscher (2003) are of the opinion that learners also need scaffolding in the form of learning models, where the teacher models the learning object/action for the learners, to enable them to solve problems. I thus have to continually support, prompt, model and refine understandings and procedures to move my learners forward from their current ZPD’s and for reinforcement to occur (Donald et al., 2010).

My responsibility as a teacher therefore lies in using the “dialectical relationship between different developmental zones” (Vygotsky, 1987, in Giest & Lompscher, 2003, p.272) where in the first phase I create conditions for discovery learning and self-regulation in the learners’ zone of actual performance by applying what was learnt and acquired so far. The second phase is characterised by direct instruction in the learning zone of proximal development, where my task lies in supporting the learners to reach their own learning goals. In the third phase the zone of proximal development becomes the new zone of actual performance,

where learners solve problems by themselves (Giest & Lompscher, 2003). As my aim is to accommodate the diversity of learning needs in my class by optimising each learner's learning, they must be able to learn and work independently on that which I have 'scaffolded'. However, the specific stage in the learning process where the teacher will start to reduce their support and the learner will be capable of working independently will differ, as learning depends on each learner's readiness level or ZPD (Donald et al., 2010).

Vygotsky's social development theory therefore challenges traditional teaching methods as the studies described above offer evidence that learning based on the social constructivist theory facilitates cognitive development more successfully than other instructional strategies (Riddle, 1999).

With social constructivism providing the theoretical lens, through which teaching and learning will be understood in this study, it seems appropriate to have a closer look at inclusive education and learning support to provide the reader a contextualised understanding of the positioning of this research study.

2.3 INCLUSIVE EDUCATION AND LEARNING SUPPORT

There is no one definition that summarises inclusion as it means different things to different people. However, there seems to be consensus on some of the broad factors. These factors include creating a sense of belonging and a devotion to building a more democratic society (Bornman & Rose, 2010; Dyson, 2001). Inclusion in education is just as complex, as it is often defined differently in different contexts, but many would agree that inclusive education implies that all learners are taught together in the same mainstream classroom without being separated or excluded based on the need for enrichment or additional support (Walton, 2012).

The Department of National Education (1997: vi-vii) defines an inclusive learning environment as one that ensures

“the full personal, academic and professional development of all learners irrespective of race, class, gender, disability, religion, culture, sexual preference, learning styles and language. It is one which is free from discrimination, segregation, and harassment and which intentionally tries to facilitate an atmosphere of mutual acceptance and respect. It is an environment, which respects learners and values them as partners in teaching and learning. It respects the rights of all learners and enables them to participate fully in a democratic society”.

Since inclusive education is being portrayed as a possible answer for responding to diversity in education, it is considered worthwhile to explore the underlying rationale for inclusive education (Oswald, 2010). The importance of inclusive education and the individual learning and support needs in schools that are associated with it, is noted in a variety of influential documents (Walton, 2012). The international movement towards inclusive education must be seen as part and parcel of reconstructing social policies on disability

(Dyson & Forlin, 1999), whereas within the South African context, taking the historical context with its disparities into account, inclusive education has a human rights perspective which is related to the Bill of Rights in the South African Constitution that “commits us to creating access to and provision of a process of education which is appropriate to the needs of all children” (Donald et al., 2010). The Constitution (Republic of South Africa, 1996a) and the South African Schools Act 84 of 1996 (Republic of South Africa, 1996b) therefore recognises inclusive education as a moral and human rights matter to ensure that *all* learners benefit from inclusive education with adequate support being “the cornerstone of successful inclusive education” (Swart & Pettipher, 2011, p.21).

In 1994 South Africa signed the Salamanca Declaration, committing to follow the goals of making education available for *all* children (Department of Basic Education, 2010). The Salamanca Statement describes inclusive education as an education system where all learners learn together and their unique learning needs are catered for through appropriate support (UNESCO, 1994). The South African government is also committed to the Education for All (EFA) goals. The White Paper on Education and Training in a Democratic South Africa (1995) and The South African Schools Act 84 (1996b) created the foundation in policy and legislation to enable a paradigm shift to inclusive education (Swart & Pettipher, 2011). In 1997 the report issued by the National Commission on Special Needs in Education and Training (NCSNET) and the National Committee on Education Support Services (NCESS) made detailed suggestions for the practical implementation of inclusive education in the South African context. By reviewing concepts such as ‘special needs’ and ‘education support’ the report identified that a range of needs exists among the learners (intrinsic), education system (extrinsic) and other systems within the environment (extrinsic), which were later conceptualised as ‘barriers to learning and development’ (Swart & Pettipher, 2011, p.9). Some of these barriers to learning that has been identified have a specific relation to this study; namely negative attitudes towards differences, an inflexible curriculum and inadequate provision of support services (Swart & Pettipher, 2011).

The findings and recommendations mentioned in the final report of the NCSNET and the NCESS lead to the development of Education White Paper 6 – Special Needs Education: Building an Inclusive Education and Training System (Department of Education, 2001). This document provides a framework for establishing an inclusive education and training system in South Africa and highlights certain principles that are necessary to accomplish this goal (Swart & Pettipher, 2011).

Education White Paper 6 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 informal settings and structures.
- Changing attitudes, behaviour, teaching methods, curricula and environment to meet the needs of all learners.
- 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, 2001, pp.6-7).

Education White Paper 6 also differentiates between mainstreaming and inclusion. Table 2.1 describes the differences.

Table 2.1: The Difference between Mainstreaming and Inclusion

‘Mainstreaming’ or ‘Integration’	‘Inclusion’
Mainstreaming is about getting learners to ‘fit into’ a particular kind of system or integrating them into this existing system.	Inclusion is about recognising and respecting the differences among all learners, and building on the similarities.
Mainstreaming is about giving some learners additional support so that they can ‘fit in’ or be integrated into the ‘normal’ classroom routine. Learners are assessed by specialists who diagnose and prescribe technical interventions, such as the placement of learners in programmes.	Inclusion is about supporting all learners, educators and the system as a whole so that the full range of learning needs can be met. The focus is on teaching and learning actors, with the emphasis on the development of good teaching strategies that will be of benefit to all learners.
Mainstreaming and integration focus on changes that need to take place in learners so that they can ‘fit in’. Here the focus is on the learner.	Inclusion focuses on overcoming barriers in the system that prevent it from meeting the full range of learning needs. The focus is on the adaptation of and support systems available in the classroom.

(Adapted from the Department of Education, 2001, p.17)

The above are important aspects for teachers to understand and distinguish between when aiming to make inclusive education a reality as they hold different views for classroom practice. When ‘mainstreaming’ a learner the classroom remains mostly unaltered and nothing is done to change the setting to support the learner. The learner needs to prove his/her readiness to ‘fit into’ the existing classroom practices (Swart & Pettipher, 2011, p.7). The medical deficit model, fundamental to the view of mainstreaming, can be presented in the following visual way (see Figure 2.4):

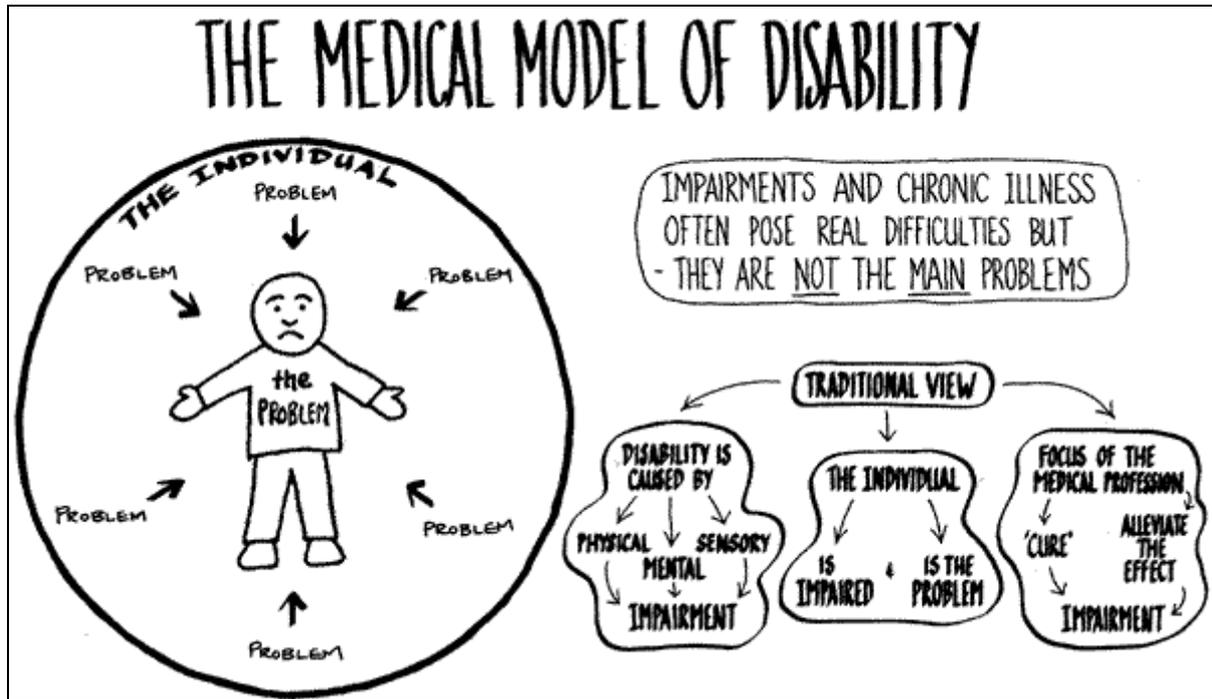


Figure 2.4: The Medical Model of Disability (Democratic Disability and Society Group, 2003a)

By ‘including’ the learner into the classroom within an inclusive education system a shift needs to occur. It is no longer expected of the learner to be able to ‘fit into’ the classroom but it is now the classroom that needs to be transformed. The role of the inclusive education classroom teacher is to accommodate and address the needs, how diverse they may be, of all the learners in order to provide each learner with the opportunity to receive learning experiences that ‘fit’ (Swart & Pettipher, 2011, p.9)

The social ecological model representing the view of inclusion can be viewed in the following visual way (see Figure 2.5):

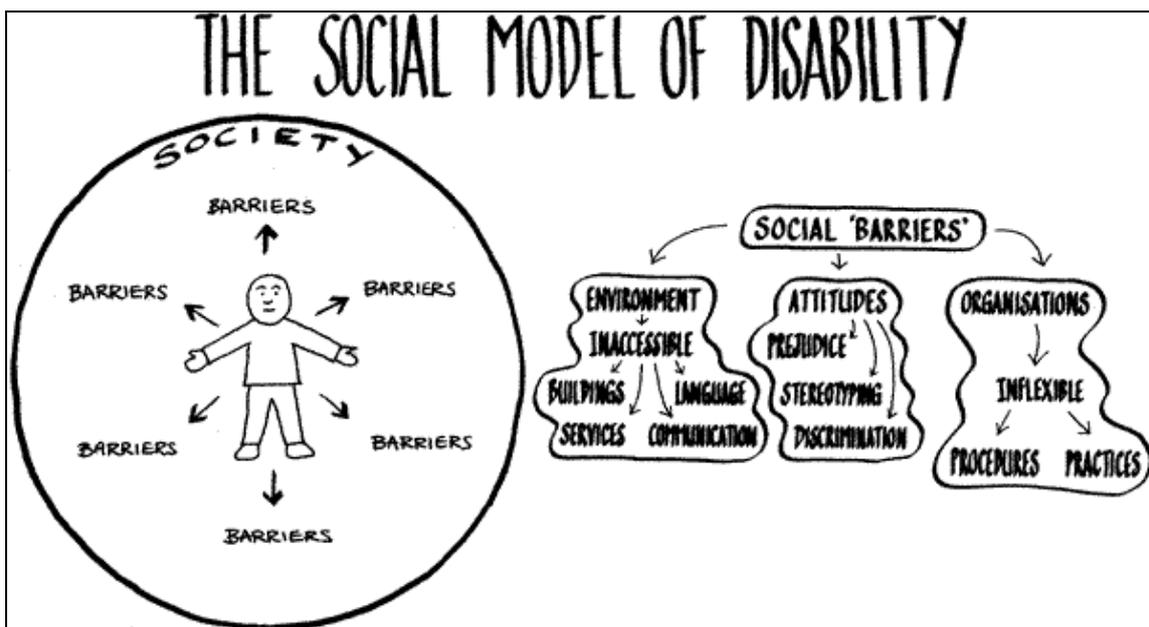


Figure 2.5: The Social Model of Disability (Democratic Disability and Society Group, 2003b)

In working towards the goal of making education accessible to all, the Department of Education introduced the National Curriculum Statement Grades R-12 (NCS). This recent curriculum statement is underpinned by inclusivity, amongst others, which in particular, “highlights the need to celebrate diversity among our learners and encourages the creation of welcoming cultures in schools and ensuring participation of all learners so that they are all valued and they are all made to feel they belong” (Department of Basic Education, 2010, p.8).

In an effort to address the disparities, inequalities and weak points of the past a restructuring of support systems in South African education also took place with major implications for the paradigms of teachers and support personnel in the education system (Department of Education, 2001).

At national level the function of the national Department of Education is to formulate policy. As mentioned in Chapter 1, the Department of Education published major policy-changing documents. These documents are concerned with the provision of educational support, including all learners who experience barriers to learning (Landsberg, 2011). The transformation to a unified education system is thus a move away from a segregated special education system to one where special needs and support services form part of the mainstream education system (Lomofsky & Lazarus, 2001).

At provincial level the role of the nine departments of education is to implement policies introduced by the national Department of Education. Unfortunately as man-power differs from province to province, provinces are not all on the same level with the implementation of the policies of inclusion (Department of Education, 2005; Landsberg, 2011).

Each province is divided into several districts. Each district has to appoint a district-based support team (DBST) that will be responsible for managing inclusive education within that district by providing a coordinated professional support service that draws on expertise and targets all educational institutions (Department of Education, 2001; Landsberg, 2011). Each education district is responsible for the schools in that district. According to the Education White Paper 6 (Department of Education, 2001), support will be provided according to the level of needs of learners who experience barriers to learning. Learners will be rated according to a flexible scale from 1(low-intensity support) to 5 (high-intensity support) by an assessment team. Education support services will be categorised and provided for by providing low-intensive support in ordinary/mainstream schools; moderate support in full-service/inclusive schools; and high-intensive education support will still be provided in special schools as resource centres.

At school level each school is expected to establish a support team. This team, known as the school-based support team (SBST), is responsible for the provision of learning support, together with the teachers involved in any particular learner’s learning. Although support to learners who experience barriers to learning is a team approach, the learning support teacher should take responsibility for the organisation of the team whereas the classroom teacher should be at the centre (Landsberg, 2011). The DBST is also involved when

the SBST requests the help of a member of the DBST, depending on the support needs of the learner, and is then asked to form part of the composition of this particular team (Landsberg, 2011).

This proposed support system for South Africa is based on a systemic approach. District- and school-based support teams will focus on supporting the personnel and learners. The mainstream teacher, as the first in line, is responsible for supporting the specific and developmental needs of learners (Department of Education, 2001).

Learning support, which refers to the role that educational support professionals and mainstream teachers play in addressing the diverse needs of learners, replaces 'remedial support' which was based on the medical model. The Western Cape Education Department implemented a learning support model to facilitate participation, inclusiveness and flexibility (WCED, 2000). It offers a framework for supporting learning and delivering support on different levels. Learning support can be provided to learners by the mainstream teachers on level one, in collaboration with the learning support teacher and other role-players within and from outside the school (including family and community members). All the role-players are seen as important, because when the school, home and community share responsibility for learners' well-being, they have greater opportunity for meaningful and engaged learning. The learning support teacher, along with the SBST and other educational support professionals, must support the mainstream teachers. On level two learners can temporarily be withdrawn from the mainstream class for small-group instruction by the learning support teacher. The mainstream classroom teacher provides essential support as he/she has the most detailed knowledge of the learners' needs whereas other role-players (in and outside the school) work in collaboration with the mainstream classroom teacher. At level three and four of the learning support model, where learners require more intensive support, learners are referred to special schools. An inclusive education and training system is therefore structured in such a way that it provides various levels and types of support to both teachers and learners (Bouwer, 2011; Department of Basic Education, 2010; Landsberg, 2011; Swart & Phasha, 2011).

The learning support model makes it evident that the traditional role of mainstream teachers is being challenged by the shift from the medical model to a human rights approach. According to Education White Paper 6, the Government aims to create special needs education as a non-racial and integrated component of the South African education system and the mainstream classroom teacher is seen as the primary link in achieving the goal of an inclusive education and training system (Department of Education, 2001). Teachers therefore need to accommodate diversity through flexibility, relevance and respect. Flexibility must be maintained with regard to the individual learner's learning trajectory and is essential in teaching to accommodate the diverse learning abilities and needs in a class. It is thus important to focus on an active learner-centred teaching methodology in the classroom whereas a rigid teacher-centred teaching methodology dominated in the past. What is taught and how it is to be taught has to be experienced as relevant, meaning that education must be experienced as useful to both society as a whole and to individual

learners. In the past some learners experienced education as something foreign to their culture and educational needs, which meant that exclusion instead of inclusion was the experience of the majority learners (Bouwer, 2011; Donald et al., 2010; Landsberg, 2011; Swart & Pettipher, 2011). The diversity within the South African society therefore adds to the complexity of inclusion, but can also provide a platform for transformation by becoming an important tool in creating a democratic society (Swart & Pettipher, 2011). This means that teachers need to take the learners' backgrounds and the challenges that some families face when involving them in their children's learning into consideration (Swart & Pasha, 2011) when designing learning activities. In other words, teachers must use the best approach to reach and teach each individual learner in the classroom to ensure that each learner's individuality is respected.

The success of inclusion is the responsibility of mainstream classroom teachers and by accepting the responsibility for teaching *all* the learners in their classes, they are also entitled to support (Halliday, 1998). Therefore, in addition to support from the DBST and the SBST, mainstream classroom teachers should be empowered with knowledge and skills regarding flexible and individualised teaching if they are to be able to teach in an inclusive classroom (Bornman & Rose, 2010). The document Guidelines for Inclusive Teaching and Learning was published in 2010 as a supplement to Education White Paper 6 of 2001. It broadens the understanding of key concepts in planning for diversity and aims to demonstrate, assist and support teachers in their planning process to address the diverse needs of their learners and fulfil the meaning of the notions that 'no two children are alike' and 'all children can learn' (Department of Basic Education, 2010). According to Education White Paper 6 of 2001, the implementation of inclusive education should be seen from a systemic perspective (Swart & Pettipher, 2011) where attention should not only be paid to the broader society, education system and the school, but the classroom as well (Mitchell, 2004). The classroom plays a significant role as inclusive education is not simply the physical placement of learners experiencing barriers to learning in mainstream classrooms, but also the restructuring of the curriculum, assessment, pedagogy and grouping of learners to ensure quality education for all (Mittler, 1999). As a grade 4 teacher, my biggest concern regarding inclusive education is the practical implementation of it. Even though I try to ensure that all the learners in my classroom participate in the lessons by interacting with me and the rest of the class, it does not necessarily mean that they will achieve success as I might not be giving them meaningful and relevant support. I want all my learners to achieve to their full potential by increasing their learning and participation while minimising the barriers to their learning (Booth, Ainscow, Black-Hawkins, Vaughan & Shaw, 2000) and therefore I am seeking a way forward to practically achieve this in my classroom.

It seems to be crucial for policy makers to understand teachers' perceptions and attitudes to the transformation process as a paradigm shift cannot be achieved through merely implementing a new policy. The NCSNET and the NCESS (Department of Education, 1997) identified certain barriers to learning that might have an impact on the implementation of inclusive education in South African schools. Inflexibility in curriculum and educator training (e.g. where the diversity of learning needs is not catered for) and inadequate provision of support services to schools (e.g. teachers that have to accommodate the diverse

learning needs of learners in one class without the necessary support) are two barriers that have particular reference to this study (Department of Education, 1997). According to Stofile and Green (2007, in Landsberg, 2011) and Swart and Pettipher (2007, in Landsberg, 2011) teachers need more time to plan activities for their diverse classrooms; systematic and intensive training; teacher assistants and support from specialised people; administrative support; and assistive devices for learners with disabilities.

Support must therefore be organised in such a way that a range of barriers to accessing the curriculum are alleviated (Department of Education, 2001), without deskilling existing good practice (Mittler, 2000). Since many teachers in South Africa have a negative attitude towards inclusion because they are not adequately trained to meet the needs of diverse learners (Nel, Müller, Hugo, Helldin, Bäckmann, Dwyer & Skarlind, 2011) support is firstly required for the teachers to change their view and attitude towards inclusive education.

Walton (2012) is of the opinion that differentiated teaching is the answer to support teachers in meeting the diverse abilities and needs in South African schools. Differentiated teaching can therefore make inclusive education a reality by allowing for all learners to learn on different levels and in different ways in the same classroom. Bornman and Rose (2010) also mention differentiated teaching as a support strategy to achieve inclusion; quality and appropriate education for all. It is thus important to think more deeply about the complex concepts of 'education', 'all' and 'inclusion' as it is critical to the development of appropriate and sustainable policies on teaching and learning (Miles & Singal, 2010).

Even though it is believed that inclusive education in South Africa has a role to play in the development of an inclusive society, there seems to be a gap between policy and practice. Literature identifies the existence of a gap between policy and practice in South Africa, especially when it comes to inclusive education and the provision and delivery of learning support to learners experiencing barriers to learning in the mainstream classroom (Walton, Nel, Hugo & Muller, 2009). The implementation of policy initiatives is among others hindered by the lack of teachers' skills and knowledge in differentiating their teaching to address a wide range of learning needs (Dalton, Mckenzie & Kahonde, 2012). Learning support services require the retraining of mainstream teachers and support personnel. It also strengthens the need for co-operation between mainstream and learning support teachers. The implementation of CAPS therefore not just demands the constant development and training of mainstream teachers to enable them to address the diverse needs of all learners in the mainstream class, but a period of consolidation and implementation is required to start the long process of closing the gap between policy and practice (Walton et al., 2009). Since the research base on inclusive education in this country seems to be small (Walton et al., 2009) more research needs to be done with regards to teachers adapting their teaching practice within the new CAPS curriculum in order to make inclusive education a reality.

When the newly implemented curriculum's view of providing learning support in the mainstream is more firmly established, it will provide a different way of looking at inclusive education and will encourage the

notion that the curriculum can be adapted to respond to the diverse learning needs in the mainstream classroom. It is therefore important to have a closer look at the grade 4 classroom in the South African Education system and what can be done to sustain policies on teaching and learning in supporting these learners.

2.4 THE SOUTH AFRICAN EDUCATION SYSTEM

The political transition in South Africa brought along a change in the education system and consequently a number of changes in the focus of curriculum requirements (Department of Education 2002; Department of Basic Education, 2011a). Since 1996 the Constitution of the Republic of South Africa (Act 108 of 1996) provides the foundation for policy development in South Africa (Department of Education, 2002) and therefore education policy documents, in line with the values that underpin the Constitution, commit to the achievement of equality, non-discrimination and the participation of *all* learners (Department of Basic Education, 2011a). Education White Paper 6 pays particular attention to appropriate strategies to promote instructional and curriculum transformation.

In trying to address the inequalities in the education system, a new outcomes-based curriculum (Curriculum 2005) (Department of Education, 1997) propagating a learner-centred constructivist approach to teaching and learning was introduced in 1998. A review of Curriculum 2005 in 2000 directed the way forward for the design of the National Curriculum Statement (NCS) (Chisholm, 2005, in Ramnarain & Fortus, 2013). Although the NCS integrated learning areas with each other and to the everyday life, the pace that teachers had to follow to get through the prescribed curriculum and the sequence in which to introduce concepts and topics were not clear (Taylor, 2001). This meant that teachers were free to teach the curriculum as they saw fit, but it seemed to be counter-productive as learners constantly performed poorly in both national school assessments and international comparison achievement tests (Ramatlapana & Makonye, 2012) which drew widespread criticism (Taylor & Vinjevold, 2003). These criticism and other concerns, such as that the curriculum was failing disadvantaged learners, led to the implementation of the Curriculum and Assessment Policy Statement (CAPS) (Department of Basic Education, 2011a), which is based on Bernstein's (1996) mode of strong classification and framing, meant to make the curriculum knowledge visible and explicit to all learners (Ramatlapana & Makonye, 2012).

In 2012 the two individual National Curriculum Statements for Grades R-9 and Grades 10-12 were combined in a single document which is now known as the National Curriculum Statement Grades R-12. The National Curriculum Statement for Grades R-12 aims not only to build and update the previous curriculum by providing clearer specifications of what is expected to be taught and learnt on a term to term basis, but also aims to facilitate every learner in reaching his/her full potential. This resembles Vygotsky's concept of the ZPD in that the curriculum encourages a teacher to support a learner in the best possible way as to reach his/her full potential (Department of Basic Education, 2011a).

According to the foreword of the CAPS documents by the minister of Basic Education, Mrs Angie Moshekga, The National Curriculum Statement Grades R-12 represents a policy statement for learning and teaching in South African schools and comprises the following:

- Curriculum and Assessment Policy Statements (CAPS) for all approved subjects listed in this document;
- National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R – 12; and
- National Protocol for Assessment Grades R – 12 (Department of Basic Education, 2011a)

CAPS is gradually been implemented since 2012. In 2012 the new curriculum was implemented in the Foundation Phase (Grades R-3) and in Grade 10. During 2013 the implementation process will proceed in the Intermediate Phase (Grades 4-6) and Grade 11 and in the final stages of implementation it will target the Senior Phase (Grade 7-9) and Grade 12 in 2014. Since one of the most significant barriers to learning is in fact the school curriculum (Department of Basic Education, 2011a), CAPS promotes optimal learning by requiring all schools “to offer the same curriculum to learners while simultaneously ensuring variations in mode of delivery and assessment processes to accommodate all learners” (Department of Basic Education, 2011a, p.4).

CAPS has thus been introduced to strengthen the NCS in order to improve the quality of teaching and learning in South African schools and assist the teacher in doing so by being more prescriptive in the sense that it demands uniformity in its implementation across the country. Subject topics and concepts to be taught are explicitly set out within a two week cycle and pacing and sequencing is very clear (Department of Basic Education, 2011a).

It is argued that CAPS will be more helpful in teaching low achieving learners, as learners from disadvantaged socio-economic backgrounds learn more effectively from structured, teacher directed instruction (Lubienski, 2003 in Ramatlapana & Makonye, 2012). Ramatlapana and Makonye (2012) however contend that it appears as if the curriculum has now gone from too much flexibility for teachers to too little flexibility. Assessment tasks for each subject are now uniform across the country (Department of Basic Education, 2012) and the textbooks to be used are also prescribed. Early arguments against CAPS therefore appear to be that the curriculum is too prescriptive which may restrict teachers’ professional autonomy.

As barriers to learning may arise from the different aspects of the curriculum, which includes, language, pace of teaching, content, and time available to complete the curriculum (Department of Education, 2001; Swart & Pettipher, 2011), it is important to employ differentiated teaching in delivering the curriculum to enable access to learning for a diversity of learners (Department of Basic Education, 2011a). The Department of Basic Education therefore published the guidelines: Responding to Diversity through the National

Curriculum Statements (NCS) to provide teachers among others, strategies on how to respond to learner diversity in the classroom (Department of Basic Education, 2011c).

The above document has recently been redrafted to incorporate curriculum changes in the Curriculum and Assessment Policy Statement (CAPS) and the revised document forms part of the CAPS orientation programme for teachers and education officials in all the provinces (Dalton et al., 2012). According to this document, curriculum differentiation offers a new view of teaching and learning and must therefore be seen as an innovation rather than a recipe (Department of Basic Education, 2011a). In 2007 it has been found that the implementation of inclusive education is slow and only partial (Wildeman & Nomdo, 2007). However, the hope remains that policy documents that have been published since then will give stimulus to the implementation of inclusive education.

As the curriculum is central to inclusion in the classroom, successful inclusion requires a major reorientation from a special needs perspective to an inclusive perspective. It also requires the transformation of teacher training (Naicker, 2005). Therefore true enabling can only happen if all teachers have a thorough understanding of planning for diversity as well as the knowledge and ability to recognise and address barriers to learning (Department of Basic Education, 2011c). Teachers need to understand the link between inclusive education and differentiated teaching and how to effectively differentiate in the classroom to the benefit of all learners. This is especially central in accommodating differences such as additional content subjects, formal examinations, and more than one teacher responsible for teaching the class, in the transition between the Foundation and Intermediate Phase.

2.5 THE MIDDLE CHILDHOOD YEARS

The South African Schools Act (Act No.84, 1996) states that school attendance is compulsory and learners must attend school from the first day of the year in which they turn seven until the last school day of the year in which they reach the age of fifteen years or Grade 9, whichever occurs first. Parents may, however, enrol their child in school should the child turns six before June of the school year (Department of Education, 1996). This means that the primary school system in South Africa accommodates the child in the middle childhood period in two schooling phases. Firstly in the Foundation Phase (Grades 1-3, age six to nine/ ten) and then the Intermediate Phase (Grades 4-6, age nine/ten to twelve) (Department of Education, 1996). This particular study focuses on grade 4 learners usually ranging between the ages of nine and eleven.

Grade 4 is the first year of the Intermediate Phase. During their grade 4 year learners are first introduced to different subjects and a love for subject content has to be nurtured. In this way they move away from the acquisition of basic skills in certain subject areas such as their Home Language, an Additional Language, Life Skills and Mathematics acquired under the watchful eye of one classroom teacher, to having different teachers for some of their content subjects depending on the policy of the respective school. The subjects for

grade 4, as specified in the CAPS documents (Department of Basic Education, 2011a), include Home Language, Additional Language, Mathematics, Natural Science and Technology, Social Sciences and Life Skills. Grade 4 teachers have to determine whether a learner needs additional support to successfully master the subject content. This highlights the importance and value of differentiated teaching in the classroom to be able to accommodate the diversity of learning abilities and needs and render the necessary support to all learners to ensure the optimising of learning in this important stage of the learners' school careers. However, being able to implement differentiated teaching successfully in the classroom will be particularly challenging without the necessary support and guidance.

It seems important to discuss the characteristics of the middle childhood years as grade 4 learners find themselves in this particular stage of development (Louw, 1997; The South African Schools Act, 1996). The middle childhood years have been briefly discussed in Section 1.4.5 and reference was made to the work of theorists such as Piaget, Erikson and Vygotsky. According to Coll and Marks (2009) literature tends to neglect the middle childhood years as a developmental period and therefore we know less about the normative processes of these years in comparison to other periods of development. Seeing that the theoretical framework for this study is Vygotsky's social constructivist theory more attention will be paid to his views regarding this particular developmental period.

Freud and Piaget saw middle childhood as a middle point in development, where children consolidate the advances they have made during the period of growth in their preschool years, and prepare for the dramatic changes of adolescence (Eccles, 1999). Vygotsky approached development differently from Piaget. Piaget believed that cognitive development has a specific ending in goal and consists of four main stages of cognitive growth, namely, sensorimotor, pre-operational, concrete operations, and formal operations (Louw, 1997; Seifert, 2011), whereas Vygotsky believed that the development process that begins at birth and continues until death is too complex to be defined by stages (Hausfather, 1996). Instead he depicts it as a life-long process dependent on social interaction where social learning actually leads cognitive development (Riddle, 1999). Erik Erikson, on the other hand, stressed the importance of middle childhood as a time when children move from home into wider social contexts that strongly influence their development. He proposed the 'eight stages of man' and viewed the years between 7 and 11 as the 'industry versus inferiority' stage (Louw, 1997). By a 'sense of industry' is meant that children should learn to cooperate with adults and their peers. Children who do not master the skills required in this stage are likely to develop a 'sense of inferiority'. The involvement in formal schooling, which begins during these years, therefore introduces children to new social roles in which they earn social status by their competence and performance (Eccles, 1999). Vygotsky agreed with Erikson in the sense of the influence that social development has on development, but his writings focused more on how a child's thinking is influenced by relationships with others who are more knowledgeable than the child him/herself. He proposed that when a child is learning a new skill or solving an unfamiliar problem, he or she can perform better if accompanied or supported by a

knowledgeable adult or a more knowledgeable peer than if performing alone (Seifert, 2011). This makes the importance of schooling evident.

Although Vygotsky did not propose a specific set of developmental stages, he did suggest some activities fundamental to the different developmental stages. He argues that each developmental period has its own leading activity. These leading activities include ‘affliction’ for infancy, ‘play’ for early childhood, ‘learning’ for middle childhood, ‘peer activity’ for adolescence, ‘work’ for adulthood and ‘theorizing’ for old age (Karpov, 2003, p.138).

Vygotsky viewed school instruction as being the most important avenue for mediated learning and therefore an important contributor to children’s development during middle childhood (Karpov, 2003). But he also noted that it is essential to realise that “the only good kind of instruction is that which marches ahead of development and leads it” (Vygotsky, 1986, in Karpov, 2003, p. 148). Brauer (1993, in Karpov, 2003) is of the opinion that modern school instruction has many shortcomings but researchers like Segall, Dasen, Berry and Poortinga (1999) have shown that societies that did not attend to schooling have poor results in performing at the level of formal-logical thought.

In contrast to Piaget’s general disregard of the role of school instruction in children’s cognitive development, Vygotsky viewed school instruction as the major determinant of development of children’s ability to operate at the level of formal-logical thought. This is of particular importance as towards the end of middle childhood children generally develop the ability to successfully operate at the level of formal-logical thought (Karpov, 2003).

As mentioned, middle childhood refers to the years between early childhood and adolescence and is known to be a critical time of transition for it is not just the learners’ bodies that are changing, but their minds as well (Wild, 2012). It is also a developmental stage for which there is increasing concern as it is a period of significant cognitive, physical, emotional and social development (AACPS, 2000; Advisory Committee on Population Health and Health Security (ACPHHS), 2004; Charlesworth et al., 2011; Louw 1997). At the beginning of the early twentieth century a fundamental shift occurred in the Western world’s perception of children. Middle childhood became categorized as ‘school age’ and learners’ education became a societal priority (Charlesworth et al., 2011; Papalia, Olds & Feldman, 2006). Therefore the school environment serves as an important resource for the physical, cognitive, emotional, and social tasks of middle childhood (National Board for Professional Teaching Standards (NBPTS), 2012).

There are two particularly significant developmental transitions for learners in middle childhood. At the beginning of middle childhood they enter the formal education system which is an important social transition as well as a key event for their cognitive development (ACPHHS, 2004) as also emphasised by Vygotsky. Towards the end of the middle years, children move into adolescence (ACPHHS, 2004). This puts grade 4 learners in the middle of these two transitions, even though learners enter adolescence at varying ages and

for many learners the experiences traditionally associated with the 'teen' years are currently occurring earlier (ACPHHS, 2004).

The manner in which emotional, social, cognitive and physical development fits into the school curriculum is also of importance in the learning process as learners do not all learn in the same way (Winkler, 1998, in Nel & Theron, 2008). Learners have varied strengths and weaknesses and they differ in their cognitive, communication, physical and social development. Their sensory abilities also differ, which means they differ in the way they approach learning activities and their ability to learn different activities (Schmidt & Harriman, 1998, in Nel & Theron, 2008). Although learners differ in the above mentioned ways they all aim to achieve competence, independence and to relate well to others (ACPHHS, 2004; Eccles, 1999). They learn new skills, make autonomous decisions and become increasingly in control of their own emotions and behaviour as cognitive and biological changes transform their bodies and minds (Eccles, 1999; NBPTS, 2012).

Cognitively, learners begin to reason around the age of six. As they move through the middle years they develop key conceptual skills (Louw, 1997). They do not only acquire fundamental skills like reading and mathematics, but also develop the skill of self-awareness and the ability to see the perspective of others (ACPHHS, 2004; Eccles, 1999). As they approach early adolescence their ability for abstract thinking increases and they gradually become able to consider the imaginary as well as the actual (ACPHHS, 2004; Davies, 2011; Eccles, 1999; Louw, 1997).

Learners' language abilities also increase. Around the age of six and seven a learner understands about 10 000 words while by the time they leave grade 4, at the age of ten or eleven, their vocabulary would have increased to approximately 40 000 words (Anglin, 1993, in Wild, 2012). Learners in grade 4 can also learn faster and remember more than younger learners. Visual memory tests show five year olds remembering the colour of one or two blocks whereas ten year olds can remember the colour of four or five blocks (Riggs, McTaggart, Simpson & Freeman, 2006). This shows that academically more can be asked of the learners when they reach grade 4, but teachers still have to differentiate their teaching to enable learners to show what they can do, rather than what they cannot do (Walton, 2012).

As briefly introduced in section 1.4.5, Piaget called the stage of cognitive development of middle childhood learners 'concrete operational'. By this is meant that learners can only think logically if the problem/object they are thinking about is real and concrete. In other words, they need the opportunity to be able to check what they are doing using actual objects (Wild, 2012; Louw, 1997). It is therefore important for me, as a teacher, to take this into consideration when planning my lessons so that I can focus my lessons on concrete rather than abstract thinking. I have to allow space and time during my lessons for learners to actively engage with new learning material themselves (Wild, 2012).

By middle childhood the development of a child's brain and its functioning has been largely shaped by earlier experiences and development, but two major growth spurts still take place. The first growth spurt starts around the age of six, whereas the second begins around the age of ten, most likely during a learner's grade 4 year. These growth spurts involve the development of new synapses which creates more connections among neurons (Wild, 2012). These changes in brain structure make it easier for learners to control their attention and play a role in organised and complex thinking (Fischer, 2008). Also the process of myelination, brain plasticity continues, which makes brain structure and functioning capable of growth and modification throughout life possible (Wild, 2012; Shonkoff & Phillips, 2000).

By allowing for continuing positive and diverse learning opportunities in my class I can stimulate continued brain growth and optimal modification of existing structures. Variations in brain development and functioning play a critical role in learning abilities and disabilities as well as patterns of behaviour (Bergen & Coscia, 2001). Therefore, during middle childhood, identification and potential diagnosis of special needs such as Autism Spectrum Disorders and Attention Deficit Hyperactivity Disorder, typically peak (Charlesworth et al., 2011) and I need to be aware of the influence that this might have on the learners' learning.

In recent years gender differences in brain functioning, and possibly learning styles, have become a point of interest (Charlesworth et al., 2011). This interest has been stimulated by evidence which suggests that boys are currently at higher risk than girls for poor literacy performance, special education placement, and school drop-out (Weaver-Hightower, 2003, in Charlesworth et al., 2011). Sax (2005) has argued that brain-based cognitive processing, behaviour, and learning style differences may be responsible trends observed in gender differences in educational achievement. Today's schools, in particular the early years of primary schooling, apparently privilege a predominately 'female' learning style (Sax, 2005). Evidence, however, suggests that boys continue to receive advantage in a subtle fashion throughout the schooling experience (Sadker & Sadker, 1994; Guzzetti, Young, Gritsavage, Fyfe, & Hardenbrook, 2002, in Charlesworth et al., 2011). While girls may perform better than boys in certain areas, such as literacy (reading and writing), there is evidence that boys generally continue to perform better than girls in Mathematics, Science and Technology (Dee, 2007). These are aspects that need to be taken into consideration when planning to differentiate my teaching.

Although physical development during this phase occurs relatively slowly it remains steady. This means that learners' bodies and brains still continue to grow, which leads to improvements in attention, thinking, and motor skills (Wild, 2012). Gender differences in motor skills increase (Thomas & French, 1985, in Wild, 2012). Boys tend to be better than girls on gross motor skills (e.g. throwing and kicking) whereas girls tend to be better at fine motor skills (e.g. drawing and writing) and activities that include both movement and balance (e.g. skipping) (Wild, 2012). Differences between the physical development of boys and girls can be

seen not only due to physical differences, but also due to cultural expectations and gender stereotypes (Wild, 2012).

During middle childhood, learners spend less time under the supervision of their parents, come increasingly under the influence of other adults and spend more time socialising with peers (ACPHHS, 2004; Berger, 2003; Wild, 2012). Success is very important in the school environment, as it develops a learner's self-esteem. Positive conditions and interactions must exist in a learner's life in order for optimal emotional and social competencies to develop (Charlesworth et al., 2011; Eccles, 1999). This makes the importance of social interaction in the classroom and learning process evident.

Research indicates that schools are critically important to learners' healthy development as success in school is an important component of the ability to participate fully in contemporary societies (ACPHHS, 2004). The quality of children's social relationships during the middle years is important. It enables children to deal with stressors in their lives, as other people, not only parents start to make a difference (ACPHHS, 2004).

Learners become more aware of ethnic identities and other aspects of diversity during their middle childhood years (Charlesworth et al., 2011; Coll & Marks, 2009). They experience this phase of life differently based not only on differences in the surrounding environment, such as family structure and socioeconomic status, but also based on their personality differences (Eccles, 1999). I need to be aware of the fact that particular personality and learning preferences may be valued or even seen as problematic, in each of the learners' expanding social settings (Berk, 2002). For example, a child who comes from a long line of doctors may not get the support from his/her family when portraying a bodily-kinaesthetic intelligence, whereas a father who is a graphic designer may completely accept the fact that his son/ daughter is not good at Mathematics.

The most widely recognized developmental task of this period is likely to be the acquisition of feelings of self-competence (Davies, 2011). Adequate development during these years is judged by the learner's ability to successfully complete and master increasingly difficult cognitive tasks, known as their school performance (Davies, 2011). Learners are thus inclined to evaluate themselves in a positive manner if they receive encouraging feedback from parents, classmates, other friends, and teachers in their academic and social environments (Charlesworth et al., 2011). In light of this, it is important that I am informed about certain contributors, such as learning disabilities, that may compromise my learners' abilities to learn (Davies, 2011), so that I can differentiate certain tasks, they can be assessed fairly, and receive positive feedback.

Since middle childhood is a critical period for children to acquire a sense of competence I can use my understanding of middle childhood development to meet my learners' needs and promote learning (NBPTS, 2012). Gardner and his multiple intelligences theory calls for matching teaching strategies to the needs and strengths of each learner (Kagan & Kagan, 1998). Involved learners who feel strongly connected to their schools do better academically and socially (ACPHHS, 2004) and differentiation seems to be the answer to

cater for each learner's needs. By differentiating my teaching I can support the learners in my class in developing a positive self-esteem and sense of competence by providing a variety of activities that allow learners with different readiness levels, interests and learning preferences to succeed; irrespectively of their gender, race, socioeconomic status or any barrier to learning that they might experience.

With the multiple references to differentiation in the sections above, a comprehensive discussion will follow which aims to provide a detailed description of differentiated teaching and all that it entails.

2.6 DIFFERENTIATED TEACHING

A brief explanation of differentiated teaching was given in Section 1.4.1, which explained some of the more generally accepted and common understandings of the concept. The following section aims to present a more in depth explanation of differentiated teaching, as well as to provide some historical and theoretical background about the development of this teaching approach.

2.6.1 A BACKGROUND TO DIFFERENTIATED TEACHING

Some may think that differentiated teaching is just this century's popular idea, but in truth effective teachers have been differentiating their teaching for ages - whether or not they name it such (Heacox, 2009). The concern for attending to the needs of particular learners is described in writings about teaching in ancient Greece and Egypt; life in the one-room schoolhouse; and in all the examples of teaching plans that are adjusted to meet the needs of individual learners (Anderson, 2007; Reach Every Student, 2008). In modern society differentiated teaching first began as a way of addressing the needs of academically advanced learners in heterogeneous settings through independent studying and mentoring (Westberg & Archambault, 1997) and was later adapted by special education teachers as a way to modify the curriculum for all learners with special needs, by using techniques such as multi-age and flexible groupings, and individualized instruction (King-Sears, 1997). Differentiated teaching is, however, receiving more and more attention and gaining greater significance as today's classrooms reflect astonishing levels of diversity within every facet of the learners' contexts. Teachers also report that the diversity of learners seem to increase each year, which makes differentiated teaching a possible answer for meeting wide-ranging needs (Heacox, 2009; Kanevsky, 2011a).

Tomlinson (2001) warns against teachers still viewing differentiated teaching as the chaotic individualized instruction of the 1970's and that differentiated teaching is purely another way to provide homogeneous grouping, and adjusting the same lesson for everyone (Tomlinson, 2001). Instead differentiated teaching originates from beliefs about differences among learners and views that learning can only occur when the learner makes meaning out of information; the theory that guides differentiation is thus constructivism (Anderson, 2007; Benjamin, 2003). Differentiated teaching also integrates research done on brain development and multiple intelligences; the findings of research on inclusion; and the influencing factors of

learner readiness, interest, and learning preferences toward learners' motivation, engagement and academic growth (Anderson, 2007; Tomlinson & Allan, 2000).

Differentiated teaching has become quite the buzzword internationally. Searching the internet it is clear that the number of resources available for teachers on differentiation is growing. Differentiated teaching has been noted in educational literature since the 1950's (Good, 1959, in Kanevsky, 2011a), but the research on this teaching approach is fairly new (Turville, 2007). However, research on components of differentiated teaching such as multiple intelligences and cooperative learning have been around for many years (Turville, 2007). Some research has been done specifically on differentiated teaching; involving several studies on the implementation of differentiated teaching throughout a school building or district, the strategies that are witnessed and the effect on the school or district overall, but studies on the effect of using differentiated teaching on individual learners are limited. Generally, research has found that the impact on schools, from elementary to high school, has been positive (Lauder, 2011). The gap in the research seems to lie in tying together the overall idea of differentiated teaching and the strategies that are considered appropriate to Intermediate Phase learners (Lauder, 2011).

As differentiation is seen as a philosophy of a specific way of thinking about teaching and learning, which includes many different fields such as multiple intelligences, brain research, and cooperative learning, it is difficult to define precisely (Turville, 2007). There are thus many different definitions of differentiated teaching. Willis and Mann (2000, p. 1) defines differentiated teaching as

“a teaching philosophy based on the premise that teachers should adapt instruction to student differences...teachers should modify their instruction to meet students' varying readiness levels, learning preferences, and interests”.

Tomlinson's (2004, p.188) definition of a more generic process of differentiating teaching for all learners is

“ensuring that what a student learns, how he/she learns, and how the student demonstrates what he/she has learned is a match for that student's readiness level, interests, and preferred mode of learning”.

Ferguson (2008, p.114) calls it a practice that is “fundamentally more inclusive of much more human diversity”. The theory of differentiated teaching clearly offers a philosophy of how to think about teaching, learning and learners, based on the belief that teachers should, and can, adapt their teaching to meet learner differences (Hess, 1999; Tomlinson, 1999a, 2001). Though there does not seem to be one specific way to describe it, there are several factors that are important in differentiated teaching (Turville, Allen & Nickelsen, 2010).

In its recent application, a differentiated classroom is portrayed as widely heterogeneous, dynamic, purposeful, and intense. In South Africa the content and skills necessary for learners to acquire are set out in the new CAPS curriculum. The curriculum therefore informs teachers on what learners need to know and

accomplish, whereas differentiated teaching practices help to get learners there, while at the same time teaching them how to learn in a meaningful way (Benjamin, 2003). Differentiated teaching requires teachers to understand their own teaching and learning preferences, personality types, and strengths and weaknesses (Benjamin, 2003), to know the learners they teach, and to have a thorough understanding of the philosophy of differentiated teaching so that they can find effective ways of meeting the wide range of learners' needs in their classrooms (Turville et al., 2010).

According to Heacox (2009) differentiated teaching is seen as the way forward as teachers will need to differentiate their teaching until the day they walk into classrooms with all their learners at the same point of readiness, sharing the same interests and learning preferences. The following section looks at how to effectively differentiate teaching so as to meet the wide range of learners' needs and optimise their learning.

2.6.2 HOW TO DIFFERENTIATE TEACHING

Learning how to set up different learning activities and organising learning options to cater for the diverse learners in a classroom is not a simple task and can be overwhelming. Therefore the key to not getting overwhelmed is to “start small, but start somewhere” (Heacox, 2009, p.11). Moving towards differentiated teaching is therefore a long-term change process and cannot be viewed as a quick recipe or strategy for a lesson plan, for it is a different way of thinking about learners, their learning and the teaching process. Since differentiation is “founded on best-practice instruction” (Tomlinson, 2000, p. 5) it can be seen as an on-going reflective process (Heacox, 2009) which will lead to professional expertise. Employing differentiated teaching successfully means to “...understand the pedagogical ramifications of academic diversity, and have the skills to respond to it appropriately” (Tomlinson, Callahan, Tomchin, Eiss, Imbeau & Landrum, 1997, p. 270). According to Wormeli (2003) teachers should give themselves a minimum of three years to be fully competent in differentiating their teaching.

As teachers we constantly ask ourselves what we can do in order for *all* our learners to make continuous progress and optimise their learning. The answer to this seems to be to differentiate our teaching. Differentiated teaching depends on teachers having clear ideas about the concepts, principles, ideas, and skills that their learners will need and use in life (Tomlinson, 1999b). However, before using differentiated teaching as a philosophy that provides multiple approaches to content, process, and product, through a blend of whole-class, small group, and individual instruction (Tomlinson, 2001), it is essential to realise that learning experiences take place in a learning environment. Therefore differentiated teaching entails creating a classroom environment that embraces learning diversity (Heacox, 2002).

The learning environment is the way the classroom works and feels (Tomlinson, 2000). It has physical and psychological features and can be improved in order to maximise the benefits of differentiating the content, process and product of learning (Kanevsky, 2011b). The learning environment includes physical aspects as well as interpersonal and affective aspects. Physical aspects include comfortable seating, enough space to

move comfortably, efficient light and passable air circulation. Interpersonal and affective aspects include good communication and learners feeling safe and experiencing a sense of belonging. According to Wormeli (2007), the learning environment should be set up for differentiated teaching by providing separate spaces for individual work, group work or small group instruction. After considering the learning environment, the next step entails modifying the content, process and product.

Turville (2007) notes that there are many models and conceptualizations of differentiated teaching, and that it is useful if teachers use some type of framework so that their teaching is both proactive and learner centred, which means that planning for differentiation can occur in an effective and strategic way. The following framework has been adapted from the Differentiated Instruction Framework developed by Carol Ann Tomlinson (2001) and illustrates how to differentiate teaching. What follows in Figure 2.6 is a graphic presentation of this particular framework.

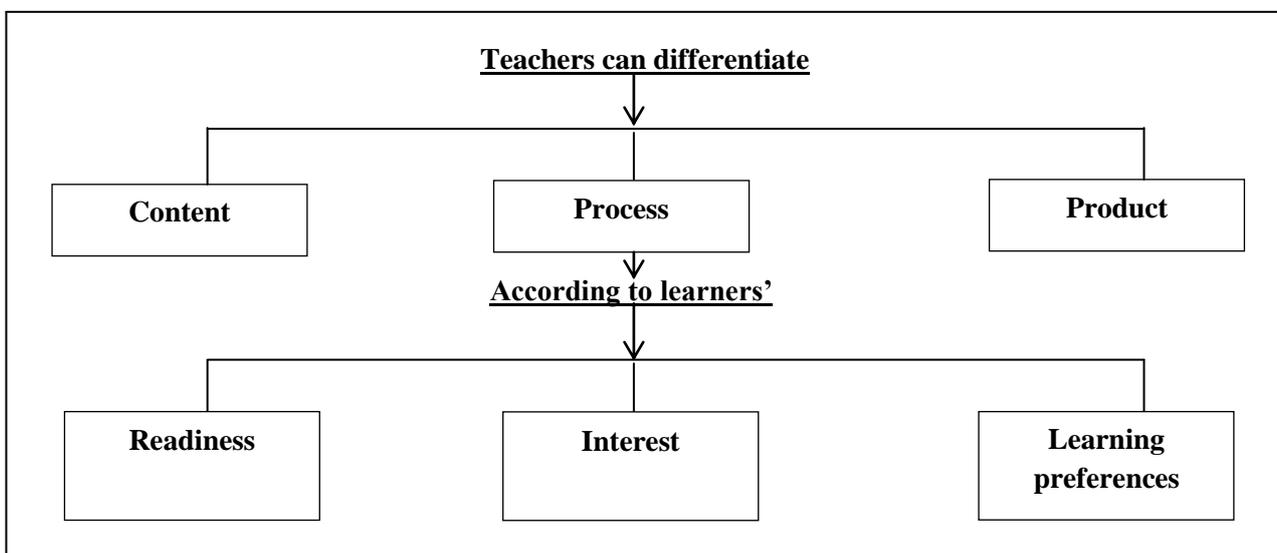


Figure 2.6: Differentiated Teaching Model (Adapted from Tomlinson, 2001, p.25)

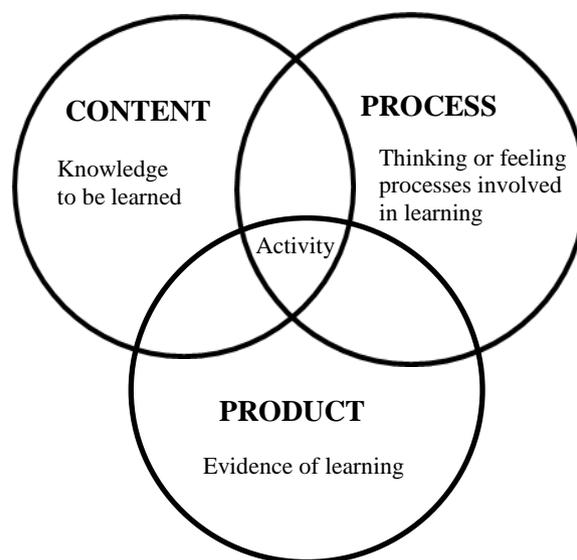
The *content* consists of the new knowledge, skills and behaviours that we want learners to learn in a given activity or how the learner will get access to the information. It can also be drawn from any subject and may present itself in a number of forms (e.g. facts, actions or procedures) (Kanevsky, 2011b; Tomlinson, 2000). Content guidelines as set out in the Curriculum and Policy Statements (CAPS) (Department of Basic Education, 2011a) should drive the content in our classrooms (Inman & Roberts, 2006). Differentiation then comes into play when the teacher takes the learners' interests, learning preferences and readiness levels into account when explaining the content that must be learned.

The *process* entails the activities in which the learner engages in order to make sense of the content (Tomlinson, 2000) or the actions (thinking, feeling or physical actions) which learners then use to develop their understanding of the curriculum content (Kanevsky, 2011b). When we look at what we want the learners to accomplish cognitively, in other words the kind of thinking that we want to occur, Bloom's Taxonomy (1956) which involves cognitive thinking skills and the revised version by Anderson and

Kratwohl (2001) which focuses on the action of thinking are of importance (Seifert, 2011). This correlates with differentiation by making useful distinctions among possible kinds of knowledge needed by learners, and therefore potentially helps in selecting activities that truly target learners' zones of proximal development, in the sense meant by Vygotsky (Seifert, 2011). As the ZPD of learners differ some learners may only be able to answer lower order questions by recalling information where others may be challenged to think on higher levels by evaluating and exploring (Inman & Roberts, 2006). Although the content is essentially the same, their thinking - how they process a concept - differs greatly, which is critical for progress to occur (Inman & Roberts, 2006). These learning processes thus include the way learners find and work with information and resources, as well as the way in which they interact with their teacher or peers (Kanevsky, 2011b).

The *product* has to do with culminating tasks and activities that ask the learner to rehearse, apply, and extend what he or she has learned in a module or unit; and how we want the learners to show what they have learned (Tomlinson, 2000). This can be linked to what Vygotsky called *externalisation*. Differentiated learning occurs when teachers encourage their learners to demonstrate their learning in products that match their learning preference or interest (Inman & Roberts, 2006).

Any one of these learning components can be differentiated so that a match is made between the learner and learning (Inman & Roberts, 2006). The following figure represents the relationship among these learning components.



LEARNING ENVIRONMENT (physical, psychological)

Figure 2.7: The interdependent relationship between the learning components in the curriculum (Adapted from http://possibilitiesforlearning.com/?page_id=113 on 1 July 2013)

In Figure 2.7 the overlapping sections indicate the interdependence of the learning components. This means that changes in one learning component are likely to have consequences for the others. For example, if the

content is made more complex, learners are likely to think about it differently. Their thinking is likely to become more complex as well (Kanevsky, 2011b).

According to Turville et al. (2010) there are three things you have to find out about your learners in order to make differentiated teaching both doable and successful: what interests them, how they learn best, and how ready they are to learn a specific concept. Once I know these things about my learners I can adjust the kind of support they may require to access the learning content and the process of how they learn. The process of how they learn can include things such as their learning styles, multiple intelligences and cooperative learning. I can also adjust the way my learners will demonstrate their learning by considering what products they need to create or how they will demonstrate their learning outcomes (Turville et al., 2010).

How to decide on the *what* to differentiate, or even deciding whether it is necessary to make certain adaptations in a lesson, will thus be dependent on the readiness, interests, and learning preferences of the learners in my class. Once these decisions are made, as the teacher, I will have to employ strategies to meet my learners' needs. This often entails both flexible and strategic grouping of learners (Turville, 2007).

The first component of differentiation, as illustrated in the differentiated teaching model (Figure 2.6), is *readiness*. This concept has been briefly discussed in Section 1.4.2 and by this is meant that I will have to adjust my teaching and strategically group my learners according to their readiness levels. One way to meet this challenge is through intentionally designed lessons determined by pre-assessment (baseline assessment) or formative assessment. Assessment will indicate whether a learner is ready for a deeper level of understanding or needs additional support. It can also indicate whether additional strategies are necessary in order for the learner to understand the new learning. The goal of differentiated teaching according to learners' readiness levels is thus for all learners (also those who can be considered gifted) to be appropriately challenged so that success and academic growth can occur (Turville et al., 2010).

Tiered Lessons are seen as a way of differentiated teaching for learner success and is used when there is a gap between what learners are currently able to do and what is expected of them to learn. Heacox (2002, p. 91) describes Tiered Assignments as "differentiated learning tasks and projects that you develop based on your diagnosis of students' needs. When you use tiered assignments with flexible instructional groups, you are prescribing particular assignments to particular groups of students". Tiering is thus a way of matching teaching to learner needs and provides extra support or challenge in order for all the learners to explore concepts and reach a high level of engagement (Heacox, 2002; Turville et al., 2010).

Differentiated teaching may be seen as grounded in the social constructivist learning theory of Lev Vygotsky. As mentioned in sections 1.4.2 and 2.2, learners need to be working at different levels seeing that their Zone of Proximal Development (ZPD), the zone in which learning occurs, differs. Vygotsky (1988, in Turville et al., 2010) is of the opinion that teachers must group learners who have similar ZPD's to work on the same tasks, as this will optimise learning by having the learners accomplish a goal cooperatively.

Grouping learners to do work that is outside their ZPD will result in frustration and they will be unable to accomplish the learning task even though they have the assistance of others in the group. Although this supports the use of tiering as a differentiated teaching strategy teachers can differentiate teaching based on learner readiness in a variety of ways (Tomlinson & Allan, 2000, pp.9-10):

- By adjusting the difficulty of a task to provide adequate challenge;
- By adding scaffolding or models to a task to support learners' thought and work;
- By increasing or decreasing the learner's familiarity with a task based on the learner's proficiency level of the skills required for the task; and
- By varying direct instruction according to small-groups' needs.

The second component, introduced in Section 1.4.4, involves differentiating by *interest* (See Figure 2.6). According Tomlinson and Allan (2000, p.19) psychologists suggest that “interest is a doorway to learning” and research done by Ediger (2005), Ishee (2005), Morrow (2004), and Stone (1995) amongst others, support the link between interest and learner motivation.

Differentiating by interest uses learners' situational and personal interests to create choices to optimise motivation and engagement of learning (Turville, 2007). Situational interest arises from a particular situation, for example a specific topic being introduced, which seizes the learner's attention. Some factors that influence situational interest include the use of humour, originality, social interaction, and interactive activities (Bergin, 1999, in Turville, 2007), whereas personal interest entails that which a learner is internally motivated to learn. It makes sense that learners like to learn about things in which they are already personally interested or can relate to when they have a specific goal in mind. As a teacher I can make use of activities that address both types of interest by providing choices within a lesson that create either situational interest or personal interest (Turville, 2007). By offering a choice of activities learners experience less external control and more intrinsic motivation (Ishee, 2005). An increase in motivation also appears to combat disciplinary problems and disruptive behaviour in the classroom (Ediger, 2005). Having a level of curiosity about a topic or seeing the relevance of a topic can also help learners to persist with challenging tasks (Alexander, Kulikowich, & Jetton, 1994, in Turville, 2007). Even when tasks are a little complex, but support is sufficient, optimal learning can happen (Tomlinson, 2004). Therefore, even when tasks are more challenging, by allowing learners to make choices creates a sense of empowerment, autonomy and self-determination, and enables them to do their work more efficiently (Lause, 2004).

From the above it is apparent that for the teacher to be able to differentiate by means of interest, he/she needs to know and understand his/her learners. If learners are interested in what is being taught their level of motivation to learn is increased and as they participate in the learning activities at hand, they become more confident and competent with certain concepts and skills they need to master within that particular lesson (Turville, 2007).

Thirdly teachers need to consider their learners' *learning preferences*. This was briefly discussed in Section 1.4.3. Tomlinson uses the term 'learning profile' in her writings to mean learning preferences as used in this study. She defines a learning profile as a combination of the "ways in which we learn best as individuals" (2001, p.60). The learning profile can include concepts such as learning and personality styles, culture, gender, multiple intelligences, and learning environment preferences. Since these terms have been used and interpreted differently in literature, the term *learning preferences* will be used in a broad sense in this study to include learner learning styles and modalities, preferences, multiple intelligences, and other factors that determine how learners will respond to learning experiences.

Teachers must realise that learning preferences are not stagnant and therefore can develop over time taking the learners' previous and continuous experiences into account; there is no such thing as a good or bad learning preference; it is more about the match between the learner and the material/ method of learning. As learners differ in the strength of their preferences it means that some learners can switch easily between different ways of learning whilst others cannot (Zhang & Sternberg, 2005). This knowledge will help teachers in encouraging their learners to experiment with different types of tasks and activities, which in turn will support them in developing different ways of learning (Turville, 2008).

In general people do have a dominant learning preference but it is important for learners to acquire a balance between different learning preferences as their everyday classroom activities require them to utilise different kinds of thinking and approaches to learning (Turville, 2008). Teachers should therefore refrain from labelling learners with regard to their dominant learning preference but rather make a concerted effort to broaden the scope of learning preferences of each learner (Williamson & Watson, 2006). Although it is beneficial for learners to work in their areas of strength, when introduced to a new concept or challenging task, the teacher should simultaneously familiarise them with different ways of learning to challenge them to develop more ways of learning to ultimately reach a balance between learning preferences (Seifert, 2011). Therefore teachers must adapt their teaching preferences so as to expose learners to several ways of learning and to find a match between their teaching preferences and the learners' learning preferences.

Studies by Gardner (1999); Geimer, Getz, Pochert and Pullam (2000); and Greenhawk (1997) show that teaching to learning preferences can positively influence learning. Learners who are taught in a way that is a better match with their learning preferences outperform other learners, even if they are only assessed for factual memory (Zhang & Sternberg, 2005).

Utilising learning preferences as a way to differentiate, teachers have to keep in mind that it is not the only way to differentiate. Howard Gardner (2006), for instance, has never advocated a recipe for implementing his ideas on multiple intelligences and cautioned against the superficial application of his theory. Thus, no matter which model we use as teachers, we are under no circumstances allowed to initially 'label' learners according to their strengths and then simply carry on teaching in the same way. This will not assist learners in developing effective ways of learning (Seifert, 2011; Turville, 2008).

In light of the above discussion it now seems possible for the teacher to come to understand learning differences in the classroom better in order to incorporate specific techniques to optimise learning by choosing a framework for differentiated teaching in terms of learning preferences, learner readiness and learner interests. International research, however, indicates that only a small number of teachers make use of differentiated teaching in their classrooms. Researchers speculate that this tendency can perhaps be ascribed to trainee teachers witnessing only a few models of classrooms during their training where learner diversity is adequately addressed. Another reason may be that beginning teachers who enter the profession with goals of addressing learner differences change to one-size-fits-all teaching practices due to pressure and a lack of support (Reis et al., 1998; Tomlinson et al., 1997). It has also been noted that experienced teachers who begin implementing differentiated teaching eventually abandon it due to the amount of work as prescribed in the curriculum that has to be completed within a specific time slot or they fall under the pressure the school puts on performing on standardized tests (Kapusnick & Hauslein, 2001).

In 2010 research was done by De Jager (2011) to fore-ground the challenges that still occur while implementing differentiated teaching in South Africa, as determined in previous studies conducted by Engelbrecht (2006); Engelbrecht et al.(2006); Engelbrecht, Oswald, Swart, and Eloff (2003); Shalem (2003); Theron and Nel (2005); and Williams, Olivier, and Pienaar (2009), and provide possible solutions for including *all* learners in the learning situation. As the teacher stands central to the implementation of successful differentiated learning activities in an inclusive classroom, attention needs to be paid to the following: meaningful training in differentiated teaching during teacher preparation at tertiary level; support and guidance given during practical teacher training, especially when it comes to designing differentiated activities, and resources and disciplinary aspects that go hand in hand with differentiated learning activities; encouragement by the school's management team and colleagues is required to prevent negative attitudes about differentiated practices; putting a support network, such as speech therapists, physiotherapists, occupational therapists, psychologists and class assistants in place to support teachers; and more time for the teacher in his or her personal/daily instructional schedule to participate in constructive professional development (Bradshaw & Mundia, 2006; De Jager, 2011; Engelbrecht & Green, 2001; Lee; 2009; Shalem, 2003; Williams, 2007). It is therefore of the uttermost importance that teachers first become ready in their own practices before they move towards differentiated teaching (Hess, 1999).

Since differentiated teaching is explicitly recognised as a way to meet individual needs in South African inclusive schools (Walton, 2012) this study, resting on the underlying principles of social constructivism, aims to research how to optimise learning; through incorporating differentiating models and techniques into my teaching as a form of support.

2.7 SUMMARY OF THE CHAPTER

The intention for this chapter was to review the literature and to contextualise this specific research study. The literature that was reviewed provided a central focus on differentiated teaching by taking learners' readiness levels, interests and learning preferences into account. Specific focus was placed on the value of differentiation in education, and the resulting needs for differentiated teaching in South African education, specifically in grade 4 classrooms. A detailed explanation of social constructivism was also given seeing that it provided the theoretical lens for the research study. The next chapter aims to look at the research plan itself and how to put it into action.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

As discussed in Chapter 1, this research study was initiated by a desire to enhance my teaching practice whilst simultaneously optimising the learning of my grade 4 learners. In order to achieve this research aim an appropriate research plan is necessary. The research plan was introduced in Chapter 1, while this chapter presents the finer detail of my research plan. This chapter discusses the relevant features of action research as the chosen research design for this study. Individual teacher research as a specific type of action research will also be highlighted. The advantages of an action research design will be presented and a section will also be dedicated to discussing the limitations and validation criteria for this design type. It will be made evident throughout the chapter why practical, individual teacher action research, with a qualitative methodology, is found to be the most appropriate methodological approach within a paradigm of praxis. The case for social constructivism as theoretical framework will also be argued.

For this study the following primary research question was posed:

How will the incorporation of differentiated teaching improve my teaching practice to ensure support for learning in my classroom?

With the sub-question:

How will my learners' learning improve by supporting them through differentiated teaching, focusing on learner readiness, interest and learning preferences?

3.2 RESEARCH PARADIGM

One of the first decisions that a researcher has to make in planning a research investigation is to choose a paradigm from which to conduct the study. Mertens (2005, p.2 & p.7) defines research as a 'way of knowing' and a paradigm as 'a way of looking at the world'. A research paradigm can thus be seen as the philosophical knowledge and assumptions that a researcher has which shapes the questions, design and methodology of a study (Terre Blanche & Durrheim, 2006).

According to Denzin and Lincoln (2005) a paradigm functions along the four interrelated principles of axiology, ontology, epistemology and methodology. Axiology refers to the values and beliefs that the researcher holds. According to Cohen et al. (2011, p.3) "this view moves us beyond regarding research methods as simply a technical exercise and as concerned with understanding the world; this is informed by

how we view our world(s), what we take understanding to be and what we see as the purposes of understanding, and what is deemed valuable.”

From a social constructivist stance I maintain that my values and lived experience cannot be divorced from the research process. This means that I need to acknowledge and describe my values and not attempt to bracket them out. According to Ponterotto (2005, p.131), “it is a fallacy to even think that one could eliminate value biases in such an interdependent researcher–participant interaction” when conducting action research.

Action research values the relevance of the research problem, and an emphasis is placed on both practical utility and theoretical knowledge. Therefore the value of learning through reflection is necessary to maintain focus on the practical problem; optimising learning and supporting the learners; while learning is necessary to advance knowledge toward the goal of making a theoretical contribution. Actions consistent with this value include me (the researcher) providing progress reports to my learners; my reflections through a reflective journal; the learners’ reflections through the reflective drawings; the participants’ reflections through the focus group interview and activities; and clear reporting of research activities and outcomes (Cole, Puroo, Rossi & Sein, 2005).

The ontological principle of a paradigm specifies how the nature of reality is viewed from within the paradigm (Mertens, 2005; Patton, 2002), whereas the epistemology of a study focuses on what the paradigm believes concerning the nature of knowledge and the relationship between the knower and the known; how we come to know what we know (Merriam, 2009; Mertens, 2005; Patton, 2002). Methodology is the approach the researcher adopts to gather knowledge and understanding about the world or the phenomenon under investigation (Mertens, 2005; Denzin & Lincoln, 2008).

I have chosen to embed this study within the paradigm of praxis. Aristotle first used the term praxis to explain “the art of acting upon the conditions one faces in order to change them”. It deals with “the activities predominant in the ethical and political lives of people” (Ahmed, 2009, p. 27). Epistemologically the paradigm of praxis views knowledge as inferred from practice and practice as informed by knowledge, in a continuing process (Ahmed, 2009, p. 27). The paradigm of praxis has therefore been chosen for this study as it provides an important bridge between that which is learnt in theory, and that which is put into practice (Hills & Mullett, 2000). In the context of this research study it means that I will attempt to take what I have learnt in theory, put it into practice in my classroom, and then study the outcomes of this process with the expectation of answering my research question.

In the educational field, the ontological assumptions remain irrespective of the paradigm involved. As a teacher, I live in a self-evident world, one in which “the reality of everyday life is organized around the ‘here’ of my body and the ‘now’ of my present” (Berger & Luckmann, 1966, in Ragland, 2006, p.168). In other words I interact with my learners on a daily basis (six hours a day, five days of the week) within a

classroom, with structured rules, school timetables, curricula, and socially constructed beliefs and values. This not only connects me to my learners' distinctive lives, involving their personalities and characters that they bring to each classroom situation, but I also come into the situation with my own life story (Butterfield, 2012). Therefore it is important that the research paradigm that I select takes these ontological factors into consideration as my research methodology needs to be able to embrace this ever-changing system (Roche, 2000).

In the research question, *How will the incorporation of differentiated teaching improve my teaching practice to ensure support for learning in my classroom?* I make the assumption that my teaching practice and my learners' learning are in need of improvement and support (Butterfield, 2012). By employing differentiated teaching to optimise my learners' learning, I will engage with relevant literature and previous research, incorporating it into my daily practice to meet the needs of my learners, as well as my personal teaching needs. This will involve active research in which I link theory to practice (Roche, 2000). Researchers, such as Lather (1986, in O'Brien, 1998) and Morley (1991, in O'Brien, 1998) are of the opinion that the more traditional epistemological structures, such as the interpretive and positivist research paradigms, are not sufficient to comprise action research. As mentioned in Chapter 1, it is due to the active nature of this research study, to accommodate differentiated teaching in a grade 4 classroom that the paradigm of praxis seems to be most accommodating of action research (Kemmis, 2008; Hills & Mullet, 2000; O'Brien, 1998).

The next section will focus on my research design and on how it embraces the paradigm of praxis, while also explaining why it has been considered the most appropriate design for conducting a study narrowly focused on one classroom setting with one teacher. Since the methodology of a study is usually referred to as the central element influencing the research design (Babbie & Mouton, 2001) I will also present the qualitative research methodology as the chosen methodology for the study.

3.3 RESEARCH DESIGN

Any research study requires a strategy which highlights the key points to be addressed. The research design is the strategy or plan that informs the research process (Denzin & Lincoln, 2005). The research design is implemented by employing specific methods, techniques and procedures (McMillan & Schumacher, 2006) and can be viewed as not pre-emptive. This implies that no matter the study, method, indications of form, quantity or scope, the research design must be obtained from the research question, chosen methods, selected topic and goals, and also, in an on-going process, from the data (Richards, 2006).

Therefore the research design provides a flexible guideline or framework that connects my research questions to the implementation of the research (Denzin & Lincoln, 2005; Durrheim, 2006). Such a framework is developed through a process of reflection along four dimensions: the purpose of the research,

the theoretical paradigm informing the research, the setting of the research, and the kind of methodology that is used to obtain data (Durrheim, 2006).

Although there is no specific way of creating a research design it does require attention to the connections among the different parts of the design. Wolcott (1990, in Maxwell, 1998, p.246) is convinced that the best advice that he has seen for writers was part of the directions of how to assemble a new wheelbarrow “make sure all parts are properly in place before tightening”. Therefore as a wheelbarrow, my research design firstly needs to have all the required parts put together, which means attention needs to be paid to the connections amongst the different parts of the design, before it can function smoothly and accomplish its tasks (Maxwell, 1998). This particular research study makes use of an action research design.

3.3.1 Individual teacher research as a type of action research

The combination of *action* and *research* in action research has contributed to its attraction to researchers, teachers, and academics (Cohen et al., 2011). The work of one of action research’s founding fathers, Kurt Lewin, was deliberately intended to change the life chances of disadvantaged groups, making it evident that action research is a powerful tool for change and improvement at local level (Cohen et al., 2011). Since action research has a wide scope and can be used in several settings there is neither one definition nor one type of action research (Cohen et al., 2011). In educational settings, depending on the participants involved, a research plan or design can involve a single teacher researching a concern in his or her classroom; a group of teachers working cooperatively on a common theme; or a team of teachers and others (involving researchers or university departments) focusing on a school- or district-wide problem (Cohen et al., 2011; Ferrance, 2000). Seeing that this study focuses on a single concern with a practical goal in mind - me as a teacher enhancing my practice through differentiated teaching to optimise the learning of my learners - I have chosen practical, individual teacher action research as the design for this particular study (Ferrance, 2000; Leitch & Day, 2000).

This choice of design correlates with Zuber-Skerritt’s (1996) view on practical action research in that it has as central aim effective change in the classroom, with an emphasis on the practitioners’ understanding and professional development. The research itself becomes part of the change process, as “action research is research into practice, by practitioners, for practitioners...” (Grundy & Kemmis, 1988, in Zuber-Skerritt, 1996). This means that as a teacher I am fully involved in conceptualising and implementing changes in contrast to being an observer who does not wish to disturb the scene (Macintyre, 2000). Claims that one can only solve the problems of the world through action and active intervention adds to the argument for conducting this specific research study within an action research design (Mouton, 2001).

Action research differs from other forms of research as there is less concern to generalize findings far beyond the context of the study. Methods also tend to be less systematic and more informal and specific to the concern or research question. More value is placed on the engagement of the researcher and the relevance of

the findings to the parties involved (Riel, 2010; Patton, 2002). Since the cornerstone of action research is “knowledge derived from practice, and practice informed by knowledge, in an on-going process” (O’Brien, 1998, p.7), it offers the ideal combination of action, reflection, theory, and practice (Friedman & Rogers, 2009), all of which are necessary elements in my specific research study.

The process of action research thus provides a structured and disciplined approach to reflecting on my teaching and the learning of my learners. Kemmis and McTaggart (2007), amongst others, focus on the importance of teachers critically reflecting on their practice, and Danielson and McGreal (2000) argue that very few activities are more powerful for professional learning than reflection on practice. Therefore the act of reflection appears to be a productive and important vehicle in professional growth and learning within the classroom (Danielson & McGreal, 2000).

Even though the practice of action research in the classroom has a long tradition it has swung in and out of favour, mainly because the theoretical work that justified it fell behind the ever-changing educational movements at certain points in history (McTaggart, 1991; Noffke, 1990, 1997, in Kemmis & McTaggart, 2007). Today researchers who are interested in classroom teaching practices and teacher education place importance on the ‘practical’ component of the research involving action and teachers’ self-understandings and judgements (Kemmis & McTaggart, 2007; Berg, 2009). Therefore undertaking an action research study within my own classroom may also provide opportunities for personal growth and improvement of my own teaching practice (Ragland, 2006).

According to O’Brien (1998), action research has as primary focus the solving of real problems in real situations with practitioners who wish to improve their understanding of their own practice. Baumfield et al. (2008, p.5) add to this in saying that “action research by definition requires purposeful enquiry into practices, but the experiences of individual researchers differs as the particular elements are combined”. As each researcher’s experience of their research will be different, it is important to follow the guideline of having a flexible outline for the steps intended for the research process (Baumfield et al., 2008; Kemmis & McTaggart, 2007).

Action research can be summarized as a spiralling process that facilitates planning, acting, collecting, observing, reflecting, analysing, reacting, and evaluating in a manner that is systematic, but flexible in nature. This innate systematic action research process helps to guide both my learners’ and my own learning experience through a cyclical step-by-step process (Cohen et al., 2011). A typical representation of this cyclical process by Zuber-Skerritt (2001) was provided in section 1.3.4 in Chapter 1.

Zuber-Skerritt’s (2001) cyclical process involves **four steps**, namely planning, acting, observing and reflecting. As an educational researcher I will use the first step to **plan** how I will incorporate differentiated teaching in my classroom to successfully support my learners in optimising their learning experiences. The first step therefore involves getting to know the learners and setting up learning profiles in order to

differentiate my teaching. The second phase is implemented by taking **action**. I will design classroom activities/lessons according to my learners' learning profiles and implement differentiated teaching over a four week period to find solutions. The third step is where I **observe** my learners by monitoring and evaluating learning to determine the outcomes of the lessons. The fourth step, **reflection**, is used to reflect on the results of the observation (outcome) and the total process. In line with the outcome of the process of reflection, I will be able to re-plan and revise the original plan according to the data, which is a great advantage when I then choose to continue through the spiral of acting, observing and reflecting within a future study (Brown, 2002).

Supporters of action research have argued that basic research is cryptic and irrelevant (Patton, 2002), whereas action research is beneficial in that it creates a process for addressing instructional concerns; promotes teachers as researchers; adds to the existing body of practical research; and encourages reflective practice (Sagor, 2003). It does not however come free of criticism. Basic and applied researchers often argue that action research cannot be called *research* in the true sense of the word (Patton, 2002). It is also argued by some that action research requires too many actions as the researcher is also expected to collect a great deal of data, needs to carefully observe both the behaviours of interest and the conditions under which they occur, invent ways to score and categorise data, and analyse and draw inferences that are appropriate for the sample and design (Gentile, 1994, in Patton, 2002). There are also queries as to the validity and reliability of action research, which will be discussed in section 3.7.

However, action research is suitable for the type of study reported in this thesis, as it is a process in which I systematically reflect on my practice and make changes to my teaching based on the careful analysis of learner results (Borgia & Schuler, 1996) and is therefore seen as an important vehicle for empowering me as a teacher (Cohen et al., 2011). Unlike traditional research, in which a researcher studies the teacher, action research is directed by me, the teacher to improve my teaching to benefit and optimise learner learning. As the teacher I become the primary researcher and have a vital role to play in developing, implementing, and analysing barriers experienced within my classroom. Individual teacher action research enables me to make effective decisions about what to teach and how to select the best content and strategies for my learners to reach their full potential (Little & King, 2007).

The following sections will focus on my specific action research and intervention plan and the context of this study.

3.3.2 My action research and intervention plan

My action research and intervention plan was introduced and briefly explained by means of a diagram (Figure 1.2) in section 1.3.6. The following section aims to elaborate on certain procedures and strategies suggested for intervening to optimise learning.

It is important to note that it will not be of much use to incorporate the different techniques to optimise learning, if I do not understand my own teaching style, learning preferences, personality type, strengths and weaknesses, and reflect on the outcomes of the lessons as to appropriately adapt my teaching (Benjamin, 2003). It is also important to know how and when to modify my teaching methods to fit the needs of all my learners.

Since it is important to make decisions about which strategies to use when, as well as decide on how to plan and execute my lessons in order to achieve the goals of the strategies, I have designed a plan on how to best adapt my teaching within my grade 4 classroom. Addendum F presents a timetable for my intervention plan which reveals my selected teaching strategies and procedures that are employed to optimise my learners' learning taking their readiness levels, interests and learning preferences into account. Three examples of lesson plans for the intervention (addressing readiness, interests and learning preferences separately) can be viewed in Addendum G.

In order to improve my teaching and optimise learning in my classroom as a whole, I need to create a positive learning environment that supports differentiated teaching and learning. Different strategies can be used in differentiated and multilevel teaching to optimise learning. Where differentiation is described as the process by which we ensure that the different learning needs of all our learners are met as we prepare, teach and assess; multilevel teaching is a way of teaching that ensures that each learner is taught and assessed at an appropriate level of difficulty (Walton, 2012). In other words, it refers to teaching one topic or skill at different levels of complexity within the same classroom (Walton, 2012). In the following section I provide a short explanation of each strategy that I will employ in my classroom as part of the intervention, with its relevance for optimising learning.

3.3.2.1 Pre-assessment

Firstly I can make use of pre-assessment where I assess the learners before teaching them a new concept, skill or theme to determine what they know. I then use the results of the pre-assessment to design my teaching strategies (See Addendum H for an example of a pre-assessment used before introducing the concept of time in Mathematics). A strategy that can be used along with this, which is a different form of pre-assessment, is 'Asking the five most difficult questions first' as this will also give an indication of the learners that already understand the content and will benefit from enrichment activities.

3.3.2.2 Learning styles and multiple intelligences

By taking my learners learning preferences into account I can differentiate my lessons according to different learning styles; visual, auditory, and kinaesthetic as illustrated in the following figure (Figure 3.1).



Figure 3.1: Visual Auditory Kinaesthetic Model (Adapted from Turville, 2008, p.7)

As intelligence is such a controversial issue it is important to have an open mind and to view learners as being intelligent in different areas, in other words, believe that “everyone is good at something” (Fleetham, 2007, p.3). In the 1980’s Howard Gardener discovered that “when specific brain areas are damaged, specific sets of skills and talents disappear, while others remain intact” (Fleetham, 2007, p.10). This led him to develop a theory that in each human brain there are several kinds of ‘mind’. Each ‘mind’ has a distinct intelligence which drives certain human abilities. Gardner firstly identified seven intelligences (Logical-mathematical, Visual-spatial, Intrapersonal, Interpersonal, Bodily-kinaesthetic, Musical-rhythmic and Verbal-linguistic). In the 1990’s he added an eighth namely Naturalist, and over recent years he is considering and working on sufficient evidence to identify a ninth intelligence, Existential (Fleetham, 2007).

When incorporating the theory of multiple intelligences into my planning I can ask myself the following questions:

- Logical-mathematical: How can I include the use of numbers, classification, critical thinking, problem solving, reasoning, calculations, logic problems, flow charts, measuring equipment, ordered instructions, Bloom’s Taxonomy, If/ then statements, or Venn diagrams?
- Visual-spatial: How can I include pictures and diagrams, colours, art, map reading, graphs, mind maps, illustrated texts, solving a jigsaw puzzle or imagination?
- Intrapersonal: How can I include private learning time and choice, following own interests, self-motivation and –knowledge, expressing emotions, self-assessment, being the ‘expert’ in a group, target setting, text diaries or individual presentations?
- Interpersonal: How can I include group work, peer sharing and discussions, visits from experts, interviews, teaching, assessing and motivating each other, group presentations and competitions or collaboration?
- Bodily-kinaesthetic: How can I include movement, practical apparatus, drama and role play, art and craft, building, miming, dancing, objects to handle or space to move around/ change position?
- Musical-rhythmic: How can I include or allow for music, sounds, rhyme, rhythms, dance, humming while working, listening skills, background music or performances?
- Verbal-linguistic: How can I include reading, writing, speaking, listening, informing, mimicking verbally, telling jokes, debating, appreciating poetry, persuading, dictionaries, books, word banks, or discussion times?
- Naturalist: How can I include awareness and understanding of the natural world, working and learning outside, caring for the environment and animals (pets), astronomy, scientific equipment, or organising information into hierarchies and taxonomies?

- Existential: How can I include or allow for challenging questions, space and time to think and work things out, ethical debates, thinking philosophical, or interest in life beyond the earth? (Fleetham, 2007, pp. 14-31; Pritchard, 2009, in Department of Education, 2011c, p.11).

3.3.2.3 Learning centres

Different areas in the classroom can also be designated as different centres for learning. These centres may be assigned or chosen, and learners work on various differentiated tasks which take their interests and learning preferences (including multiple intelligences) into account (UNESCO, 2004). Depicted in Figure 3.1 below is an example of how I accommodated multiple intelligences in an English Home Language lesson using designated learning centres with different types of games from which they could choose (see Addendum I for the instruction page).

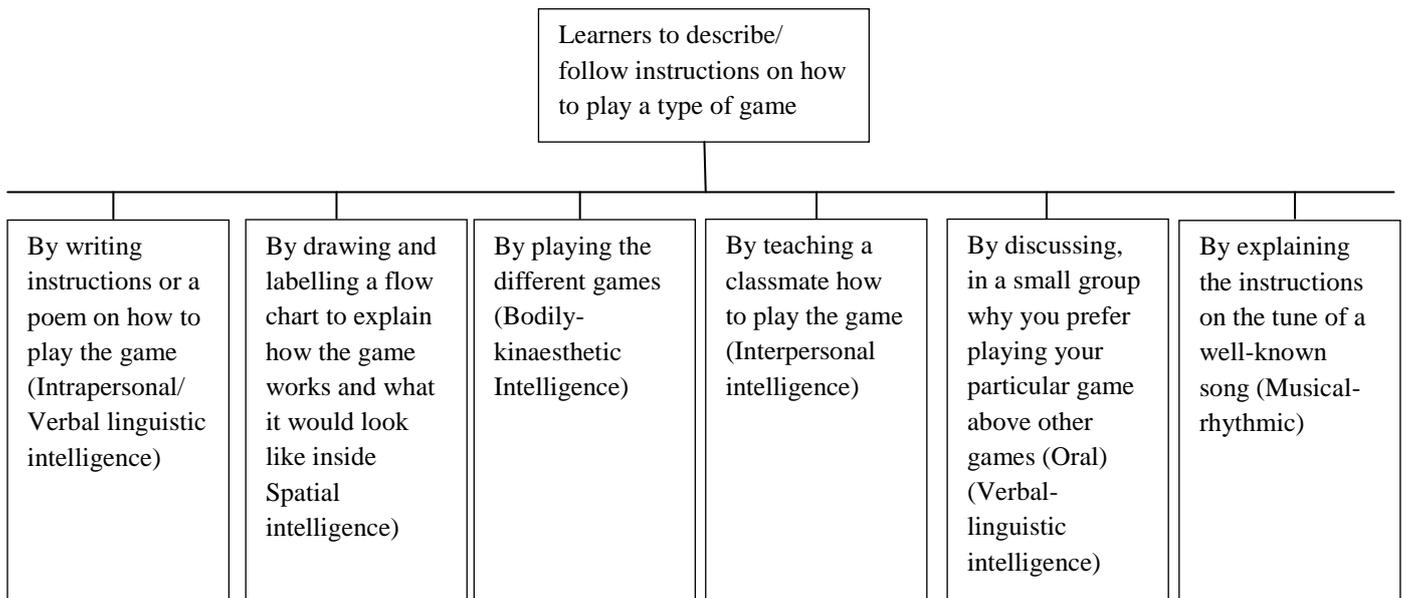


Figure 3.2: Demonstrating the understanding of how different games are played through multiple intelligences (Adapted from Noble, 2004, p.195; UNESCO, 2004, p.99)

3.3.2.4 Flexible grouping and cooperative learning

Through flexible grouping I can promote learning and interpersonal communication ensuring that learner groups are structured in varied ways to meet diverse goals. I may thus assign small teaching groups, taking the learners' readiness levels into account or the learners may choose their groups according to their interests or learning preferences. Although it is recommended that groups should be heterogeneous, there are times when it is appropriate to make use of homogeneous groups. Homogeneous groups allow for support and enrichment opportunities whereas heterogeneous groups usually allow for cooperative learning (Department of Basic Education, 2010; Department of Basic Education, 2011c). Table 3.1 summarises the variety in groupings that should be encouraged.

Table 3.1: Grouping of learners

Type of grouping	Possible uses	Points to consider
Whole class – large group	<p>Promotes belonging, reduces isolation.</p> <p>Discussions and sharing information and experiences.</p> <p>Introducing new topics, themes, units.</p> <p>Developing new concepts, skills and understandings.</p> <p>Developing and refining classroom expectations, rules and procedures.</p>	<p>Physical inclusion does not guarantee instructional inclusion.</p>
Small group instruction	<p>Can be facilitated by the teacher, a learner or the group itself.</p> <p>Same ability/skill group can help the teacher to focus on developing a particular skill; learners with specific disability could also work around certain skills in a ‘same disability’ group (e.g. Braille, sign language, mobility, life skills instruction).</p> <p>Mixed ability/skill group useful for project work, learning a new skill or practicing one recently learnt, discussing an assignment, problem solving – different objectives and sub-tasks can be assigned to different learners; it promotes co-operation, peer-support and valuing individual contributions.</p>	<p>Same ability/skill groups should not become permanent and they should not be composed of the same learners in order to avoid labelling and isolation. They should only be used to learn a particular skill.</p>
Paired groups	<p>Two learners work together: offers opportunities to enhance social and communication skills and friendships; can provide direct instruction and build self-esteem.</p> <p>Can be formed on the basis of same/mixed skill/ability, interest, etc.</p> <p>Could also pair an academically strong and an academically weak learner.</p> <p>One learner is assigned as a ‘tutor’ based on the skill, ability or experience.</p>	<p>This way of working requires some practice so that ‘tutors’ will not just pass on ‘correct answers’.</p> <p>Pairing needs to be grounded on learning for both, and the tutor should not always be the learner who is academically stronger.</p>
Interest groups	<p>Paired or small group where learners share the same interest.</p> <p>Interest can be a topic, a learning area or a specific skill.</p> <p>Encourage learners to learn more about their specific interest at their own level.</p>	<p>Usually highly motivational.</p> <p>Findings should be shared with other learners to increase the learning of all learners.</p>

<p>Co-operative expert groups (jigsaw)</p>	<p>All groups are given the same topic but each learner in the group is given one part of the topic to learn (according to his level, interest, etc.)</p> <p>It is the responsibility of each member to learn his/ her part, thus becoming 'expert'.</p> <p>After studying individual parts, the group comes together and each learner presents his part to complement to the whole.</p> <p>Another possibility: A topic and its sub-topics are identified. In each group, each member is assigned with a sub-topic. New groups get together according to sub-topics. These groups are now 'experts'.</p> <p>In the expert groups learners study about the sub-topic. Then they get back to their original group and share what they have learned in the 'expert' group.</p>	<p>It is important to ensure that each member gets to his/ her work done – support might be needed here.</p> <p>Allows for individual and group activity.</p> <p>Feedback – sharing in the groups is essential. This might require support.</p>
<p>Cluster groups</p>	<p>Cluster groups are groupings of all learners within a class for small teaching groups, based on one or more learner characteristics.</p> <p>Usually learners stay in the cluster group for a longer period for a specific instructional reason (e.g. accelerated maths)</p>	<p>Cluster group should not be used for anything else than for an instructional purpose.</p> <p>Grouping should not encourage negative labelling.</p> <p>Learners can belong to several clusters in different subjects.</p>

(Adapted from Department of Education, 2011c, pp.46-47)

Cooperative learning involves a form of collaborative learning or peer assisted learning where learners work together in a teaching-learning situation with a shared goal (Donald et al., 2010; Hartman, 2002; Watson, 2000). There are three basic forms of cooperative learning namely, peer tutoring where one learner teaches another; learners working and learning in pairs; and small groups of learners teaching and learning together (Hartman, 2002). For a learner to be able to teach another learner a certain skill or concept requires knowledge, understanding, organisation, memory and reflection (Hartman, 2002). Not only does the process of explaining something to someone else enable the learner to retain information better and connect new information with prior knowledge (Hartman, 2002; Woolfolk, 2010), it is also more enjoyable and motivating for learners to work with their peers (Watson, 2000). With cooperative learning, I will no longer assume a teaching role transmitting knowledge, but instead become a manager and facilitator. This means that I need to teach my learners to work cooperatively; structure groups; assign roles; select and prepare teaching material; and monitor and evaluate learner performance (Hartman, 2002). This links with

Vygotsky’s theory, discussed in Chapter 2, which focuses on the importance of the mediation process in optimising learning (Kozulin, 2003).

Reciprocal teaching is another form of cooperative learning where the teacher and learner switch positions from time to time (Donald et al., 2010). After the teacher has demonstrated how to handle a certain task, learners take turns to explain it to the rest of the group. This offers both the teacher and the learner an opportunity to gain insight into the learner’s quality of understanding. The teacher carefully observes the ‘teaching’ of the learner to firstly determine how the learner is thinking and secondly to determine what kind of instruction, support or enrichment the learner needs to optimise his/her learning (Woolfolk, 2010).

3.3.2.5 Scaffolding

A very important strategy for teachers to enable their learners’ learning is to provide scaffolding opportunities. Scaffolding (as described in Section 2.2) is known as support that teachers provide to learners to help bridge the gap between what the learners can do and what they need to be able to learn or do by ways of encouragement, modelling, hints, prompts, cues or partial solutions. ‘Scaffolds’ are gradually withdrawn as the learners become more proficient in a given task or skill (Donald et al., 2010).

3.3.2.6 Bloom’s Taxonomy

Adaptations can also be made to the types of questions posed to the learners based on their readiness levels, interests, and learning preferences. Higher-order questions are questions that require learners to work out answers rather than memorize them. The teacher’s goal is to help learners explore possibilities, analyse information, synthesize, and make evaluations. Learners are also encouraged to generate their own questions related to areas of study. Bloom’s Taxonomy is a useful tool that can be used to reach learners who are at various levels to enhance participation and optimise learning opportunities (Department of Basic Education, 2010; 2011c). The following table gives examples of how to apply the tool.

Table 3.2: Bloom’s Taxonomy

Areas	Key verbs	Examples of questions	Potential activities and products
Knowledge	Tell, list, describe, relate, locate, write, find, state, name	What happened after...? How many...? Who was it that...? Can you name the...? Describe what happened at...?	Make a list of the main events. Make a timeline of events. Make a facts chart. Recite a poem.
Comprehension	Explain, interpret, outline, discuss, distinguish, predict, restate, translate, compare, describe	Can you write in your own words...? Can you write a brief outline...? What do you think could have happened next...? Who do you think...?	Cut out or draw pictures to show a particular event. Illustrate what you think the main idea was. Make a cartoon strip showing the sequence of events.

Application	Solve, show, use, illustrate, construct, complete, examine, classify	Do you know another instance where...? Could this have happened in...? Can you group by characteristics such as...?	Construct a model to demonstrate how it will work. Make a diorama to illustrate an important event. Make a scrapbook about the areas of study.
Analysis	Analyse, distinguish, examine, compare, contrast, investigate, categorise, identify, explain, separate, advertise	Which events could have happened...? If ... happened, what might the ending have been? How was this similar to...? What was the underlying theme of...?	Design a questionnaire to gather information. Write a commercial to sell a new product. Conduct an investigation to produce information to support a view. Make a flow chart to show the critical stages.
Evaluation	Judge, select, choose, decide, justify, debate, verify, argue, recommend assess, discuss, rate, prioritise, determine	Is there a better solution to... Judge the value of... Can you defend your position about...? Think about...?	Prepare a list of criteria to judge a ... show. Indicate priority and ratings. Conduct a debate about an issue of special interest. Make a booklet about 5 rules you see as important.

(Adapted from Department of Basic Education, 2010, p.60; 2011c, pp.24-25)

3.3.2.7 Tiered Assignments or lessons

Tiered Assignments or lessons (mentioned in section 2.6.2) is another strategy that can be used to provide varied levels of activities and assignments to ensure that learners explore and practise concepts at a level that builds on their prior knowledge and that prompts continued growth rather than repetition of prior knowledge. In other words, tiered lessons are lessons in which you have different groups of learners working together to master the same concept, but in different ways (Adams & Pierce, 2004) (See Addendum G for an example of a lesson plan making use of Tiered Assignments).

3.3.2.8 The KWLS technique

The last strategy that I will employ in my classroom is known as KWLS. KWLS is an acronym for a method used in teaching to regulate one's learning. It stands for: what the learner **K**nows, what the learner **W**ants to know, what the learner **L**earned and what the learner **S**till wants to know (UNESCO, 2004; Woolfolk, 2010) (See Addendum J for an example of a KWLS chart).

With a flexible plan in mind on how to differentiate my teaching, I now need to look at the context in which I will execute this plan.

3.3.3 The context of the study

As mentioned in Chapter 1, the school where this study was conducted is a primary school located in a semi-urban setting in the Western Cape Province. The school accommodates approximately 1200 learners from grade 1 to 7 and although the majority of the learners are Afrikaans speaking, the English classes (two out of six classes per grade) usually accommodate a culturally much more diverse group of learners than the Afrikaans classes.

According to Oswald (2010) the research genre and research questions are significantly influential when deciding on the appropriate location and participants for a research study. Given my research design it is self-evident that the research will be conducted in my own grade 4 classroom. Gaining entry into a research site usually requires taking time to establish a good relationship with all the individuals at the site (McMillan & Schumacher, 2001). I have the advantage of having been employed at the school for four years and gaining permission to do the research in my class was fairly straightforward. The quality of the research usually depends on the degree of natural behaviour from the participants in front of the researcher. Since I am the learners' classroom teacher I believe that they will be themselves in front of me as the researcher, much more than if I were to be an outside researcher. Although the learners will be aware that they are part of my research study, I doubt that it will cause any unnatural responses from them, since, taking their age into account, they do not fully grasp what the research *to improve my teaching while optimising their learning* means and can therefore not answer to give the 'correct answer'. I also know my learners to have strong opinions and they honestly express what they feel and think, so I doubt that they will react in unnatural ways.

As mentioned, the cultural diversity in the English classes is usually high. This is also the case in my grade 4 English medium class of 2013. I have 29 learners in my class and they hail from different cultural and race groups, namely black, coloured, Indian and white. Their home languages are Afrikaans, English, Sesotho, isiXhosa or isiZulu. As is evident in most classes in different schools, the learners in my class also represent a range of academic performance levels. The heterogeneity of the learners in my class can add to the richness of the findings of this study.

The policy of the school determines that the grade 4 classroom teacher accepts responsibility for teaching most of the subjects to the learners. This ensures that I spend a lot of time with my learners and have the opportunity to form a 'strong bond' with them. The learners feel safe in the classroom environment and are comfortable enough to speak their minds and freely express their thoughts, feelings and opinions. I trust that this will work to my advantage in the research, as the methods of the data collection require open and honest responses from the participants.

Having chosen the context for the research, the next section will provide an explanation of the research methods used in this study.

3.4 RESEARCH METHODOLOGY

As indicated, the study will be conducted within a paradigm of praxis. I will employ action research as design type, as discussed in the previous section, and my methodology will be qualitative as indicated in my introductory chapter. Babbie (2010) and Glesne (2011) acknowledge that a need exists for more qualitative research in education, as the breadth and depth of educational practice within the classroom setting asks for different research questions that are difficult to answer through quantitative measures. A qualitative methodology employs an inductive strategy, which is based on perspectives that emerge from the data itself. I will collect data in face-to-face situations by interacting with my learners in their classroom setting (McMillan & Schumacher, 2001).

Marshall and Rossman (2011, p.3) refer to five characteristics of qualitative research relevant to this particular study: (a) “It takes place in the natural world”, (b) “Uses multiple methods that are interactive and humanistic”, (c) “Focuses on context”, (d) “Is emergent rather than tightly prefigured”, and (e) “Is fundamentally interpretive”. This implies that I will have to be prepared to embrace complexity, be able to challenge taken-for-granted assumptions, and must feel comfortable with only knowing my direction and not my destination (Schram, 2006). This makes it apparent that even though there are various ways to create qualitative understanding, a single way of being a qualitative researcher does not exist (Schram, 2006).

Qualitative research aims to acquire insight into issues, understand certain phenomena and answer questions in a descriptive, rather than a prescriptive way (Merriam, 2009). It is based on the assumption that an individual’s realities are socially constructed which fits well with the fundamental concepts of social constructivism as the theoretical framework of this particular research study. This highlights the task of qualitative researchers to attempt to understand and interpret how various participants in a social setting construct the world around them, thereby receiving the ‘insider’s perspective’ rather than the ‘outsider’s view’ (Merriam, 2009, p.14). Therefore as the researcher I will often make knowledge claims based primarily on a social constructivist perspective, engaging with my participants in places and conditions that are familiar to and comfortable for them (Schram, 2006).

Since qualitative researchers often study only a single setting or a small number of individuals their research is context sensitive or context specific (Schram, 2006). This means that I will most likely not be able to make clear-cut statements about the generalizability of my data and by taking my research out of context will change its meaning (Patton, 2002). The value of a qualitative study therefore may rest on its absence of generalizability as it is not representative of a larger population, but provides an account of a setting that is revealed as the ‘ideal type’ (Maxwell, 1998).

In qualitative studies the researcher is considered the primary instrument of data collection and analysis, making his/her presence in the lives of the participants fundamental to the methodology (Marshall & Rosmann, 2011). The role of the researcher can therefore be described as one that accepts the position

suggested by the characteristics of the naturalist paradigm; develops the level of skill through which data will be collected and interpreted; and prepares a research design that develops recognised strategies for naturalistic research (Lincoln and Guba, 1985, in Hoepfl, 1997). According to Merriam (1998, p.23), qualitative research produces a result which is “an interpretation by the researcher of others’ views filtered through his or her own”. To me as a qualitative action researcher this means that I will personally be engaged in the action, by drawing upon all my senses (Schram, 2006). However, the human instrument has shortcomings and biases which may have an impact on the research study. Merriam (2009) advises that, instead of eliminating these biases, they must be monitored to determine how they will influence the collection and interpretation of data.

The qualitative research process is also inductive seeing that researchers gather data to build themes rather than deductively testing hypotheses. This means that I will combine and structure bits and pieces of information gathered from the learners’ learning profiles, as I work from the particular to the general. The product of my research study will also be richly descriptive as words and pictures will be used rather than numbers to convey what I have learnt through my research about differentiated teaching in a grade 4 classroom (Merriam, 2009).

It is generally recognised that a qualitative methodology is more appropriate than a quantitative methodology to gain insight in participants’ roles and their perceptions of own experiences. In addition researchers such as Henning et al. (2004), and Denzin and Lincoln (2003) argue that human learning is best researched by using qualitative data. Since this study is about learning about and improving my teaching practice and optimising my learners’ learning it therefore seems an appropriate methodology for this study (Merriam, 2009).

As I will be spending a substantial amount of time in a natural setting (my classroom) I need to ensure that I adhere to the following qualities when conducting qualitative research:

- A questioning stance to my work and life context
- High tolerance for ambiguity
- Being a careful observer
- Asking good questions
- Thinking inductively
- Being comfortable with writing (Merriam, 2009, p.17)

3.5 RESEARCH METHODS

3.5.1 Selection of the participants

According to Cohen et al. (2011) the quality of a research study is not only determined by the appropriateness of the methodology, but also by the suitability of the sampling strategy that has been adopted. It is thus important to define the population as questions of sampling will arise directly from the target population group (Cohen et al., 2011). My grade 4 learners will serve as the target population as I will invite all of them to participate once their parents have given the necessary consent. The learners will also be asked to sign assent forms after the process has been explained to them in an appropriate way.

The sample group will consist of a small group of the learners in my class who will be invited to participate in the reflection phase of the process and from whom data will specifically be collected. Purposeful sampling will be used to select these participants. The selection criteria will include that the participants' and their parents' voluntarily consent will be sought for their participation in the final phase of the research. Care will also be taken to select participants that can offer 'information-rich' data that can add value to the research (McMillan & Schumacher, 2001). These selected participants will be chosen to provide information regarding the intervention in the classroom on behalf of the rest of the class members (Polkinghorne, 2005). Patton (2002) claims that there are no rules for sample sizes in qualitative research as it depends on the purpose of the research and what can be accomplished with available time and resources. The selected members of the class will participate in a focus group interview in the reflection phase of the action research process and therefore I need to consider the recommendation that children focus groups should contain a minimum of five and a maximum of eight learners (Charlesworth & Rodwell, 1997). The danger being that groups smaller than five may become parallel interviews, whereas larger groups may make it more difficult for the action researcher to maintain the focus of the discussion (Hennessy & Heary, 2005). However, the number may be increased to more than eight participants when the focus group involves older learners, depending on the research question and aims (Gibson, 2012).

Taking the above, but also the purpose of my research into account, I have decided that nine learners from my grade 4 class will be asked to voluntarily act as collaborative participants in the focus group interview. I decided on nine participants (a third of my class) as I feel that this number is large enough to accommodate a diverse representation of my class, but not too large to maintain the focus of the discussions during the interview. These learners will be selected to participate based on meeting certain criteria of interest for this research study to answer the research questions (Minichiello & Kottler, 2010). Criterion sampling is one method of purposeful sampling, which involves certain predetermined criteria (Patton, 2002). The following predetermined criteria will be used for the selection of the sample group that will participate in the focus group interview: a) readiness levels, b) learner interests, c) learning preferences, d) cultural-language diversity group and e) gender. The first criterion, namely the readiness group, will help me to select a diverse sample of learners based on their academic achievement in tasks, activities and tests throughout the

term. I will select three learners from a lower academic achievement range, three learners from a higher academic achievement range and three learners from an average academic achievement range. The selection will be further refined by the other criteria. This selection will help to ensure that the specific composition of learners provides a more diverse group of participants for enriched data collection and findings that correlates with that of the target population.

3.5.2 Methods of data collection

Data refers to the basic material that a research study creates and can take the form of numbers (quantitative data) or words (qualitative data), the latter being relevant to this study (Durrheim, 2006). In this research study the researcher is seen as the primary instrument for data collection. According to Henning et al. (2004) this means that the researcher is the main instrument for gathering, analysing and mediating the findings from the data.

Through certain qualitative methods, I intend to gather data to provide evidence for the experience of the participants. Punch (2002a) warns against using certain methods with learners purely because they are fun, as methods are there to generate useful and relevant data. According to Marshall and Rossman (2011, p.137) there are four primary methods in qualitative research: “participating in the setting, observing directly, interviewing in depth and analysing documents”.

It is typical of a qualitative research methodology to use more than one data collection method (Jackson, 2003). Therefore the methods used to collect data in this study will be questionnaires (obtained from all the learners), keeping a reflective research journal, observation (observing all the learners), reflective drawing (obtained from all the learners) and a focus group interview (only a sample group of learners taking part during this data collection activity). As mentioned in Chapter 1, the questionnaires will be used qualitatively to provide information on each learner’s learning preferences, interests and readiness level in order to set up a learning profile and differentiate accordingly. These data collection methods are specifically chosen, not just to give me the most insight into my learners and the opportunity to reflect on my teaching, but also because I view these methods as ‘learner-friendly’, as all the learners in my classroom are given the opportunity to participate in activities by means of which they can learn more about themselves (Gibson, 2012; Punch, 2002a).

3.5.2.1 Gathering data regarding learners learning preferences, interests and readiness levels through activities, questionnaires and inventories

Jackson (2003, p.571), defines a questionnaire as a “series of set questions which either provide a space for an answer or offer a number of fixed alternatives from which the respondent makes a choice”. Guidelines to formatting your own questionnaire involves outlining the topics you wish to include; to be able to explain reasons for asking the questions; to decide whether open-ended or closed-ended questions are desirable; to avoid questions that could be psychologically harmful; to make use of short and clear questions; to avoid

asking more than one question where there is limited space (space for one answer only); to avoid negative wording; to make sure the language is understandable for the participant asked to complete the questionnaire; to refrain from using leading questions to receive answers you, the researcher, wishes the participant to give; and to emphasise important words (Mertens, 2005).

These guidelines will be followed when I develop the questionnaires, inventories and activities for this research study. The questions will also be read out loud to the learners and they will get to answer the questions step by step to make it easier and more understandable for them. As mentioned, these questionnaires, inventories and activities (see Addendum K), will be designed to gather data and gain insight regarding the learners' interests, learning preferences and readiness levels in order to set up an individual learning profile for each learner. The learning profiles will then be used to differentiate my teaching accordingly. Details regarding the different questionnaires and inventories are set out below.

In order to determine the learners' interests they will firstly be asked to complete a questionnaire that entails completing sentences under the subheading 'All about me' and answering questions under the subheading 'What if', secondly they will be asked to complete a Venn-diagram with someone in the class that they do not know well.

The learners will also be asked to complete three different learning preference inventories to gain insight into their learning preferences. The first inventory will involve questions about the learners' preferred work pace, collaborative learning, choice, curriculum content, evaluation, self-knowledge, expert-knowledge, relationship, manipulating ideas and sharing learning. The second inventory will involve statements about reading, writing, listening, speaking, visualising and manipulating. The third inventory will involve agreeing with a visual, auditory or kinaesthetic learning modality.

The learners will also take part in an 'Intelligence Hunt' where they will be expected to identify the different types of 'smarts' (multiple intelligences) in the class by finding learners that can do the tasks mentioned in the activity. The second part to this 'Intelligence Hunt' will be incorporated in an English Home Language lesson where they will have different work stations about different types of games. Each work station will have an activity that can be linked to a specific intelligence. The learners must indicate the order in which they have completed the activities on their work sheet. In this way they are finding out their own type of 'smart' and their preference towards a specific intelligence can be determined and recorded as part of their learning profile.

Pre-assessments (including 'asking the five most difficult questions first') and the KWLS chart, described in section 3.3.2, are the techniques that will be used along with studying the previous term's report results to determine each learner's readiness level. Therefore a separate inventory or questionnaire will not be set up to determine readiness levels.

3.5.2.2 Keeping a reflective research journal

The researcher's reflective journal is a form of reflective writing. It is kept throughout the research process and allows the researcher to document personal experiences regarding the research process (Baumfield et al., 2008). Allport (1943, in Elliot, 1997) identifies three models of journal writing: the intimate journal in which uncensored private opinions and thoughts are recorded, the memoir or impersonal diary that is kept for the purpose of publication, and the log, which often consists of a listing of important information and events.

For this research study I will be using a combination of the three models, as it will enable me to enter my opinions, feelings and thoughts, as well as list important observations of which to take note. In this way my research journal will become a way of keeping a detailed history of the research process as it unfolds whilst simultaneously providing a context for reflecting on various aspects of the research, adding to the understanding of the research process (Baumfield et al., 2008) (See Chapter 4 for excerpts from the journal).

Although the contents of a research journal may vary, the most important aspects mentioned in literature applicable to this research study will include: a) summaries of that which is revealed through every day that research takes place; b) narratives of any interactions, for example conversations, interviews, or planning; c) questions or relevant topics that I, the researcher, intend to follow up on; d) any ideas, feelings and thoughts that are relevant to the study; e) relevant drawings or diagrams; f) perceptions, reflections or observations regarding the learners' interests, learning preferences or readiness levels; g) reflections on journal entries and plans for future action (Baumfield et al., 2008). I will concentrate on recording my feelings and thoughts on what I have done and observed, and then reflect on each research day's events and the research process as a whole.

3.5.2.3 Observation of learning through classroom interactions and -activities and the studying of work books

Silverman (2000) describes qualitative observations as a foundation for understanding a group of people. Since qualitative research is aimed at understanding the meaning people construct and their experiences (Merriam, 1998), the instrument for observation is the researcher and not a measurement scale (Durrheim, 2006). Observations in this research will be used to verify data derived from the questionnaires, inventories and activities (Polkinghorne, 2005) and to provide a better understanding of the learners' interests, readiness levels and learning preferences.

Observations will be added to all the learners' learning profiles and recorded as part of my reflective journal. The studying (or marking) of work books will be particularly helpful in the determining of readiness levels for the setting up of support and enrichment tasks or the grouping of learners.

In qualitative research there are mainly two types of researcher-observation relationships; simple observations, during which the researcher is an onlooker and outside observer, and observations in which the researcher is a member of the group and thus influences what is being observed (Babbie & Mouton, 2001). Since I am doing individual teacher action research and I am involved in my own class, I cannot separate myself from the activities being observed or just play the role of a spectator during observations. I am therefore a member of the group and will decide what to observe as the main data-production instrument (Johnson & Christensen, 2008). In other words, I will watch, listen, reflect and also engage my learners in conversation (Mayall, 2000). Although my learners will be aware that they are taking part in a study they will most likely not realise that they are being observed. As their teacher they are used to me being the facilitator and also the observer of their learning.

3.5.2.4 Reflective Drawing

Prior to the focus group interview, the target population (all the learners in the class) will be asked to select and draw their favourite activity out of those that have been done in the class during the four week research intervention cycle. The drawings will be used as a tool to collect more data from the participants (the nine learners taking part in the focus group), gain insight into their way of seeing their learning preferences and interests, and act as a starting point to the focus group interview, thus as a stimulus for further discussions (See Addendum L for examples of the participants' reflective drawings).

There are many advantages in using drawing with learners. Not only is drawing known to be creative and fun to most, but it can also encourage learners to be more actively involved in the research by acting as prompts or triggers for remembering activities which will elicit discussion (Punch, 2002a). The participants' drawings will therefore be used as a warm-up to the focus group as they may help the participants to organize their own narratives in the focus group interview (Hill, 1997).

Drawing has been described as a useful and fairly quick way to gain a considerable amount of information in a relatively short period of time (Fargas-Malet, McSherry, Larkin & Robinson, 2010). However, it should not be assumed that drawings are a simple, 'natural' method to use with learners as it depends on their actual and perceived ability to draw (Punch, 2002a). As my learners have informed me that they love to draw, and use every opportunity they can to draw during class time, it ultimately seems to be the most suitable method to generate data.

It is however important to keep in mind that learners may draw what they find easy to portray; what they think would please me as the researcher (Fargas-Malet et al., 2010); or copy a friend's drawing. Sitting in groups (the proximity of the desks) may mean that peer work can easily be seen and copied (Leonard, 2006; Punch, 2002a). I feel that this will not necessarily be problematic as the drawings will still represent my learners' ideas as a group, but it is important not to over interpret the significance of certain recurring images when analysing the data (Punch, 2002a).

3.5.2.5 Focus group interview

According to Hennessy and Heary (2005, p.2) “a focus group is a discussion involving a small number of participants, led by a moderator, which seeks to gain an insight into the participants’ experiences, attitudes and/or perceptions”. Most research regarding children focus groups have been used to gather information on their views or perspectives, but focus groups are also useful when children’s experiences are of interest to researchers, which is an important facet in my research study (Hennessy & Heary, 2005).

Until relatively recently, research was not done *with* children or *for* children, but primarily *on* children (Darbyshire, MacDougall & Schiller, 2005; Mayall, 2000). Today children are however viewed as social actors who are ‘experts’ on their own lives (Kellett & Ding, 2004; Mauthner, 1997, in Fargas-Malet et al., 2010). But methods that are used for adults cannot be used in the same way with children. Therefore cognitive, linguistic, and psychological differences between children and adults need to be taken into consideration (Gibson, 2012). According to Hill (1997, p.180) the challenge seems to be how to “maximise children’s ability to express themselves at the point of data-gathering; enhancing their willingness to communicate and the richness of the findings”.

Advantages of making use of focus groups when researching children include: creating a safe peer environment with peer support; replication of the type of small group settings that children are familiar with from their classroom work, encouragement to give opinions when they hear their friends contributing to the focus group questions; their memories may be jogged by the contributions of other learners and the method allows for the learners to be acknowledged as experts (Hill, Laybourn & Borland 1996; Mauthner, 1997; Zimmerman, 1996, in Hennessy & Heary, 2005).

As the moderator of the focus group I have three major roles to play. Firstly I have to make the group feel comfortable and at ease. I can do this by including activities that will engage the participants’ attention. In addition I need to set myself apart from being their teacher and emphasize that my role is not to judge or discipline them, but to listen to their experiences of the research process and to try and understand their feelings (Hennessy & Heary, 2005).

Secondly I must keep the group discussion focused on the topic of interest and ensure that all the participants have the opportunity to contribute to the interview (Hennessy & Heary, 2005). I agree with Clark (1996) in that it will be easier to keep the participants focused on the interview topic when they are having fun. Telling jokes and stories can help to keep a sense of fun and can send a message to the group that I am not controlling all the topics of discussion. At all times I, being the moderator, need to monitor the contributions of the learners as participants by ensuring that shy or quiet participants are encouraged to contribute and the more talkative and outspoken participants are not allowed to dominate the discussion. I must also try to enhance the clarity of the participants’ contributions by seeking clarification when responses seem ambiguous (Hennessy & Heary, 2005).

With respect to the number of participants in children's focus groups, age should dictate the size of my focus group. As mentioned before, researchers are of the opinion that it is good to aim for four to six children per group when working with younger children (6-10 years), and for older children the number may be increased to eight, depending on the research question and aims. The reasons being that with too large a group it may be difficult to maintain the focus of discussion and it may even limit all children from participating (Roose & John, 2003) whereas too small a group may result in parallel interviews (Hennessy and Heary, 2005). The duration of focus groups with children under the age of ten should not be more than 45 minutes, while this may be extended to 60 minutes for older children (Gibson, 2012; Hennessy & Heary, 2005).

It is recommended that learners of the same gender form part of a focus group (Hennessy & Heary, 2005). However, both single and mixed gender groups have been successful (Hill et al., 1996). A number of authors suggest that the nature of my research should influence my decision about group composition and gender (Punch, 2002a). Therefore seeing that the participants, coming from the same class, know each other very well I believe that a mixed gender group will work.

As the participants will most likely feel more comfortable when they are in a familiar environment, the participants' familiarity with the location and ease of access must be considered when the groups are being planned. Therefore I will conduct the interview within my classroom. I will have to take the school timetable and after school activities into consideration, therefore (Gibson, 2007) the focus group will be conducted while the rest of the school attends assembly.

Prior to the interview consideration should be given to the seating arrangements. I will arrange for the participants to sit around a circular table, as the table can serve as a support to make them feel less self-conscious and it will also be possible for all the participants to be able to establish eye contact with one another and with me as the moderator. Krueger (1994) suggests for the more dominant and outspoken participants to be seated at the side of the moderator whereas those participants who tend to be more shy should be placed directly across from the moderator so as to facilitate maximum eye-contact, but allowing children the freedom to choose their own seating arrangement can also help to distinguish between the adult-child relationship of the classroom and the focus group (Hennessy & Heary, 2005).

Given the unfamiliarity of children with focus groups, it is essential to discuss the purpose of the group discussion with the participants and provide them with the opportunity to ask questions. After permission to use audio taping has been obtained, it should also be explained. To put the participants at ease, I will allow them to familiarize themselves with the audio taping, by allowing them to record themselves or their peers, and then play it back so that they can hear themselves (Christensen, 2003). I suspect that this will result in shared laughter which will motivate the learners to engage in the interview process in a spontaneous manner (Hennessy & Heary, 2005).

It will also be necessary to explain the format and nature of the interview. This will involve explaining that (a) there are no right or wrong answers to the questions asked, that this is not a test, and that the aim of the discussion is to understand the participants' ideas on the topic; (b) the participants' answers will be kept confidential; (c) the participants will be expected not to discuss what others have said once they leave the room; and (d) only one participant will be allowed to speak at a time and each participant's comments will be respected by the others participating in the interview (Hennessy & Heary, 2005; Punch, 2002a).

I will have to consider whether the language that I use during the interview is understandable to the participants. If it is not the case I need to adapt my vocabulary and format to avoid any misunderstandings (Punch, 2002a). When interviewing the participants it is important that I make use of non-verbal cues such as head nods and keeping eye contact; sounds like 'mm' or 'really'; and verbal prompts which include phrases such as 'tell me more about that' to indicate that I want to hear their stories and I am listening (Cameron, 2005). Cameron (2005, p.603) is of the opinion that it is better to avoid exclamations such as 'Great!', 'Terrific!' or 'Cool!' as these exclamations may discourage the child from telling the whole story which includes the 'non-cool' parts.

Tentative questions will be formulated for the implementation of my interview. These questions will be based on themes that will be identified during the preliminary data analysis of the learners' answers to the questionnaires, observations and reflective drawings. A number of probes and questions will also be used during the interview (see Addendum M for the Interview Guide and accompanied activities). Since the interview will be audio-recorded, it will give me the opportunity to observe non-verbal cues during the interview. The audio-recordings will be transcribed verbatim after the focus group interview (see Chapter 4 for excerpts from the transcription of the focus group interview) (Hennessy & Heary, 2005).

When I conduct the focus group I will begin with the more general questions and proceed in a progressive manner to the more specific topics. The initial opening question and the sequencing of questions that follow must thus be well structured. Approaches to presenting questions should also be considered, with the use of 'what' or 'how' questions preferred to 'why' questions and questions that only initiate 'yes' or 'no' responses (Gibson, 2007). Using phrases such as, 'what does everyone else think', 'does anyone think something different' as opposed to directing a question at a participant who tends to be shy, or going round each member of the group and calling on the participants by name, when they are all excited and talking at once, are useful strategies to follow with children in an interview situation (Kennedy et al., 2001).

Flexibility and creativity are thus essential when running focus groups, as maintaining children's concentration and attention for long periods at a time is not an easy task. A wide range of activities and techniques have therefore been used in focus group interviews with young participants in order to make the interviewing process more fun and interesting, and to give the participants more control over the focus and agenda (Hill, 1997; Punch, 2002b).

Using a combination of materials and techniques provide the participants with time to think about how to express themselves, so they do not feel pressured to give a rapid answer. I will make use of self-completion instruments and pen and paper exercises to maintain the participants' attention (Hill, 1997; Punch, 2002b). Using these 'learner-friendly' methods will hopefully make the participation in the research study more enjoyable for the participants (Hunleth, 2011).

The next section aims to describe how data obtained by the above mentioned strategies will be analysed.

3.6 METHODS OF DATA ANALYSIS

Data that will be collected throughout the research process will be recorded and analysed on a continuous basis. Research within classrooms, as in this particular research study, is not often concerned with large numbers (Macintyre, 2000). Although qualitative data tend to focus on smaller numbers of people than quantitative data the data is portrayed as detailed and rich (Cohen et al., 2011). According to Mouton (2001, p.108) data analysis involves making sense of and 'breaking up' the data that has been gathered by placing it into "manageable themes, patterns, trends and relationships". This is a critically important step in providing explanations of what occurred (Macintyre, 2000).

There is no one single way of analysing and presenting qualitative data, but it should fit the purpose of the study and therefore the research questions. This implies that as the researcher I must be clear as to what I want the data analysis to do as this will determine the kind of analysis that I will undertake (Cohen et al., 2011, p.538). Organising and preparing the data for analysis, will be done by transcribing the audio-recorded focus group interviews verbatim and typing up my reflective journal entries, with the intention of continuing the identification of emerging themes (Berg, 2009). This may involve a series of coded notes or memos created to aid understanding the data. At this stage, an honest, open and emergent interpretation must be provided from my part, so that I am free to engage with the complexities of the patterns that may emerge (Holliday, 2007).

Braun and Clarke (2006, p.79) describe "a method for identifying, analysing and reporting patterns (themes) within data", which they named 'thematic analysis'. I will adopt this method in my research study as a way of organising and describing the data sets in 'rich' detail. What follows is a description of the different phases of the thematic analysis process.

Phase 1: During this phase it is expected of the researcher to familiarise himself/herself with the data. It is preferable that the researcher transcribes oral material himself/herself in order to develop a more thorough understanding of the data by becoming familiar with the content. This requires that the data is reread in an 'active way' while searching for meanings, patterns and themes. It is important to read through the whole data set at least once before beginning with the coding process as it forms the foundation for the analysis. Notes can be made of interesting aspects of the data after the initial reading (Braun & Clark, 2006).

Phase 2: This phase involves the production of initial codes, which can be seen as the most basic elements of the raw data. Interesting features of the data must be coded in a systematic fashion into meaningful groups to organise data to each set. Coded data differs from ‘units of analyses’ in the sense that it is not as broad. It is advisable to code for as many potential themes as possible (Braun & Clark, 2006).

Phase 3: The most important activity of this phase is to search for themes. The researcher should start to analyse the codes and consider how different codes may combine to form a predominant theme. It is advisable to use visual representation, like tables or mind maps, to organise the themes. This offers an opportunity to consider the different levels of themes and subthemes (Braun & Clark, 2006).

Phase 4: This phase starts when a set of candidate themes has been devised; two levels of refining these themes are identified. Level one involves reviewing at the level of the coded data extracts for each theme, by reading them and evaluating whether they form a coherent pattern. If a data extract does not fit, it must be re-worked and added to the existing theme or it must be discarded and a new theme created. Level two involves a similar process, but in this phase the researcher re-reads his/her entire data set for two purposes: (1) to determine whether the themes ‘work’ in relation to the data set and (2) to code any additional data within themes that have been missed in earlier coding stages (Braun & Clarke, 2006).

Phase 5: At this point in the thematic analysis process the essence of each theme needs to be captured by defining and refining it. This implies “going back to the collated data extracts for each theme, and organizing them into a coherent and internally consistent account, with accompanied narrative” (Braun & Clarke, 2006, p. 92). For each theme, a detailed analysis needs to be written as it relates to the research questions. The themes identified in the data generated in this study will be presented in Chapter 4. At this point tentative names or ‘catchy’ names - that will immediately give the reader an idea of what the themes are - should be given to the themes for the final analysis.

Phase 6: This phase involves the final analysis. The writing of the report is done as soon as a diverse set of themes have been identified. The aim is to convince the reader of the validity and reliability of the data by telling the story of the data analysis. The trustworthiness of the study can be enhanced by analysing (writing up the data) consistently and rationally to-the-point to give a non-repetitive version of the data story, “within and across the themes” (Braun & Clarke, 2006, p. 93).

Nieuwenhuis (2007) recommends that the researcher should record his/her impressions, insights, interpretations and reflections while coding. As I am doing action research a final reflection on the entire process, which will provide a holistic thematic analysis of all the data and emerging themes (Holliday, 2007) must be done. Once these conclusions have been made, I will have sufficient data to address my initial research questions. The reflection on this cycle of the action research process will then form the basis for the next cycle of action for a future study.

3.7 VALIDATION AND RELIABILITY OF THE RESEARCH STUDY

In their work Strauss and Corbin (1990) refer to a personal quality of the researcher called the “theoretical sensitivity”. It “refers to the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that which isn’t” (Strauss and Corbin, 1990, p. 42). This is a useful concept with which to evaluate my skill and readiness to attempt a qualitative research study as the validity and credibility of a qualitative research report relies heavily on the confidence readers have in the researcher’s ability to make appropriate decisions in the field and be sensitive to the data (Patton, 1990). Validity and reliability are thus integral concerns in all research.

The validity of action research relies on its methodological focus. Although Adendorff (2007) describes action research as “the ideal research methodology when research in education or the classroom has to be conducted” (p. 29) others like Winter (1982, in Cohen et al., 2011) draws attention to the problem of interpreting data in action research since action research “...has a methodology for the creation of data, but not (as yet) for the interpretation of data” (Winter, 1982, in Cohen et al., 2011, p.361). This highlights that the problem of validity cannot be avoided by arguing that the contexts are unique (Cohen et al., 2011).

Maxwell (1998, in Cohen et al., 2011, p.180) vouches for ‘understanding’ being a more suitable term than ‘validity’ in qualitative research as qualitative researchers cannot be completely objective of the world that they are researching seeing that they form part of it. In this sense validity attaches to the accounts or meanings that the participants give to their data and it is the inferences drawn from the data that is viewed as important and not the data or methods on their own (Cohen et al., 2011).

Lincoln and Guba (1985, in Cohen et al., 2011, p.181) suggest that the key criteria for validity are: (a) credibility (replacing the quantitative concepts of internal validity), (b) transferability (replacing the quantitative concept of external validity), (c) dependability (replacing the quantitative concept of reliability), and (d) confirmability (replacing the quantitative concept of objectivity). Within these criteria of validity thoroughness can be achieved through the following data verification strategies: triangulation, visual audit trails of evidence, confirmation of participants when coding results (member checking) and outsider reviews.

Triangulation is a process where multiple perceptions are used to clarify meaning and verify the repeatability of an interpretation (Stake, 2002). The process of triangulation is enhanced by using different data gathering techniques (Shenton, 2004). In this research, as mentioned in section 3.5, five data gathering techniques will be used to study my research questions. I will thus make use of triangulation not only to deepen my understanding of optimising the learning of my learners and to improve my teaching practice, but also to maximize my confidence in the findings of my research study (Guion, Diehl & McDonald, 2011). Results obtained from the learning profiles and focus group interview and activities will be compared to see if

similar results have been found. If the conclusions from each of the methods are the same, it means that validity has been established (Guion et al., 2011).

Researchers such as Koch (2006) recommend the development of a research audit trail, suggesting that a study's trustworthiness may be established if a reader is able to audit the events, influences and actions of the researcher. According to Sandelowski (1986, in Carcary, 2009), a study's findings are: "Auditable when another researcher can clearly follow the decision trail used by the investigator in the study. In addition, another researcher could arrive at the same or comparable but not contradictory conclusions given the researchers data, perspective and situation". Audit trails thus document the course of development of the completed analysis. In developing an audit trail, I will be able to provide an account of all my research decisions and activities throughout the research study (Koch, 2006). In order to develop a detailed audit trail I will maintain a reflective journal on all research activities and document all data collection and analysis procedures throughout the study (Creswell & Millar, 2000).

Through member checking a researcher seeks to improve the accuracy, validity and credibility of the data that has been recorded during a research interview (Lincoln & Guba, 1985, in Cohen et al., 2011). Member checking, as a form of quality control, will occur simultaneously during the focus group interview where I will summarize information and then question the participants to determine accuracy, as opposed to asking my nine/ten year old learners to critically analyse the findings and comment on it (Creswell, 2007).

The review and supervision of outsiders are central processes of research. An outsider's perspectives form an important part of data verification (Shenton, 2004). In the case of this research study supervision and reviews by the supervisor will be used and integrated in the research process.

Advocates of action research agree that validity and reliability are principles that cannot be ignored if credibility is to be awarded (Borgia & Schuler, 1996, in Adendorff, 2007; Winter, 1982, in Cohen et al., 2011). Van der Riet and Durrheim (2006) are of the opinion that research can be evaluated according to its credibility in producing findings that are convincing, whereas Merriam (2009) defines credibility as the confidence that can be placed in the truthfulness of the findings.

A number of research strategies can be used to enhance the credibility of a study, and a researcher should try to incorporate as many 'procedures' as possible (Babbie & Mouton, 2010; Mertens, 2005). Within this study I aim to make use of projective techniques such as probing and encouragement to elicit opinions and feelings during the focus group interview with the participants (Merriam, 2009). Probing is important with children as they might not at first completely understand the question. Along with probing I believe encouraging them to be honest is also important, as I will be asking questions about my teaching style and the activities they had to do in class. This may cause them some discomfort should they choose to indicate that they did not enjoy some of the activities. I will also keep a reflective journal throughout the process and observe activities and work books.

In order to inform credibility of my research study I have to develop self-awareness. This can be done by questioning or examining what I know and how I have come to know it (Schram, 2006). The credibility of my interpretations also rests on others seeing and accepting the relationship between my factual claims and my reasoning. My reasoning is therefore a matter of persuasion and not a matter of proof (Peshkin 2000, in Schram, 2006).

Whilst the suitability of the term reliability is contested by some qualitative researchers, e.g. Lincoln and Guba (1985), as mentioned above, the importance lies in distinguishing between the criteria of reliability in quantitative and qualitative methodologies. In qualitative research “reliability includes fidelity to real life, context- and situation-specificity, authenticity, comprehensiveness, detail, honesty, depth of response and meaningfulness to the respondents” (Cohen et al., 2011, pp. 203-204). In order to ensure the validity and reliability of my research study I need to be reflexive, make all my processes that I will follow explicit and be transparent in my personal views and values (O’Hanlon, 2003).

Another difficulty that I, the researcher, working with the views of learners, will have to confront is whether or not I can completely believe my learners’ accounts of their experiences (Morrow, 1999, in Punch, 2002a). Since a child may say what they think the researcher wants to hear or may want to create a favourable impression, their accounts still have their own validity in terms of being their own perspectives and the way the world seems to them. This may result in some of the ‘facts’ of their accounts being ‘wrong’ (Punch, 2002a). However, I believe that I have spent enough time with my learners to form a relationship and gain their trust, which will result in them giving their honest opinions. This brings me to the ethical considerations when working with children.

3.8 ETHICAL CONSIDERATIONS

According to Dick (2002, p. 21) “ethical issues are inherent in any research study”, meaning that, I too, will have to address the ethical concerns related to my research study. And since my research will be done in a classroom that is multi-faceted and complex, the ethical considerations relating to my research can be equally complicated (Baumfield et al., 2008). As mentioned in Chapter 1, the primary reason involving ethical issues in this research is to protect the learners as participants. Fine and Sandstorm (1988, cited in Cohen et al., p.79) argue that “children should be told as much as possible, even if some of them cannot understand the full explanation. Their age should not diminish their rights, although their level of understanding must be taken into account in the explanations that are shared with them”. This links to Babbie and Mouton’s (2001, p. 520) view that “the scientist has the right to search for the truth but not at the expense of the rights of other individuals in the society”.

The British Education Research Association (BERA) offers a set of principles to support the aim of ethical research which includes: the person, knowledge, democratic values, the quality of education research, and

academic freedom (Baumfield et al., 2008). Together with this any research needs to be guided by general agreed upon ethical guidelines.

This research study received ethical clearance through the University of Stellenbosch's Research Ethical Committee (REC) (see Addendum A) and it was identified as a low risk study (registration number REC-050441-032). Since learners in a Western Cape Education Department (WCED) school will be participating, permission was obtained from the WCED (see Addendum B) as well. Informed consent was obtained from the participating learners' parents (see Addendum C) and assent forms were completed by the participating learners (see Addendum D). The school principal also gave formal permission to allow the research to be undertaken with my grade 4 learners (see Addendum E).

With regards to my action research study involving my class, the BERA's consideration of an ethic of respect for the person (my learners) is seen as the most important (Baumfield et al., 2008). To protect the confidentiality of the learners in this research study, great care will be taken to maintain the anonymity of the learners by allowing each learner to choose their own pseudonym. This will protect their right to confidentiality. Marshall and Rossman refer to protection of confidentiality as respecting the participants. As the researcher I will respect the learners' "privacy, their anonymity and their right to participate" (Marshall & Rossman, 2011, p.47). They will therefore not be placed under any pressure to take part in the study and they will be allowed to withdraw at any time, as stated in the assent form (see Addendum D). This section aimed to provide an explanation of the ethical considerations of this research study.

3.9 SUMMARY OF THE CHAPTER

The focus of this chapter was to provide information regarding the design of the research and the methodology used. The data gathering methods, data analysis techniques, validation and reliability and ethical concerns were also discussed. In the next chapter, Chapter 4, the data that was collected through the implementation of the action plan will be presented and discussed.

CHAPTER 4

RESEARCH FINDINGS AND DISCUSSION

4.1 INTRODUCTION

In this chapter I present the findings of my study. As indicated in figure 1.2, data were collected during the first, third and fourth phases of the action research cycle. The data collection methods, described in Section 3.5.2, were questionnaires, inventories and activities (See Addendum K); observations (which were added to the learning profiles and reflective journal); reflective drawings by participants (See Addendum L for examples); the focus group interview (transcribed verbatim, see section 4.2.1); and keeping a reflective research journal (see section 4.2.3). The data were generated in an effort to answer the following research questions directing this research study:

How will the incorporation of differentiated teaching improve my teaching practice to ensure support for learning in my classroom?

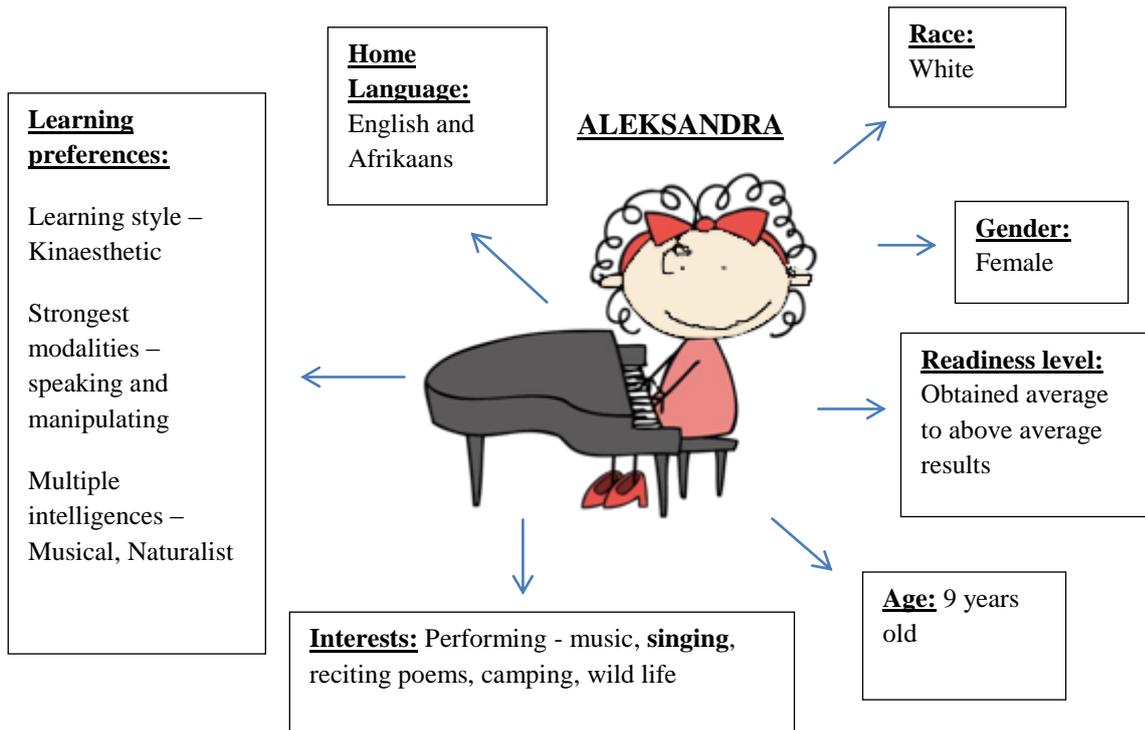
The sub-question which was formulated was:

How will my learners' learning improve by supporting them through differentiated teaching, focusing on learner readiness, interest and learning preferences?

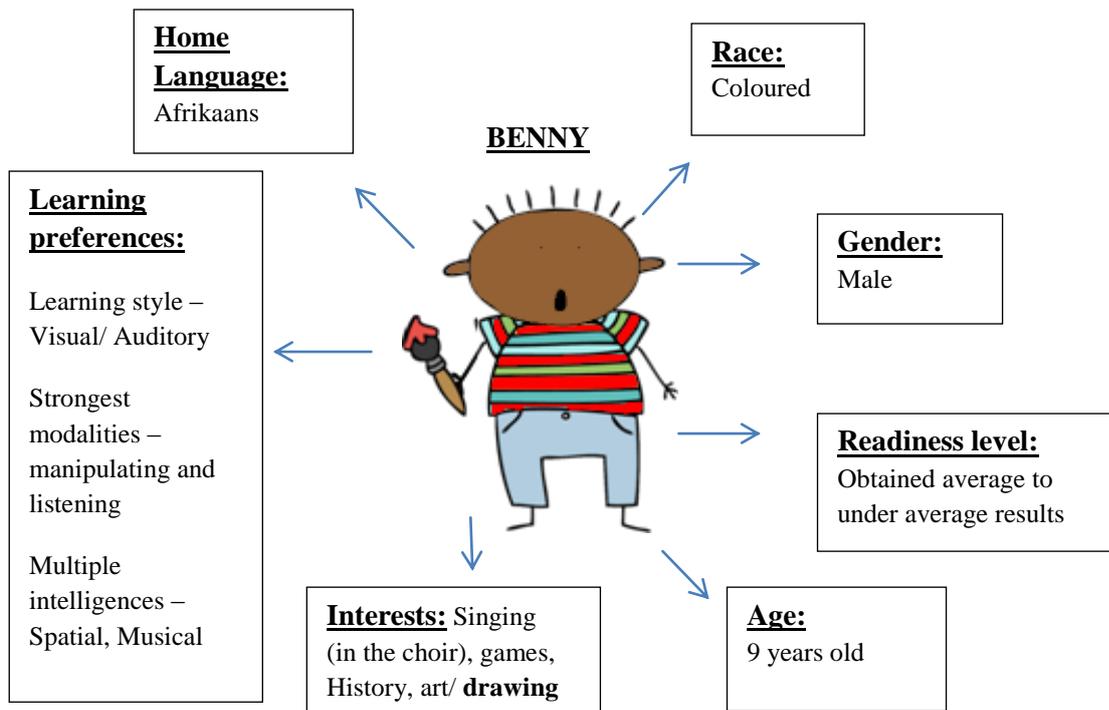
The questionnaires, inventories and activities in phase one of the action research cycle were designed with the sole purpose of gaining insight into all of my grade 4 learners' interests, learning preferences and readiness levels. This enabled me to compile an individual learning profile for each learner before intervention was introduced. Everybody in the class participated in the intervention, but the nine focus group participants were specifically selected to act as representatives of the class. Data were collected from all the learners during phase three of the action research cycle through my reflections and observations of activities and work books; all of which were recorded in my reflective journal.

Even though a learning profile was developed for all the learners in the class only the learning profiles of the focus group participants will be presented as examples in the following section, with their biographical details included in their individual learning profiles. The learning profiles are followed by a description of the process of analysing and presenting the data. To illustrate this process, each step is supplemented by an excerpt that serves to create a visual coding audit trail. To ensure confidentiality and to protect their identities, each participant was given the opportunity to choose his/her own pseudonym.

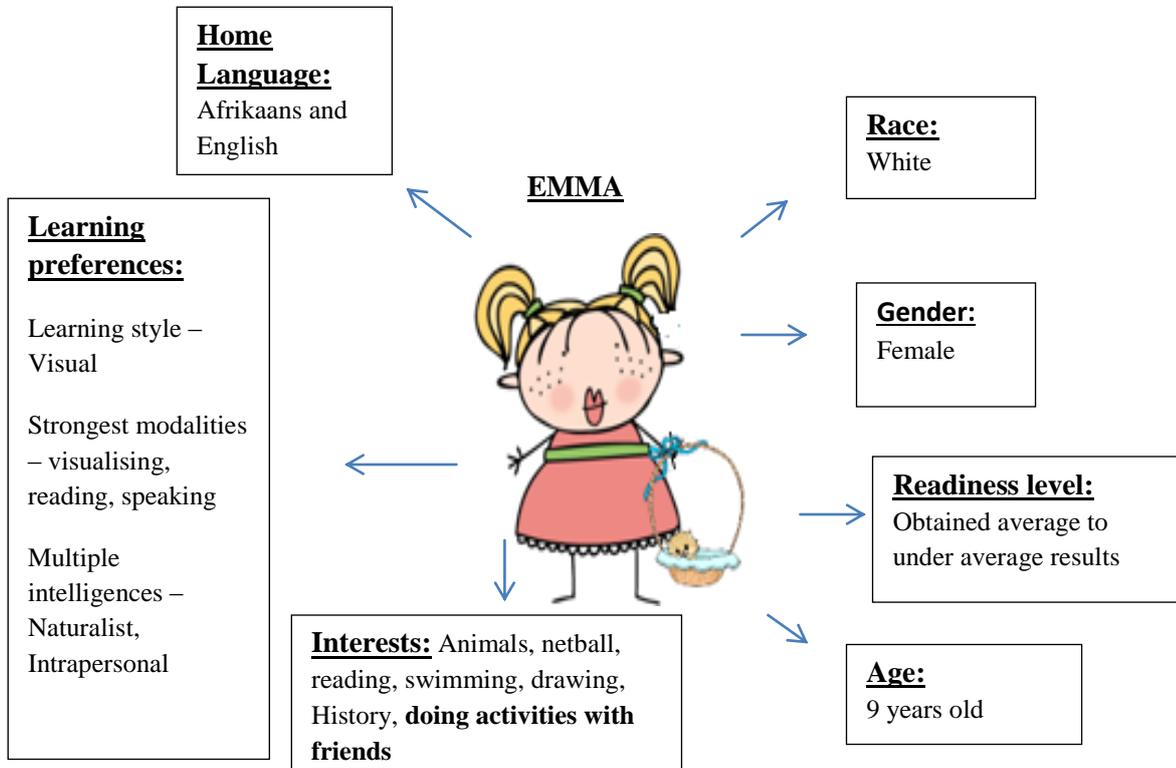
Visual presentations, including pictures, mind maps and tables, of the nine participants' learning profiles have been included (Pictures adapted from www.letteringdelights.com). The purpose of adding race as one of the social categories in the learning profiles is to highlight the diversity of the selected group. The statements that are highlighted are the statements that stood out and correlated strongly with data which were obtained by means of other data gathering methods (mentioned above). An explanation will follow in the next sections.



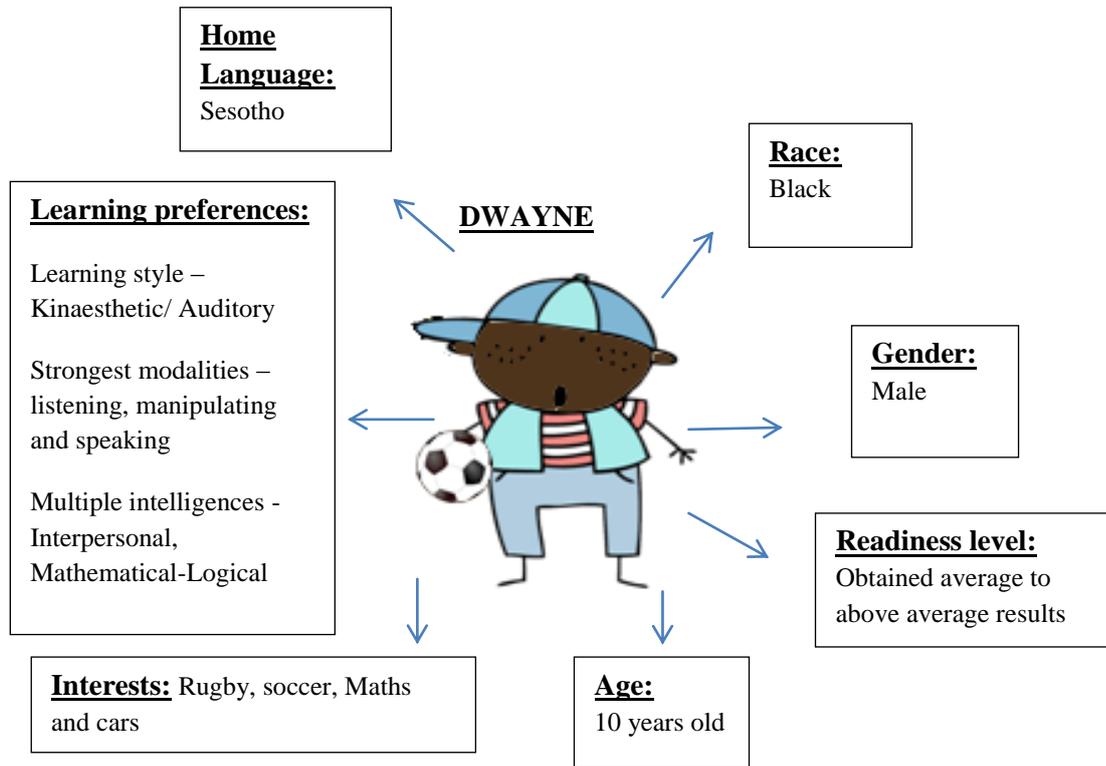
Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Prefers working with a partner who learns as quickly as she does *Wants to work hard until she has finished her work and is ready to stop *Prefers the timetable to change *Wants to wait until everyone understands the lesson before moving on	*Wants to do projects with a partner of her own choice *Prefers sitting with a few friends in small groups *Enjoys teaching others *Wants to alternate working in groups and alone	*Enjoys learning about topics she has chosen *Prefers choosing the way she will show what she has learnt *Likes using computers to find information	*Prefers learning about unusual topics, real problems and famous people *Wants to understand how and why things happen *Does not like learning detail (correct spelling, maths facts, countries and capitals etc.) or studying from textbooks and memorising facts	*Prefers knowing how the teacher will be giving marks before beginning her work and knowing whether her mark is better/worse than classmates' *Wants to know how to improve her marks
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a noisy classroom *More attentive in the morning *Works with minimum light on *Learns better at a warm temperature than at a colder temperature in the room	*Wants visitors to come to school and talk about her favourite topic *Wants to discover reasons for things she doesn't understand with help from an expert *Enjoys learning about people's jobs	*Wants the teacher to explain things *Prefers talking and asking for help *Wants encouragement and understanding	*Learns by building models and imagining pictures in her mind *Likes changing ideas from one form to another. Eg. Maths problem to music	*Prefers sharing work with her family *Enjoys group discussions *Explaining thinking to others- teaching



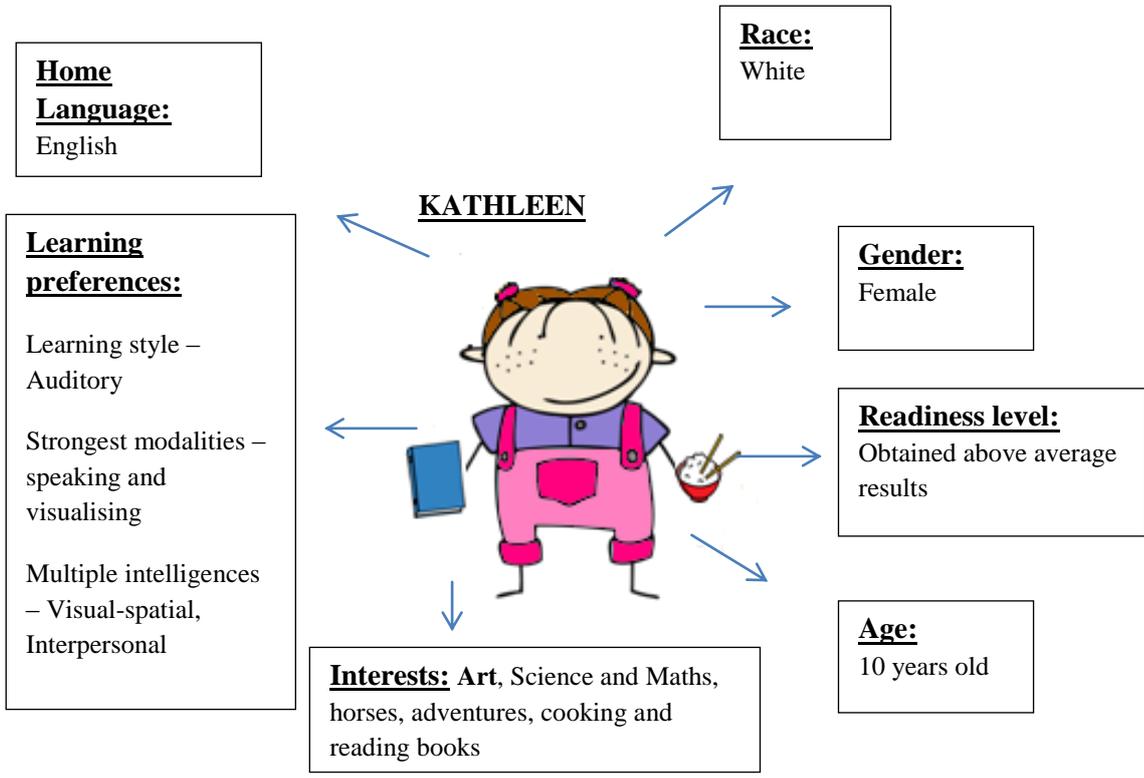
Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Prefers working with a group/partner that learns as quickly as he does *Wants time to think about ideas before starting to work on a task *Prefers the timetable to be predictable *Prefers learning small bits of info at a slow speed with lots of practice and repetition before moving on to the next topic	*Wants to do projects with a partner of his own choice *Prefers sitting with a few friends in small groups *Enjoys being taught by other learners	*Likes learning about topics he has chosen *Prefers choosing the way he will show what he has learnt *Uses computers to find info *Prefers to experiment with help from the teacher	*Prefers learning about unusual topics, real problems, famous people, computers and technology *Wants to understand how and why things happen *Likes studying from textbooks *Does not like memorising facts and definitions	*Prefers knowing how the teacher will be giving marks before beginning his work and knowing whether his mark is better/worse than classmates' *Does not want a friend to mark his work
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a quiet classroom *More attentive in the afternoon *Working with minimum light on *Learns better at a cold temperature comparing to a warmer temperature in the room	*Likes visitors to come to school and talk about his favourite topic *Wants to discover reasons for things he doesn't understand with help from an expert *Not interested in learning about people's jobs	*Wants the teacher to explain things *Prefers talking and asking for help *Wants encouragement and understanding	*Learns by building models and imagining pictures *Likes changing ideas from one form to another. Eg. Story to a play *Wants to understand ideas and problems	*Prefers sharing work with his family *Does not like group discussions or explaining thinking to others-teaching



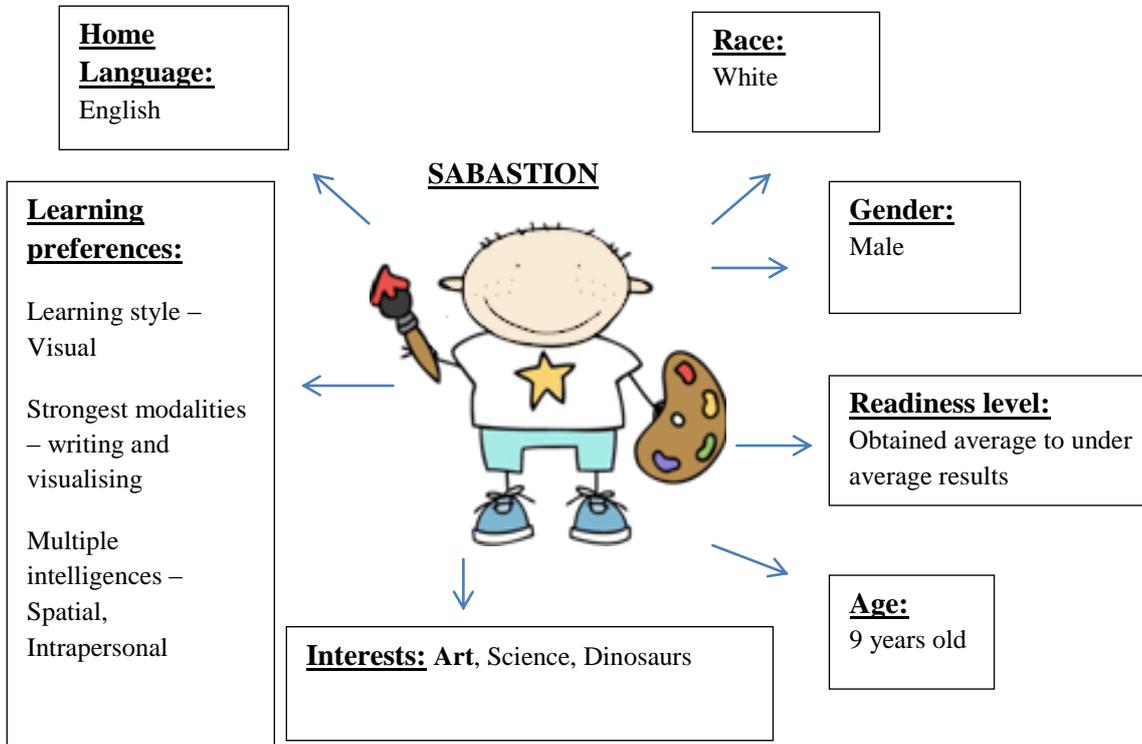
Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Working with a partner who learns as quickly as she does *Wants time to think about ideas before starting to work on a task *Prefers the timetable to change *Wants to learn small bits of info at a slow speed with lots of practice and repetition until she feels sure she knows the work	*Wants to do projects with a partner of her own choice *Prefers sitting with a few friends in little groups *Wants to alternate working in groups and alone	*Likes learning about topics she chooses *Prefers choosing the way she will show what she learnt *Likes using computers to find info *Doing projects with a partner of her own choice *Want to experiment with help from the teacher	*Likes understanding complicated ideas and problems but does not want to memorise facts and definitions *Does not like learning from textbooks or learning about computers and technology	*Prefers knowing how the teacher will be giving marks before beginning her work *Wants to know how to improve marks *Not interested in comparing marks with classmates
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a noisy classroom *More attentive in the afternoon *Works with minimum light on *Learns better at a cold temperature than a warmer temperature	*Wants visitors to come to school and talk about her favourite topic *Wants to discover reasons for things she doesn't understand with help from an expert *Enjoys learning about people's jobs	*Wants the teacher to explain things *Prefers talking and asking for help *Wants encouragement and understanding	*Learns by imagining pictures *Does not like changing ideas from one form to another. Eg. Maths problem to music	*Prefers sharing work with her family *Group discussions *Explaining thinking to others- teaching



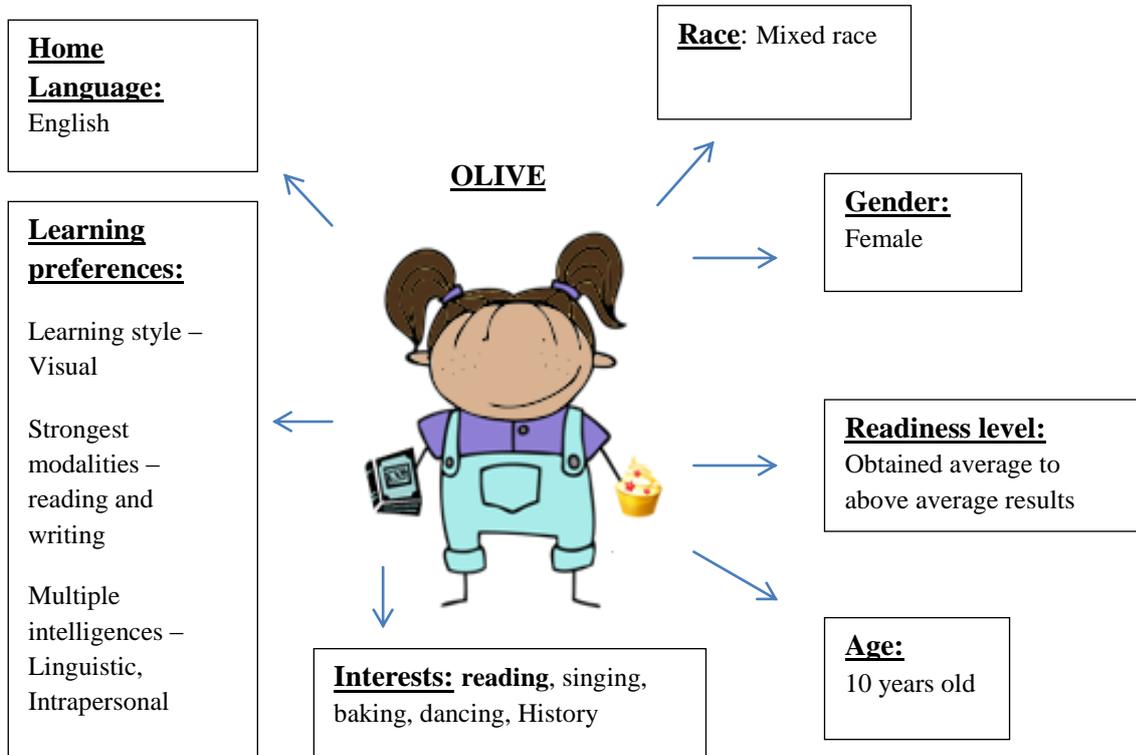
Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Working with a group who learns as quickly as he does *Wants to work hard until he has finished with his work and is ready to stop *Prefers the timetable to change *Wants to wait until everyone understands the lesson before moving on *Prefers practice and repetition	*Wants to do projects with a partner of his own choice *Prefers sitting with a few friends in small groups *Enjoys teaching others *Wants to alternate working in groups and alone	*Likes to learn about topics he had chosen *Prefers the teacher to choose the way he will show what he has learnt *Enjoys using computers to find information	*Prefers learning about unusual topics, real problems and famous people *Wants to understand how and why things happen *Does not like studying from textbooks, memorising facts or complicated problems	*Prefers knowing how the teacher will be giving marks before beginning his work and knowing whether his mark is better/worse than classmates' *Wants to know how to improve marks
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a quiet classroom *More attentive in the morning *Working with minimum light on *Learns better at a warm temperature than at a colder temperature in the room	*Wants visitors to come to school and talk about his favourite topic *Wants to discover reasons for things he doesn't understand with help from an expert *Enjoys learning about people's jobs	*Prefers talking to others and asking the teacher for help *Likes following an interesting idea instead of doing the work the rest of the class is doing	*Learns by building models and imagining pictures *Likes changing ideas from one form to another. Eg. Maths problem to music	*Prefers sharing work with his family *Enjoys group discussions *Likes explaining thinking to others-teaching



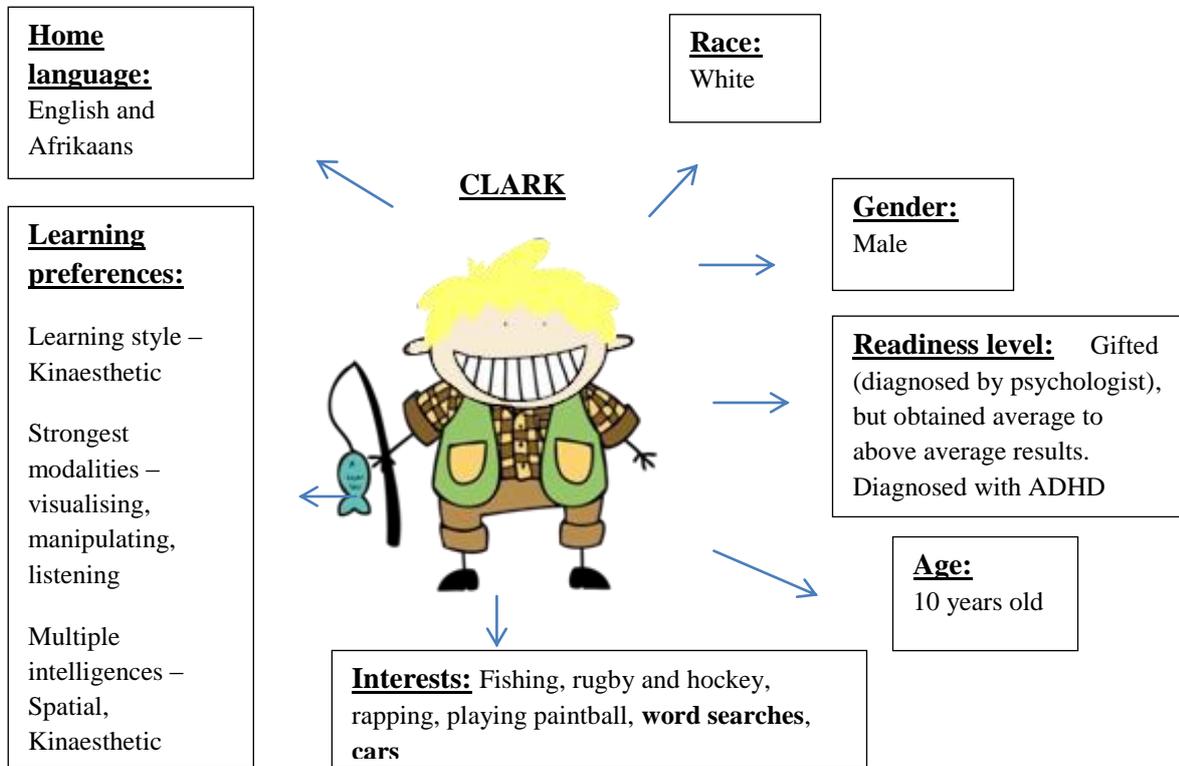
Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Working with a partner who learns as quickly as she does *Wants to work hard until she has finished with her work and is ready to stop *Prefers the timetable to change until everyone understands the lesson before moving on *Wants to wait until everyone understands the lesson before moving on	*Wants to do projects with a group chosen by the teacher *Prefers sitting with a few friends in small groups *Enjoys teaching others *Prefers working in groups to working alone	*Learning about topics chosen by the teacher *Prefers choosing the way she will show what she has learnt *Enjoys using computers to find information *Works on activities given by the teacher *Experiments with help from teacher	*Prefers learning about unusual topics, real problems and famous people *Wants to understand how and why things happen *Likes learning small facts and memorising facts and definitions *Enjoys learning from textbooks	*Prefers knowing how the teacher will be giving marks before beginning her work and knowing whether her mark is better/worse than classmates' *Wants to know how to improve marks
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a noisy classroom *More attentive in the morning *Works with minimum light on *Learns better at a warm temperature than a colder temperature in the room	*Wants visitors to come to school and talk about her favourite topic *Wants to discover reasons for things she doesn't understand with help from an expert *Enjoys learning about people's jobs	*Wants the teacher to explain things *Prefers talking and asking for help *Wants encouragement and understanding	*Learns by building models and imagining pictures *Likes changing ideas from one form to another. Eg. Maths problem to music	*Prefers sharing work with her family *Group discussions *Explaining thinking to others- teaching



Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Working with a partner who learns as quickly as he does *Wants to work hard until he has finished with his work and is ready to stop *Learning small bits of info at a slow speed *Prefers the timetable to be predictable *Wants to wait until everyone understands the lesson before moving on	*Wants to do projects with a partner of his own choice *Prefers sitting with desks in a row *Wants learners in the class to teach him *Prefers working alone to working with a partner	*Learning about topics he has chosen *Wants to experiment with help from teacher *Enjoys using computers to find information *Wants to work on activities given by the teacher *Wants to choose own partner with whom to work	*Prefers learning about unusual topics, real problems and famous people, memorising facts and definitions *Likes learning about computers, technology and from textbooks *Does not like learning small facts or how and why things happen	*Prefers knowing how the teacher will be giving marks before beginning his work *Not interested in others' marks *Does not like it when a friend marks his work *Wants to know how to improve marks
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a quiet classroom *More attentive in the morning *Works with minimum light on *Learns better at a cold temperature than a warm temperature in the room	*Wants visitors to come to school and talk about his favourite topic *Wants to discover reasons for things he doesn't understand with help from an expert *Not interested in learning about people's jobs	*Wants the teacher to understand what he is saying, feeling *Prefers asking for extra help	*Learns by building models *Does not like figuring out complicated ideas and problems *Not interested in changing ideas from one form to another	*Likes sharing work with his family *Enjoys group discussions *Likes explaining thinking to others- teaching



Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Learning at own speed *Wants to work hard until she is finished with her work and ready to stop *Small bits of info at a slow speed *Wants practice and repetition *Prefers the timetable to be predictable *Wants to feel sure that she knows the work before moving on	*Wants to do projects with a partner of her own choice *Prefers sitting with a few friends in little groups *Prefers teaching herself *Enjoys group work	*Learning about topics she has chosen *Prefers the teacher to choose the activities and the way she will show what she has learnt *Using books to find information and going to the library to do research	*Wants to understand how and why things happen *Likes memorising facts, definitions and small facts like important dates in history *Enjoys learning about the lives of famous people *Likes learning from textbooks	*Prefers knowing how the teacher will be giving marks before beginning her work and knowing whether her mark is better/worse than classmates' *Wants to know how to improve marks
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a quiet classroom *More attentive in the afternoons *Working with minimum light on *Learns better at a cold temperature than a warmer temperature room	*Wants visitors to come to school and talk about her favourite topics *Wants to discover reasons for things she does not understand with help from an expert *Enjoys learning about people's jobs	*Wants the teacher to explain things in order to learn best *Prefers talking and asking for help *Wants encouragement	*Learns by building models and imagining pictures *Likes changing ideas from one form to another. Eg. Story to a play	*Prefers sharing work with her family *Group discussions *Explaining thinking to others- teaching



Pace	Collaborative learning	Choice	Curriculum content	Evaluation
*Working with a partner who learns as quickly as he does *Wants to work hard until he has finished with his work and is ready to stop *Prefers the timetable to be predictable	*Wants to do projects with a partner of his own choice *Prefers sitting alone *Wants to work alone	*Learning about topics he chooses *Prefers choosing the way he will show what he has learnt *Enjoys using computers to find information *Experimenting on his own	*Prefers learning about unusual topics, real problems and famous people *Wants to understand how and why things happen *Likes learning small facts – important dates in history *Does not like studying from textbooks	*Prefers knowing whether his mark is better/worse than classmates' *Wants to know how to improve marks *Does not like marking his own work
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
*Prefers a quiet classroom *More attentive in the morning *Working with minimum light on *Learns better at a warm temperature than a colder temperature in the room	*Wants visitors to come to school and talk about his favourite topic *Wants to discover reasons for things he does not understand with help from an expert *Enjoys learning about people's jobs	*Wants the teacher to explain things *Prefers asking for help *Likes following an interesting idea instead of the rest of the class is doing	*Learns by building models *Likes changing ideas from one form to another. Eg. Maths problem to music	*Does not want to share his work with his family *Does not like group discussions *Enjoys explaining his thinking

Home language:
English

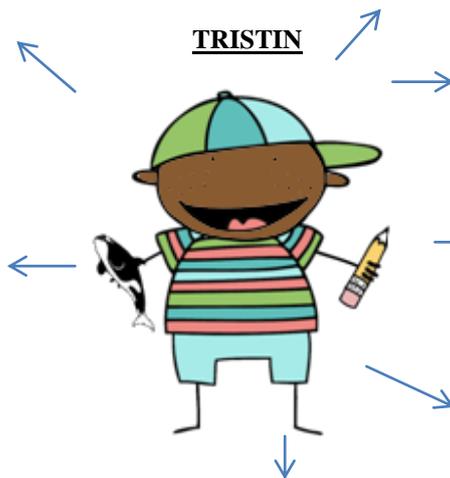
Race:
Indian

Learning preferences:

Learning style –
Auditory/Visual

Strongest modalities –
speaking, listening and visualising

Multiple intelligences –
Spatial, Logical-Mathematical, Naturalist



Gender:
Male

Readiness level: Obtained above average results

Age:
10 years old

Interests: Soccer, Maths, Marine life (whales), adventure, rapping/dancing, **explaining schoolwork to others**

Pace	Collaborative learning	Choice	Curriculum content	Evaluation
<p>*Prefers learning at his own speed *Wants time to think about ideas before starting to work on an activity *Prefers small bits of info at a slow speed *Wants practice and repetition *Prefers the timetable to change</p>	<p>*Wants to do projects by himself *Prefers sitting at a desk away from others so that he can first finish his work, then he will participate in discussions *Wants to work with a partner who learns slower than him- can teach him/her what he already knows</p>	<p>*Learning about topics he has chosen *Prefers choosing the way he will show what he has learnt *Enjoys using computers to find information *Wants to explore with help from the teacher</p>	<p>*Prefers learning about unusual topics, real problems, small facts and famous people *Likes to memorise facts and definitions *Thinks in symbols- not words *Does not like studying from textbooks</p>	<p>*Prefers knowing whether his mark is better/worse than classmates' *Wants to know how to improve marks</p>
Self-knowledge	Expert knowledge	Relationship	Manipulating ideas	Sharing learning
<p>*Prefers a quiet classroom *More attentive in the morning *Working with minimum light on *Learns better at a warm temperature than a colder temperature in the room</p>	<p>*Wants visitors to come to school and talk about his favourite topics *Wants to discover reasons for things he doesn't understand with help from an expert *Enjoys learning about people's jobs</p>	<p>*Wants to do the work the rest of the class is doing- not something different *Wants encouragement and understanding, does not necessarily want to ask for help</p>	<p>*Learns by building models and imagining pictures *Likes changing ideas from one form to another. eg. story to a play *Prefers understanding complicated ideas</p>	<p>*Prefers sharing his work with his family *Enjoys group discussions *Likes explaining his thinking to others-teaching</p>

4.2 THE PROCESS OF STRUCTURING THE DATA

The data consisted of the transcribed focus group interview, accompanied activities, my reflective journal (containing observations) and the reflective drawings. Once all the data was accounted for, the process of analysis could begin; the fourth phase in the action research cycle which involves reflecting on the results of the data by looking at the outcomes. The reflection on the total process will occur in Chapter 5.

I started with the focus group interview transcriptions, adhering to the steps proposed by Braun and Clark (2006) as described in section 3.6. What follows is a description of how I incorporated the different phases of the thematic analysis process in my research.

Phase 1: Firstly, I familiarised myself with the data. I transcribed the oral material myself in order to obtain a thorough understanding of the data. After transcribing the oral material I read through the data set twice to make notes of interesting aspects before starting the coding process. The coding process itself involved re-reading the data in an ‘active way’ while searching for meanings, patterns and themes (Braun & Clark, 2006).

Phase 2: During this phase I started the coding of interesting features of the data, across the entire data set, in a systematic fashion, into meaningful groups, organising data to each set. I also tried to code as many potential themes as possible (Braun & Clark, 2006).

Phase 3: This phase involved analysing my codes and considering how different codes may combine to form a predominant theme. I made use of visual representation, like tables, mind maps and colour coding to organise the themes to consider the different levels of themes and subthemes (Braun & Clark, 2006).

Phase 4: This phase started after I had devised a set of candidate themes. During this phase the themes had to be refined; two levels of refining these themes were identified. Level one involved reading the coded data excerpts for each theme and evaluating whether they form a coherent pattern. If a data excerpt did not fit, I re-worked the theme, created a new theme, added it to an existing theme or discarded it. Level two involved re-reading my entire data set to determine whether the themes ‘worked’ in relation to the data set and to code any additional data within themes that had been missed during earlier coding stages (Braun & Clarke, 2006).

Phase 5: At this point in the thematic analysis process I captured the essence of each theme through defining and refining it. I also wrote a detailed analysis for each theme as it related to the research question (Braun & Clarke, 2006).

Phase 6: This last phase involved the final analysis and writing of the report and began as soon as the diverse set of themes was identified. The aim of this phase is to convince the reader of the validity and reliability of the data by telling the story of the data analysis (Braun & Clarke, 2006).

I also followed Nieuwenhuis’s (2007) advice and recorded my impressions, insights, interpretations and reflections while coding. I used the activities that were done during the interview, including the reflective drawings and my reflective journal entries to verify the data of the focus group interview. All the data pertaining specifically to answering my research questions were grouped and recorded in a mind map. The following sections aim to present my visual audit trail.

4.2.1 Focus group interview transcriptions

Table 4.1 Excerpts from the focus group interview indicating how I incorporated the first two phases of the thematic analysis process

Speaker	Transcription (with colour coding)	Codes presenting possible themes	<i>My thoughts</i> and explanations
<p>Researcher (R):</p> <p>Dwayne:</p>	<p>Yes, Dwayne.</p> <p>What I didn't like most is English. English is like you know my 'Home Language' (Puts up his fingers to indicate inverted commas). So in the exam it was really difficult and when I studied I was really really not interested. Sit down and look at the words. I can't even sit down for 30 minutes without saying, mom I need the bathroom because every time I would make some or other excuse to just you know get my mind off it. But I really didn't like English. But I did do good in English but for me I uhm..uhm..boring..really boring for me..</p> <p><i>Dwayne and some of the other participants look uncomfortable with the fact that he is admitting to not</i></p>	<p>Not interested in English (does not like)</p> <p>Difficult to study when not interested (not interested in something-learning difficult)</p> <p>Cannot sit down and just stare at words (learning preference) Make up excuse not to study (boredom)</p> <p>Did good in English (strong point)</p>	<p>Dwayne comes from a Sotho home and attended an Afrikaans pre-primary school.</p> <p><i>*How can I gain the interests of my learners? The way I teach..Make it fun for them -not feel like work</i></p> <p><i>Interests vs learning</i></p> <p><i>Will do anything not to study if not interested. Can I change this?</i></p> <p><i>*Learners are aware of how they perform. Knows their own strengths and weaknesses.</i></p> <p><i>*Boredom vs having fun</i></p>

<p>R:</p>	<p><i>liking something</i></p> <p>That's ok. Remember you must be honest. <i>(Sabastion puts up his hand)</i> Yes, Sabastion...</p>		
<p>Sabastion:</p>	<p>Well, I don't really like Afrikaans.. I was.. I am not an Afrikaans person. I don't know all the words..yet. And like Tristin said.. I also.. I also learn from other people when they say Afrikaans. So uhm... I.. I..I can't really understand because when I look at the word I can't really understand I get stuck on it and during the test I am a little nervous and then I think Oh no I am not good with Afrikaans and then I can't ...</p> <p>I just look at the word and I try over and over to understand what it means. And then I get stuck on it. But I'm.. But I'm still trying to learn Afrikaans, but it is the only thing that I don't really like.</p> <p><i>Sabastion is looking nervous and unsure</i></p>	<p>Does not like Afrikaans (does not like)</p> <p>Learns from listening to others (learning preference) Struggles when just looking at the words. Gets nervous. (nervousness and uncertainty)</p>	
<p>R:</p>	<p>That's fine. Don't worry. <i>(Benny puts up his hand)</i> Benny...</p>		
<p>Benny:</p>	<p>The only thing that I don't</p>	<p>Does not like Maths</p>	

<p>R:</p> <p>Benny:</p>	<p>like is Maths. Because it is really hard for me. Like sometimes when I uhm check it in my mind...I usually get confused with the numbers and then I just get lower...like the lowest mark I got for maths was...no no...it was Science was seven...but I think Maths was 7 and a half. So it is actually Maths and Science...uhm that's difficult for me.</p> <p>So it is the Maths and Science. Is there any way that you studied in that helped you to understand the work a little bit better. Remember we learnt new ways in the class. What helped you to remember the work a little bit better? When we did what?</p> <p>When we do the sums when you put the brackets like 100x1 then it is 100, then it is 20x2 then it is 40, or double it up. It is much more easier for me.</p>	<p>(does not like)</p> <p>Struggles with Maths and Science (weak points)</p> <p>Gets confused.</p> <p>(Confusion and uncertainty)</p> <p>Finds work easier when it gets done step by step (scaffolding)</p>	<p>The tests that he is referring to counted out of 20.</p> <p><i>*Learners are very aware of their weak points- I must concentrate on building their confidence- point out their strong points</i></p> <p><i>*If learners are going to struggle with the subject- not going to like it</i></p> <p>Benny is referring to breaking up the bigger numbers into smaller numbers to make it easier to multiply. Following a step by step method.</p>
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Table 4.2 Excerpts from the focus group interview: reflective drawings

<u>Reflective drawings</u> – favourite activities with accompanied reasons (as all of the learners wanted to be part of the focus group interview I thought it a good idea to ask the whole class to make reflective drawings, so that they could feel part of the research. However, just the drawings of the focus group participants formed part of the data)						
Name of participant	Tristin	Dwayne	Emma	Aleksandra	Kathleen	
Favourite activity	Gautrain poster	Playing game	Grid map	Role play- Gandhi	Gautrain poster	
Reason for choosing as favourite activity	“one of the best trains I’ve drawn and fun to like work with my best friend”	“I can jump very far” “I like playing outside and running around”	“Played a game” “I like the subject” “Geography”	“love drama it is a cultural thing I love to do”	“work with a very nice group” “It was just fun” “like poems, reading them and writing them” “like drawing”	
Colour coding for emerging themes	Got to draw, fun, worked with friends One of the best trains drawn	Can jump very far, like playing games, running around, playing outside	Playing games, like Geography	Love drama	Working in a group, Fun, Drawing, colouring, reading and writing poetry	
Name of participant	Olive	Sabastion	Benny	Clark		
Favourite activity	Movement sentence	Own diary	Role play- camp	Word searches	<u>Observation</u>	
Reason for choosing as favourite activity	“fun to work with Aleksandra” “Because it was kind of dancing”	“I am an artist and I like to make books and write things into it. “So for me it was very fun” “was an old kind of book” “worked by myself” “don’t have to be in a rush..”	“like doing stuff with my friends” “Got to do it with a group” “get nervous on my own”	“to try and find all the words and you are still figuring it out” “on my own” “much easier” “both have different ideas not going to mix because it is like you turn a magnet on to both negative negative”	*Clark finds it very difficult to concentrate in class and is hyperactive. often tells me he is bored. He is highly intelligent and very interested in word searches. He is allowed to do this after he has finished his class work.	
Colour coding for emerging themes	Fun to work with a friend Dancing	Art, making and writing things, making old things, being creative, History Very fun Worked alone at own speed	Working with friends Working in a group Nervous when doing activity on own	Word searches and figuring things out Working alone Knows interesting facts		

4.2.2 Activities during focus group

Table 4.3 Excerpts from the different activities with regards to multiple intelligences, learning styles, subject interests and grouping

Activities- different activities were done to focus the participants' attention on something specific and to keep them interested in the focus group interview process.					
Name of participant	Tristin	Dwayne	Emma	Aleksandra	Kathleen
Multiple intelligences	Verbal-linguistic, Interpersonal "Love doing orals and explaining things to other people"	Bodily-Kinaesthetic, Naturalist "Love outdoor things, nice being part of the game"	Bodily-Kinaesthetic, Naturalist, interpersonal "Got to play outside and with different people"	Interpersonal, Verbal-linguistic "Love to help people feel special then"	Bodily-Kinaesthetic "Love playing the different games that are known and unknown"
Activities not interested in	None-enjoyed all the activities <i>*Maybe because he did not want to admit in front of me to not liking an activity</i>	Building a bridge, working with the clocks on the blackboard	Writing diary entries, making up silly rhymes/songs for remembering, drawing pictures and making mind maps, working with the clocks on the blackboard	Dancing with a partner Choosing own book from library	Designing/creating maps, forms of transport (interest group activity), role reading
Learning style Reason:	Visual "Good at spelling, walk pass learn the word"	Kinaesthetic "Love working with a friend and enjoyed it"	Kinaesthetic "Easier to understand like this" (feel the words)	Visual "Done with work study from the wall"	Kinaesthetic "Like feeling the words and it is a challenge"
Favourite subject Reason:	History "Like learning about leaders and people from the past, get really good marks"	History "I am a car guy. Very interested in cars and leaders"	Geography "Like looking on the map and saying the directions"	Afrikaans "Born Afrikaans naturally good-not to brag"	History "When studying parents make jokes and make it fun for me"
Subject doesn't like Reason:	Afrikaans "First language English and I am not good in Afrikaans"	English "Gives me so much stress"	Mathematics "Have to add stuff"	Mathematics "All you do is stare at numbers and a page"	Mathematics "Even though good at it find it boring"
Grouping	Prefers working alone. When working in pairs/groups wants to work with peers that have the same interests	Prefers working with a partner. When working in pairs/groups wants to work with peers that have the same interests	Prefers working with a partner. When working in pairs/groups wants to work with peers that have the same interests	Prefers working with a partner. When working in pairs/groups wants to work with peers that knows the work and can help her	Prefers working in groups. When working in pairs/groups wants to work with peers chosen by the teacher

Name of participant	Olive	Sabastion	Benny	Clark	
Multiple intelligences	Verbal-linguistic, Interpersonal “nice to tell about game”	Visual-spatial “Like drawing pictures- very fun”	Bodily-Kinaesthetic, Naturalist, interpersonal “got to play outside and with different people”	Bodily-Kinaesthetic, Logical-Mathematical “find it enjoyable to try and find things”	
Activities not interested in	None-enjoyed all the activities <i>*Maybe because she did not want to admit in front of me to not liking an activity</i>	Playing the grid map game, Making up silly rhymes and songs, forms of transport, role reading, dancing with a partner, role plays, choosing a poem, working with clocks on black board	Writing diary entries, making up silly rhymes/songs for remembering, drawing pictures and making mind maps	Building a bridge, designing/creating maps, forms of transport, role reading, drawing pictures and making mind maps, choosing own book from library, working with clocks on the blackboard	
Learning style Reason:	Kinaesthetic “Fun to write on my partner’s back”	Auditory “Like it because then I know what is going on”	Kinaesthetic “Easier to understand like this” (feel the words)	Visual “I want to find the words in crossword puzzles”	
Favourite subject Reason:	History “Like to read”	History and Geography (Social Sciences) “Fun and easy to remember doesn’t feel like work”	Geography “Like looking on the map and saying the directions”	History “Can remember well”	
Subject doesn’t like Reason:	Geography “Very little reading. A bit boring”	Afrikaans and English (Languages) “Little hard and different ways of doing it”	Mathematics “Have to add stuff”	Mathematics “Sometimes confusing”	
Grouping	Prefers working with a partner. When working in pairs/groups wants to work with peers that have the same interests	Prefers working alone. When working in pairs/groups wants to work with peers that have the same interests	Prefers working with a partner. When working in pairs/groups wants to work with peers that can help him and he can help them	Prefers working together with whole class. When working in pairs/groups wants to work with peers that have the same interests	

4.2.3 Excerpts from my reflective research journal

WEEK 2	Differentiate according to:	Subject:
Monday 20 May - Friday 24 May	Learning preferences	Afrikaans
<p>Learners are introduced to the Afrikaans spelling words for the week. I put up a word wall at the front of the class with the spelling words (for the visual learners to see). We read the words out loud and make sentences with the words on a daily basis (auditory), learners also have the opportunity to ‘play a game’ where I read the words out loud and they write it on their partner’s (the person who sits next to them) backs taking turns (to involve the kinaesthetic learners in the learning process). This is done in preparation of Friday’s test.</p> <p><u>Reflection:</u> All the learners seem to love writing on each other’s backs. Some of them were quite good at catching out each other at not spelling the words correctly. It felt like a game but in fact they were learning. I also told them to try the different ways at home when practising for the test. On Thursday I tried something different and I asked someone to ask me the words. I spelt some of the words incorrectly on purpose and they had to spot the mistakes and correct them. They thoroughly enjoyed playing the role of the teacher. When I asked them the words on Friday comments were, “When I close my eyes I can exactly see where that word was on the word wall” and “You spelt this word incorrectly, mam, but I know how to spell it”. It is moments like these when you realise you are doing something right. The learners are in actual fact enjoying learning! Differentiating this lesson meant that I had to steal a few minutes from other subjects, as I could not finish all the other work planned for Afrikaans for that week, but it was worth it. They enjoyed it and some of them even managed to achieve their highest mark for an Afrikaans spelling test to date.</p>		

WEEK 3: Revision week before the exam		
Monday	Differentiate according to:	Subject:
27 May	Learning preferences	History
<p>We covered the theme of leaders this term. I decided to help the learners revise in different ways taking their learning preferences into account. Learners were asked whether they would like to be Mahatma Gandhi, Nelson Mandela or the interviewer. The learners who do not like going up in front of the class were given the option to just set up interview questions and then give it to an interviewer to ask. Interviewers either set up questions on Gandhi or Mandela from their textbooks and work books. They had to make sure they knew the material and the answers to the questions. The learners who chose to be one of the leaders had to go and study the material on that leader in order to be able to answer the interviewer’s questions. After enough time was given to study the material, set up interview questions and practise interviewing skills learners were called to the front of the class in pairs (determined pre hand). They sat on chairs, received bottles as microphones and a carton frame was held up by two other learners that acted like the TV screen. If a learner couldn’t answer a question we acted like the leader ‘suffered from short-term memory loss’ and he could ask the ‘audience’ for help.</p> <p>Reflection: Seeing that I seem to have a lot of extroverts and also kinaesthetic learners in my class as indicated by the learning profiles that was set up this was a very successful way of teaching and revising the content of leaders with them, but I also had to take the other learners into account and therefore gave learners different options to taking part in this revision activity. Overall my class love games and they need to be kept busy in a fun way. I don’t even think they realised that they were also studying/learning while being part of the ‘audience’. For each time a question was asked in front and they answered it in their head or listened to the correct answer the work was being reinforced.</p>		

WEEK 3	Differentiate according to:	Subject:
Wednesday 29 May	Learning preferences	Geography

We covered map work this term. The learners who tend to be more visual find this easier, as they enjoy colouring the different maps and remember where the places are situated on the map. I therefore decided to concentrate on how to teach map work, taking the kinaesthetic and auditory learners into account. In order to remember the names of the seven continents and nine provinces we made up rhymes. I also considered the multiple intelligences and learners were allowed to change the rhymes into songs as well (Musical intelligence). We went outside and drew the maps with chalk on the tar. A province or continent was called out and one learner at a time was asked to stand in the space that presented that province or continent. We also did an alternative to this, where I asked all the learners whose names begin with E to stand in Europe etc.

Reflection: The learners loved making up rhymes and helping me draw the maps on the tar. Even though the continents/provinces did not come out quite the correct shape, they got the hang of it and continued playing ‘stand in the correct province/continent’ throughout break. It caused problems when the other learners came out for break and it was difficult keeping them relatively quiet while the other learners were in class sitting in their desks doing revision. I still feel that by making it interesting, they definitely learnt more doing it this way than sitting behind their desks trying to get the content into their heads by staring at the page.

WEEK 4 (4 June): After the revision week

Reflection: I could teach this way every day! We had so much fun! I spent one day per subject: differentiating the content, process and product without any time limit or specification how things should be done. I could successfully differentiate and take all the interests, readiness levels and learning preferences of my learners into account. I didn’t only revise but also taught them how to study and gave each child’s parents a page with their child’s possible learning preference with tips how to study for the exam.

WEEK 5 (14 June): After the examinations

After the exams I received positive feedback from two parents who told me it helped having guidelines when helping their child to study for the exams. I also saw positive results in the exams when the average of my class was on par with the Afrikaans classes for the first time. I don’t think this would have been the case if I had not put in so much effort to differentiate. We even had the highest class average for History. As they enjoyed learning about the leaders and loved the interviews, they could easily remember the interview questions.

4.2.4 Mind map illustrating my thought process and the refinement of the themes (Phases three and four)

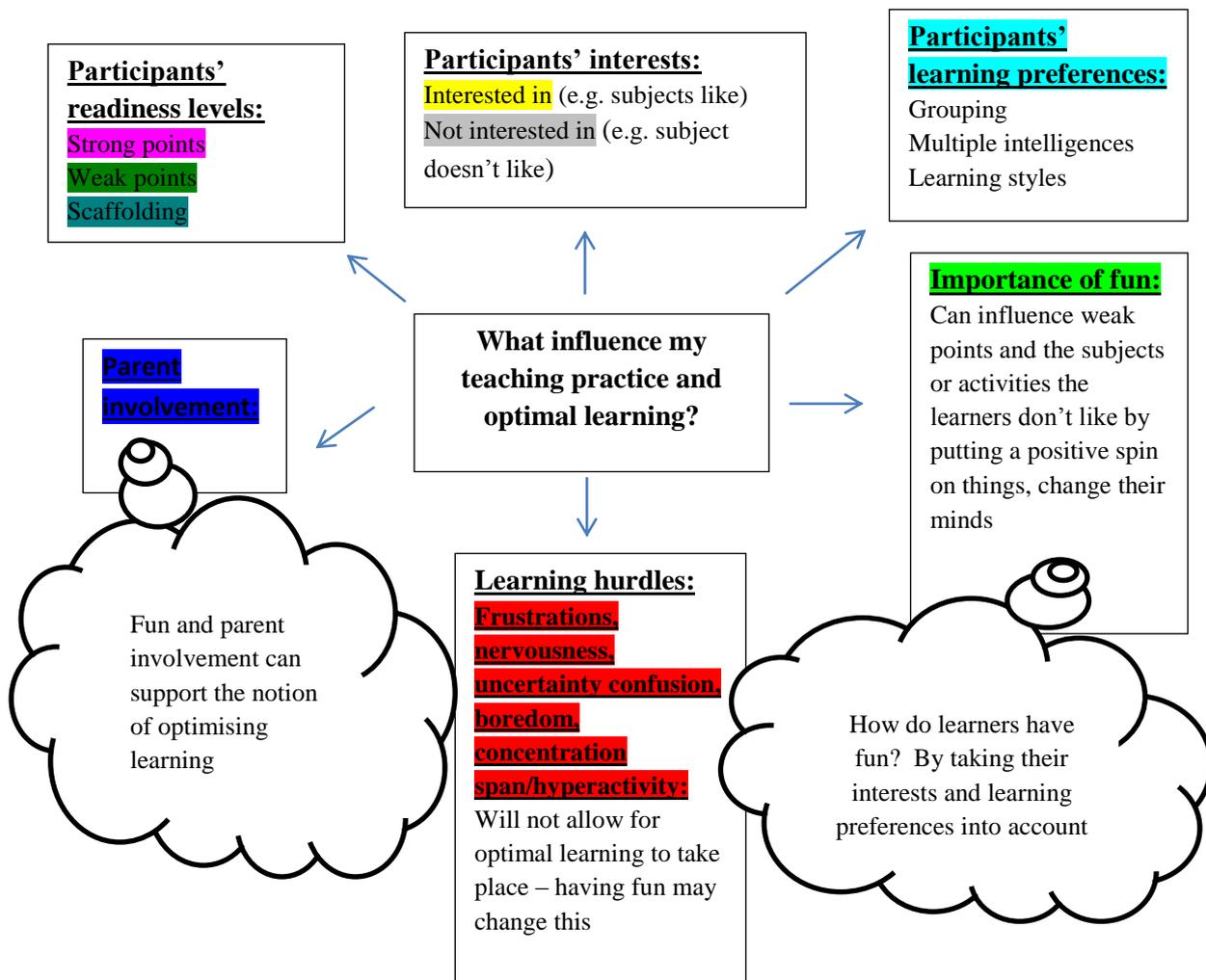


Figure 4.1: Illustration of my thought process and selected themes

In the following sections the findings will be discussed in relation to existing literature to attend to the research questions.

4.3 DISCUSSION OF RESEARCH FINDINGS

This section presents Phases 5 and 6 of the thematic data analysis by discussing the six themes which emerged from the research data as indicated in the mind map above.

4.3.1 Participants' readiness levels

One central aim of this research study was to observe, and reflect on how my grade 4 learners' learning would change through the incorporation of differentiated teaching procedures and strategies. Social constructivists focus on the need for intentional mediation and interactions within meaningful physical, social and cultural contexts (Kugelmass, 2006). In order for effective learning to take place the tasks that I designed and my teaching had to be focussed on a level that is neither too difficult nor too easy, but still remains within the learner's capability level, namely, within the zone of proximal development (ZPD) (Watson, 2000).

The participants were well aware of their own strong and weak points as indicated by their answers during the focus group interview and activities.

Indication of awareness of strong points: *"I am good at answering Afrikaans questions like the Afrikaans listening tests", "that was one of the best trains I've drawn", good at spelling", "I am good in for like knowing people and what they do and what they did and stuff like that" (Tristin); "can jump far"(Dwayne); "born Afrikaans, naturally good at it-not to brag"(Aleksandra); "I know a lot about cars"(Clark).*

Indication of awareness of weak points: *"So it is actually Maths and Science...uhm that's difficult for me"(Benny); "My weak point is Maths"(Clark); "I am not very good at it, but I like drawing"(Kathleen); "The subject that I struggle the most in is English"(Aleksandra); "Even if you get people who is almost good at everything and helps, they too have a weak point. Like me, my weak point is Afrikaans" (Tristin).*

I felt that it was important for the learners to realise that although we cannot all be good at the same things, we all have something at which we are talented. As I reminded my learners during the focus group interview, *"We all have different strong points and I have been saying that a lot in class" (Researcher)*. I observed that as soon as the learners were busy with something that they had identified as their weak point and they struggled, it resulted in frustration, uncertainties and nervousness (which will be discussed in the next section). Therefore I made a point of focussing on my learners' strengths as this empowered especially those who struggled (Tomlinson, 2001). However to 'label' learners according to their strengths and then simply continue on teaching in the same way, will not assist learners (Seifert, 2011; Turville, 2008). I must incorporate their weak point with their preferred way of learning. For example, Benny (who becomes confused when he has to complete Mathematics work sheets) was given the opportunity to work with two clocks on the black board to support him in working out the elapsed time instead of completing a work sheet on this problem.

According to Gindis (1999) scaffolding can be seen as a strategy to access the ZPD and reveal the hidden potential of a learner. The importance of scaffolding is highlighted in my research.

Benny indicated that he finds Mathematics difficult as he becomes confused, but *"when we do the sums when you put the brackets like (100x1) then it is 100...it is much more easier"* and Aleksandra said, *"I like it*

when someone goes through it with me” “When Tristin or someone else explains it to me like step by step”. “When I struggled with rounding off to the nearest Rand, I had to do it by myself (in previous teacher’s class). Now you do it step by step with me. I like it better when you do it step by step and for someone to help me and like Mrs Y (referring to the grade assistant supporting the girl in our class who is academically weak) does it with Lila (pseudonym)”.

Each learner’s learning experience is unique depending on their individual circumstances. This means that I have to adjust my teaching and strategically group my learners according to their readiness levels. I tried to meet this particular challenge through intentionally designed lessons determined by pre-assessment (see Addendum H for an example). This assessment indicated whether a learner was ready for a deeper level of understanding or needed additional support. It also indicated whether additional strategies were necessary in order for the learner to understand new learning material.

Tristin (academically strong) explained how he would receive more work, when he was ready for a deeper level of understanding. *“When I am finished you give me more work to like study and it is nice and then sometimes you give us free time and sometimes I use that free time to do more Maths”* (free time is known in my class as a time when learners are allowed to do fun activities related to any of the subjects). This shows how advanced learners can be challenged by differentiated teaching as it provides them with the stimuli to develop a sense of self efficacy (Tomlinson, 2001).

Apart from the grade assistant acting as a mediator in class, we also made use of peer support/teaching in our class as a form of mediation to understand new learning material. The learners who understood the work had the opportunity to take on the role of teacher and it seemed to enhance their self-esteem and taught them how to care for and support others. *“Whenever I get to help someone I feel like warm inside. Even not their friend wanted to help them” (Dwayne); “I feel better knowing that I helped someone than leave someone to struggle themselves”. “I like helping other people because then they can understand what I do” (Tristin); “Love to help people feel special then” (Aleksandra).* I also received positive feedback from the learners who received support, *“It is kind of easier to have someone help you” (Olive); “Don’t know the answer she can help me”(Emma).*

This goal of differentiation according to learners’ readiness levels is thus for all learners (including those who can be considered gifted) to be appropriately challenged to ensure success and academic growth (Turville et al., 2010).

After one of my lessons I made a note in my reflective journal that I have realised that ‘the middle group’ might not been appropriately challenged and I made a point of adapting my activities and giving more attention and support to these learners.

“I realised that I need to support and challenge the ‘middle groups’ more as they were always just doing the prescribed work (planning done by grade 4 Maths planner). The support worksheets were too easy for them

and there was never enough time in the given Maths periods for them to finish their work and go over to doing the enrichment worksheets as well. They seem to be the ones disrupting the class” (Excerpt from my reflective journal of Tuesday 21 May).

“I decided to adapt the ‘middle group’ work for today. I only took a few of the sums from the Maths planning and combined it with ‘easier’ and ‘more difficult’ sums from the other groups’ worksheets. I also made a point of supporting the middle groups more. The groups were working productively. The work that they did not finish was given as homework. Planning and marking the books takes much longer as everyone is not to doing the same work and I am worried about what is going to be said at Mathematics book control when all my books look so much different from the other grade 4 classes” (Excerpt from my reflective journal of Friday 24 May).

Learners need to be working at different levels as their ZPD, the zone in which learning occurs, differs. By grouping my learners who have similar ZPD's to work on the same tasks, I could optimise learning as they worked towards a goal cooperatively. This showed me that I can connect with each learner's potential in the ZPD (Donald et al., 2010) through differentiated teaching. My research study therefore agrees with the notion that social constructivism is seen as an appropriate theoretical approach to understand learning and development and enable optimal learning; stating that learning represents a unique construction of knowledge as a result of social interaction relevant to a learner's specific ZPD (Donald et al., 2010; Giest & Lompscher, 2003; Veresov, 2009). By means of supporting my learners through differentiated teaching I could start at the learners' current levels of functioning and through a process of mediation ensure that each learner bridges his/her gap in understanding to reach a higher level of functioning (Cox, 2008).

4.3.2 Learning hurdles (Barriers to learning)

According to Byrnes (1996, in Tomlinson et al., 2003) a learner who finds the work too easy may become bored, whereas a learner who finds the work too difficult may become unmotivated, frustrated and even confused. Additionally Erikson (1963; 1968 in Louw, 1997) argues that failure leads to feelings of incompetence. All these factors may play a part in enhancing or hindering optimal learning in the grade 4 classroom. During my data analysis I identified frustration, nervousness, stress, boredom, uncertainty, confusion and hyperactivity as learning hurdles which hindered optimal learning. Tomlinson and Allan (2000) argue that grouping learners to do work that is outside their ZPD (too challenging) will result in frustration and they will be unable to accomplish the learning task even though they have the assistance of others in the group. I had to make sure that the extra sums that I included in the work of the ‘middle group’ were not just given to keep them busy, or were too difficult, as my aim was to optimise learning and not cause frustration.

During the first week of the intervention, I observed frustration and confusion. The learners were not used to sitting in different groups and doing pair work and group work. I was overwhelmed by trying to incorporate

all the new strategies and procedures, as I only started during this term (second term of the year). I had been teaching at the school for two years and three terms when I received a scholarship from the European Commission to study at Masaryk University in the Czech Republic as an exchange student. The school granted me study leave. This means that I was abroad during the fourth term of 2012 and the first term of 2013. I returned at the beginning of the second term, which meant that I was still in the process of getting to know my learners and cope with the new curriculum (CAPS) which had been implemented from the beginning of the year, when I started my research. However, setting up the individual learning profiles helped tremendously to initially identify learners according to their strengths. I was then able to differentiate my teaching accordingly and assist my learners in developing effective ways of learning (Seifert, 2011; Turville, 2008). Benny, one of the participants, admitted to not liking Mathematics, as the numbers confused him. This once again shows the importance of differentiating, for instead of Benny giving up, he can now be empowered by focusing on his strengths, as mentioned previously. Once I was confident with the practical implementation of the new strategies and procedures I made an effort to broaden the scope of learning preferences of each learner (Williamson & Watson, 2006).

Group work also caused challenges for certain learners. Dwayne did not know how to cope with learners who did not cooperate. He vented his frustration when working with certain partners as follows,

“I have realised now working with some people they will just write and write.. ok so you have a sum and then you go through the answers and then you got something wrong. And then they want the answer and if you don't give them the answer they want the answer, the answer and they get worked up and everything. I want someone who can teach me or when I teach them they take it seriously”.

During the History revision lesson that made use of interviews (See section 4.2.3), I realised that by asking learners to do something that they are not comfortable with will make them nervous, potentially causing a barrier to learning. I therefore allowed the learners to choose the activity that they preferred. They could choose to set up questions, be the leader or interviewer or form part of the audience. This allowed for a greater sense of ownership and comfort, and allowed for learning to take place.

Benny admits that he prefers to work in a group, as he finds it intimidating when he has to risk working with new learning material on his own. Sabastian becomes anxious when he gets ‘stuck’ during an Afrikaans test. He sees Afrikaans as his weak point and thinks he cannot master it, consequently his results do not reflect his true potential. Olive wants to know how the day will be structured, as she worries when she has only Mathematics to do. She wants to do other subjects as well, to be able to temporarily forget about the sums that she finds challenging. She also admits to not liking English, as she finds the subject stressful. Dwayne is also not interested in English. He finds the subject boring leaving him unmotivated to try his best. Olive also quotes boredom as a reason for not liking Geography *“Very little reading. A bit boring”*. Even the ‘middle group’, as mentioned, were bored and started to disrupt the class, when I made the mistake of not challenging them sufficiently.

Clark is a gifted young boy who has been diagnosed with Attention Deficit and Hyperactivity Disorder (ADHD). Since ADHD typically peaks during the middle childhood years it is important that I am aware of the impact this may have on, not only Clark, but the other learners as well (Charlesworth et al., 2011). Clark often complains about being bored in class. He may find the work too easy, but he is also well aware of the fact that he finds it difficult to focus. He describes it as follows: *“Concentration span nothing at all”, “I am always behind”, “Because I...I can’t focus in class. I always have to fidget...even now, while recording this”*. However, it is amazing how he can sit perfectly still when doing his word searches in class. *“Word searches are not one of the activities we did as a class. I give Clark word searches to do after he has completed his work on a certain topic/concept. I regard it as educational as I find specific word searches that are related to the topics/concepts discussed in class. It thus serves as enrichment for him. Clark needs to be stimulated as he gets bored with the class work easily, but is fascinated by word searches and crossword puzzles”* (Excerpt from observation recorded in my reflective journal). This illustrates the need to challenge advanced learners to prevent boredom and mental laziness (Tomlinson, 2001). Clark feels unsure and uncertain of himself when it comes to Mathematics. *“Well my weak point is Maths, because always when I always am curious. I don’t know if it is right or wrong. But when I write the correct answer then I think noooo then I change it all back to the... to the wrong answer then. Then I only see I got that one right all the time (sighs)”*

As their teacher I try to address the above barriers in order to create the opportunity for optimal learning for all learners. One of the ways to accomplish this is by making learning fun. When learners are having fun while learning it can create the necessary energy and motivation for learners to succeed despite certain barriers to learning. The next section highlights the important role that fun can play in a grade 4 learner’s life.

4.3.3 The importance of fun (motivation in learning)

Fun with a purpose supports learning - Bob Sullo -

Although learning in a fun way was not specifically discussed in the literature review, the importance of it to learners in their middle childhood years proved to be a prominent theme when analysing the data.

Glasser’s Choice Theory (2010) identifies fun as a basic need that drives human behaviour, but what is meant by the word *fun*? Some will translate the word into ‘meaningless play’ which suggests that it is something unimportant and educationally worthless, as the belief remains strong that learning can only take place when learners are quiet and that teachers who make learning fun run the risk of being declared unprofessional. Others regard it as ‘engagement’ and ‘attention’ to what is being done. It is the enjoyment of the learning process. The teacher decides how to interpret the word fun and how it can be aligned with learning and the educational process (Prigge, 2002; Pink, 2009; Slade, 2010).

Embracing the belief that fun can lead to engagement, meaning, purpose and learning has an effect on what and how we teach. Fun not only makes for smiles and laughter which lower stress levels, but it can also motivate and give ownership to a learner's learning, as engaging learners in activities that are creative and fun provides a positive learning experience (Prigge, 2002).

Fun therefore implies that I am teaching the learners to enjoy the subject which will motivate them to learn. Fun in this sense is not entertainment or silliness (Slade, 2010). Fun does not equate to being too easy nor too difficult, or to feeling disengaged from content and process (Pink, 2009).

Willis (2006, p.58) highlights the learning benefits of fun.

“The truth is that when the joy and comfort are scrubbed from the classroom and replaced with homogeneity, and when spontaneity is replaced with conformity, students' brains are distanced from effective information processing and long-term memory storage. Optimal brain activation occurs when subjects are in positive emotional states or when the material holds personal meaning, connects to their interests, is presented with elements of novelty, or evokes wonder. This is why attentiveness is so closely linked to positive emotional cueing and personal meaning. When there is connection to prior knowledge or positive emotional experience, the passage of new information through the limbic system will be enhanced. The thalamus will then ‘decide’ to pay attention to the information”

Jensen (2005) agrees with the link that exists between engagement, emotional experience and learning, but he also highlights that learning works best when the activity is intrinsically meaningful to the learner. The task must thus be relevant to the learner, which is why the brain will not adapt to senseless tasks.

According to Pink (2009, p.118) lessons that have *flow* (are fun) are “Goldilocks tasks, challenges that are not too hot and not too cold, neither overly difficult nor overly simple”. In order to make the tasks and skills being learnt fun I had to make sure that the activities that I expected the learners to complete were neither too easy nor too difficult. Through my reflections at the end of each lesson it was made evident that both the learners and I were having fun.

“It is moments like this when you realise you are doing something right. The learners are in actual fact enjoying learning! Differentiating this lesson meant that I had to steal a few minutes from other subjects as I couldn't get to all my other work planned for Afrikaans this week, but so worth it, seeing that they enjoyed it and some of them even managed to get their best mark for an Afrikaans spelling test to date” (Excerpt taken from my reflective journal).

“Overall my learners love games and they need to be kept busy in a fun way” (Excerpt taken from my reflective journal).

The word *fun* (used interchangeably with nice) was a very popular word during my analysis, seeing that it made its appearance several times when transcribing the focus group interview and in the focus group activities when reasons had to be given why a specific subject is seen as a favourite or how they remembered the work. What follows are excerpts from the focus group interview transcription of what some of the participants views as fun.

Tristin: *“Fun to like work with my best friend”, “Mam, I like the second term when you came because you helped us and made it easier for us..uhm..in a fun way..uhm..I liked it a lot...now when Mrs X was here in the first term she was my favourite teacher until you came..she was just like..she was kind and all of that and we had parties and stuff like that, but she didn’t help us learn in a more fun way and you helped us a lot”.*

Kathleen: *“Work with a very nice group” “it was just fun”; “when studying parents make jokes and make it fun for me”; “more fun (second term), you get different activities to learn new things whereas the other time we just had to sit in rows and work. It is nice now working with partners and sitting in groups, getting points. Learn things together, that is very nice”; “It was nice(fun) writing the poem on the side and colouring in everything”, “I don’t just want someone’s opinion. It is nice(fun) working and then explaining how you got to the answer and then...looking and...understanding why that is the answer. Not just someone giving you the answer”, “Even if you don’t like the subject it is still nice(fun) to learn in the different ways, like for a new way of learning it”*

Olive: *“Fun to work with Aleksandra”*

Sabastion: *“I am an artist and I like to make books and write things into it and I like to, ...like it was an old kind of book. So for me it was very fun to make like crumbled up paper and put uhm it into a book and read it”; Social Sciences are “fun and easy to remember doesn’t feel like work”; “Mam, I..I prefer when I am with a person because then I, like Aleksandra said, when they get stuck you can help them, and when you get stuck you can ask them to help you and ummm it doesn’t really feel like work it actually feels like so fun, you don’t even know that you are in work. And then you ask your partner ‘ Can you help me’ and then he says, ‘yes sure’, it is almost like a puzzle. It is really fun, it doesn’t feel like work”.*

Dwayne: *“I just liked the three sticks that Noel bought it was really nice (fun) because you know I’ve got skinny legs and I can jump very far”; I like playing outside and running around you know, it is just, just nice (fun) for me to run around you know”; “It was really nice because sometimes I got to ask my mom questions and she’ll like sit there and wonder what it is. It is like really nice (fun)”;* “I really liked it when you came because you know it is much nice (fun) because you help us and.. and you give us all these easy activities to do and when you are done with your work most of the time you get more maths but what I like most is the free time”.

Although Clark does not talk about fun specifically he mentions that he wants to work alone *“because then once I get to writing it I won’t stop until unless I have to like wash my hands, play a little bit, and then I say,*

“now come let’s play a little bit, then finish the work and then wait for the next work”. It sounds that he can motivate himself to work by giving himself time to have fun or by having a little break. I have observed this type of behaviour he is talking about in class and therefore made a point of giving him little breaks and he is also motivated by the opportunity to do word searches.

If a lesson is not fun, in other words, meaningful, engaging and challenging, why teach it? It is clear that learners are asking to have fun. This supports the notion of learning in a fun way. To ensure that learning occurs in a fun way I need to focus on the learners’ interests and learning preferences. This will be discussed in the following sections.

4.3.4 Participants’ interests

Tomlinson et al. (2003) are of the opinion that by zooming in on your learners’ interests you can engage your class in the learning process and promote learner creativity, satisfaction and independence. During the thematic analysis of the data it became evident why interests are called “a doorway to learning” (Tomlinson and Allan, 2000, p.19). My learners’ interests and field of reference played a role when they had to study for a test or examination. It was evident that when learners were interested in a subject studying became easier and their results improved. Whenever a learner did not obtain good results for a certain subject/activity or struggled with the learning material they automatically blamed the subject/activity. The task was just too challenging to master. However, some of the participants did mention that the different ways they studied for the examinations promoted interest in the subject that they would ordinarily not like (learning preferences will be discussed in the next section).

During the focus group interview Benny, Dwayne and Kathleen highlighted the role that their interests played when studying for the examinations.

Benny: *“I like studying Geography because it is like uhm yes uhm my mom says I, we are going for holidays somewhere else then I look on the map and I see where that place is and then I’m gonna see how far it is so..then I...uhm... go and tell my mom show in my book where it is”*

Dwayne: *“When I study it is easier for me because I am interested, concentrate really well and I remember everything”*

Kathleen: *“It was much easier (studying/doing something that I am interested in) than doing something that I am not really interested in because when I am interested in something I want to read it and I want to do it so it is so much longer concentration span doing that”*. The inference can therefore be made that when a learner’s interests are recognised and utilised in the learning process, his or her motivation heightens (Reeve, Deci & Ryan, 2004, in Manning et al., 2010; Tomlinson, 2004).

During the focus group interview Tristin and Emma revealed that they find it much easier and more interesting to study when the subject matter is relevant to them.

Tristin revealed the following: *“I liked studying the..uhm..History for the exam on Gandhi and Nelson Mandela for that’s what I am good in for like knowing people and what they do and what they did and stuff like that”, “Because I like know what culture...for what different cultures...for like..I am...I am culture Indian and I know most of Gandhi...like that”.*

Emma pointed out that her mother prints typed questions using her name and the names of her friends, which makes it interesting and easier for her to study. This shows how links and choices to prior experiences can be used to build the learners’ interests (Tomlinson et al., 2003) and that the relevance of a topic can also help learners to persist with challenging tasks (Alexander, Kulikowich, & Jetton, 1994, in Turville, 2007).

Aleksandra emphasised that she does not normally like studying, except when she studies something which interests her... *“she was in the mode”*. When it was Mathematics that she does not favour, she just shook her head and said, *“Oh my gosh”*. However, studying in her preferred way helped her to concentrate even though she did not like the subject (learning preferences will be discussed in the next section). Kathleen agrees with Aleksandra in that she says, *“It is interesting to find out different ways to learn. Even if you don’t like the subject it is still nice to learn in the different ways, like for a new way of learning it”* (Excerpts taken from focus group interview transcription).

Clark likes History, but his *“concentration span nothing at all”*. *“I can’t sit there and read over it. It’s the most difficult thing for me”*. This points to Clark not studying in his preferred way (This will be discussed in detail under the section called Parent Involvement). History interests him and he enjoyed the history of transport because cars interest him, as he indicated in his learning profile. *“...History. Because cars I know a lot about cars I like always watch these shows about like History of cars and what type of car and racing and the talk, the power the everything”* (Excerpts taken from focus group interview). This highlights Cox’s (2008) opinion on the importance of relating the knowledge to be learnt to a learner’s interests, as you will have an advantage in gaining that learner’s attention.

Six out of the nine participants named History as their favourite subject and it is important to note that my class also obtained the highest average for History during the examinations. I love teaching History and I can differentiate more easily and present this subject in creative ways. Differentiating my teaching therefore gives me the opportunity to make my lessons *fun* and to be creative, which I believe improves my teaching practice and the learners’ learning. This proves that by keeping the learners’ interest during lessons, you have their attention for longer periods and optimal learning can take place. Should you not recognise their particular interests, you are not supporting their learning process.

Referring to observations in my reflective notes, I became aware of the fact that Dwayne and Clark were allocated poor marks for the activity where they had to build a bridge. During the focus group interview they confirmed my suspicion that they did not like/were not interested in building the bridge. Tristin and

Kathleen mentioned that the Gautrain poster was their favourite activity and they also achieved of the highest marks in class. This underscores the close relation between interests and performance.

When I planned the work stations for the different types of games, I not only catered for multiple intelligences, but I offered my learners a choice of activities. Allowing learners to make choices creates a sense of empowerment, autonomy and self-determination, and enables them to do their work more efficiently (Lause, 2004). This led to them experiencing less external control and more intrinsic motivation (Ishee, 2005). *“The station, where the learners had to be ‘inside their favourite game’ was left until last. I discovered it was not that they were not interested, but did not understand what was expected of them. After I had explained the activity again in detail, they enjoyed doing it”* (Excerpt taken from my reflective journal).

An increase in motivation also appears to combat disciplinary problems and disruptive behaviour in the classroom (Ediger, 2005). *“Although the learners are noisier when doing group work, and some group members do not always co-operate along the way they are motivated to work and to discuss the activity at hand. They do not disrupt the class, they are eager to do the activities”* (Excerpt from my reflective journal agreeing with this statement).

I thus made use of learners’ situational and personal interests to optimise motivation and engagement of learning (Turville, 2007). In our class we made use of humour *“That was funny. Using the funny accents”* (A response from Clark during the focus group interview) *“made jokes and I remembered the words”* (A response from Kathleen during the focus group interview), originality, social interaction, and interactive activities to influence situational interest (Bergin, 1999, in Turville, 2007). Personal interest entails that which a learner is internally motivated to learn. It makes sense that learners like to learn about things in which they are already interested or can relate to or when they have a specific goal in mind. If I did not compile a learning profile of each of my learners, I would not have known them well enough and would not have been able to differentiate by means of personal interest successfully.

Throughout my research, as indicated in my reflections after observing each lesson, it was proven repeatedly that if learners are interested in what is being taught their level of motivation to learn is increased. Hence they become more confident and competent with the concepts and skills that they are expected to master within each particular lesson (Turville, 2007).

Motivating my learners to learn and optimising their learning through concentrating on their interests is not the only method I employed. Focusing on their learning preferences also plays a significant role in obtaining their interest and supporting their learning. Learning preferences will be discussed in the following section.

4.3.5 Learning preferences

During the data analysis it was made clear that the participants do not all learn in the same way. When differentiating my lessons it is important to focus on each learner's learning preferences, not only to increase the efficiency of learning occurring in my class (Manning et al., 2010; Tomlinson, 2004), but also to convey a message of care to my learners about understanding what and how they want to learn (Kanevsky, 2011). A summary of each participant's learning preferences, emphasising the preferred way of learning of each participant is set out on the following pages. Data in this section have been accumulated throughout the data analysis process.

Tristin: He loves Mathematics, doing orals and explaining things to other people (Logical-Mathematical, Verbal-linguistic and Interpersonal). He preferred learning the spelling words by walking past and seeing them on the word wall (visual). Listening to someone speaking Afrikaans during Afrikaans lessons made the work easier (auditory). He is also good at answering verbal questions and answering listening tests (auditory). Tristin prefers working/learning alone. *“because then I can work faster and properly and like I can understand the work properly without anyone tapping on my shoulder and all that stuff”* (Excerpt taken from focus group interview transcription). When he has to work in pairs/groups he wants to work with peers that have the same interests. When he studies he goes to his room, closes the door and summarises the work. *“Uhm, the way I studied was simple. I just go to my room and close my door. I take my books and then take all the new words. There were lots of new words for History. I would take a page..I would write down all the new words for History on a page and then I don't have to page through the whole book the whole time for the new words”*, *“I like studying.. the way I like studying is the day before the test, because I memorise it. In the morning I also study so I remember it fresh out of my head. Because it is just before the test”* (Excerpts taken from the focus group interview transcription).

Dwayne: Bodily-Kinaesthetic, Naturalist and Interpersonal are Dwayne's predominant multiple intelligences. When learning the spelling words he wanted to feel the words on his back and he enjoyed working with a friend. He also admitted that role play and rhymes helped him to remember and understand the work (Kinaesthetic learning style). He prefers working with a partner. When working in pairs/groups he wants to work with peers who have the same interests, but *“When I work in partners I don't want to work with someone where we like share intelligence, you know. I want to be either less intelligent than that person or more intelligent”*. He prefers to study by reading through the work and then his mom asks him questions. *“I would read half way and then she'll ask me questions and then I'll read the other half and she'll ask me questions. It was really nice because sometimes I got to ask my mom questions and she'll like sit there and wonder what it is. It is like really nice. Buy popcorn sit and then I study”*, *“Well I like everything in a summarised form. Not like, ok here is 5 pages to study. I like one or one and a half pages to study. I don't like studying that much”* (Excerpts taken from the focus group interview transcription).

Emma: Bodily-Kinaesthetic, Naturalist and Interpersonal are Emma's top three multiple intelligences. It was easier for her to remember the spelling words when she had the opportunity to feel the words on her back, but when she was asked a question in the exam or test she remembered the work by making mind maps "*with mind maps in my head*" (Visual and Kinaesthetic learning styles). She prefers working with a partner. When working in pairs/groups she wants to work with peers who have the same interests. She also wants to work with someone who knows the answers and who can help her. She prefers studying "*when my mom prints it on the computer and uses my name in it*" (Excerpts taken from the focus group interview transcription).

Aleksandra: Musical-rhythmic, Interpersonal and Verbal-linguistic are Aleksandra's main multiple intelligences. During the focus group interview activities she was constantly humming. She remembered her spelling words by seeing the words on the word wall and when she studied she wanted to be busy with the work and understand it. "*I like doing it the visual way.. doing something to it..when we did the grid reference in class.. the grid reference to do it... The map...to be busy and understand it*". She also admits to understanding the work more easily when someone goes through it with her. "*I get it more when Tristin or someone else explains it to me like step by step. Get someone to help me through it. I am not just like a visual learner by learning through the things you see but uhh I like it when someone goes through it with me*". While studying for the examinations she also made use of movement sentences and when we spoke about the rhymes we had made up to remember certain facts, she could still remember each and every rhyme. "*I would make up a movement sentence to remember the object for like 'she jumps over the wall' I remember it as a verb and I remember a verb as a working word*". Aleksandra seems to be making use of all three: visual, auditory and kinaesthetic learning styles, switching easily between different ways of learning (Zhang & Sternberg, 2005). She prefers working with a partner. When working in pairs/groups she wants to work with peers who have the same interests and also made it clear that she did not want to work with someone who is just going to give her the answer. "*Mam, I like it better when you can work with someone instead of someone who knows the answer and then just tells you to write the answer down. 'Oh no just do that, that, that and that'. I like it better when you can work with someone and you go through the thing with each other like if that one doesn't understand you can help them and then for example if I don't understand they can help me. So it is not just like tell, tell, tell, it is work.. work out, find out*" (Excerpts taken from the focus group interview transcription).

Kathleen: Kathleen's main multiple intelligences seem to be bodily-kinaesthetic, interpersonal and verbal-linguistic. She preferred feeling the words on her back when practising for the spelling test and enjoyed the challenge of trying to guess which word her partner was writing (kinaesthetic learning style). She also felt that she learnt more when she could verbally answer and ask questions, which was the case with History (auditory learning style). "*I just learn more about talking to someone. Just asking questions about someone*". I also observed Kathleen to be a very talkative and social person in class. During her preparations for the examinations she made use of funny rhymes and taking the first letter of each word to

make a word in order to remember facts (kinaesthetic learning style). *"...take the first letter of each word and make it into a small word to remember. It is easy to remember then". "I just remember the words my dad broke it up into and the funny things".* She enjoyed the revision week, as I changed the timetable completely for that week *"...we did, only one subject a day". "Then what we did that day I will also study at home and then when we were done with Maths I would also go on to study Geography the next day like what we did in class".* She prefers working in groups and when working in pairs/groups she wants to work with peers chosen by the teacher. One of her reasons for choosing the Gautrain poster as her favourite activity was because she had the opportunity to work in a group: *"Because I got to work with a very nice group"* (Excerpts taken from the focus group interview transcription).

Olive: Verbal-linguistic and interpersonal seems to be Olive's prime multiple intelligences. She enjoyed writing the spelling words on her partner's back (kinaesthetic learning style) and prefers working with a partner or in a group. *"I like to work in groups and I like to work with one person".* When working in pairs/groups she wants to work with peers who have the same interests or someone who can support her. *"It is kind of easier to have someone help you. Otherwise if you both don't know the answer and get it wrong....then you...how will you know how to do it?"* During the examinations she made use of a drawing board and kokis to study. *"I like drawing, it helped seeing the colours"* (visual learning style). It is also important for Olive to know the timetable of the day; when we will be doing which subject. It is important that the subjects are alternated, but that the timetable stays predictable. *"I like working at certain times. You telling us how the day will go. It is not just Maths. But also Geography and something else"* (Excerpts taken from the focus group interview transcription).

Sabastion: Sabastion's 'intelligence' seems to lie within the visual- spatial and intrapersonal domain. He preferred hearing the spelling words. *"Like it because then I know what is going on"* (Excerpt taken from the activities during the focus group interview), *"I also learn from other people when they say Afrikaans"* (auditory learning style). He prefers studying in his room where he can concentrate. *"...the way I usually study is when I usually go to my room and then I study in my book and then I close the door because then I am concentrating".* He admits to trying to memorise facts rather than understanding them and writing them down. *"I just remember stuff in my head mostly, but sometimes I usually write it down on a piece of paper", It helped me a little bit, but I should have focused on learning it a little bit and knowing it so when you get uhm...when you have an answer in front of you, you musn't just remember it in your head, because there is a gazillion things you must remember in your head and you have to write the right one down so...ja".* He enjoys working alone, *"I feel..it is kind of calm and then you don't have to be in a rush or something. And sometimes for me it is..I know what I am doing. And then I..I do what I like to do best", "I like to work by myself because it is more concentrating for me, because it is actually like silent, like you almost have a shield around you. No one is making a noise no one is saying 'what must you do here?' and it is just so quiet so that you can concentrate very nicely. That is how I like to go about"* When pair/group work is expected of him he wants to be with peers who have the same interests. *"Sometimes I like working alone, but sometimes I*

would just uhm...sit..sit with a partner”.”...I prefer when I am with a person because then I, like Aleksandra said, when they get stuck you can help them, and when you get stuck you can ask them to help you and, uhmmm, it doesn't really feel like work it actually feels like so fun, you don't even know that you are in work. And then you ask your partner 'Can you help me' and then he says, 'yes sure', it is almost like a puzzle. It is really fun, it doesn't feel like work". During class I observed Sabastian to be a quiet boy who keeps to himself and takes the chance to draw whenever he can, which correlates with his opinion of his own preferences.

Benny: Bodily-kinaesthetic, naturalist and interpersonal seems to be Benny's strongest multiple intelligences. He felt that it was easier for him to remember the spelling words when he felt it on his back (kinaesthetic learning style). He also feels that he needs clues in order to remember answers, as he becomes confused. *"Sometimes I just look in my books and my mom asks me questions and sometimes I get confused and then she gives me a little hint to what the answer is and then I just answer the question and I get it right", "I just ask my mom if I can check again", "... so I ask for some people if we can go through it again and so we do go through it again"*. He prefers working with a partner. When working in pairs/groups he wants to work with peers who can support each other, as he becomes nervous on his own. *"Because then I got to do it with a group, I get nervous on my own"*. According to Benny he enjoys sitting in different groups every week, but prefers being in a quiet group. *"It feels so natural. But sometimes when there are people in your group that just doesn't stop talking like Clark (Participants laugh). No offence...no offence...but sometimes people get like..sometimes they go like uhm talk. Then you would rather sit somewhere else"* (Excerpts taken from focus group interview transcription).

Clark: Clark's 'intelligence' seems to lie within the Bodily-Kinaesthetic and Logical-Mathematical domain. He finds it enjoyable to try and find solutions. When learning spelling words he would rather find the words in crossword puzzles or word searches than seeing the words on the word wall or having them written on his back or listening to how the words are pronounced. *"I want to find the words in crossword puzzles", "I like to do word searches. To try and find all the words and you are still figuring it out where everything is and you always have to wait like till you find everything else"*. When studying for a test or the examinations Clark feels it is better and easier to remember the work when he watches a programme related to the work or when he asks his twin sister questions rather than having to read his work (Auditory and kinaesthetic learning styles). *"I can't sit there and read over it. It's like the most difficult thing for me. We both ask each other questions and when we like finish..(sighs) then we go over it once or twice"*. He prefers working individually or in class context. *"On my own", "Well, it is much easier because if you both have different ideas it is not going to mix because it is like you turn a magnet on to both negative negative. Not going to work"*. When it is expected of him to work in groups/pairs he prefers working with peers that have the same interest as him (Excerpts taken from focus group activities and interview transcription).

Some of the participants' learning preferences according to the data, indicated above, show a strong correlation with that which was summarised at the beginning of the research in their learning profiles. Others have changed as they received exposure to the different ways of learning and got to know themselves and their preferred learning ways a little better. This is a strong indication of learning preferences not being stagnant, as I took the participants previous and continuous experiences into account and found a match between the participant and the material/ method of studying (Zhang & Sternberg, 2005). It also shows the effort I put in to broaden the scope of each learner's learning preference and not to label my learners with regard to their dominant learning preference (Williamson & Watson, 2006).

I adapted my teaching preferences when I realised the benefit of allowing my learners to work in their areas of strength. I also realised the importance of not labelling them, as exposing them to different ways of learning will allow them to develop more ways of learning; ultimately reaching a balance between learning preferences which will benefit them when they are assessed (Seifert, 2011).

Addressing different learning preferences during my lessons indicated an improvement in achievement even when the formal assessment (examinations or tests) of the work covered during the lessons did not match the learners' preferences (Tomlinson et al., 2003). *"Some of them even managed to get their best mark for an Afrikaans spelling test to date", "I also saw a lot of positive results in the exam with my class's average on par with the Afrikaans classes. I don't think this would have been the case if I didn't put in so much effort to differentiate. We even had the highest class average for History"* (Excerpts taken from my reflective journal).

It is important that I address the different learning preferences during class and that parents are aware of their children's different learning preferences. This is essential in grade 4 when they have to study for examinations for the first time and need a lot of support at home. The last theme, parent involvement, will be discussed in the following section.

4.3.6 Parent involvement

Although learners spend less time under the supervision of their parents (ACPHHS, 2004; Berger, 2003; Wild, 2012) positive conditions and interactions must still exist in the learners' home lives (Charlesworth et al., 2011; Eccles, 1999) as they are inclined to evaluate themselves in a positive manner if they receive encouraging feedback from specifically their parents (Charlesworth et al., 2011).

The Western Cape Education Department's learning support model highlights that all the role-players in the learners' lives must be seen as important, for when the school, home and community share responsibility for learners' well-being they have greater opportunity for meaningful and engaged learning (WCED, 2000).

I therefore deemed it important to support the parents by giving them guidelines on how to draw on their child's interests and learning preferences when preparing for the examinations (See Addendum N). Not only

did I receive their cooperation, as indicated in the learners' comments during the focus group interview, but I also received positive feedback from parents and in general the learners obtained good results.

Benny's mom helped him to use an atlas when studying Geography as it helps him to visualise. *"I look on the map and I see where that place is", "I can't really remember the places that well. But it is like these little words and circles and then I just read and then I go home and my mom asks me these..uhm..what province..I mean..where is it down on the map and I say ..I just ask my mom if I can check again and I say uhm Western Cape"* (Excerpt from transcription of the focus group interview).

Aleksandra shared how her parents helped her studying in her preferred way. *"Uhm, in other words my dad would ask me questions and my mom and...I am just trying to think now...I would make up a movement sentence to remember the object for like she jumps over the wall I remember it as a verb and I remember a verb as a working word. For example when my parents say she jumps. I jump and then I know it is a working word. So that is the way I study and....ja...."* (Excerpt from transcription of the focus group interview).

Olive's mother bought a drawing board and kokis. She tends to be a visual learner. *"My mom bought a drawing board with kokis"* (Excerpt from transcription of the focus group interview).

Kathleen loves talking and having conversations and her parents took this into consideration when helping her to study for the examinations. *"I like studying for the exam or any test...especially when my dad was here (Kathleen's dad works in Iraq and only comes home every four months, visiting for a week or two). For example the history exam when we had to remember interviews, pictures and objects he will make it like take the first letter of each word and make it into a small word to remember. It is easy to remember then. I also like it when my mom and dad ask me questions. I like being asked questions. It was very funny when sometimes I ask them questions and then they get it wrong".* Kathleen did extremely well in the examinations and her parents informed me how much they appreciated the study guidelines and support. This is an indication of successful collaboration between teacher and parent(s), with the goal of optimising the learning of a child (Excerpt from transcription of the focus group interview).

Tristin's father supported him in the following way. *"And with Maths, my dad is like an expert with Maths so whenever I get stuck at something he likes help me with it, it is because he is like good with cars. He knows the technical stuff so then for the word sums. When we get homework. The odometer for the car sum I struggled with that but he helped me with the car to realise that what 3000 means and stuff like that. When I study I just read through and remember it like that"* (Excerpt from transcription of the focus group interview).

Dwayne whose predominant learning styles seem to be Kinaesthetic and Auditory studied by answering and asking questions. *"I would read half way and then she'll ask me questions and then I'll read the other half"*

and she'll ask me questions. It was really nice because sometimes I got to ask my mom questions and she'll like sit there and wonder what it is" (Excerpt from transcription of the focus group interview).

Sabastion's father supported him during the examinations. *"Then usually my dad wants me to concentrate more on the work so then he comes and he tells me what to do and then uhm... after I have read everything that he told me to then he usually asks me questions and then uhm I.I..sometimes when I get stuck he says ok read it over and then when I do I usually I don't get stuck because when my dad is here I know he is confident that I will get it right and then I am calm now (sigh of relief) and he helps me a little bit with uhm... things I am struggling with. I get it right sometimes"* (Excerpt from transcription of the focus group interview).

Whereas Clark's mom did not always support him in learning in his preferred way, which means he did not perform to his true potential: *"but my mom..she hates asking me questions and then I have to ask my sister and then maybe, maybe! if she is not annoyed she will say yes and ask me questions"* (Excerpt from transcription of the focus group interview).

This brings me to my reflection on the results obtained from the data, as mentioned above.

4.3.7 Reflection on the results of the data

The differentiated teaching tools, described in section 3.3.2, that I used in my intervention plan allowed me the opportunity to focus on teaching all my learners in an equitable way and to take each learner as far as he or she can go on their educational path (Levy, 2008) which resulted in my "growth towards professional expertise" (Tomlinson, 2000, p.31).

My biggest concern, as a grade 4 teacher, with regard to inclusive education is the practical implementation thereof. As a mainstream classroom teacher, I am supposed to be the primary role-player in achieving the aims of an inclusive education and training system (Department of Education, 2001) and this puts a lot of pressure on me. I would like all my learners to achieve to their full potential by increasing their learning and participation, while minimising their barriers to their learning (Booth et al., 2000), but I have not always been sure how to offer meaningful and relevant support to all my learners. By differentiating my teaching (focussing on learning preferences, learner interests and learner readiness levels) and taking the role that fun and parent involvement play into consideration, I have managed to encourage my learners to experiment with different types of tasks and activities, which support them in developing different ways of learning and overcoming learning hurdles (Turville, 2008). Differentiated teaching has provided me with a new way of thinking about my learners, my teaching and the overall learning process, which has improved my teaching practice (Tomlinson, 2000) and helped me to accommodate diversity through flexibility, relevance and respect.

Compiling the individual learning profiles of my learners has allowed me the opportunity to get to know my learners. This has given me the opportunity to implement differentiated teaching in my classroom, which has improved my teaching practice and supported optimal learning in my classroom. My recognition of the learners' unique learning profiles along with their parents' involvement and support gave them the confidence they needed in their ability to study, especially for their first examinations.

The focus group interview allowed the learners, as participants, to voice their opinions and I was astonished at how much I learnt through listening to them and how their responses contributed to my research data. I learnt from my learners that they enjoyed changing groups. This allows them the opportunity to get to know other learners and discover with whom they might share similar interests. They also want to know how they will be evaluated and I told them not to compare marks though most of them want to do this. Surprisingly, most of them want to wait until everyone has understood the lesson before moving on, which I can achieve through differentiating according to readiness. They also learned through having fun and realised that learning can be fun. This can be achieved by focussing on interests and learning preferences. Most important of all, is the question of improving my teaching practice, which was answered when it was pointed out by Dwayne how differentiating my teaching made me stand out from other teachers. *"You help us and...and you give us all these easy activities to do. You know the modern ways of working you don't just, write it on the board there you go, and then you do your own work like other teachers. They just sit and type, type, type on the computer"* (Excerpt taken from focus group interview transcription).

To me 'teaching to the middle' can never be an option again. I learnt this within the first week of differentiating my lessons, when I realised that I was not supporting my 'middle groups' efficiently and I had to change my approach. This leaves me with the question. How can one not differentiate when it is so evident in the learning profiles, focus group interview and activities, reflective drawings, observations and reflections how the learners differ? The learners themselves are asking for a different approach to teaching and learning. An approach that caters for their diverse learning needs by putting more focus on their strong points than on their weak points; working within their ZPD's. An approach that puts the fun back into learning by focussing on learner interests and different learning preferences. An approach that allows for parent involvement and collaboration between parents and teachers striving towards the same goal of optimising learning.

4.3.8 Summary of findings

The data presented here, clearly indicate the importance of being aware of the uniqueness and diversity of the learners in your classroom. Differentiated teaching creates the opportunity to respond to the learners' individual needs and preferences which make the learners more successful in their learning. Differentiated teaching can therefore be seen as a means to guide teachers in their role to support all learners to reach their full potential, even though support to teachers in South African schools are limited and the number of learners per classroom is growing (Walton, 2012). By allowing the learners to be heard, listening to their

opinions/choices – what they have to say about their learning needs - it is evident that by taking the learners' interests and learning preferences into account the learners can have fun while learning, which will in turn influence their progress positively. Parent involvement and the collaboration between the teacher and parents, forming a support network, can optimise each individual learner's learning. Although the findings indicate that my teaching practice and my learners' learning can be improved by focussing on the learners' readiness levels, interests and learning preferences, one cannot ignore the support that is firstly needed for teachers to successfully do so.

4.4 SUMMARY OF THE CHAPTER

Analysis of the data collected in this research study, has indicated that by incorporating differentiated procedures and strategies into my grade 4 classroom, I was able to improve my teaching practice and support learning. These techniques have had the added benefit of contributing to the development of the ideal South African learner, and consequently offer effective methods to improve my teaching instruction. The need for catering for *all* in an inclusive education system whilst simultaneously improving teaching and learning in South Africa, and internationally, highlighted the relevance of this study. Having revealed the effectiveness of focussing on learner readiness, learner interest and learning preferences for optimising learning, attending to the secondary aim of the research, this process has also addressed the primary aim of facilitating the improvement of my teaching practice.

Chapter 5 presents my concluding remarks, recommendations and implications for future research. The strengths and weaknesses of this research study will also be discussed, concluding the final step of this action research process.

CHAPTER 5

CONCLUDING REMARKS, IMPLICATIONS, LIMITATIONS AND STRENGTHS

5.1 INTRODUCTION

This research study aimed to explore differentiated teaching in a grade 4 classroom. It investigated the implications of differentiated teaching strategies and procedures for my teaching practice, as well as their influence on the development and support of my learners' learning. To approach these research questions, one cycle of an action research process was conducted from within a qualitative paradigm of praxis. This research process provided me, an individual teacher-researcher, with a better understanding of how focusing on my learners' readiness, interests and learning can be incorporated into my teaching practice to simultaneously support my learners in their learning process to optimise their learning and improve my own teaching practice.

This chapter will present concluding remarks on the main research findings, followed by recommendations that have emerged from the analysis of these findings. The limitations and strengths of the study will also be discussed. The chapter will conclude with suggestions for future research and a final reflection on the research process as a whole.

5.2 CONCLUDING REMARKS

The educational, social and political needs of societies are continually changing as societies become more diverse and multicultural (AACPS, 2000). Therefore in South Africa, the education system must constantly be restructured to function in such a way as to accommodate a diversity of learners by focusing on each learner's unique learning abilities and needs (Donald et al., 2010; Swart & Pettipher, 2011). However, research indicates that societal changes and management of diversity in schools have had a negative impact on the implementation of inclusive education and accommodating all learners in inclusive school communities remains a challenge (Engelbrecht, 2006). There is thus a need for improved teaching to address the diversity of learning ability and needs in South African schools (Department of Education, 2008).

Fortunately the benefits of differentiated teaching for addressing individual abilities and needs and consequently improving learning are gradually becoming more recognized, as it presents a means to support learner diversity in the classroom in more meaningful ways (Walton, 2012). The point of departure for learning support in inclusive education in South Africa is that every learner can learn and needs support (Landsberg, 2011). The necessity to develop and support South African mainstream teachers to be effective

at supporting all the learners in an inclusive classroom has also become more apparent. Differentiated teaching is presented as the answer for teachers to effectively support their learners and optimise learning, while simultaneously fulfilling their role as primary supporter in the learning support network, as they have the most detailed knowledge of the learners' needs (Botes & Mji, 2010). Research that focuses on empowering teachers to improve their teaching practices in line with the expectations of differentiated teaching to ensure quality education is therefore needed to address the educational problems experienced (Malcolm & Alant, 2004; Yore & Treagust, 2006). The findings of such research should empower teacher development and teacher training so that the benefits of differentiated teaching can be extended.

As a grade 4 teacher, I have always known that my learners have different readiness levels, in other words, different weak points and strong points. I was unsure how to address this; how to successfully support my learners in their learning process and more specifically their preparation for their first formal examinations in grade 4. My reflections on this initiated my interest to investigate ways to improve my teaching practice in order to support my learners more meaningfully in their learning process. Thus an aim of this research was also to improve learners' learning by supporting them through differentiated teaching, focusing on learner readiness, interest and learning preferences.

Firstly my research findings indicate that by employing certain differentiated teaching procedures and strategies in the grade 4 classroom the learners' learning can be supported as this approach places the focus on the learner - where it belongs - and takes each learner as far as he/she can go in realising his/her own learning potential (Tomlinson, 2000). All the participating learners revealed some form of enhanced learning as they came to realise their own strong points and learning potential. By differentiating my teaching I allowed them the incentive to develop a sense of self efficacy. Several factors might have been influential in this: intentional mediation and interaction of myself as teacher; being able to work on tasks that were within their ZPD; being exposed to different learning styles which involved the opportunity to play games, making rhymes or mind maps to study; being allowed to work with topics that interested them or the fact that their learning preferences (working under minimum light, or preferring to know how marks will be given, or deciding the composition of groups) were taken into consideration. The exposure to this more flexible and accommodating approach to teaching and the fact that space was created to allow the learners' voices to be heard seemed to have led to improved learning. The learners' enhanced learning was evident by their improved awareness of their own learning preferences. The differentiated teaching procedures, especially during the revision week, enhanced their ability to develop knowledge of their own interests and learning preferences. This process facilitated their awareness of which learning strategies were the most effective for them personally. My adapted teaching approach, guided by pre-assessments and KWLS charts to determine readiness levels, was especially useful in creating enriched support opportunities when certain topics or skills were introduced. The learners were challenged mentally and were therefore not bored or disruptive. Appropriate support was offered, which gave the learners confidence for the task with which they struggled. Many experienced learning as fun as a result of the differentiated teaching strategies and

procedures, which motivated them to learn. Through differentiating my teaching I could thus respond to the learners' individual needs and preferences. This made the learners more successful as they developed confidence in their ability to learn.

Furthermore, interpretation of the research findings revealed that the employed differentiated teaching processes had the added benefit of addressing learning hurdles. This was evident from the differentiated activities that exposed the learners to different ways of learning, encouraging learners to become more actively engaged in their work. The findings also pointed to the role that learning in a fun way plays. Learning became less challenging because the learners were simultaneously learning and having fun. The above mentioned findings therefore underlined the importance of differentiating one's teaching to realise the ideal of supporting each and every learner on their path towards learning (Levy, 2008).

Lastly, this research has also shown how the employment of differentiated teaching strategies, together with reflecting on and subsequently altering the process improved my teaching practice. I am now able to support my learners in bridging the gap between grade 3 and 4 more easily, help them prepare for the examinations and give guidance to parents on how to support their children in their learning process. For the first time in my teaching career I am confident that I really know each learner. I have benefited from the adapted teaching procedures and experienced personal growth. The learners demonstrated their willingness to engage in the learning process by enthusiastically forming part of class activities, enjoying it and telling me how 'time flies'. The benefits that the differentiated teaching has created for both the learners and my teaching practice have thus been confirmed.

Reflection on my teaching has also proved to be an invaluable part of the process of improving my teaching practice. It therefore needs to be incorporated into my teaching in future. These reflection opportunities created awareness of a number of aspects about my teaching on which I could improve. Reflection has also proved beneficial for adapting my teaching procedures. During reflection on my classroom practice I realised that I was not appropriately supporting my 'middle groups', therefore not working within their particular ZPD's and I could adapt my approach accordingly. Understanding the need for more thoroughly explaining my expectations of learners in performing a task, as was the case with the multiple intelligences stations, also dawned on me. Through reflection I also became more aware of the value and importance of linking the lesson content to the learners' interests while also accounting for the learners' readiness levels (targeting the work within the learners' ZPD's) and learning preferences.

Apart from this, reflection also pointed to the advantage of creating a positive classroom atmosphere. It is essential that I create a classroom environment where individual learning needs are supported and learners are allowed to have fun, as learning through fun makes them positive about the learning process. These cannot be ignored as they are central aspects of an improved teaching practice.

Awareness and understanding of the uniqueness of each learner is a necessity. Owing to the learners' different readiness levels, interests and learning preferences and in a sense their unique background knowledge and personal experiences, the learners responded differently to the different teaching strategies and procedures, highlighting the need for teachers to adapt their teaching styles and not to simply follow a 'one size fits all' approach and 'teach to the middle'. In addition to all this, working within the learners' ZPD's and acknowledging their unique interests, seemed to be essential to keep the learners motivated and to support me in adapting and improving my teaching practice.

To summarise, I have come to realize how making my lessons fun through focussing on my learners' different learning preferences and interests; and involving their parents by giving them guidelines on how to support their own children in the learning process, I can enhance my teaching practice to be able to optimise my learners' learning experiences.

5.3 IMPLICATIONS

This research process has brought many insights, as mentioned in the previous paragraphs. The interpretation of these insights highlights numerous implications, and from these, suggestions have been made for consideration when future cycles of this action research process are contemplated. These are presented in the paragraphs to follow.

Classes in South Africa will become more diverse (Fleisch & Shindler, 2007; Statistics South Africa, 2012). Therefore it would be sensible for me to continue employing differentiated teaching strategies in my grade 4 classroom. I would however need to be mindful that each group of learners will be different, therefore strategies will have to be tailored to the abilities and needs of the following year group. For example, whereas the class of 2013 loved playing games, performing role plays and showed particular interest in the subject History, I cannot readily assume it will be the same with the next group of learners, therefore I need to make the necessary adaptations. This highlights the importance of getting to know your learners well and compiling individual learning profiles, catering for individual needs rather than follow a 'one size fits all' approach.

Other teachers (in South Africa) should be encouraged to employ differentiated teaching procedures and strategies in their respective classrooms. The findings of this research study can be made available to other mainstream teachers, particularly those teaching grade 4, as a guideline to support them in the important task of being responsible for teaching each and every learner.

The knowledge and experience that I have gained from this research process can be used in workshops for teacher training and development situations to assist mainstream teachers to understand differentiated teaching and the importance of incorporating it in their classrooms. I believe that it may be most effective for this training to involve a strong practical component where teachers, or teachers in training, are shown

how to teach by means of a differentiated teaching approach, as most teachers are unsure of this. They are aware of differentiation as it is a concept mentioned in recent policy documents, but they are sceptical when it comes to putting it into practice (Department of Basic Education, 2011a; Hess, 1999). I hope that my study has proved the benefits of differentiated teaching and shown how to put theory into practice. Apart from this, a further implication of the study is for practice to inform theory.

I chose Vygotsky's theory of social constructivism to form the underlying foundation of my study. This has proved to be very valuable, as it guided almost every aspect of my research (Agherdien, 2007). Not only does social constructivism view learning as social and cultural, but it also views cognition, learning and instruction as intertwined (Kozulin, 2003). This had particular implications for teaching and learning in a classroom where differentiated teaching is seen as the support to cater for different cognitive levels and learning preferences of learners. Within the theoretical framework provided by social constructivism this study thus revealed a different view of my classroom and the interactions between my learners and me, as the focus was on who my learners are rather than what they are not. Taking the stance that learning originated from my classroom, as a social environment, I could ensure that individual learning needs were met and successfully internalised. Social constructivist theories therefore influenced how I defined ability and competence in my classroom and my research which made me realise how my teaching, assessment, and interactional practices shape the interpretations that I reach about the learners' learning (Collins, 2013).

5.4 LIMITATIONS

The first aspect that may be viewed as limiting the research, is the short time frame allocated for implementing the research intervention plan. By taking into consideration that this was a fifty-percent thesis study involving only the first cycle/ spiral of the action research cycles, future research with a longer timeframe involving more cycles, may provide findings that reflect a more comprehensive understanding of the long-term effects of the intervention process.

Even though the aim was to do research within my own classroom, by making use of individual teacher action research, the focus of the study may also be viewed as a limitation to the research, as the study concentrated on a single class in grade 4. Although there is less concern to generalize findings far beyond the context of the study in action research as more value is placed on the engagement of the researcher and the relevance of the findings to the parties involved (Riel, 2010; Patton, 2002), the implications of the process in other grade 4 classes or even other grades may also prove to be beneficial.

Lastly, the research resulted in unexpected findings. Less focus was placed on the role of learning hurdles (barriers to learning), the importance of fun and parent involvement. Despite recognizing their importance, the scope of this research did not allow for an in depth analysis of these factors, even though they demonstrated to be very valuable determinants of optimising learning.

5.5 STRENGTHS OF THE STUDY

Making use of action research within a paradigm of praxis proved to be a prominent strength of this research study. It presented me with the opportunity to experience research in practice, and to gain an in-depth view of how to improve my teaching practice to support my learners in their learning process. Not only did I gain insight into the different strategies that can be used to differentiate successfully, but I also had the opportunity to explore and implement these differentiating tools. I also had the opportunity to get to know my learners, specifically with regard to their learning preferences, readiness levels and interests and how to best make use of these to develop their understanding of their learning process, optimise learning and enhance my teaching practice. Action research therefore proved to be the most effective research design for addressing the research questions of this specific inquiry.

The practical nature of the study also means that teachers may be able to obtain practical suggestions from this study, which would not necessarily have been the case with a design other than action research. This particular design has created the potential to improve my teaching practice and inform others through teacher training and development.

A further strength of the study was evident in the extent to which the parents were involved in supporting their children with their first examinations and how the learners benefited from the research process. The teaching procedures that I employed have demonstrated the ability to support the learners in their learning process by assisting the learners in developing effective ways of learning (Seifert, 2011; Turville, 2008) and consequently optimising learning. For most learners it has changed their way of viewing learning as they had the opportunity to voice their opinions and experience how you can learn in a fun way. All of my learners wanted to participate in the focus group interview and the participants felt very honoured to be selected to partake in the feedback on the role of the intervention in their learning; to them this was an exciting experience.

As I did my research *with* and *for* my learners and viewed them as ‘experts’ on their own lives (Darbyshire, MacDougall & Schiller, 2005; Kellett & Ding, 2004; Mauthner, 1997, in Fargas-Malet et al., 2010; Mayall, 2000) I had to consider the ethical aspects when working with children and had to protect the learners as participants. I learnt that age should not lessen the learners’ rights and they should be told as much as possible with regard to the research (Fine & Sandstorm 1988, in Cohen et al., 2011). However, research explanations and research methods used for adults cannot be used in the same way with children as cognitive, linguistic, and psychological differences between children and adults exist (Fine & Sandstorm 1988, in Cohen et al., 2011; Gibson, 2012). I also had to create a safe environment where my learners felt comfortable with being honest in expressing themselves, (Hill, 1997) asking them to see me as the researcher and not the teacher.

5.6 FURTHER RESEARCH POSSIBILITIES

This research study took on the format of the first cycle of an action research process. This study also had the intention of informing future research cycles within this particular line of research. This section therefore presents suggestions for future action cycles, but it also includes a section on diverged research possibilities that may emerge from this particular study.

When conducting the next cycle of this action research process, it would be important to bear in mind that the scope of the study was limited, as it was only for the purpose of a fifty-percent master's thesis. Future cycles would most likely benefit from a broadened research scope. These cycles could possibly look at using a broader sample of learners, not just including the data from learners in one grade 4 classroom, which was the case with this research study following individual teacher research, but work with learners across grade 4, following collaborative teacher research. As the research study also investigated the gap between grade 3 and 4, research with grade 3 learners can also be considered. Just focussing on differentiated teaching research across other grades will also be valuable.

Future cycles may also address the issue of gaining more insight into the long term effects of the employed differentiated teaching strategies and procedures. Future cycles will therefore be able to investigate the effects of more continued differentiated teaching, as the teacher becomes more familiar with the differentiated teaching process as time passes.

This research cycle was conducted during the first year of implementing the new Curriculum and Assessment Policy Statements (CAPS) in grade 4 (the Intermediate Phase). It would be important in future research cycles to be more familiar with the curriculum content or take into consideration any changes that might still occur after realising certain aspects of the curriculum that need to be adapted when planning the research.

For future research that may materialize from this investigation, it may prove useful to investigate pre- and in-service teacher training, and the ways to enable teachers to incorporate differentiated teaching strategies and procedures into their day-to-day practice. The need for improved teaching practice in South Africa can thus be addressed by looking at new and experienced teachers' confidence, willingness and capabilities of implementing differentiation in their classrooms. In this way the intention of supporting teachers in practically being able to differentiate their teaching successfully, can be achieved.

It is suggested that teachers wait at least three years to be fully competent in differentiating their teaching (Wormeli, 2003) therefore a future study after this one is advisable.

5.7 CONCLUDING REFLECTIONS ON THE TOTAL RESEARCH PROCESS

Differentiated teaching is about doing “whatever it takes to ensure that struggling and advanced learners, students with varied cultural heritages, and children with different background experiences all grow as much as they possibly can each day, each week, and throughout the year” (Tomlinson, 1999b, p.2).

This research process has not only made me more aware of my passion for supporting my learners successfully in their learning process, but also made me aware of the value of intervention tools (e.g. pre-assessment, scaffolding, mediation and grouping) and creating a fun classroom atmosphere, which optimise learning situations, where my learners’ uniqueness are catered for by concentrating on their interests and learning preferences and offering them the opportunity to work within their ZPD’s. I have also realised that a need exists for teachers to take responsibility for research by reflecting on their teaching practice in order to continuously improve it. This makes one of the roles that a teacher has to fulfil, namely being a lifelong learner who embraces personal and professional change and development, evident (Department of Education, 2000). The importance of parents working in collaboration with the teacher to support the learners in their learning process has also become evident. Through the support of parents and differentiating teaching tools one of my prominent roles - that of being a phase specialist in helping my grade 4 learners to successfully bridge the gap between grade 3 and grade 4 - was achieved.

Education, both national and international, faces many challenges with regard to optimising learning and enhancing teaching (Donald et al., 2010; Giest & Lompscher, 2003). Teachers thus need to be trained to incorporate differentiated teaching tools into their classrooms to accommodate the diverse learners in their classes and differentiate their teaching meaningfully (Tomlinson, 2000). The Department of Education should also take note of this in order to create opportunities for differentiated teaching to foster better learning in school environments and make inclusive education a reality. Teacher training institutions should also recognise the value of differentiated teaching, so that they can prepare teachers adequately for effective implementation of suitable teaching strategies and procedures.

By following an action research design it was expected of me to collect a great deal of data, I had to carefully observe both the behaviours of interest and the conditions under which they occur, invent ways to score and categorise data and analyse and draw inferences that are appropriate for the sample and design (Gentile, 1994, in Patton, 2002), which turned out to be very demanding. I worked as an individual teacher researcher on this research study and found it demanding and emotionally draining at times, but above all rewarding, as I experienced both personal and professional growth. Individual teacher action research enabled me to make effective decisions about what to teach and how to select the best content and strategies for my learners to reach their full potential (Little & King, 2007). This process thus provided me the practical experience of incorporating differentiated teaching strategies and procedures into my grade 4 classroom. The benefits were both evident in my improved teaching practice and in the learners’ improved learning skills. These benefits

may be valuable to teachers and other educational professionals as differentiated teaching seems to be the answer to cater for diverse learning needs in an inclusive classroom.

Human, practical and curriculum aspects also played a role. Assigning learners to groups according to their learning profiles and observations; whether it is according to readiness levels, learner interests or learning preferences is not as simple as it might sound. First of all, changing groups every week did not only take a lot of time and preparation on my side, but it also took a lot of class time as textbooks and work books constantly went missing or were mixed up when changing groups. Learners being children/human, experienced different barriers to their learning: personality clashes in certain groups occurred and the physical aspect of being too tall to be part of the group at the front of the class or a desk that is too small was also a problem and groups had to be changed. This was frustrating at times when I was already behind with the work schedule, as the new curriculum is very demanding with regard to the amount of work needed to be covered and my colleagues follow a 'one size fits all approach' and went through the week's prescribed work much quicker than I did. However, when the groups' composition did not turn out as planned, it was just for one week, as new groups were formed every week to ensure that labelling did not occur and different needs were catered for.

According to Wormeli (2003) teachers should therefore give themselves a minimum of three years to be fully competent in differentiating their teaching. It is thus not surprising that I felt overwhelmed with all the 'newness'; as I had to 'start new' with my class, had to follow a *new* curriculum and implement *new* teaching strategies, all at the same time. This made my research study challenging, but I embraced the challenge which made the outcomes (enhancing my teaching practice and successfully supporting learners) even more rewarding.

I hope to play the important role of transferor of knowledge, by passing on the practical knowledge that I have gained from this study to other teachers, in order to support them in making a difference in their practice (Department of Education, 2000). According to Naicker (2005, p. 251) "transformation must not only exist in the minds of people; real transformation takes place when there is action". I am positive that I have created an awareness for the wider definition of inclusive education (Engelbrecht et al., 2006), through my research study by exploring differentiated teaching and highlighting the changing role of the teacher as mediator and supporter of learning in the classroom (Department of Education, 2000; Landsberg, 2011).

This research process is the first action research cycle. I hope to have the opportunity to explore the benefits of the findings through future cycles with my grade 4 colleagues, as a form of cooperative teacher research (Cohen et al., 2011; Ferrance, 2000).

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**ADDENDUM A – LETTER OF ETHICAL CLEARANCE FROM STELLENBOSCH
UNIVERSITY**



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Approval Notice

New Application

20-May-2013
Hamman, Liezel LD

Proposal #: DESC_Hamman2013

Title: Exploring differentiated teaching in a Grade 4 classroom

Dear Ms Liezel Hamman,

Your DESC approved **New Application** received on **10-May-2013**, was reviewed by members of the **Research Ethics Committee: Human Research (Humanities)** via Expedited review procedures on **17-May-2013** and was approved.

Please note the following information about your approved research proposal:

Proposal Approval Period: **17-May-2013 -16-May-2014**

Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your **proposal number (DESC_Hamman2013)** on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC) registration number REC-050411-032. We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 0218839027.

Sincerely,

Susara Oberholzer REC Coordinator
Research Ethics Committee: Human Research (Humanities)

Investigator Responsibilities

Protection of Human Research Participants

Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1. **Conducting the Research.** You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.
2. **Participant Enrollment.** You may not recruit or enroll participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use. If you need to recruit more participants than was noted in your REC approval letter, you must submit an amendment requesting an increase in the number of participants.
3. **Informed Consent.** You are responsible for obtaining and documenting effective informed consent using **only** the REC-approved consent documents, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.
4. **Continuing Review.** The REC must review and approve all REC-approved research proposals at intervals **appropriate** to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the REC approval of the research expires, **it is your responsibility to submit the continuing review report in a timely fashion to ensure a lapse in REC approval does not occur**. If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.
5. **Amendments and Changes.** If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, number of participants, participant population, informed consent document, instruments, surveys or recruiting material), **you must submit the amendment to the REC for review using the current Amendment Form. You may not initiate any amendments or changes to your research without first obtaining written REC review and approval. The only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.
6. **Adverse or Unanticipated Events.** Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as **any research related injuries**, occurring at this institution or at other performance sites **must be reported to Malene Fouch within five (5) days of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the RECs requirements for protecting human research participants.** The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch University Research Ethics Committee Standard Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.
7. **Research Record Keeping.** You must keep the following research related records, at a minimum, in a **secure** location for a minimum of five years: the REC approved research proposal **and all amendments**; all informed consent documents; recruiting materials; **continuing review reports; adverse or unanticipated events; and all correspondence from the REC.**
8. **Provision of Counselling or emergency support.** When a dedicated counsellor or psychologist provides support to a participant **without prior REC review and approval, to the extent permitted by law**, such activities will not be recognised as research nor the data **used in support of research. Such cases should be indicated in the progress report or final report.**
9. **Final reports.** **When you have completed (no further participant enrollment, interactions, interventions or data analysis) or stopped work on your research, you must submit a Final Report to the REC.**
10. **On-Site Evaluations, Inspections, or Audits.** If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.

ADDENDUM B – LETTER OF ETHICAL CLEARANCE FROM WCED



Directorate: Research

Audrey.wyngaard2@pgwc.gov.za
tel: +27 021 467 9272
Fax: 0865902282
Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20130422-98765

ENQUIRIES: Dr A T Wyngaard

Ms Liezel Hamman



Dear Ms Liezel Hamman

RESEARCH PROPOSAL: EXPLORING DIFFERENTIATED TEACHING IN A GRADE 4 CLASSROOM

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be conveyed to the District Director of the schools where the project will be conducted.
5. Educators' programmes are not to be interrupted.
6. The Study is to be conducted from **13 May 2013 till 21 June 2013**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
12. The Department receives a copy of the completed report/dissertation/thesis addressed to:

**The Director: Research Services
Western Cape Education Department
Private Bag X9114
CAPE TOWN
8000**

We wish you success in your research.

Kind regards.

Signed: Dr Audrey T Wyngaard

Directorate: Research

DATE: 22 April 2013

Lower Parliament Street, Cape Town, 8001
tel: +27 21 467 9272 fax: 0865902282
Safe Schools: 0800 45 46 47

Private Bag X9114, Cape Town, 8000
Employment and salary enquiries: 0861 92 33 22
www.westerncape.gov.za

ADDENDUM C – INFORMED CONSENT FORM FOR PARENTS



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STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

EXPLORING DIFFERENTIATED TEACHING IN A GRADE 4 CLASSROOM

You are asked to provide your informed consent allowing your child _____
_____ to participate in a research study conducted by Liezel Dina Hamman (your child's classroom teacher and a MEd Educational Support student from the Department of Education at Stellenbosch University). The research study will form part of the completion of a master's thesis. Your child was selected as a possible participant in this study because she forms part of the research population.

1. BACKGROUND TO THE STUDY

Through differentiated teaching teachers come to know their learners better and are better able to address their learning abilities and needs in order to optimise their learning. The teacher changes her teaching to link better with her learners' readiness levels, learning preferences and interests. With the tools of differentiated instruction, teachers can keep the focus on teaching all the learners equitably and take each learner as far as he or she can go on their educational path. Differentiated teaching therefore ensures that all my learners, whether struggling academically or advanced in their learning, coming from varied cultural heritages and different background experiences all grow as much as they possibly can each day of their Grade 4 year. It is for this reason that I (the teacher-researcher) would like to incorporate differentiated methods of teaching into the classroom to help enhance my learners' learning.

2. PURPOSE OF THE STUDY

The aim of this study is to investigate how teaching practice and learning can be improved through incorporating differentiating teaching procedures, into the new Grade 4 curriculum, as mentioned in the Curriculum and Assessment Policy Statement (CAPS). Insight gained from this study could improve my own teaching practice, develop learners' sense of self efficacy and confidence in their learning abilities, and further the field of differentiated teaching and learning.

3. PROCEDURES

The study will take place during class contact time, where I will incorporate differentiated teaching strategies into my everyday teaching that aim to optimise your child's learning.

If you consent to your child's voluntary participation in this study, he/she would be asked to do the following:

- i. Complete questionnaires and activities regarding his/her learning preferences, interests and readiness.
- ii. Allow for his/her work books and report results to be studied.

Your child may at a later stage be asked to form part of a group of nine learners who will act as informants to provide information about how they have experienced the differentiated teaching lessons. Each of these nine learners will be asked to:

- iii. Participate in a focus-group interview with the other eight learners in which he/she may be asked to explain his/her opinions, thoughts and comments on the differentiated teaching process, as well as his/her thoughts about his/her own academic development. This interview will be conducted at a time which does not interfere with your child's school day and will last for approximately 1 to 1.5 hours.

4. POTENTIAL RISKS AND DISCOMFORTS

The questionnaires and activities offer an opportunity for your child to share their interests and learning preferences so that I can differentiate my lessons accordingly to optimise his/ her learning. The reflections offer an opportunity for your child to express thoughts and feelings regarding the lessons which he/she feels comfortable sharing. In the unlikely case that there will be questions asked during the questionnaires or interview that your child may feel uncomfortable answering, please note that he/she is not compelled to answer any such questions.

5. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

This study has the potential to inform my teaching practice so as to improve it. The study aims to optimise your child's learning by incorporating differentiated teaching strategies which have the potential to develop his/her sense of self efficacy and confidence in their own learning abilities.

This study may form a foundation for future research in furthering the field of differentiated teaching and learning.

6. PAYMENT FOR PARTICIPATION

No form of remuneration will be provided to the participants of this study.

7. CONFIDENTIALITY

Any information obtained in connection with this study, and that can be identified with your child, will remain confidential, and will be disclosed only with the permission of the participant, or in the unlikely event, as requested by law. Confidentiality will be maintained by means of providing each participant with a pseudonym (fake-name), and all data collected will be kept on my personal computer which is password protected. Only I, the researcher, have access to it.

The information gained from the study will form part of a thesis which will be available to others for academic purposes. No names or identities of any participant, or the school, involved will be disclosed in the final thesis.

During the focus-group interview, with both you and your child's consent, the interview will be voice-recorded purely to provide an accurate account of the interview and what is said by the learners.

If your child is willing to participate in the study, he/she will be consulted regularly to confirm that she is comfortable with the data collected (pertaining to him/her). He/she has the right to review any interpretations and audio-recordings and make adaptations if he/she feels it necessary. The audio-tapes will be erased once the thesis has been submitted and graded.

8. PARTICIPATION AND WITHDRAWAL

Your son/daughter can choose whether to be in this study or not. If he/she volunteers to be in this study, he/she may withdraw at any time without consequences of any kind. He/she may also refuse to answer any questions he/she does not want to answer and still remain in the study. The researcher may withdraw him/her from this research if circumstances arise which warrant doing so.

9. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:

The researcher, Ms Liezel Dina Hamman

Contact number: [REDACTED] (During school hours)

Email Address: liezelhamman@gmail.com

The supervisor of the study, Dr Marietjie Oswald

Telephone number: 021 808 2037

Email Address: mmoswald@sun.ac.za

10. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue your child's participation without penalty. You are not waiving any legal claims, rights or remedies because of your child's participation in this research

study. If you have questions regarding your child's rights as a research participant, contact Ms Malené Fouché at the Unit for Research Development of the University of Stellenbosch on telephone number 021 8084623.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to me by Ms Hamman. I was given the opportunity to ask questions, and if necessary, these questions were answered to my satisfaction.

I hereby consent to the voluntarily participation of my child _____ in this study. I have been given a copy of this form.

I consent to him/her participating in:

i. Completing questionnaires and activities

Signature of parent or legal guardian

Date

AND/OR

ii. Allowing for work books and report results to be studied

Signature of parent or legal guardian

Date

AND/OR

iii. The focus-group interview (with audio-recording)

Signature of parent or legal guardian

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to

_____.

Signature of Investigator

Date

ADDENDUM D – ASSENT FORM FOR LEARNERS



PARTICIPANT INFORMATION LEAFLET AND ASSENT FORM



TITLE OF THE RESEARCH PROJECT: Exploring differentiated teaching in a grade 4 classroom

RESEARCHER'S NAME: *Liezel Dina Hamman (Miss Liezel)*

ADDRESS: [Redacted]

CONTACT NUMBER: [Redacted]

What is RESEARCH?

Research is something we do to find new knowledge about the way things (and people) work. We use research projects or studies to help us find out more about how children learn. Research also helps us to find better ways of helping children learn new concepts and study skills.

What is this research project all about?

This research project is about finding out how you prefer to learn so that your teacher can teach you in the way you learn best.

Why have I been invited to take part in this research project?

You have been invited to take part because your teacher would like to find out more about your preferred way of learning. She is doing this research to learn how to improve her teaching in order to help you learn in the best possible way. By taking part in this research you can help your teacher to better support and help you learn in the way you learn best when you learn in class or study for tests and examinations.

Who is doing the research?

Your teacher is doing this research because she wants to know the best way to help you learn everything you need to know in grade 4.

What will happen to me in this study?

- *You will be asked to answer questions and do activities about your interests and the way you prefer to learn.*

- Your teacher will look at your work books and report results to find out more about how she can help you with the work/subjects you find more difficult.
- You may be asked to take part in a group interview where you and eight other learners from the class will talk about learning and the activities you did in class to help your teacher to better understand all the activities that you have done.

Can anything bad happen to me?

Nothing bad can happen to you. Your teacher is doing this study so that she can know how to help you learn best in class and for your first examination. But as soon as you are feeling uncomfortable or you don't want to be part of the study anymore you should tell your parents or teacher, as your teacher only wants the best for you by learning how to help you learn best.

Can anything good happen to me?

You will get to know more about your own way of learning which will help you in studying for tests or examinations. Your teacher will learn more about your interests, the way you prefer to learn and what you find enjoyable to learn or with which aspects of the work you struggle. This will help her to teach you in a way that can help you to learn better.

Will anyone know I am in the study?

Your name will be kept secret so that whoever reads the study will not be able to identify you.



Who can I talk to about the study?

Ms Liezel Dina Hamman (researcher): liezelhamman@gmail.com, telephone number [REDACTED]

Dr M.M. Oswald (Supervisor): mmoswald@sun.ac.za, telephone number: 021 8082306.

What if I do not want to do this?

You may refuse to take part even if your parents have agreed to your participation. It is your decision to participate and you can stop being part of the study at any time without getting into trouble.

Do you understand this research study and are you willing to take part in it?

 YES NO

Has the researcher answered all your questions?

 YES NO

Do you understand that you can pull out of the study at any time?

 YES NO

Signature of Child

Date

ADDENDUM E – LETTER OF CONSENT FROM PRINCIPAL

20 March 2013

Dear Mr [REDACTED],
[REDACTED] Primary School

REQUEST TO CONDUCT RESEARCH: M.ED. STUDY PROJECT

I hereby request permission to conduct the under-mentioned research study at your school. The study aims to improve my teaching practice, as well as enhance the learners' learning by exploring learner interests, readiness and learning preferences through differentiated teaching.

Title of the research study

Exploring differentiated teaching in a grade 4 classroom

Researcher

Ms Liezel Dina Hamman

Purpose of the Study

The aim of this study is to investigate how teaching practice and learning can be improved through incorporating differentiated teaching procedures, into the new grade 4 curriculum, as mentioned in the Curriculum and Assessment Policy Statements (CAPS). Insight gained from this study could potentially improve my own teaching practice, develop learners' sense of self efficacy and confidence in their learning abilities, and further the field of differentiated teaching and learning.

Research methods

The chosen design for my study is that of action research and I shall therefore need to act as both teacher and researcher for the duration of the intervention. The research process will involve a series of lessons (approximately 50 minutes each) for four weeks. The participants will be required to do baseline assessments; complete surveys; participate in class activities and keep work books throughout the entire process in order to explore their learning preferences, interests and readiness for optimal learning. A group of learners representing the diverse learner readiness, interests and learning preferences in the class will also be asked to participate in one focus group interview at the end of the study in order for me to evaluate the outcome of the process.

Confidentiality

Confidentiality will be maintained by means of providing each participant with a pseudonym, and all data collected will be kept under lock-and-key or password protected, where only I, the researcher, has have access to it. Any information that is obtained in connection with this study and that can be identified with the school or learners will remain confidential and will be disclosed only with the permission of the participant or as required by law. The information gained from the study will form part of a thesis which will be available to others for academic purposes. No names or identities of any participant, or the school, involved will be disclosed in the final thesis.

Identification of the investigator

If you have any questions or concerns about the research, please feel free to contact: Ms Liezel Dina Hamman (principal investigator): liezelhamman@gmail.com, telephone number : [REDACTED] or Dr M.M. Oswald (Supervisor): mmoswald@sun.ac.za, telephone number: 021 8082306 or Ms Maléne Fouché (at the Division for Research Development): mfouche@sun.ac.za, telephone number 021 808 4622.

Yours sincerely

Liezel Dina Hamman (Researcher)

To whom it may concern,

The information above was adequately explained to me by the researcher, Liezel Dina Hamman. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent to the completion of the proposed study at [REDACTED] Primary School.

Name of principal

Signature of principal

Date

20 March 2013

TO WHOM IT MAY CONCERN

I hereby give my permission to Ms Liezel Dina Hamman to conduct her Med. research study *Exploring differentiated teaching in a grade 4 classroom* at [REDACTED] Primary School. Information regarding the study was adequately explained to me and I was given the opportunity to ask questions. I was assured that confidentiality will be maintained and that no names or identities of any participant, or the school involved, will be disclosed in the final thesis.

Yours sincerely,

[REDACTED]

PRINCIPAL

ADDENDUM F - TIMETABLE OF INTERVENTION PLAN

WEEK 1	Hand out consent and assent forms and explain research to class.
13 -17 May	Get to know learners better by asking them to complete activities, questionnaires and inventories to determine their interests, readiness and learning preferences
Use knowledge gained from the procedures to set up individual learning profiles, to inform my teaching and the differentiation of the curriculum for the following weeks. Announce that each learner will have a special day, get special treatment. This is an opportunity for me to get to know them even better.	

WEEK	Date and day	Subject	Topic	Differentiate according to:	Intervention strategies and procedures
WEEK 2	Monday 20 May – Friday 24 May	Mathematics	Fractions	Readiness levels	KWLS-chart Scaffolding Peer tutoring
	Monday 20 May – Friday 24 May	Afrikaans	Spelling words	Learning preferences	Exposure to different ways (learning styles) Take on role of teacher (reciprocal teaching) Working with the whole class, in pairs and individually
	Friday 24 May	English	Different types of games-learning centres	Learning preferences Interests	Exposure to different ways (multiple intelligences) Instruction given to the whole class. Learners work individually. Play games in small groups. Addressing interest by providing choice

WEEK 3 Revision week	Monday 27 May	History	Leaders	Learning preferences	Cooperative learning Do interviews in pairs in front of the whole class Learning styles
	Tuesday 28 May	English	Movement sentences - verbs Design map with instructions to the haunted house	Learning preferences	Multiple intelligences Learning styles Working in pairs
	Wednesday 29 May	Geography	Map work Mind maps – remembering facts	Learning preferences	Bloom’s Taxonomy Learning styles Working with the whole class- large group
	Thursday 30 May	Afrikaans	Play game “simon says” to practice concept of prepositions Make gautrain poster	Learning preferences	Practice Afrikaans skills – learning styles Mediation Work with the whole class and in small groups
	Friday 31 May	Natural Science and Technology	Technological process, type of structures tubing- building a bridge Picking flower outside and draw – practising labelling the parts of the flower	Learning preferences	Working in pairs to build the bridge, Making up rhymes together as a class in a large group Drawing and labelling flower individually Learning styles Multiple intelligences
WEEK 4 Revision week (continues)	Monday 3 June	Mathematics	Revision exercises	Readiness	KWLS-technique Scaffolding Cluster Grouping- Learners put into

					groups to work on tasks related to concepts they struggle with most and need support in (Homogeneous groups – small group instruction)
WEEK 4-5 Examinations	Tuesday 4 June - Tuesday 11 June				
WEEK 5	Wednesday 12 June – Friday 14 June	English	Writing diary entries	Learning preferences	Opportunity to work alone, quiet atmosphere (Multiple intelligences)
	Wednesday 12 June	Mathematics	Playing the grid map game	Learning preferences	Whole class- large group Learning styles
	Thursday 13 June	History	Animals as form of transport	Interests	Interest and co-operative expert groups
	Friday 14 June	Geography	Farming	Readiness	Tiered assignments Cluster grouping
WEEK 6	Monday 17 June – Thursday 20 June	Mathematics	Time	Readiness	Pre-assessment Working with clocks on blackboard as mediation tool Reciprocal teaching
	Monday 17 June	Afrikaans/ English	Role Reading	Interests	Working in small groups
	Tuesday 18 June	Afrikaans	Dancing with a partner – following instructions	Readiness Learning preferences	Scaffolding Reciprocal teaching and peer tutoring Working in paired groups
	Tuesday 18 June	English	Reading from own book	Interests	Working individually Multiple intelligences

	Wednesday 19 June	English/Afrikaans	Role Plays	Learning preferences	Alternative assessment to answering listening comprehension questions on a paper Working in small groups and in pairs
	Thursday 20 June	Afrikaans	Choosing a poem of own choice to say	Interests	Multiple intelligences

*Special Day - I also decided to give each learner a special day. On the learners' special days they will receive special treatment. They will be allowed to sit where they want to, eat in class, 'rule the timetable' - by saying which subject they want to do first etc. The reason why I decided on this apart from getting to know them better is because I would like to find another form of focussing on learners' interests as differentiating according to this seem to be more complex than differentiating on readiness and learning preferences.

*Quizzes – will be done at the end of each day during the revision week. Both individually and in groups (e.g. boys against girls or choosing own teams) and points will be given as motivation. I will make use of Bloom's Taxonomy to structure my questions.

ADDENDUM G – EXAMPLES OF LESSON PLANS

MATHEMATICS: Differentiating teaching according to learners' learning preferences

TOPIC 39: POSITION AND MOVEMENT

Learning Styles/ Multiple Intelligences Lesson Plan: Finding objects on a grid

Resources needed:

- Pegboard, numbers and letters to make alphanumeric grid, grid reference activity
- Platinum Mathematics textbook pp. 188 – 190.

Skills:

- This topic links with work done in Geography in Map Skills. We are practising and reinforcing the skills of locating the position of objects, drawing symbols in a grid with alphanumeric grid references and identifying the shortest distances between two cells on the grid in this lesson.

Whole Class Activities:

Introduce the topic and practice mental maths with a game. Roll up small pieces of paper with mental questions and fun dares written on it. Place them in positions on the pegboard grid. Give learners turns to identify a position.

How learners are exposed to different learning styles/ multiple intelligences.

Kinaesthetic learning style/ Bodily-kinaesthetic multiple intelligence: Learners are actively participating in the lesson as they get the opportunity to walk up to the grid, touch and feel the grid and take the piece of paper from the correct grid reference

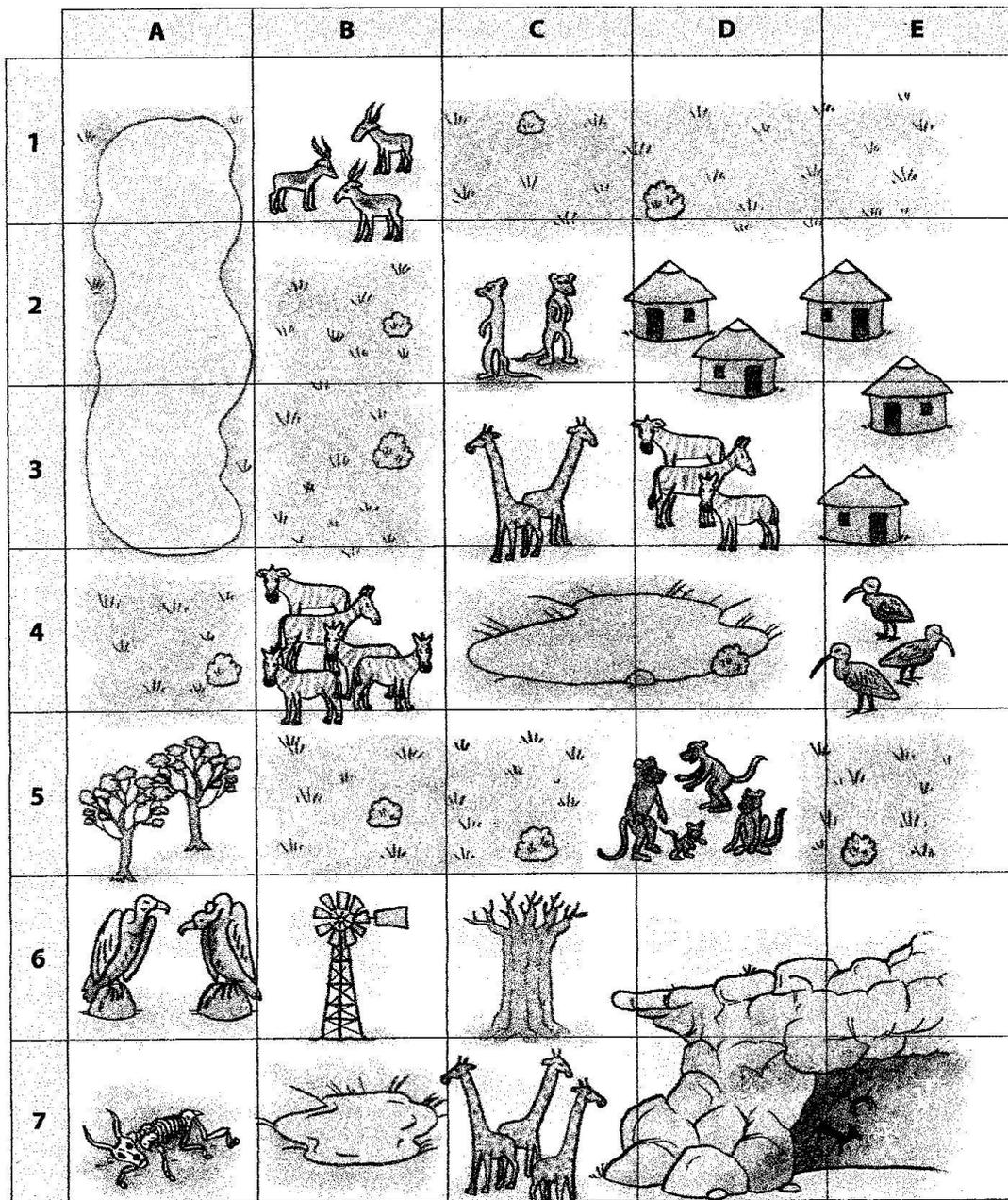
Auditory learning style/ Verbal-Linguistic multiple intelligence: Learners are giving the instructions and asking the questions about the grid references

Visual learning style/ Visual-Spatial multiple intelligence: Learners draw the grid reference and jot down the names of the learners in each block.

Class assessment:

Ask learners to do an activity on locating positions on a grid consisting of labelled columns and rows (Find example of the activity on the following page)

- Encourage learners to engage in this activity by pretending that they are in the grid. For example if they pretend that they are 'meerkats' and they want to get to the closest waterhole, it will be shorter to go to C4 than D4. They can also go up to the pegboard grid to help them or use a ruler to measure the distances (Kinaesthetic/ Bodily - Kinaesthetic)
- Allow learners to add colour to the map or even add their own key to the map or symbols/ instructions (Visual/ Visual- Spatial)
- Allow learners to work in pairs. Let them take turns to read the instructions out loud and explain their thinking process (Auditory/ Verbal-Linguistic)



- What do you find at the following grid positions?
a) B6 b) C3 c) B7 d) B2 e) D3
- Write down these grid positions:
a) the cave b) the two meerkats
c) the five zebra d) the two trees.
- At what grid positions can the animals find water?
- Write down the grid position of the water that is closest to:
a) the meerkats b) the vultures.
- True or false?
a) Zebra can be found in D2.
b) The cave with the paintings can be found in E7.

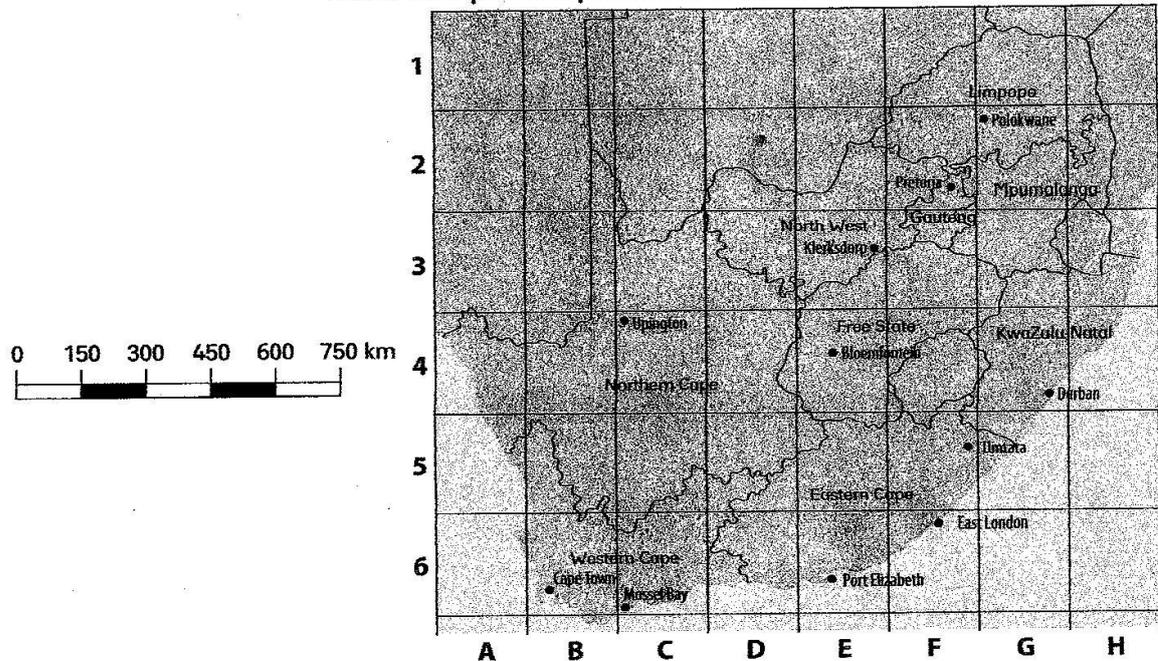
(Bowie, Gleeson-Baird, Jones, Morgan, Morrison & Smallbones, 2012)

Whole Class Culminating Activities:

- Learners work together in a 'learning style group' of their choice and do a similar activity using a map of South Africa and finding objects on a map (See example below)

Find objects on a map

This is a map of the provinces in South Africa with this type of grid.



Look at the map and answer these questions:

- How many provinces does South Africa have?
 - Name some of our neighbouring countries.
 - Explain to a friend how a grid reference system works. Use any place on the map.
- What place is in each of the following positions?
a) F5 b) B6 c) F6
- Give the grid reference for each of the following places. Remember that the black dot, and not the name on the map, indicates where the town is.
a) Durban b) Polokwane c) Pretoria
d) Upington e) Bloemfontein f) Mossel Bay
- I went swimming in the sea at H4. Which ocean was I swimming in?
 - I went in the cable car up Table Mountain. Give my grid reference.
 - I watched a soccer match at Moses Mabhida stadium. Give my grid reference.

GEOGRAPHY: Differentiating teaching according to learners’ readiness levels

UNIT 1: PEOPLE AND FOOD

Tiered Lesson Plan: Ways people get their food

Resources needed:

- Examples or pictures of different foods and the ways in which people get their food
- Platinum Social Sciences textbook pp. 46 – 49.

Skills:

- Learners will recognise how people get their food in different ways (understand the interaction between society and the natural environment)
- Learners will understand how food can be bought, grown, reared or collected in the wild.
- Learners will make links between how sometimes the food we eat depends on where we live – city, farm or wild (consider, synthesise and organise information – Bloom’s Taxonomy)

Whole Class Activities:

The teacher introduces the topic by showing learners pictures of a variety of foods and where different foods come from and the way people get the food they need. Explain new words such as food collector, poisonous and freshwater. The teacher also encourages the learners to think about the different ways in which food is produced and prepared for eating. E.g. cheese is made from milk which comes from a cow

Class assessments: Group work

1. Learners name the foods in the pictures and distinguish between food that come from plants, meat and fresh (uncooked) foods.
2. Learners talk about where the foods in the pictures come from.

Divide learners in three different groups according to their Geography results and observations made during Geography lessons (Readiness/ Tiered groups).

Assessment level 1 activities:

1. Learners copy following table in their books.

Buying food	Growing plants and keeping animals	Collecting and hunting wild food
1.		

(Adapted from Ranby et al., 2012)

2. They look at the given pictures (use their textbook, Platinum Social Sciences pp.48-49) and put the number of each picture in the correct column. Do the first picture with the learners as an example of what to do.

Compare answers with a partner’s.

Assessment level 2 activities:

1. Learners find their own pictures in magazines (make sure there are magazines in the class or ask learners to bring advertising pamphlets from shops to the class)
2. Learners write a sentence below each of their pictures to explain how they get their food.
3. Show and explain pictures to a partner in the group.

Assessment level 3 activities:

1. Learners draw a map of a town with farms around it and a forest beyond the farms.
2. Learners think of different activities that include buying, collecting, growing, rearing and shooting. Number and describe the activities.
For example: 1. Collecting mushrooms 2. Buying food in a shop
3. Fill the numbers in on the map
For example: Fill no.1 in where the forest is and no. 2 where the town is.
4. Show and explain maps to a partner

Whole Class Culminating Activities:

Share examples from Levels 1, 2 and 3.

HISTORY: Differentiating teaching according to learners' interests

UNIT 1: TRANSPORT ON LAND

Interests Lesson Plan: Animals as a form of transport

Resources needed:

- Pictures and books/ information on donkeys, camels and elephants
- Platinum Social Sciences textbook pp. 116 – 117.

This lesson aims to create an interest in and enjoyment of the study of the past and enable learners to achieve the following skills:

- Finding a variety of kinds of information
- Selecting relevant information

Whole Class Activities:

Before introducing the topic the teacher asks the learners to choose between a donkey, camel and elephant by asking them to write the name of the one that they are the most interested in on a piece of paper. The teacher takes in the papers and sort out the different groups.

Ask the learners to brainstorm the different animals that are used to transport people and goods on land. Explain to the learners that although their list could include horses, donkeys, camels, elephants and sleigh dogs this particular lesson will only focus on donkeys, camels and elephants as a form of transport on land.

Divide the class into three groups by putting the pictures of the animals up at the different groups and asking the learners to move into to their 'animal interest group'.

Assessment activities (Transport and donkeys – interest/expert group):

1. The learners read through the information on donkeys provided by the teacher to find as many interesting facts on the donkey, including characteristics of the donkey.
2. Learners are asked to use the information to answer the following questions in their groups:
 - * Write down three ways in which donkeys can be used for transport
 - * I would not use a donkey for transport in the desert because.....
 - * Think of two words that best describe the donkey

Assessment activities (Transport and camels - interest/expert group):

1. The learners read through the information on camels provided by the teacher to find as many interesting facts on the camel, including characteristics of the camel.
2. Learners are asked to use the information to answer the following questions in their groups:
 - * Write down two ways in which camels can be used for transport
 - * I would use a camel for transport in the desert because.....
 - * Think of two words that best describe the camel

Assessment activities (Transport and elephants - interest/expert group):

1. The learners read through the information on camels provided by the teacher to find as many interesting facts on the elephant, including characteristics of the elephant.
2. Learners are asked to use the information to answer the following questions in their groups:
 - * Write down two ways in which elephants can be used for transport
 - * I would use an elephant for transport in the jungle because.....
 - * Think of two words that best describe the elephant

Culminating activity:

After the learners are confident that they are now 'experts' when it comes to their specific animal they get divided into different groups. Each group will have three members. Each member will be an expert on a different animal. They share their expertise (interesting information, facts and characteristics learnt).

ADDENDUM I - INSTRUCTION PAGE FOR LEARNING CENTRES ACTIVITY

Hunter's name: _____

Date: _____

1. INTELLIGENCES' HUNT: Finding your type of "SMART"

In the classroom there are seven stations. Each station includes a different task under the theme "Favourite Games".

Follow the following instructions:

1. Listen to your teacher explaining what task you must do at each station before you begin.
2. Decide upon the order in which you want to complete the tasks.
3. Label the order in which you completed the tasks underneath.

The stations and tasks for each one include:

- Write instructions or a poem on how to play the game. _____
- Teach a classmate how to play the game. _____
- Draw and label a flow chart to explain how the game works and show what it would look like to be inside of one of your favourite games. _____
- Play the different games. _____
- Explain the instructions to playing one of the games on the tune of a well-known song. _____
- Discuss, in a small group, why you prefer playing your particular game above other games. _____

(Adapted from UNESCO, 2004; Noble, 2004)

ADDENDUM J - KWLS CHART

Name: _____

Date: _____

K-W-L-S technique

KWLS stands for three questions that you must ask yourself when you are learning new concepts or knowledge:

- Question 1-“K”: “What do I know?”
 Question 2-“W”: “What do I want to know?” (“What do I wonder?”)
 Question 3-“L”: “What did I learn?”
 Question 4- “S”: “What would I still like to know?”

The first two questions are asked before the activity. The third is asked after carrying out the learning activity.

Theme: _____

K	W	L	S
What do I know?	What do I want to know?	What did I learn?	What would I still like to know?

(Adapted from UNESCO, 2004)

ADDENDUM K - QUESTIONNAIRES

Interests Inventory

Name: _____

Date: _____

Complete the following sentences:

1. **All about ME**

When I have free time at home I like to _____

My favourite activity at school is _____

If I could learn more about anything it would be _____

I like to read about _____

A famous person I'd like to meet is _____

When I grow up I'd like to _____

If I could go on holiday anywhere in the world it would be _____

My best friends are _____

My hero or heroine is _____

The most interesting fact I know is _____

If I could change something about school it would be _____

2. **What If?**

You are an author. What is your best-selling book about? _____

You are a film director. What kind of movies do you make? _____

You are a coach. What sports team do you coach? _____

You are a travel agent. Where would you tell people to go on holiday? _____

You are a principal. What would the learners do in your school? _____

You are an artist. What media and subjects do you use? _____

You are an inventor. What is your most famous invention? _____

Name: _____

Date: _____

Learner Search

Instructions:

Go around the class and ask other learners to write their name next to the statement that best describes what they like. Each learner may only write his/her name once on your paper.

- Find someone who likes to run. _____
- Find someone who enjoys singing. _____
- Find someone whose favourite subject in school is Maths. _____
- Find someone who prefers to read books over watching movies. _____
- Find someone who likes to recite poems. _____
- Find someone whose favourite sport is hockey. _____
- Find someone who enjoys dancing. _____
- Find someone who can cook. _____
- Find someone who likes to look after his/her younger brothers/sisters. _____
- Find someone who is good at explaining schoolwork to other learners. _____

Date: _____

Name: _____

Partner's name: _____

Partner interviews using a Venn Diagram: What interests you?

In this activity you will be asked to interview another learner. It must be someone in the class that you do not know very well.

Ask the following questions during your interview and make notes about each other on a piece of paper.

Questions:

What do you enjoy doing in the afternoons when you get home from school?

How would you like to celebrate your next birthday?

What chores do you have to do at home?

If you could meet any famous person who would it be?

What is your favourite outdoor activity?

What subject do you like the most?

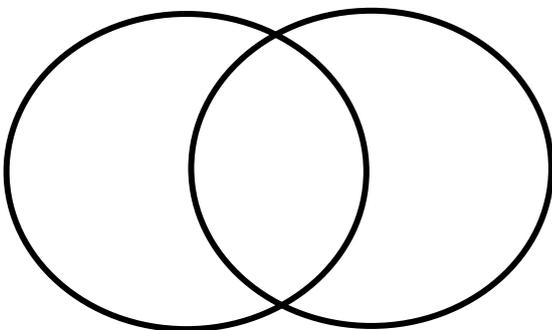
Who is your favourite teacher?

What music do you enjoy listening to?

Where is your favourite place to go during the holidays?

When the interview is finished write the answers from your partner down in a Venn Diagram. A Venn Diagram consists of two or more overlapping circles (see example on the next page). This will help you to organize characteristics that are common and not common to each other. The characteristics that are similar are listed in the overlapping part of the two-circles of the Venn Diagram. The characteristics that are different are listed in the outer circles. Your teacher will explain this in more detail to you.

Venn Diagram:



(Adapted from UNESCO, 2004)

Name: _____

Date: _____

1. INTELLIGENCES' HUNT: What type of "SMARTS" are in our class?

Move about the classroom and find other learners who can do the listed tasks.

There are three basic rules you must follow:

1. The learner you find must perform the task. The learner may not just say he/she can do it.
2. After the learner has performed the task, he/she must sign his/her name on the line provided.
3. A learner may perform only **one** task on another learner's list.

- * Whistles a few notes from a popular song _____
- * Stands on one foot with his/her eyes closed for at least five seconds _____
- * Recites at least four lines from a nursery rhyme, song or poem _____
- * Draws a quick diagram explaining how a key helps open a door _____
- * Briefly shares a dream _____
- * Completes the following number sequence: 2; 5; 11; __; __; __ _____
- * Can honestly talk about his/her feelings of being in a new teacher's class _____

(Adapted from UNESCO, 2004)

Name: _____

Date: _____

LEARNING PREFERENCE INVENTORY (1)

Underline the option that best describes YOU. Remember there is no correct answer.

1. [Pace]

I like...

- 1.1. (a) learning at my own speed
(b) learning with a partner who learns as quickly as I do
(c) working in a group with learners who learn as quickly as I do
- 1.2. (a) having time to think about my ideas before I start to work on a task/ activity.
(b) activities/tasks that can be finished in one period.
(c) to work hard on my activities/tasks until I have finished and I am ready to stop.
- 1.3. (a) learning about topics in a short time with lots of new ideas at a challenging speed with very little practice and repetition.
(b) learning small bits of information at a slow, easy speed with lots of practice and repetition.
- 1.4. (a) it when my teacher changes the timetable so we can investigate something fascinating that we are talking about.
(b) the timetable to be predictable so we study each subject at the same time each week for the same amount of time.
- 1.5. (a) to have lots of practice with a new way of thinking in different assignments so I feel sure I know it. Then I'm ready to learn another way of learning.
(b) learning under pressure like when I've missed school and the rest of the class is ahead of me.
(c) waiting until everyone in the class or group understands the lesson before going on to a new idea.

2. [Collaborative learning]

I like...

- 2.1. (a) doing projects with a partner when I get to choose my partner.
(b) doing projects in a group when I get to choose my group.
(c) doing projects by myself.

- 2.2. (a) learning with a partner/group who learns as quickly as I do (the same)
(b) working with a partner/group, when my partner/group learns more quickly than I do (differently) so I have to work very hard to keep up.
(c) learning with a partner who learns more slowly than I do so I am teaching what I already know.
- 2.3. (a) having my desk in a corner of the room, away from everyone, so I can have my privacy.
(b) sitting with our desks in rows so that there is someone next to me, in front of me and behind me
(c) sitting with a few friends with our desks in a little group
- 2.4. (a) having learners in my class teach me
(b) teaching the other learners in my class
(c) teaching myself
- 2.5. (a) doing projects in groups sometimes and working alone sometimes.
(b) doing projects with a partner/group when my teacher assigns me to my partner/group.
(c) doing projects by myself

3. [Choice]

I like...

- 3.1. (a) learning about topics I choose.
(b) learning about topics chosen by my teacher.
- 3.2. (a) using computers to find new information through the Internet and databases.
(b) using books I find in the library, at home and other places to find new information.
- 3.3. (a) doing projects in a group when I get to choose my group.
(b) doing projects in a group chosen by my teacher.
(c) doing projects with a partner when I get to choose my partner.
(d) doing projects with a partner chosen by my teacher.
- 3.4. (a) choosing the way I will show what I've learned.
(b) having my teacher choose the way I should show what I have learned.

- 3.5. (a) discovering reasons for things I don't understand by experimenting on my own.
(b) discovering reasons for things I don't understand by experimenting with help from a teacher.
- 3.6. (a) going to the library to do research on my favourite topics.
(b) learning about topics chosen by the teacher.
(c) finding a weird topic and taking it apart. Then I try to find out how the parts work or what they mean.
- 3.7. (a) learning when I get to choose the way I get to learn (from books or experts; groups or alone; worksheets or projects).
(b) doing activities that let me learn something new that is different from what anyone else in my class learns.
(c) to work on activities my teacher gives me

Answer **yes** or **no** to the following statements:

4. [Curriculum content]

I like...

- 4.1. learning about weird topics that I wonder about. They are things that we don't study in school. _____
- 4.2. understanding complicated ideas and problems. _____
- 4.3. studying REAL problems like endangered species, pollution, peace, politics _____
- 4.4. learning about computers and technology. _____
- 4.5. understanding how and why things happen. _____
- 4.6. learning about the lives of famous people (from history and today). _____
- 4.7. learning small facts like correct spelling and grammar, Maths facts, countries and their capitals, important dates in history. _____
- 4.9. learning from textbooks. _____
- 4.10. understanding confusing feelings. _____
- 4.11. to think in symbols, not words. _____
- 4.12. memorising facts and definitions. _____

5. [Evaluation]

I like...

- 5.1. knowing how my teacher will be giving marks before I begin my work _____

- 5.2. knowing if my mark is better or worse than my classmates. _____
- 5.3. having my teacher mark my work. _____
- 5.4. having a friend mark my work. _____
- 5.5. marking my own work _____
- 5.6. hearing how to improve my marks _____

6. [Self-knowledge]

- I prefer a quiet classroom rather than a noisy one. _____
- I am more attentive in the afternoon than I am in the morning. _____
- I prefer to do my school work with minimum light instead of a bright light on _____
- I learn better at a warm temperature than a colder temperature in the room. _____

Please complete the following statements:

- Good learners are _____
- I learn best when _____
- If my teacher wants me to learn she will _____

Circle the emoticon that best describes how you feel about the following statements:

7. [Expert knowledge]

I prefer...

- 7.1. having visitors come to school to talk about my favourite topics.

			
Strongly agree	Agree	Disagree	Strongly disagree

- 7.2. discovering reasons for things I don't understand by experimenting with help from an expert.

			
Strongly agree	Agree	Disagree	Strongly disagree

7.3. learning about people's jobs.

			
Strongly agree	Agree	Disagree	Strongly disagree

8. [The teacher/learner relationship]

I prefer...

8.1. having my teacher try really hard to understand what I'm saying or what I'm feeling.

			
Strongly agree	Agree	Disagree	Strongly disagree

8.2. having my teacher encourage me to try out a new idea I just thought up, even if it sounds weird.

			
Strongly agree	Agree	Disagree	Strongly disagree

8.3. it when my teacher lets me follow an interesting idea instead of doing the work that the rest of the class is doing.

			
Strongly agree	Agree	Disagree	Strongly disagree

8.4. talking and having discussions with my teacher.

			
Strongly agree	Agree	Disagree	Strongly disagree

8.5. asking for extra help.

			
Strongly agree	Agree	Disagree	Strongly disagree

9. [Manipulating ideas]

I prefer...

9.1. understanding complicated ideas and problems.

			
Strongly agree	Agree	Disagree	Strongly disagree

9.2. to change ideas from one form to another, like changing a story into a play or a maths problem into music, or changing a feeling I get from a picture into a poem.

			
Strongly agree	Agree	Disagree	Strongly disagree

9.3. learning by building models of what I am learning.

			
Strongly agree	Agree	Disagree	Strongly disagree

9.4. imagining pictures of what I am learning in my mind.

			
Strongly agree	Agree	Disagree	Strongly disagree

10. [Sharing learning]

I prefer...

10.1. sharing my work with my family.

			
Strongly agree	Agree	Disagree	Strongly disagree

10.2. group discussions.

			
Strongly agree	Agree	Disagree	Strongly disagree

10.3. explaining my thinking to other learners

			
Strongly agree	Agree	Disagree	Strongly disagree

10.4. telling my class about what I've been learning.

			
Strongly agree	Agree	Disagree	Strongly disagree

10.5. teaching other learners in my class.

			
Strongly agree	Agree	Disagree	Strongly disagree

(Adapted from Kanevsky, 2011a; UNESCO, 2004)

Name: _____

Date: _____

LEARNING PREFERENCE INVENTORY (2)

*Instructions - Place a tick mark (✓) besides each statement that you agree with:

Group 1—Reading

- _____ 1. I like to read when I have free time.
- _____ 2. I like to read a story rather than be told what the story is about.
- _____ 3. I understand something best when I read it.
- _____ 4. I remember what I read better than what I remember what I hear.
- _____ 5. I would rather read a comic book than watch a comic programme on TV.
- _____ **(Total)**

Group 2—Writing

- _____ 1. I take notes when I read to better understand the story
- _____ 2. I take notes to help me remember what the teacher said.
- _____ 3. I like to recopy my notes as a way of better understanding the work.
- _____ 4. I make fewer mistakes when I write than when I speak.
- _____ 5. I find the best way to remember things is to write it down.
- _____ **(Total)**

Group 3—Listening

- _____ 1. I like to listen to people discuss things.
- _____ 2. I learn more when I watch a series on animals than when I read about animals.
- _____ 3. I usually remember what I hear.
- _____ 4. I would rather watch a TV show or movie based on a book than read the book itself.
- _____ 5. I learn better by listening to the teacher than by making notes from a textbook
on the same subject.
- _____ **(Total)**

Group 4—Speaking

- _____ 1. I remember things better when I say them out loud.
- _____ 2. I talk to myself when I try to solve problems.
- _____ 3. I communicate better on the telephone than I do in writing.
- _____ 4. I learn best when I study with other people.
- _____ 5. I understand the work better when I read it out loud.
- _____ **(Total)**

Group 5—Visualising

- _____ 1. I can «see» words in my mind’s eye when I need to spell them.
- _____ 2. I picture what I read.
- _____ 3. I can remember something by «seeing» it in my mind.
- _____ 4. I remember what the pages look like in the books I have read.
- _____ 5. I remember people’s faces better than I remember their names.
- _____ **(Total)**

Group 6—Manipulating

- _____ 1. I like to make models of things.
- _____ 2. I would rather do experiments than read about them.
- _____ 3. I learn better by playing with objects.
- _____ 4. I find it hard to sit still when I study.
- _____ 5. I move around a lot when I am trying to think through a problem.
- _____ **(Total)**

reading	writing	listening	speaking	visualising	manipulating
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(Adapted from Sonbuchner, 2004, in UNESCO, 2004)

Name: _____

Date: _____

LEARNING PREFERENCE INVENTORY (3)

* Instructions: Place a tick mark (✓) besides each statement that you agree with

Group 1— Auditory learner

- _____ 1. I enjoy listening to my teacher teach and then teach others to understand things they don't know.
- _____ 2. I like to discuss the topic with my friends after the lesson.
- _____ 3. I like to tell jokes or stories during class.
- _____ 4. I prefer listening to background music while doing my school work.
- _____ 5. I enjoy listening activities.
- _____ 6. I learn best when I can listen to someone tell me how to do something.
- _____ 7. When I read I read out loud or hear the words inside my head.
- _____ 8. When asked to give directions I have no difficulty in giving them verbally.
- _____ 9. When I write I often say the letters and words to myself.
- _____ 10. If I am unsure how to spell a word I spell it out loud in order to determine if it sounds right.
- _____ 11. If I had to remember a list of items, I would remember it best if I said the items repeatedly.
- _____ 12. I prefer teachers who talk with a lot of expression.
- _____ 13. When trying to concentrate, I have a difficult time when there is a lot of noise in the room.
- _____ 14. When trying to recall someone, I remember names, but forget faces.
- _____ 15. When solving a problem I talk myself through it.
- _____ **(Total)**

Group 2— Visual learner

- _____ 1. I like to take notes or make mind maps during the lesson.
- _____ 2. I like it when my teacher wears different colours of clothes each day.
- _____ 3. I enjoy looking through my textbooks during my free time.
- _____ 4. I enjoy seeing pictures on the classroom walls.
- _____ 5. I prefer it when the teacher shows examples on the board when she is teaching a topic.
- _____ 6. I learn best when I watch someone show me how.
- _____ 7. When I read I visualise what I'm reading in my mind's eye.
- _____ 8. When asked to give directions I see the actual places in my mind as I say them or I prefer to draw the places.
- _____ 9. When I write I am concerned how neat and well-spaced my letters and words appear.

- _____ 10. If I am unsure how to spell a word, I write it in order to determine if it looks right.
- _____ 11. If I had to remember a list of items, I would remember it best if I wrote them down.
- _____ 12. I prefer teachers who use the board while they teach.
- _____ 13. When trying to concentrate, I have a difficult time when there is a lot of movement or untidiness in the room.
- _____ 14. When trying to recall someone, I remember faces but forget names.
- _____ 15. When solving a problem I write or draw diagrams to see it.
- _____ **(Total)**

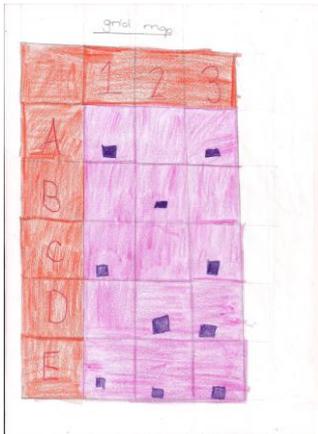
Group 3— Kinaesthetic learner

- _____ 1. I enjoy playing games about the topic during the lesson.
- _____ 2. I prefer quiet periods, followed by active periods, during the lesson.
- _____ 3. I like to sit close to others during the lesson.
- _____ 4. I enjoy writing answers on the board during the lesson.
- _____ 5. I like to doodle when I am listening to the teacher teach the lesson.
- _____ 6. I learn best when I try to do it myself.
- _____ 7. When I read I fidget and try to “feel” the story
- _____ 8. When asked to give directions I have to point or move my body as I give them.
- _____ 9. When I write I push hard on my pen or pencil to feel the flow of the words or letters as I form them.
- _____ 10. If I am unsure how to spell a word I write it in order to determine if it feels right.
- _____ 11. If I had to remember a list of items, I would remember it best if I moved around and used my fingers to name each item.
- _____ 12. I prefer teachers who use hands-on activities.
- _____ 13. When trying to concentrate, I have a difficult time when I have to sit still for any length of time.
- _____ 14. When trying to recall someone, I remember the situation that I met the person, not the person's name or face.
- _____ 15. When solving a problem I use my entire body or move objects to help me think.
- _____ **(Total)**

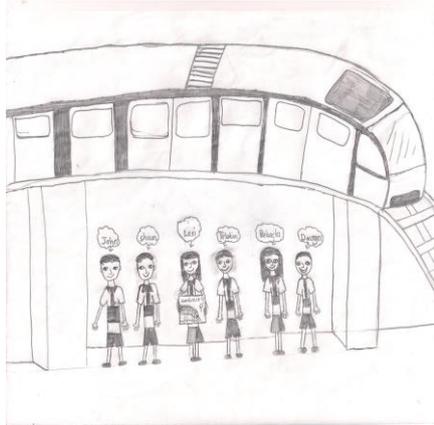
Auditory	Visual	Kinaesthetic
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(Adapted from Sonbuchner, 2004, in UNESCO, 2004; Arvie, 2010.)

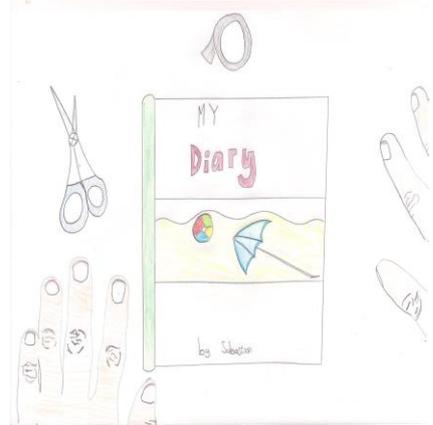
ADDENDUM L – REFLECTIVE DRAWINGS



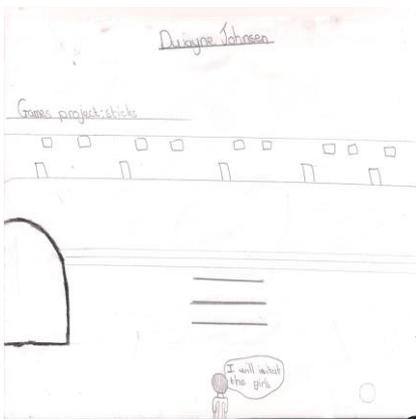
Emma



Tristin



Sabastion



Dwayne



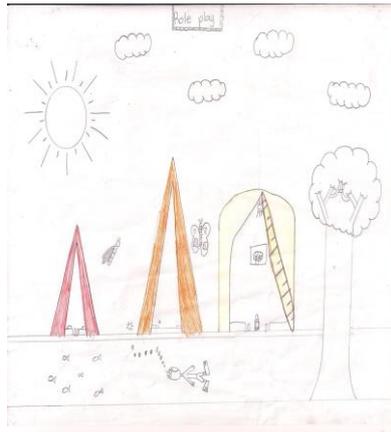
Olive



Alexandra



Clark



Benny



Kathleen

ADDENDUM M - FOCUS GROUP INTERVIEW GUIDE AND ACTIVITIES

1. Introduction and preliminaries (will be explained in such a way that grade 4 learners will understand)

1.1. Welcome & thank you for agreeing to participate

1.2. Motivation: explanation and purpose of the focus group

- To listen to your opinions of the activities done in class, no such thing as a wrong answer

- For my research

1.3. Confidentiality and anonymity

- Remind of signing the assent and consent form (permission forms to participate in the research)

- Voice record (anonymous which means I shall use the 'fake name' that you chose for yourself)

1.4. Format

- Conversational (speak slowly and clearly) - be as honest as possible

- Try not to speak over others

- Try to give detailed answers - not just yes/no

1.5. Length of interview

- 1 hour

1.6. Discuss & remind about:

- Tape recorder

- Assent for this (gave permission for this)

2. Rapport building and creating a comfortable place for discussion

2.1. Ice breaker – let learners each record something on the tape recorder, feel comfortable with it.

3. Feedback of picture drawn in class (learning preferences and interests)

3.1. You all had to draw your favourite activity. Explain your picture. Why did you choose that specific activity?

Prompt

- Was it because you got to work with friends/ on your own?
- Was it because you enjoy the subject?
- Was it because you find the topic/ the specific thing you had to do interesting?

- What is your reason for choosing the activity as your favourite?

***Ask participants to do worksheet – activity 1 + 2**

Activity 1:

1. Multiple intelligence

For English we did a theme on different games. There were different work stations in class. Place a tick mark (✓) next to the activity you enjoyed the most.

Writing instructions to play the game	
Drawing a picture or labelling a flow chart of how to play the game	
Playing the different games	
Teaching a classmate how to play the game	
Explaining and giving instructions on how to play the game (oral)	
Explaining the instructions to the game on the tune of a well-known song	

What is your reason for choosing this activity as the most enjoyable?

Activity 2:

2. Interests and learning preferences regarding activities

Circle how you feel about the following activities we did in class.

2.1 Making a poster about the Gautrain

			
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2.2 Building a bridge

			
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2.3 Writing diary entries

			
---	---	---	---

2.4 Playing the grid map game

			
---	---	---	---

2.5 Designing/creating maps with instructions to the haunted house

			
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2.6 Making up silly rhymes/songs for remembering the continents, provinces and the technological process with the class



2.7 Forms of transport: Camel, elephant, donkey activity



2.8 Role reading ('The Storm', 'Lindie, Naomi..'/'Reus en die boontjierank')



2.9 Following instructions : Dancing with a partner



2.10 Special day: Sharing information about the day and receiving special treatment



2.11 Role plays ('Kamp' and 'The Hen and the Apple Tree')



2.12 Drawing pictures and making mind maps to remember information to study (e.g. writing inside the different types of fruit)



2.13 Choosing your own book from the library to read aloud and talk about



2.14 Choosing a poem you like and saying it in front of the class



2.15 Working with the clocks on the black board to help you do the time sums



3.2. You all mentioned different activities as you favourite. And it seems that you enjoy doing activities/tasks/orals when it is something that you are interested in.

- Some of these activities were done in our revision week as preparation for the exam.
- What happened when you had to study work you were interested in?

Prompt

- Why do you say it is easier or more difficult to understand and study work that you are interested in?
- Concentration span?

***Ask participants to do worksheet activity 3**

Activity 3:

3. Learning styles

We went through our spelling words in three different ways in class.

- On the word wall to see
- Went through the words orally/ verbally, listened at how to pronounce the different words, made sentences with the words
- We wrote the words on each other's backs. We felt what the words felt like and had to guess the word and make sure our partner spelled it correctly.

Which way did you prefer?

Why do you prefer this way? (Motivate your answer)

3.3. When you studied for the exam what ways did you use to study?
How do you think these ways helped you?

Prompt

- How did you do in your exams?

***Ask participants to do worksheet activity 4**

Activity 4:

4. Interests regarding subjects

The following subjects are all exam subjects.

Mathematics

Afrikaans

English

History

Geography

Natural Science and Technology

Name the subject you like the most: _____

Explain why you like this subject the most:

Name the subject you like the least: _____

Explain why you don't like this subject:

3.4. We are not all equally interested in all the subjects. When you were not that interested in a specific subject but you had to study the work what helped you to study the work?

Prompt

- In what ways did you study? (studying tips regarding visual, auditory and kinaesthetic learning styles)
- Made mind maps, made up rhymes and songs, role play and games to help remember

3.5. Do you think these different ways made you understand the work better?

Prompt

- When you were asked a question in a test/exam. How did you remember the work?

4. Difference in teaching styles of teachers (compatibility with learners' learning preferences)

***Ask participants to do worksheet activity 5**

Activity 5:

5. Learning preferences regarding grouping

5.1. List the following ways of working from your favourite (1) to your least favourite (4)

Working together with the whole class	
Working in groups	
Working alone	
Working with a partner	

5.2. When working in groups or pairs. How do you want the groups/pairs to be structured? List from your favourite (1) to your least favourite (5)

Working with a partner/group that has the same interests as you	
Working with a partner/group that can help each other figure out the work (work at the same speed)	
Working with a partner/group that knows the work and can help you or explain to you how to do the work (works quicker than you/ understands better)	
Working with a partner/ group that finds the work difficult and you have to help them and explain the work to them (works slower than you)	
Working with a partner/group chosen by the teacher	

4.1. You were taught in a different ways during the first term in comparison to the second and third term. Which way do you prefer? Please be honest.

Prompt

- In the first term you sat in rows and mainly worked individually.
- Now you are sitting in groups and there are times where you get to work individually, in pairs, small groups and as a whole class
- Your teachers' teaching styles were different

- How do you like working/learning in the classroom?
- How do you feel about sitting in different groups every week? Can anyone comment on this?

5. Enrichment and support (Readiness levels)

5.1 We all have different strong points which mean that some of us are better in certain areas/ subjects than others. Therefore when you finished your work for a specific lesson you either got more work (enrichment) to do after you finished your work or you got to explain the work to the learners that were still busy. And if you were still busy with the work you got help (support) with what you struggled with either from the teacher, assistant or a friend.

Can you tell me more about this?

Prompt

- Was it easier to work with someone who understands the work and can explain it to you or did you prefer working with someone who figures out what to do with you?
- Why? Can you explain your reason?

6. Additional information

6.1 Are there any further comments and/or suggestions?

6.2 Is there any additional information that you think I should know?

7. Closure and Thank you

ADDENDUM N: GUIDELINES FOR PARENTS

Kinaesthetic learners: Guidelines for studying for the exams

“Learning Styles are the manner in which people's brains learn and store information. Some people learn by seeing (Visual); some people learn by hearing (Auditory); some people learn by doing (Kinaesthetic). During childhood, each person advances through various stages of each style. However, each person is born with tendencies toward one main style. There is no right or wrong style. Each one has advantages and disadvantages” (TRCTC, 2013).

Kinaesthetic learners are those learners who learn through experiencing/doing things. For this reason, kinaesthetic learners may become bored more quickly than other learners while listening to a lesson or studying for the exams.

It would seem as if your child's predominant learning style is kinaesthetic.

Your child may benefit from the following learning techniques:

- Studying in short blocks
- Role playing (E.g. act like you are the interviewer and your child is Nelson Mandela/ Mohandas Gandhi and ask him/her the facts that they have to study for the exam)
- Studying with others
- Using memory games
- Using flash cards to memorise. Make flashcards for each step in the procedure and ask your child to put the cards in order until the sequence becomes automatic
- Make study work into a game/ competition to keep your child's attention as touch and movement is important for your child to memorise and he/she learns by imitation and practice
- Allow your child to hold the textbook in his/her hand while reading. (As opposed to laying it on a table)
- Let your child write down the facts while you are reading information to him/her or discussing it, as they need to be busy with something and can't just concentrate on your voice
- Let your child write lists repeatedly
- Use a computer to reinforce learning by using the sense of touch
- Use rhythm (beats) to memorize or explain information
- Allow your child to stand up and use gestures when giving explanations to the work you asked them about
- Let your child associate feelings with information to be studied

(Adapted from Fleming, 2006; http://www.trctc.comnet.edu/ed_resources/tasc/Training/Resources_Learning_Styles.htm)

Auditory learners: Guidelines for studying for the exams

“Learning Styles are the manner in which people's brains learn and store information. Some people learn by seeing (Visual); some people learn by hearing (Auditory); some people learn by doing (Tactile/Kinaesthetic). During childhood, each person advances through various stages of each style. However, each person is born with tendencies toward one main style. There is no right or wrong style. Each one has advantages and disadvantages” (TRCTC, 2013).

Auditory learners are those learners who learn best through hearing things. They may struggle to understand a chapter they've read, but then experience a full understanding as they listen to the lesson.

It would seem as if your child's predominant learning style is auditory.

Your child may benefit from the following learning techniques:

- Using word associations to remember facts
- Repeating/ Recalling facts out loud with eyes closed
- Participating in group discussions (e.g. discuss topic/ what your child had to learn with him/her. Quiz him/her orally
- As your child remembers what they hear allow them to talk while they write/ summarise the work or fill in answers to questions you have given them
- As your child most likely remembers by listening, especially music, let him/her memorise facts to the tune of a familiar song or make up songs to go along with the subject matter. The crazier the better
- Allow your child to explain the material that they are trying to learn to you or a study partner
- Read explanations from the textbook to your child out loud. Be sure to go over all the important facts out loud
- Let them say difficult words in syllables in order to remember it better (e.g. *Satyagraha* from the history study work)
- Make up and repeat rhymes with them to remember facts, dates, names, etc. (e.g. make up a rhyme to remember the 9 provinces of South Africa).
- Use mnemonics and word links/associations (e.g. will remember KwaZulu- Natal because it sounds like the “kwaai” Zulu). The more obscure the easier to remember.

(Adapted from Fleming, 2006; http://www.trctc.commmnet.edu/ed_resources/tasc/Training/Resources_Learning_Styles.htm)

Visual learners: Guidelines for studying for the exams

“Learning Styles are the manner in which people's brains learn and store information. Some people learn by seeing (Visual); some people learn by hearing (Auditory); some people learn by doing (Tactile/Kinaesthetic). During childhood, each person advances through various stages of each style. However, each person is born with tendencies toward one main style. There is no right or wrong style. Each one has advantages and disadvantages” (TRCTC, 2013).

Visual learners are those learners who learn things best through seeing them. Visual learning learners like to keep an eye on the teacher by sitting in the front of the class and watching the lesson closely. Often, visual learners will find that information "clicks" when it is explained with the aid of a chart or picture.

It would seem as if your child's predominant learning style is visual.

Your child may benefit from the following learning techniques:

- Quiet study time
- Drawing a map of events in history or drawing a scientific process (e.g. drawing a timeline with all the facts that he/she had to learn about Nelson Mandela/ drawing the water cycle with labels)
- Making mind maps of topics to be studied. Write in capital letters, print and make use of different colours. As your child may be sensitive about the way things look and appear give them time to put effort into his/her mind map
- Using colour coding highlighting, circle the words or underline important facts
- Using flash cards for studying is important as the act of writing the cards and viewing them will increase comprehension
- As your child may think in pictures or words, information may not exist for them if it is not seen or written down, so allow your child to rewrite the study work in his/her own style
- Allow your child to take notes while listening to your explanations. He/she can also write out the explanations
- Ask your child to create charts and diagrams that demonstrate key points
- Actively review any photographs or diagrams in your child's textbook with them
- Make use of visual metaphors to associate information
- Allow your child to use illustrations and guided imagery to remember content
- Use visual analogies to associate information
- Give your child the opportunity to organise material by creating graphs, tables and mind maps as the more he/she organises his/her notes and study material, the easier it will be for him/her to remember content
- Watch online videos of processes to be studied (e.g. the water cycle)

(Adapted from Fleming, 2006; http://www.trctc.comnet.edu/ed_resources/tasc/Training/Resources_Learning_Styles.htm)