



IMPLEMENTATION OF THE NATIONAL CURRICULUM FOR PHYSICAL DEVELOPMENT IN THE RECEPTION YEAR

by

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DECLARATION OF AUTHENTICITY

I, Heather Marina Perry, declare that

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which I hereby submit for the degree Master Educationis in Educational Psychology at the University of Pretoria, is my own work and has not been previously submitted by me for a degree at this or any other higher education institution. All sources and citations from literature have been acknowledged in-text and referenced in full.

Heather Perry

August 2010

ABSTRACT

This study explored how Grade R teachers at a pre-primary school understand and implement early childhood physical development practices, based on the Revised National Curriculum Statement (RNCS) for Grade R. The research took place in the form of a case study at a private pre-primary school in Rivonia, Sandton. Data was collected by means of document analysis of the RNCS for Grade R, a focus group discussion with purposefully selected participants and observations within the school. Analysis of the data was twofold, firstly utilising taxonomic analysis based on Anita Harrow's (1972) taxonomy of psychomotor learning (which formed the theoretical framework for the study), and secondly by means of a thematic analysis of data.

Results and findings indicate that participants attributed significant importance to physical development in early childhood as a building block for the development of further cognitive skills and academic achievement. Participants demonstrated an in-depth and extensive comprehension of physical development pertaining to early childhood and their understanding thereof is reflected in their teaching practices offering varying opportunities and ways in which to learn. The school takes a whole-school approach to physical development by incorporating it into different contexts and enlisting the assistance of various role-players.

Emerging themes reflect concern with the impact of modern lifestyle on children's physical development, current inadequacies of physical education programmes in schools, the need for teachers to remain informed and educated in physical development and the need for further development of the physical development section of the Grade R RNCS. Participants had various concerns with the curriculum in terms of what they perceived as its non-specificity, the participative versus quality performance approach, the lack of age-appropriate norms, and perceived irregularities with other areas of the Grade R curriculum. As a result, participants seemingly relied to a lesser extent on the RNCS to inform their implementation of physical development practices, relying instead on other sources of guidance. Participants therefore felt that the physical development section of the Grade R RNCS does not provide sufficient guidance and information for newly qualified or inexperienced teachers, especially those who have limited access to resources. Subsequently, this study highlights the need for teacher training as a means of

improving the status of school physical education, assistance with and dissemination of information regarding early physical development in educational psychology practice and the need for further research in early physical development and the RNCS.

KEY CONCEPTS

- Curriculum
- Early childhood
- Harrow's taxonomy
- Outcomes-based education
- Physical development
- Physical education
- Reception year (Grade R)
- Revised National Curriculum Statement (RNCS)

TABLE OF CONTENTS

CHAPTER 1 INTRODUCING THE STUDY

1.1	INTRODUCTION AND RATIONALE	1
1.2	PURPOSE OF THE STUDY	3
1.3	RESEARCH QUESTIONS AND ASSUMPTIONS	4
1.4	CLARIFICATION OF KEY CONCEPTS	4
1.4.1	IMPLEMENTATION	5
1.4.2	PHYSICAL DEVELOPMENT	5
1.4.3	RECEPTION YEAR (GRADE R)	5
1.4.4	REVISED NATIONAL CURRICULUM STATEMENT (RNCS)	5
1.5	RELATED CONCEPTS	6
1.5.1	EARLY CHILDHOOD	6
1.5.2	OUTCOMES-BASED EDUCATION	6
1.5.3	PHYSICAL EDUCATION	7
1.6	OVERVIEW OF PARADIGMATIC PERSPECTIVES	7
1.6.1	THEORETICAL FRAMEWORK OF THE STUDY	7
1.6.2	METATHEORETICAL PARADIGM	7
1.6.3	METHODOLOGICAL PARADIGM	7
1.7	OVERVIEW OF RESEARCH METHODOLOGY AND STRATEGIES	8
1.7.1	CASE STUDY RESEARCH DESIGN	8
1.7.2	SELECTION OF THE CASE AND PARTICIPANTS	8
1.7.3	DATA COLLECTION AND DOCUMENTATION STRATEGIES	9
1.7.4	DATA ANALYSIS AND INTERPRETATION	9
1.8	TRUSTWORTHINESS OF THE STUDY	10



1.9	ETHICAL CONSIDERATIONS	10
1.10	OUTLINE OF CHAPTERS	10
1.11	CONCLUSION	11



CHAPTER 2

LITERATURE REVIEW: SITUATING THE STUDY WITHIN A THEORETICAL FRAMEWORK

2.1	INTRODUCTION	12
2.2	PHYSICAL EDUCATION AS A VEHICLE FOR PHYSICAL DEVELOPMENT	13
2.2.1	CONCERNS WITH SCHOOL PHYSICAL EDUCATION	13
2.2.2	DEBATING THE PURPOSE OF PHYSICAL EDUCATION	14
2.2.3	PHYSICAL DEVELOPMENT: DEFINITION VERSUS DESCRIPTION	16
2.3	HARROW'S TAXONOMY OF PSYCHOMOTOR LEARNING	18
2.3.1	REFLEX MOVEMENTS	20
2.3.2	BASIC FUNDAMENTAL MOVEMENTS	21
2.3.3	PERCEPTUAL ABILITIES	22
2.3.3.1	Kinaesthetic discrimination	23
2.3.3.2	Visual discrimination	26
2.3.3.3	Auditory discrimination	26
2.3.3.4	Tactile discrimination	26
2.3.3.5	Coordinated abilities	27
2.3.4	PHYSICAL ABILITIES	29
2.3.5	SKILLED MOVEMENTS	30
2.3.6	NON-DISCURSIVE COMMUNICATION	30
2.4	CONSIDERING PHYSICAL DEVELOPMENT CURRICULA IN GRADE R	32
2.5	THE SOUTH AFRICAN CONTEXT	33
2.5.1	PHYSICAL EDUCATION: IMPLEMENTATION AND CURRICULUM	33
2.5.2	PHYSICAL DEVELOPMENT IN GRADE R: ADDRESSING GAPS IN THE LITERATURE	34
2.6	CONCLUSION	36

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1	INTRODUCTION	37
3.2	PARADIGMATIC PERSPECTIVES.....	37
3.2.1	INTERPRETIVISM AS METATHEORY	38
3.2.2	QUALITATIVE METHODOLOGICAL PARADIGM.....	39
3.3	RESEARCH METHODOLOGY AND STRATEGIES.....	40
3.3.1	CASE STUDY AS RESEARCH DESIGN	40
3.3.2	SELECTION OF THE CASE AND PARTICIPANTS	42
3.4	DATA COLLECTION AND DOCUMENTATION	44
3.4.1	DOCUMENT ANALYSIS.....	45
3.4.2	FOCUS GROUP DISCUSSION	45
3.4.3	OBSERVATION-AS-CONTEXT-OF INTERACTION	48
3.5	DATA ANALYSIS: PREPARATORY, DESCRIPTIVE AND INTERPRETATIVE PHASES	49
3.5.1	PREPARATORY PHASE	50
3.5.1.1	Organising and protecting the data	50
3.5.1.2	Familiarisation with the data.....	50
3.5.2	DESCRIPTIVE PHASE	50
3.5.2.1	Taxonomic analysis and coding	51
3.5.2.2	Thematic analysis and coding.....	52
3.5.3	INTERPRETATIVE PHASE	52
3.6	TRUSTWORTHINESS OF THE STUDY	53
3.6.1	QUALITY CRITERIA.....	54
3.6.1.1	Credibility	54
3.6.1.2	Transferability.....	54
3.6.1.3	Dependability	55



3.6.1.4	Confirmability	56
3.6.1.5	Authenticity	57
3.6.2	ETHICAL CONSIDERATIONS	58
3.6.2.1	Informed consent	58
3.6.2.2	Privacy, confidentiality and anonymity	58
3.6.2.3	Respect and trust	59
3.6.2.4	Protection from harm.....	59
3.7	MY ROLE AS RESEARCHER	59
3.8	CONCLUSION	60

CHAPTER 4

REPORTING THE RESULTS AND INTEGRATED FINDINGS OF THE STUDY

4.1	INTRODUCTION	61
4.2	TAXONOMIC ANALYSIS: PHYSICAL DEVELOPMENT IMPLEMENTATION	62
4.2.1	REFLEX MOVEMENTS	62
4.2.2	BASIC FUNDAMENTAL MOVEMENTS	63
4.2.3	PERCEPTUAL ABILITIES	65
4.2.4	PHYSICAL ABILITIES	70
4.2.5	SKILLED MOVEMENTS	71
4.2.6	NON-DISCURSIVE COMMUNICATION	72
4.2.7	A WHOLE-SCHOOL APPROACH TO PHYSICAL DEVELOPMENT	73
4.2.8	SUMMARY OF TAXONOMIC ANALYSIS	74
4.3	THEMATIC ANALYSIS: EMERGING THEMES	74
4.3.1	THEME 1: THE IMPACT OF MODERN LIFESTYLE ON EARLY PHYSICAL DEVELOPMENT	74
4.3.2	THEME 2: CURRENT INADEQUACIES OF PHYSICAL EDUCATION IN SCHOOLS.....	77
4.3.3	THEME 3: KEEPING INFORMED AND EDUCATED IN EARLY PHYSICAL DEVELOPMENT	78
4.3.4	THEME 4: THE ROLE OF EARLY PHYSICAL DEVELOPMENT IN ACADEMIC PERFORMANCE	80
4.3.5	THEME 5: PHYSICAL DEVELOPMENT AS A SOCIAL AND EMOTIONAL EXPERIENCE	81
4.3.6	THEME 6: CONCERN ABOUT THE CURRENT PHYSICAL DEVELOPMENT CURRICULUM	82
4.3.6.1	Subtheme 6.1: The non-specificity of the physical development curriculum.....	82
4.3.6.2	Subtheme 6.2: The need for quality performance versus participation	83
4.3.6.3	Subtheme 6.3: The need for age-appropriate developmental norms	85
4.3.6.4	Subtheme 6.4: The ‘what, why, how and when’ of the curriculum	86
4.3.6.5	Subtheme 6.5: Irregularities across the Grade R curriculum	87
4.3.6.6	Subtheme 6.6: Guidance for newly qualified or inexperienced teachers.....	89
4.3.6.7	Subtheme 6.7: Limited reliance on the curriculum to inform teaching.....	90
4.4	CONCLUSION	91



CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1	INTRODUCTION	92
5.2	SUMMARY OF FINDINGS	93
5.3	BUILDING A CONCLUSION: ADDRESSING THE RESEARCH SUBQUESTIONS	93
5.3.1	WHAT IS THE UNDERSTANDING OF GRADE R TEACHERS AT A SELECTED SCHOOL ABOUT PHYSICAL DEVELOPMENT?	93
5.3.2	HOW DO GRADE R TEACHERS AT A SELECTED SCHOOL IMPLEMENT PHYSICAL DEVELOPMENT PRACTICES?	94
5.3.3	HOW DO GRADE R TEACHERS AT A SELECTED SCHOOL INTERPRET THE PHYSICAL DEVELOPMENT SECTION OF THE RNCS?	96
5.3.4	TO WHAT EXTENT DOES THE RNCS INFORM GRADE R TEACHERS' UNDERSTANDING AND IMPLEMENTATION OF PHYSICAL DEVELOPMENT PRACTICES AT A SELECTED SCHOOL?... 97	
5.4	CONCLUSIONS OF THE STUDY: ADDRESSING THE PRIMARY RESEARCH QUESTION AND ASSUMPTIONS	97
5.5	CONSIDERING THE INFLUENCE OF THE STUDY	98
5.5.1	POTENTIAL CONTRIBUTIONS OF THE STUDY	99
5.5.2	LIMITATIONS OF THE STUDY	99
5.6	RECOMMENDATIONS	100
5.6.1	RECOMMENDATIONS FOR FURTHER RESEARCH	100
5.6.2	RECOMMENDATIONS FOR TEACHER TRAINING	101
5.6.3	RECOMMENDATIONS FOR EDUCATIONAL PSYCHOLOGY PRACTICE	102
5.7	CLOSING REMARKS AND FINAL REFLECTIONS	103

LIST OF FIGURES

<i>Figure 1.1:</i>	Overview of the study	03
<i>Figure 2.1:</i>	Outline of Chapter 2.....	13
<i>Figure 2.2:</i>	Harrow’s taxonomy of psychomotor learning	19
<i>Figure 3.1:</i>	The purpose and process of the study.....	37
<i>Figure 4.1:</i>	Results of the study	61
<i>Figure 5.1:</i>	Overview of Chapter 5.....	92

LIST OF TABLES

<i>Table 1.1:</i>	Data collection and documentation strategies for the study.....	09
<i>Table 3.1:</i>	The three dimensions of Interpretivism.....	38
<i>Table 3.2:</i>	Participants in the study	44

LIST OF APPENDICES

Appendix A:

Declaration of originality	121
Ethics clearance certificate	122

Appendix B: Compact disc

<i>Appendix 1:</i>	Official documentation
<i>Appendix 2:</i>	Document analysis
<i>Appendix 3:</i>	Focus group discussion
<i>Appendix 4:</i>	Observations
<i>Appendix 5:</i>	Reflexive Journal

CHAPTER 1

INTRODUCING THE STUDY

1.1 INTRODUCTION AND RATIONALE

Early childhood is a crucial period in which the foundation for lifelong learning is established (Department of Education [DOE], 2001a; Lerner & Johns, 2009; Willenberg, 2005). Physical development is regarded as central to building the foundation for lifelong learning (Ayres, 2005; Cheatum & Hammond, 2000; Fredericks, Kokot & Krog, 2006; Son & Meisels, 2006). Research has highlighted the impact of various facets of physical development on further cognitive development and academic achievement (Goddard-Blythe, 2005; Jordan-Black, 2005; Santhanam, Prasad Babu & BhaskaraRao, 2008). Yet current research does not indicate how the various facets of physical development are integrated in early childhood learning.

With children being increasingly inactive and the associated health risks of such inactivity being documented (Hills, King & Armstrong, 2007; Sollerhed & Ejlertsson, 2008), the focus of research in physical development has increasingly turned to the school context, where children are exposed to physical developmental activities through physical education (PE). Studies show that PE is often inadequately implemented in schools, having a low status internationally (Hardman, 2008) as well as in South Africa (Amusa & Toriola, 2008; Du Toit, Van der Merwe & Rossouw, 2007), due to a lack of consensus among professionals regarding the aims and purposes of PE (Van Deventer, 2007). Research generally focuses on primary and high school contexts (Du Toit *et al.*, 2007; Smith & Parr, 2007), thereby not adequately addressing the early childhood phase of schooling and the purpose of PE as it pertains to early physical development as a foundation for further academic achievement. Current literature calls for research in this area of physical development in the early childhood phase of schooling (Fredericks *et al.*, 2006; Longhurst, 2006).

Furthermore, research around physical development in schools often focuses on its implementation (Du Toit *et al.*, 2007; Van Deventer, 2004; Van Deventer, 2009) and not on the curriculum which informs implementation practices, namely the Revised National Curriculum Statement (RNCS). With this in mind, a need for research seems to exist that explores specific sections of the RNCS - including physical development - specifically in Grade R which is the lowest grade bearing formal

curriculum in early childhood. Indeed, the need for effective physical development programmes in early childhood is often raised in literature (Fredericks *et al.*, 2006; Hills *et al.*, 2007; Longhurst, 2006; Wessels, Pienaar & Peens, 2008).

Current research on Grade R has mostly been in response to concerns with the state of the literacy levels of South African children (De Witt, Lessing & Lenayi, 2008; Fleisch, 2008). In addition, concerns exist in terms of the numeracy levels of South African children (Carnoy, Chisholm & Baloyi, 2008; Fleisch, 2008). Yet no research could be found pertaining to the physical development section of the RNCS for Grade R, despite the fact that physical development provides the building blocks for mastering literacy and numeracy skills such as reading, writing (Ayres, 2005; Cheatum & Hammond, 2000; Goddard-Blythe, 2000; Santhanam, Prasad Babu & BhaskaraRao, 2008) and mathematics (Fredericks *et al.*, 2006; Goddard-Blythe, 2005; Jordan-Black, 2005; Son & Meisels, 2006). In addition to the need for research in this area, my interest in investigating physical development and Grade R was also inspired by my personal experience and interest in this area of research.

During ten years as a pre-primary teacher and later as a learning support teacher, I noticed an increasing number of children displaying delayed physical developmental skills. These children usually experienced concurrent difficulties with cognitive and academic activities, including early literacy and numeracy skills. My observations sparked an interest in what the possible impact of early physical development on further cognitive development and learning could be. At the same time, while following the RNCS (DOE, 2002a) for Grade R, I noticed that the physical development section in particular was not as comprehensive or detailed as I would have expected. I based this view on my understanding of early physical development gleaned from my training in a Bachelor of Physical Education degree and my experience in the field.

Therefore the apparent association between physical development and academic performance in early childhood, as well as my concerns regarding the physical development section of the RNCS for Grade R, stimulated my interest in exploring how other Grade R teachers understand and implement physical development practices. This particular focus is based on the fact that the Grade R RNCS is a document designed to inform and guide teaching practices. The current scarcity of literature in this area of enquiry, together with the concerns discussed above,

confirm that this area of research requires further attention. In Figure 1.1, I provide an overview of this study.

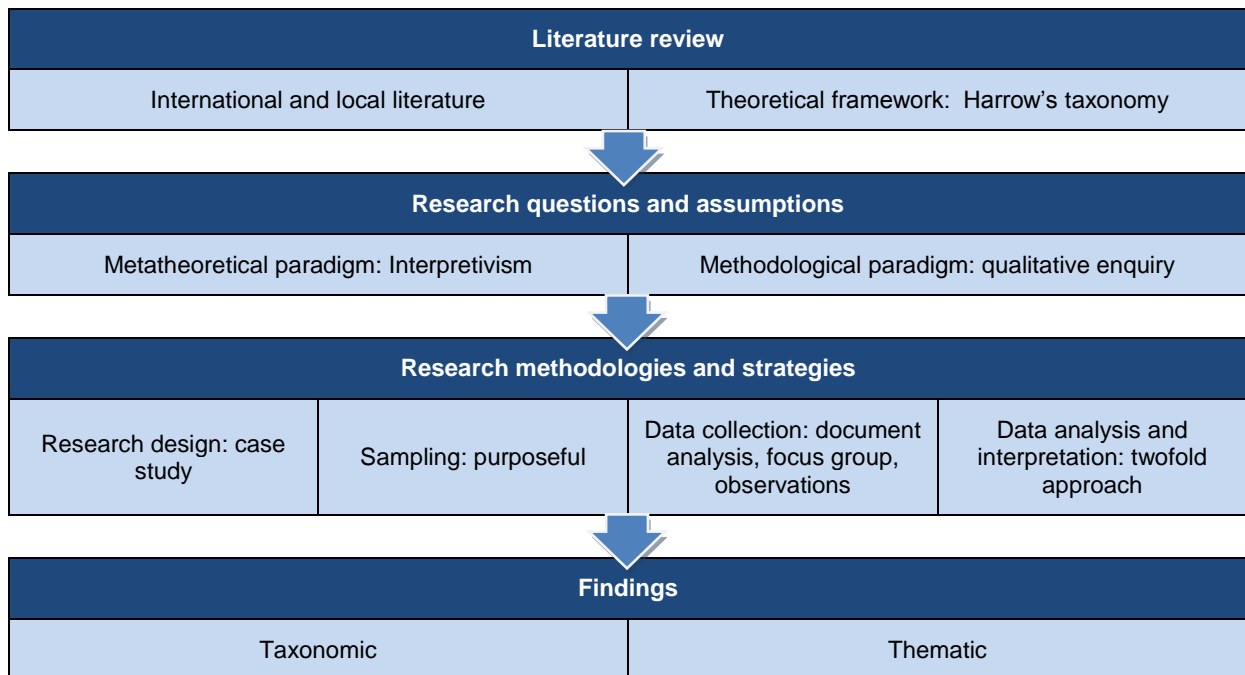


Figure 1.1: Overview of the study

1.2 PURPOSE OF THE STUDY

In this study, my purpose was to explore how Grade R teachers at a selected pre-primary school understand and implement early childhood physical development practices, based on the Grade R RNCS. Therefore, the study is descriptive and explorative in its purpose (Mouton, 2001). I aimed to describe the physical development teaching practices of Grade R teachers at a selected school. I also aimed to explore Grade R teachers' understanding of physical development and how these understandings inform the daily classroom practices described. Furthermore, I considered the Grade R RNCS against the backdrop of existing literature on early physical development and the participants' interpretation of the RNCS. In this way, in-depth understanding and insight into physical development in the Grade R school context may be gleaned.

1.3 RESEARCH QUESTIONS AND ASSUMPTIONS

In accordance with the purpose of the study discussed above, this study was guided by the following primary research question:

How do Grade R teachers at a school understand and implement the physical development section of the RNCS?

In order to address the primary research question, I explore the following subquestions:

- *What is the understanding of Grade R teachers at a selected school about physical development?*
- *How do Grade R teachers at a selected school implement physical development practices?*
- *How do Grade R teachers at a selected school interpret the physical development section of the RNCS?*
- *To what extent does the RNCS inform Grade R teachers' understanding and implementation of physical development practices at a selected school?*

I formulated the primary research question and subquestions for the study, based on my underlying assumptions regarding the topic of investigation. I embarked on the research process assuming that Grade R teachers at the selected school would have informed understandings regarding physical development as it pertains to early childhood, based on the school profile, discussed in Chapter 3. I assumed that the Grade R curriculum would to a degree, inform the teachers' understandings of early physical development. I furthermore assumed that teachers would interpret the Grade R RNCS according to their understandings of physical development. I therefore assumed that teachers would base their physical development implementation practices on the RNCS, together with their understandings thereof. To understand how I addressed my research questions, I now clarify key concepts pertaining to the study.

1.4 CLARIFICATION OF KEY CONCEPTS

In this section I explain the key terms and concepts of this study, within my research context.

1.4.1 IMPLEMENTATION

Implementation is defined as the ability to “give practical effect to and ensure of, actual fulfilment by concrete measures” (Merriam-Webster, 2004, p. 624). Within the context of education, Smylie and Evans (2006, p. 187) explain that implementation forms the “crucial link between the objectives and outcomes of policies, programmes and practices”. Therefore for the purposes of this study, implementation refers to the concrete actions taken by participants to carry out physical development teaching practices in line with the RNCS, as well as their own understandings of physical development.

1.4.2 PHYSICAL DEVELOPMENT

Physical development is a complex concept and as such, the greater part of Chapter 2 of this study is devoted to understanding the intricacies of physical development. For the purpose of introducing the concept here, physical development may be broadly defined as the advancement of the body in stages (Swannell, 1984). However, this is by no means an adequate or comprehensive description of the concept and it is recommended that Chapter 2 be consulted in order to gain further insight into physical development.

1.4.3 RECEPTION YEAR (GRADE R)

The reception year is referred to as Grade R (Department of Education [DOE], 2001a) which serves children between the ages of five and six years (Willenberg, 2005). Grade R is the year of schooling prior to the commencement of formal instruction in Grade 1 (Willenberg, 2005) and it is currently not a compulsory grade of schooling (DOE, 2001a). The DOE’s (2001a) goal of having 90% of five year olds in Grade R programmes by 2010 has recently been moved to 2014 (Department of Basic Education, 2010).

1.4.4 REVISED NATIONAL CURRICULUM STATEMENT (RNCS)

Wiles (2009) asserts that professionals working with curricula are not fully in agreement on a definition of the term curricula, because in addition to subjects, curricula encompass extra-curricular and non-academic activities. However, a

general understanding of a curriculum is that it is “a set of school experiences (that are) purposeful and defined” (Wiles, 2009, p. 2).

The South African Revised National Curriculum (RNCS)¹ is defined as aiming to “... develop the full potential of each learner as a citizen of a democratic South Africa” (DOE, 2002a, p. 1). The development of the curriculum is in turn influenced by its underlying educational ideology (Srivastava & Kumari, 2005), which for the South African National Curriculum, is currently outcomes-based education as discussed below.

1.5 RELATED CONCEPTS

The following concepts assist in understanding the backdrop and related constructs of the study.

1.5.1 EARLY CHILDHOOD

Early childhood entails a period of the child’s life from birth to six years (Lerner & Johns, 2009) or birth to nine years (DOE, 2001a; Willenberg, 2005) in which the foundation for lifelong learning is established (Lerner & Johns, 2009).

1.5.2 OUTCOMES-BASED EDUCATION

Outcomes-based education (OBE) is a theory of education which forms the underlying framework for the RNCS (Killen, 2007). OBE represents certain viewpoints about learning, teaching and assessment (Killen, 2007) which “encourage a learner-centred and activity-based approach to education” (Department of Education, 2002a, p. 1). OBE firstly takes an outcomes approach to the curriculum, (what do we want the student to learn?) and secondly a content approach (what content will help students to learn those things?) (Killen, 2007).

¹ The National Curriculum Statement is currently under review with the aim of improving its implementation (DOE, 2009).

1.5.3 PHYSICAL EDUCATION

According to Trudeau and Shephard (2008, p. 265), "Physical education (PE) is usually defined as an academic subject offered during the school day and organised according to a curriculum that is regulated by some governmental rules".

1.6 OVERVIEW OF PARADIGMATIC PERSPECTIVES

The paradigmatic perspectives I adopted for this study are discussed in detail in Chapter 3. A brief description of these paradigmatic perspectives is provided below.

1.6.1 THEORETICAL FRAMEWORK OF THE STUDY

Anita Harrow's taxonomy of psychomotor learning (Harrow, 1972) forms the theoretical framework of this study. Harrow's taxonomy provides a framework for arranging and organising elements of physical development hierarchically (Harrow, 1972) and is discussed in detail in Chapter 2. Harrow's (1972) taxonomy offers the framework and means by which to understand the complexities of early physical development needed for the purpose of this study.

1.6.2 METATHEORETICAL PARADIGM

Interpretivism forms the metatheoretical paradigm for this study. Interpretivism's leaning towards the importance of subjective human experience (Cohen, Manion & Morrison, 2007; Terre Blanche & Durrheim, 2006) enabled me to focus on the experiences of Grade R teachers at a school, concerning early physical development. In addition, this metatheory focuses on understanding and interpreting the world (Cohen *et al.*, 2007), thereby underlying the motivation for understanding physical development itself as a complex concept within this study.

1.6.3 METHODOLOGICAL PARADIGM

Qualitative enquiry forms the methodological paradigm for this study. The emphasis of qualitative enquiry on conducting in-depth research (Berg, 2004; Durrheim, 2006) in natural settings (Creswell, 2003; Durrheim, 2006; Hittleman & Simon, 2006),

allowed me to explore the understanding and physical development practices of Grade R teachers within their school environment more thoroughly. As qualitative research advocates the use of various methods of inquiry (Creswell, 2003), I was able to utilise varied data collection methods which I triangulated (Berg, 2004; Stake, 2000) and crystallised (Janesick, 2003), as discussed in detail in Chapter 3. Together the underlying paradigmatic and theoretical perspectives assist in informing the research methodology and strategies that I utilised.

1.7 OVERVIEW OF RESEARCH METHODOLOGY AND STRATEGIES

The research methodology and strategies are outlined below and discussed in further detail in Chapter 3.

1.7.1 CASE STUDY RESEARCH DESIGN

I chose case study as the research design for this study. A case study design facilitated my in-depth enquiry (Creswell, 2007; Opie, 2004) into early physical developmental understanding and practices at one school as a bounded system (Edwards, 2001; Gerring, 2004), through thick description (Stake, 2000) as well as the utilisation of varied data collection methodologies and sources (Creswell, 2007; Rosenberg & Yates, 2007). Specifically, an instrumental case study design allowed for the school as a case to play a supportive role (Edwards, 2001; Stake, 2000) in my understanding of early physical development in the school context. At the core of the successful utilisation of a case study design was my selection of the case and the participants of this study, as outlined below.

1.7.2 SELECTION OF THE CASE AND PARTICIPANTS

Purposeful sampling allowed for selection of the school as case and the Grade R teachers at the school as participants who would most likely be in a position to provide insight into my primary research question for this study (Creswell, 2007). Specific factors and rationale for the purposeful selection of the case and participants are detailed in Chapter 3.

1.7.3 DATA COLLECTION AND DOCUMENTATION STRATEGIES

The data collection and documentation strategies I utilised for this study are outlined in Table 1.1. Each strategy is discussed in detail in Chapter 3 and the utilisation of the varied strategies supported the in-depth nature of this study (Creswell, 2007; Opie, 2004) as well as facilitating the trustworthiness of the findings (Lincoln & Guba, 1985).

Table 1.1: Data collection and documentation strategies for the study

Source	Type	Documented	Explored
Document analysis	Public documents	Electronic and hand-written notes	The physical development section of the RNCS for Grade R
Focus group discussion	Semi-structured	Audio recorded and transcribed, as well as field notes and member checking	Participants' accounts of their understanding and implementation of physical development practices and the Grade R RNCS
Observations	Observation-as-context-of interaction	Field notes	Participants' physical-developmental practices in the school setting

The data I obtained from the above collection and documentation strategies was then analysed and interpreted as described in the next section.

1.7.4 DATA ANALYSIS AND INTERPRETATION

My data analysis for this study took the form of three phases further described in Chapter 3. During the first preparatory phase, I organised the data obtained from various sources (Patton, 2002; Thomas, Nelson & Silverman, 2005) and took the necessary steps to protect the data (Patton, 2002). The next phase entailed my familiarisation with the data to achieve a sense of the whole (Patton, 2002). The third descriptive phase entailed numerical coding of the data according to Harrow's taxonomy of psychomotor learning (Harrow, 1972), as well as thematic coding of the data (Gibson & Brown, 2009), in preparation for my taxonomic (Bernard & Ryan, 2010) and thematic (Gibson & Brown, 2009) analysis respectively. The final interpretative phase required of me to constantly review and revise meanings (Creswell, 2007; Stake, 2000) and significance (Patton, 2002) within the integrated data using specific processes which in turn contributed to the overall trustworthiness of the study.

1.8 TRUSTWORTHINESS OF THE STUDY

I aimed for trustworthiness by striving to adhere to the quality criteria of credibility, transferability, dependability, confirmability (Lincoln & Guba, 1985) and authenticity (Guba & Lincoln, 1989). I employed member checking (Gillham, 2000) of emerging focus group themes, I offered thick descriptions of the case and participants (Rubin & Babbie, 2010), I employed triangulation (Berg, 2004; Stake, 2000) and crystallisation strategies (Janesick, 2003; Maree & Van der Westhuizen, 2009) and I established an audit trail (Patton, 2002). The trustworthiness of a study is reflected in ethical considerations (Rossman & Rallis, 2003), outlined below.

1.9 ETHICAL CONSIDERATIONS

The ethical considerations for this study were concerned with informed consent (Berg, 2004; Strydom, 2005), which I acquired in writing from the school and participants (see Appendix B1: 1.2-1.5). I upheld the integrated guidelines of privacy, confidentiality and anonymity (Strydom, 2005; Wassenaar, 2006) in my research. Throughout, I treated the participants with respect and trust (De Vos, Strydom, Fouché & Delport, 2005). Following the above mentioned ethical considerations facilitated the protection of harm of the participants (Boeije, 2010).

1.10 OUTLINE OF CHAPTERS

CHAPTER 1: INTRODUCING THE STUDY

In Chapter 1, I introduce the study by focusing on the rationale, purpose and research questions. I outline the key concepts, paradigmatic and theoretical perspectives, as well as the methodological strategies I selected. I attend to quality criteria and ethical considerations, thereby providing an overview of the study.

CHAPTER 2: LITERATURE REVIEW: SITUATING THE STUDY WITHIN A THEORETICAL FRAMEWORK

I begin Chapter 2 by presenting an overview of generalised research on the topic of enquiry, including the concepts of *physical education* and *school curricula*. Thereafter, I situate literature pertaining to specific aspects of the complex concept

of *physical development* and the related concept of *early childhood* within the theoretical framework throughout, to organise, integrate and make sense of the complexities of existing literature pertaining to the topic of enquiry.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

In Chapter 3, I present the paradigmatic perspective, research design and research methodology which I utilised for this study. I conclude the chapter with a discussion on how the design and methodologies of the study contributed to the trustworthiness of my research via quality criteria and ethical considerations. I also reflect on my role as researcher.

CHAPTER 4: REPORTING THE RESULTS AND INTEGRATED FINDINGS OF THE STUDY

In Chapter 4, I detail the results subsequent to analyses of the various data collected. I consider the results of the study by situating them within the theoretical framework of the study, thereby presenting my findings. For this purpose, I review the literature discussed in Chapter 2.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

In Chapter 5, I summarise the main findings of the study and come to final conclusions. I discuss the limitations and potential contributions of the study. I then suggest recommendations based on my conclusions in terms of further research, teacher training and educational psychology practice.

1.11 CONCLUSION

In this chapter, I presented a brief overview of my research by outlining the rationale, purpose and key questions guiding the study. I introduced the selected paradigmatic and theoretical perspectives in order to orient the study within specific schools of thought. I briefly discussed the methodological strategies and adherence to standards for trustworthiness in terms of quality criteria and ethical research. In Chapter 2, I turn my discussion to existing literature which is pertinent to this study.

CHAPTER 2

LITERATURE REVIEW: SITUATING THE STUDY WITHIN A THEORETICAL FRAMEWORK

2.1 INTRODUCTION

In Chapter 1, I presented the backdrop for this study by specifying the rationale, purpose and key questions that guided my research. I also briefly introduced the paradigmatic and theoretical perspectives, methodological strategies and trustworthiness in terms of quality criteria and ethical considerations. In Chapter 2, I discuss the theoretical framework outlined in Chapter 1, within the context of prevailing literature related to the topic of enquiry.

I commence the chapter by examining how physical development may be formalised in the school context through physical education (PE), focusing on the implementation of the latter. Thereafter, I explore how attitudes towards PE and the implementation of PE in schools typically stem from differing views concerning the value and purpose of PE, which seem to have resulted from the lack of a consistent definition of physical development. I explore the key issues associated with physical development in early childhood by reviewing pertinent literature associated with early physical development and by situating early physical development within the theoretical framework for the study.

The lack of a consistent definition of physical development justifies my decision to apply Anita Harrow's (1972) taxonomy of psychomotor learning as a theoretical framework for this study which could provide a comprehensive understanding of physical development in early childhood. A step by step discussion of the theoretical framework follows by situating pertinent literature within the taxonomy. Finally, I refer to Grade R curricula and the South African context. I continually consider the implications of relevant literature for the purpose of the study, by identifying limitations in the literature base. Figure 2.1 provides a visual representation of the structure of this chapter.

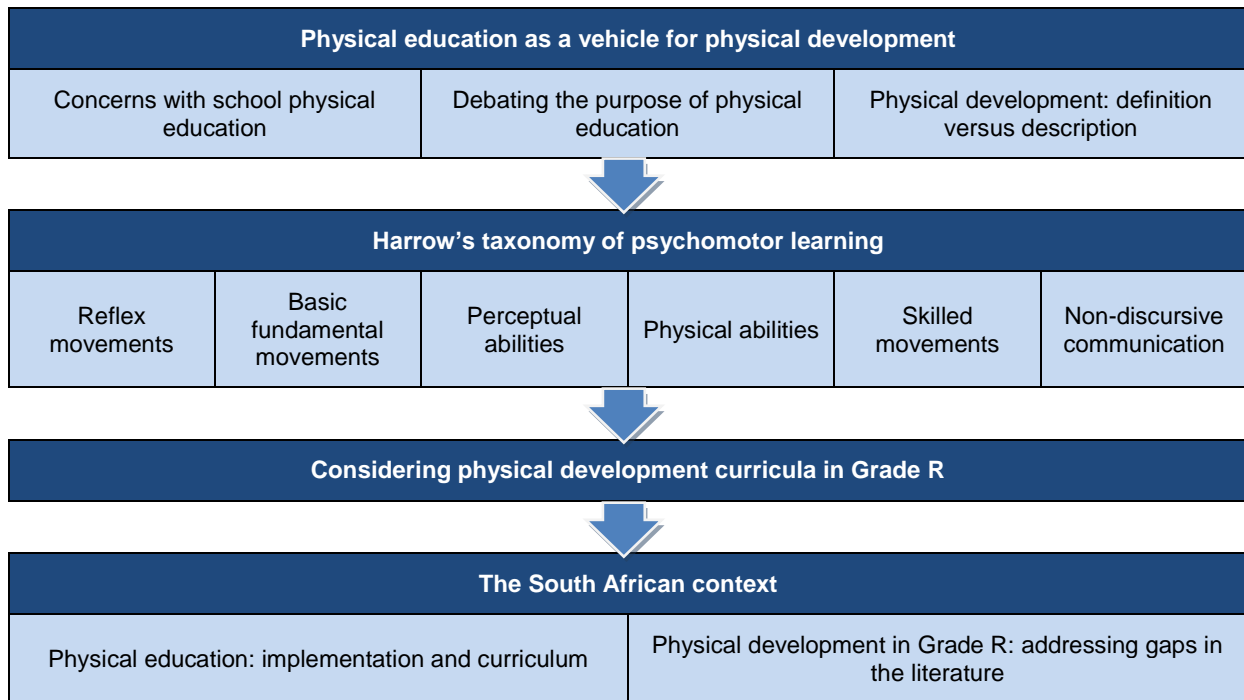


Figure 2.1: Outline of Chapter 2

2.2 PHYSICAL EDUCATION AS A VEHICLE FOR PHYSICAL DEVELOPMENT

Physical development as a concept incorporates a myriad of complex, interrelated processes and as such, lacks a consistent and clear definition or description. Thus, in order to fully grasp the complexity of the concept, it is firstly necessary to understand how physical development practices are implemented in schools, within the context of the concerns surrounding this implementation (Hardman, 2008; Van Deventer, 2007). Physical development in a school setting is primarily approached via physical education (PE).

2.2.1 CONCERNS WITH SCHOOL PHYSICAL EDUCATION

There is much debate about how PE may be implemented in schools (Hardman, 2008; Van Deventer, 2007) and such debate stems from longstanding disagreements regarding the mission or purpose of PE (Smith & Parr, 2007; Van Deventer, 2007). The debate concerning the purpose and implementation of PE in schools is ongoing at an international level and reflects a global concern regarding the low level status of PE in developed and developing countries alike (Hardman, 2008), a concern which is discussed below.

PE in schools appears to hold low status internationally (Hardman, 2008; Sherman, Tran & Alves, 2010). A worldwide survey of the status of PE in schools was carried out for the United Nations from 2005 to 2007 (Hardman, 2008). The findings of the survey, as well as findings of other studies, indicate that insufficient curriculum time allocation is a regular occurrence (Lowry, Lee, Fulton & Kann, 2009), as well as inadequate provision of resources (Sherman *et al.*, 2010) in the form of facilities, equipment and teaching materials for PE (Hardman, 2008). In addition, PE may often be conducted by inadequately trained teachers (Carlson, Fulton, Lee, Maynard, Brown, Kohl & Dietz, 2008; Hardman, 2008; Sherman *et al.*, 2010). In response to the relevance and quality of PE curricula around the world being under question, various organisations, including the Council of Europe, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the World Health Organisation (WHO) have advocated “regular reviews of the situation of PE in each country” (Hardman, 2008, p. 24). The origins of PE’s low status and resulting presumed inadequate implementation (Du Toit *et al.*, 2007; Hardman, 2008) in turn lie in disagreement among professionals over the purpose of PE for children (Van Deventer, 2007).

2.2.2 DEBATING THE PURPOSE OF PHYSICAL EDUCATION

When considering the apparent low status of PE in schools (Du Toit *et al.*, 2007; Hardman, 2008), Van Deventer (2007) argues that PE is often demoted in schools because other subjects have more convincing arguments to justify their existence. In order to justify the implementation of a programme, a clear understanding is required in terms of the purpose for the programme being justified. Therefore, an argument to justify the existence of PE as a vehicle for physical development requires underpinning by a clear purpose of PE as agreed upon by role-players. However, the purpose or mission of PE is a widely debated topic (Du Toit & Pienaar, 2003; Hills *et al.*, 2007; Loland, 2006), with no clear consensus.

Loland (2006) summarises current and widely presented arguments for the purpose of PE in schools into three themes, namely morality, health and meaning. The theme of morality centres on the argument that through sporting activities, PE can teach character and assist with socialisation (Loland, 2006). For example, it is argued that PE may instil values, decision-making skills and the ability to assume leadership tasks in children (Anderson, Blanksby & Whipp, 2005). Hills *et al.* (2007)

add that in early childhood, socialisation and behavioural norms are potentially established through physical development, as the child seeks approval from others through physical performance. It is argued that in this way physical motor functions can play a significant role in facilitating young children's social and emotional adjustment to school (Bart, Hajami & Bar-Haim, 2007).

The second theme of health focuses on PE as a potential means of improving health through increased activity (Loland, 2006), thereby promoting an active, healthy lifestyle (Anderson *et al.*, 2005; Hardman, 2008). The theme of health is widely advocated for the purpose of PE, as it is supported by scientific evidence that regular exercise implies health benefits for physical ailments associated with inactivity (Loland, 2006). In particular, the link between obesity and physical inactivity to life threatening medical conditions is well documented (Du Toit & Pienaar, 2003; Hills *et al.*, 2007; Loland, 2006).

Concern is often raised in terms of the reported alarmingly high numbers of child and adolescent obesity and physical inactivity (Hardman, 2008; Sollerhed & Ejlertsson, 2008). It is speculated that children are increasingly engaging in more sedentary activities (Desrochers & Holt, 2007; Hills *et al.*, 2007). Current research proposes associations between increasing childhood physical inactivity and rises in unhealthy diets (Brown & Summerbell, 2009; Burdette & Whitaker, 2005; Veugelers & Fitzgerald, 2005; Zimmerman & Bell, 2010), television viewing (Adachi-Mejia, Longacre, Gibson, Beach, Titus-Ernstoff & Dalton, 2007; Hancox & Poulton, 2006; Swinburn & Shelly, 2008) and cellular phone use (Lajunen, Keski-Rahkonen, Pulkkinen, Rose, Rissanen & Kaprio, 2007). Ongoing research is also required on how modern infant devices such as infant seats and swings may inhibit physical activity (Jernice & Nonis, 2008; Pin, Eldridge & Galea, 2007). Although more research is needed concerning the relationship between physical activity and the health of preschool children in particular (Hills *et al.*, 2007), it is argued that the earlier a child begins participating in PE programmes, the more effective the impact may be on combating obesity (Sollerhed & Ejlertsson, 2008).

Sollerhed and Ejlertsson (2008) propose that physical activity at school be implemented for a duration of more than 40 minutes per day in order to reduce weight gain in children. This proves to be a challenge when taking into account the already decreased allocation of time for PE in school timetables (Hardman, 2008; Sollerhed & Ejlertsson, 2008). It is postulated that "habitual physical activity

established during the early years may provide the greatest likelihood of impact on mortality and longevity” (Hills *et al.*, 2007, p. 534). However, more research is needed to address the controversy surrounding the question of whether or not increased physical activity in childhood will continue into adulthood (Trudeau & Shephard, 2008).

The theme of meaning as a purpose of PE is more abstract. Loland (2006, p. 66) explains that “PE has its own particular role as exploration of our possibilities and limitations of embodiment and movement”. In this way, PE concretely answers existential questions such as “Who am I? What can I do? Who are we? What can we achieve together?” (Loland, 2006, p. 66). In early childhood, self-awareness, self-esteem (Du Toit & Van der Merwe, 2006) and confidence are *inter alia* developed through mastery and competence in physical skills, as the child gains interaction and approval from significant adults for physical performance (Hills *et al.*, 2007). Self-awareness requires body awareness which develops throughout early childhood via movement and physical activity (Brownell & Ramani, 2007).

Loland’s (2006) themes of morality, health and meaning are viable arguments for the purpose of, and therefore justification for PE. Loland’s (2006) three purposes focus on physical *activity* as the central component of PE. However, a fourth purpose of PE exists, which is especially pertinent in early childhood, since it acknowledges the specific physical *competencies* or *skills* that PE offers as a vehicle for physical development. This fourth purpose of PE concerns the vital role of physical development in early childhood as a building block which potentially lays the foundation for further cognitive development and academic achievement (Fredericks *et al.*, 2006; National Joint Committee on Learning Disabilities [NJCLD], 2006; Son & Meisels, 2006) and forms the central focus for the remainder of this chapter. However, this fourth purpose of PE cannot be understood without first considering the concept of physical development itself.

2.2.3 PHYSICAL DEVELOPMENT: DEFINITION VERSUS DESCRIPTION

On initial consideration, physical development may appear to be a fairly straightforward concept. However, further investigation into physical development reveals its complexities (Woodfield, 2004) as an overarching concept for a myriad of

varying, yet interrelated competencies. The starting point for understanding physical development lies in the challenge of defining it.

Physical development as a concept lacks a consistent, clear definition. While reference is commonly made to physical development, especially with regard to early childhood (DOE, 2002a; Losquadro-Liddle & Yorke, 2004; Woodfield, 2004), the concept itself is not defined, leaving the reader to make inferences as to its definition. If each word of the concept is analysed, the word *physical* implies “of the body” (Swannell, 1984, p. 425), while the word *development* indicates a “stage of advancement” (Swannell, 1984, p. 158). Yet, to say that physical development entails the advancement of the body in stages is a most rudimentary and primarily inadequate definition of the concept, as the question inevitably arises as to what is encompassed when referring to the body, or physical aspects of an individual?

This question introduces the complex nature of physical development, since the physical aspect of an individual encompasses an extensive and complex system of interrelated processes. Discussions concerning physical development in early childhood make references to motor processes (Lerner & Johns, 2009; Losquadro-Liddle & Yorke, 2004) and movement processes (Stephenson, Carter & Wheldall, 2007) respectively. Other discussions on early physical development are concerned with neurological (Cheatum & Hammond, 2000; Goddard-Blythe, 2005), perceptual (Stephenson *et al.*, 2007; Wessels *et al.*, 2008) and sensory (Ayres, 2005; Hills *et al.*, 2007) processes of the body. Each of these processes in turn is complex in nature.

It could therefore be argued that a single definition of physical development cannot encompass the intricacies of the variety of processes implied by this concept. Consequently, this study utilises a descriptive approach for understanding physical development in early childhood, by using an established theoretical framework which structures and organises the elements of physical development hierarchically. Pertinent literature on how each of the elements of physical development forms the foundation for further cognitive development, is situated within this framework. I now turn my discussion to the theoretical framework of this study, namely Anita Harrow’s (1972) taxonomy of psychomotor learning.

2.3 HARROW'S TAXONOMY OF PSYCHOMOTOR LEARNING

As discussed above, there is no single widely accepted and comprehensive definition of physical development. Many studies highlight the impact of isolated competencies of early physical development on later learning difficulties and cognitive development (Fredericks *et al.*, 2006; Lerner & Johns, 2009; Pienaar, Botha, Vermeulen & Ballack, 2007; Son & Meisels, 2006). Yet the lack of integration of these isolated competencies into physical development as a whole implies that it is often difficult to track the path of development from the original competency to the resulting learning difficulty and underlying cognitive skill. For example, how can the physical competency of balance (Goddard-Blythe, 2000) form a building block for the cognitive skills required for reading? Anita Harrow's (1972) taxonomy of psychomotor learning provides a framework for describing and organising the processes of physical development in detailed, hierarchical levels, thereby facilitating insight into the pathways between early physical development competencies and related cognitive skills.

Taxonomies of learning are regarded as "hierarchical ways of classifying possible learning outcomes" (Killen, 2007, p. 82) on a continuum from the lowest to the highest level of observable behaviour (Harrow, 1972). Anita Harrow's (1972) taxonomy of psychomotor learning (hereinafter referred to as Harrow's taxonomy), is an adapted version of the previously unpublished psychomotor domain of Bloom's taxonomy of learning which in turn, entails cognitive, affective and psychomotor domains (Bloom, 1956; Killen, 2007). The psychomotor domain of learning is "concerned with the control of body movements and physical actions" (Killen, 2007, p. 81).

Harrow's taxonomy is designed to assist educators and curriculum developers to formulate a meaningful, sequential curriculum by categorising observable movement into six hierarchical levels (Harrow, 1972). The taxonomy has been utilised in PE curriculum studies (Killen, 2007; Moore, 2005; Reynolds & Fletcher-Janzen, 2004), by specifying educational objectives for physical development (Reynolds & Fletcher-Janzen, 2004). The taxonomy is not only relevant to PE (Moore, 2005), but also in the context of outcomes-based education (OBE) (Killen, 2007) and children with disabilities (Reynolds & Fletcher-Janzen, 2004).

Therefore, in addition to providing a comprehensive theoretical framework for physical development in early childhood, Harrow's (1972) taxonomy appears relevant for the aspects of this study which explores physical development in the Grade R RNCS. As explained in Chapter 1 of the study, the RNCS is informed by the overarching framework of OBE (DOE, 2002a). In addition to the OBE philosophy, all considerations of South African curricula need to take into account government's inclusion policy for children with disabilities (DOE, 2001b). Furthermore, the hierarchical nature of Harrow's (1972) taxonomy seems to be appropriate in exploring curricula associated with early physical development, which entails progressively more challenging physical activities (Hills *et al.*, 2007).

Harrow's taxonomy of psychomotor learning is structured in terms of six levels, as illustrated in Figure 2.2 (adapted from Harrow, 1972).

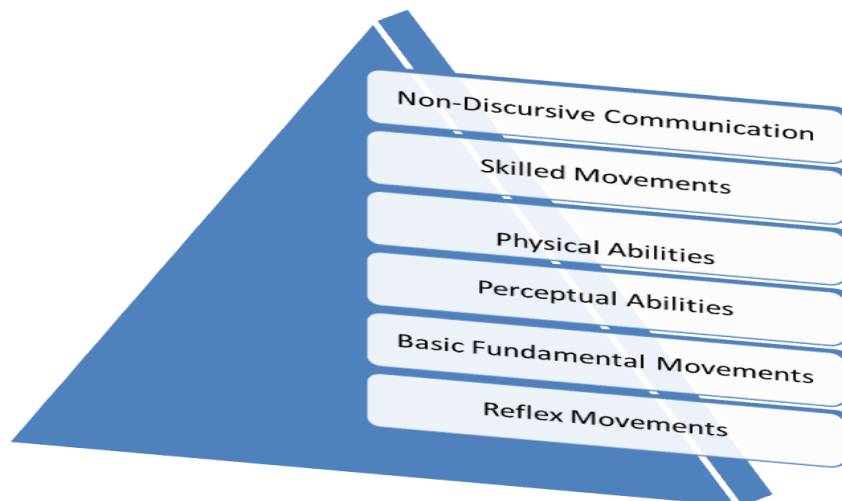


Figure 2.2: Harrow's taxonomy of psychomotor learning

Each level of Harrow's (1972) taxonomy will now be discussed in more detail, in order to explore the various competencies associated with physical development, together with literature regarding the competencies as building blocks for further cognitive development and academic functioning. This discussion serves the functions of firstly gaining a more informed understanding of physical development as a complex concept and secondly of gaining an overview of one of the purposes of physical development as a foundation for further cognitive development. The first level of Harrow's taxonomy involves reflex movements (Harrow, 1972).

2.3.1 REFLEX MOVEMENTS

Reflex movements are involuntary and form the base for all other movement (Cheatum & Hammond, 2000; Harrow, 1972). Harrow (1972) includes examples of flexion, extension, stretch and postural adjustments. Goddard-Blythe (2005) distinguish between two forms of reflexes, namely primitive reflexes and postural reflexes. Primitive reflexes (for example infant rooting, sucking, palmar grasp and tonic neck reflexes) emerge in the developing foetus and gradually become inhibited in the first six to twelve months of the infant's life (Goddard-Blythe, 2005). Postural reflexes (for example, head-righting reflexes and segmental rolling reflexes) emerge soon after birth and develop up to the age of three and a half years (Goddard-Blythe, 2005).

Therefore the "presence of primitive reflexes beyond 6-12 months of age and underdevelopment of postural reflexes in a child beyond 3.5 years of age" indicates neurological dysfunction or immaturity, which underpins later control of motor skills, balance, posture, coordination and eye movements (competencies which are discussed within higher levels of Harrow's [1972] taxonomy), which may in turn impact on academic functioning (Goddard-Blythe, 2005, p. 416). When considering assessment procedures to determine whether a child has retained infant reflexes, Hyatt, Stephenson and Carter (2009) caution that such procedures may be subjective, or even questionable.

Studies have linked the retention of infant reflexes to difficulties with reading (Goddard-Blythe, 2005; Jordan-Black, 2005; McPhillips, Hepper & Mulheim, 2000) and mathematics (Goddard-Blythe, 2005; Jordan-Black, 2005; McPhillips *et al.*, 2000; Taylor, Houghton & Chapman, 2004), as well as attention-deficit hyperactivity disorder (ADHD) (Taylor *et al.*, 2004) in children. In the case of ADHD, the tonic labyrinthine reflex specifically, was found to be related to impulsive behaviour (Taylor *et al.*, 2004). However, Hyatt *et al.* (2009) warn that interventions based on arguments regarding the impact of primitive reflexes on academic performance, are often lacking in sufficient empirical evidence to support the practices. Therefore, care should be taken when considering early childhood interventions in this regard, as some interventions remain controversial (Hurst, Van de Weyer, Smith & Adler, 2006). Reflex movements prepare the way for the next level in Harrow's (1972) taxonomy, which is the level of basic fundamental movements.

2.3.2 BASIC FUNDAMENTAL MOVEMENTS

Basic fundamental movements build on the foundation of reflex movements (Harrow, 1972). Three types of basic fundamental movements are distinguished, namely locomotor, non-locomotor and manipulative movements. Locomotor movements enable the child to get from one place to another such as crawling, creeping, sliding, walking, running, jumping, hopping, rolling and climbing (Harrow, 1972). Children who struggle with creeping and crawling are frequently found to have developmental delays in movement patterns and later learning difficulties (Cheatum & Hammond, 2000; Goddard-Blythe, 2000). Goddard-Blythe (2000) explains that successful creeping and crawling requires the child to integrate balance, vision, proprioception and hand-eye coordination (competencies discussed in later levels of Harrow's [1972] taxonomy), which are competencies required for later reading and writing.

Non-locomotor movements require the child to move parts of the body around an axis, such as pushing, pulling, swaying, stooping, stretching, bending and twisting (Harrow, 1972). Such movements involve reaching across the centre of the body and are connected to the competency of crossing the midline (discussed in a later level of Harrow's [1972] taxonomy), which is a competency required by the child for later academic functioning (Ayres, 2005; Cheatum & Hammond, 2000).

As locomotor and non-locomotor movements involve control of the large muscles in the torso and extremities, they are often referred to as forms of gross motor movements (Lerner & Johns, 2009; Woodfield, 2004). Insufficient gross motor coordination in young children has been found to be an indicator of developmental delay and learning disabilities (NJCLD, 2006) such as reading difficulties, including dyslexia (Viholainen, Ahonen, Lyytinen, Cantell, Tolvanen & Lyytinen, 2006).

Manipulative movements involve "coordinated movements of the extremities" which are combined with visual or tactile modalities, for example gripping and releasing of an object and handling items and drawing implements (Harrow, 1972, p. 53). Manipulative movements form part of fine motor skills, which involve control of the small muscles of the fingers and wrists (Lerner & Johns, 2009; Woodfield, 2004). Research indicates that difficulties in fine motor coordination of young children may form risk indicators for later learning disabilities (NJCLD, 2006) such as dysgraphia, which is a difficulty with writing (Cheatum & Hammond, 2000).

Early childhood is regarded as a critical time for developing fundamental motor skills (Hardman, 2008; Wessels *et al.*, 2008; Woodfield, 2004). The process by which the young child explores the body's movement capabilities (Hills *et al.*, 2007) in order to solve fundamental movement tasks in different ways, develops divergent thinking, which is viewed as a critical cognitive skill required in order to solve future academic problems (Zachopoulou, Trevlas, Konstadinidou & Archimedes Project Research Group, 2006). Locomotor, non-locomotor and manipulative movements all require motor planning, difficulties with which are associated with learning difficulties (Cheatum & Hammond, 2000).

Research highlights the correlation between the development of fundamental motor skills in the young child with later reading and mathematics skills (Fredericks *et al.*, 2006; Son & Meisels, 2006), all of which are inter-correlated aspects of a young child's development (Son & Meisels, 2006). More specifically, slow gross motor and fine motor development has been correlated with limited vocabulary and shorter spoken sentences, while overall delayed motor milestones have been correlated with slower reading of words in children at risk of dyslexia (Viholainen *et al.*, 2006). This correlation between fundamental motor skills, reading and mathematics skills (Fredericks *et al.*, 2006; Son & Meisels, 2006; Viholainen *et al.*, 2006) seems pertinent when reviewing the current seemingly low levels of South African children's literacy (De Witt, Lessing & Lenayi, 2008) and numeracy skills (Carnoy, Chisholm & Baloyi, 2008).

Fundamental motor skills form a vehicle for the development of perceptual abilities required by the child for further cognitive development and academic achievement (Harrow, 1972; Wessels *et al.*, 2008; Woodfield, 2004). This is due to the fact that basic fundamental movements allow the child adequate exploration of the environment required, in order to engage in experiences which may stimulate the development of perceptual abilities (Wessels *et al.*, 2008). Perceptual abilities form the next level of Harrow's (1972) taxonomy.

2.3.3 PERCEPTUAL ABILITIES

Perceptual abilities refer to the detection and interpretation by higher brain centres of sensory stimuli that enable the child to respond and adjust to the environment (Harrow, 1972; Stephenson *et al.*, 2007). Perceptual abilities involve both cognitive

and motor behaviour and are essential for cognitive functioning (Harrow, 1972). Hills *et al.* (2007) explain that the interplay of cognitive and physical functioning typically occurs when young children learn by exploring their environment through movement.

Perceptual abilities encompass a large and complex series of competencies which are beyond the scope of this study to be examined in detail. However, an overview of the subcategories of perceptual abilities is presented below. The subcategories of perceptual abilities represent modalities through which stimuli are presented to brain centres (Harrow, 1972) and include kinaesthetic discrimination, visual discrimination, auditory discrimination, tactile discrimination and coordinated abilities.

2.3.3.1 Kinaesthetic discrimination

Kinaesthetic discrimination involves the child's body image, awareness of how the body moves, its position in space and its relationship to objects in the surrounding environment (Harrow, 1972). As a motor function, kinaesthetic discrimination is significantly associated with the ability of young children to adapt to the academic requirements of school (Bart *et al.*, 2007), due to the underlying competencies involved in the kinaesthetic level (Harrow, 1972).

Bilaterality, laterality and dominance form underlying competencies of kinaesthetic awareness (Harrow, 1972). Bilaterality consists of "movements performed by both sides of the body" (Harrow, 1972, p. 58). Children with learning disabilities, for example dyspraxia (Hurst *et al.*, 2006), have been found to experience difficulties with bilateral integration (Cheatum & Hammond, 2000). Children with dyspraxia have difficulties planning or directing their motor movements (Ayres, 2005; Lerner & Johns, 2009). Motor planning difficulties are often predictors for learning difficulties (Cheatum & Hammond, 2000).

Laterality involves "movement performed by one side of the body or alternating from one side to another" (Harrow, 1972, p. 59) and difficulties with laterality form predictors for learning disabilities (Cheatum & Hammond, 2000; Santhanam *et al.*, 2008), as laterality is required in order to read and write from left to right (Cheatum & Hammond, 2000). Laterality is associated with crossing the midline (or centreline) of the body (Cheatum & Hammond, 2000), where difficulties in this competency may interfere with writing across the page from left to right (Cheatum & Hammond,

2000; Goddard-Blythe, 2000), as well as visual tracking (Losquadro-Liddle & Yorke, 2004) required for reading (Goddard-Blythe, 2000).

Dominance develops when “a dominant side of the body takes the lead in an activity” (Harrow, 1972, p. 59). A delay in developing dominance often reflects other underlying motor difficulties (Woodfield, 2004). Incomplete or mixed dominance may represent a neurological lag in development and as such, could impact on the development of listening, speaking, reading and writing skills (Santhanam *et al.*, 2008). Mixed dominance may also be a symptom of dyspraxia and dyslexia (Dixon & Addy, 2004). However, Lerner and Johns (2009) argue that due to the mixed research findings, the phenomenon of mixed laterality and its possible link with learning disorders is still controversial.

Awareness of the body in space requires a sense of directional concepts (Goddard-Blythe, 2000; Harrow, 1972). A strong sense of directionality of the young child can assist with later learning (Cheatum & Hammond, 2000; Fredericks *et al.*, 2006; Goddard-Blythe, 2000; Lerner & Johns, 2009), specifically reading and mathematics (Fredericks *et al.*, 2006). Goddard-Blythe (2000) explains that difficulties in directionality may affect reading through for example reversals of letters and numbers. Problems with directional discrimination are also associated with dyslexia, dysgraphia and dyspraxia (Cheatum & Hammond, 2000).

Kinaesthetic discrimination (Cheatum & Hammond, 2000) and body awareness (Ayres, 2005; Losquadro-Liddle & Yorke, 2004) are terms often used as near synonyms for proprioception, which pertains to sensation received from the muscles and joints within the body itself (Ayres, 2005; Lerner & Johns, 2009). Limited proprioception is associated with dyspraxia (Dixon & Addy, 2004), poor maintenance of posture (Cheatum & Hammond, 2000) and low muscle tone (Ayres, 2005); the latter is discussed in a further level of Harrow’s (1972) taxonomy. Proprioception may also affect writing by regulating the amount of pressure applied through the writing instrument (Dixon & Addy, 2004). For further motor skills such as motor planning and bilateral integration to develop, the proprioceptive system needs to work in tandem with the vestibular system of the body (Losquadro-Liddle & Yorke, 2004).

The vestibular system “involves the inner ear and enables individuals to detect motion” (Lerner & Johns, 2009, p. 262). Therefore the vestibular system allows for

the development of sense of balance and equilibrium (Ayres, 2005; Cheatum & Hammond, 2000; Losquadro-Liddle & Yorke, 2004; Woodfield, 2004). Together with the proprioceptive system, the vestibular system also regulates muscle tone (Ayres, 2005; Cheatum & Hammond, 2000; Losquadro-Liddle & Yorke, 2004). Thus, children with vestibular problems often struggle to concentrate in class (impacting negatively on their learning), as they need to concentrate to consciously contract their muscles and to balance in order to sit still (Cheatum & Hammond, 2000). Concentration difficulties related to vestibular problems can also explain the association between vestibular difficulties and attention deficit (Pienaar *et al.*, 2007). As Goddard-Blythe (2000, p. 155) explains, "The most advanced level of movement is the ability to stay totally still".

Early vestibular difficulties may predict difficulties in reading and writing (Cheatum & Hammond, 2000) and are often associated with dyslexia and dyspraxia (Pienaar *et al.*, 2007). This is due to the fact that break downs in the vestibular system are closely associated with auditory difficulties in speech and language (Ayres, 2005; Cheatum & Hammond, 2000; Losquadro-Liddle & Yorke, 2004), difficulties with directionality (Cheatum & Hammond, 2000), motor planning and eye-hand coordination (Ayres, 2005). Importantly, the vestibular system also controls eye movements (such as tracking) necessary for reading and writing (Ayres, 2005; Cheatum & Hammond, 2000; Goddard-Blythe, 2000) since balance in the middle ear and eye movements are controlled by the same circuit in the brain (Goddard-Blythe, 2000). In this way, balance affects eye movements and vice-versa (Goddard-Blythe, 2000).

Taking into account the direct relation between balance and vestibular functioning (Pienaar *et al.*, 2007), it seems clear that balance difficulties may form predictors for learning disabilities (Cheatum & Hammond, 2000; Pienaar *et al.*, 2007) including ADHD (Yochman, Ornoy & Parush, 2006). Balance requires postural adjustments, which can be traced back to the reflex movements level of the taxonomy (Harrow, 1972). Woodfield (2004) provides a simplified description of the complex interrelated competencies of vestibular, kinaesthetic and proprioceptive functioning by referring to them as competencies in balance, movement and feel respectively. All the elements of kinaesthetic discrimination in turn form the building blocks for adequate development of visual and auditory discrimination (Harrow, 1972).

The next two subcategories of perceptual abilities are situated on the cognitive side of the cognitive versus physical/motor continuum of perceptual abilities (Harrow, 1972). Consequently, although these two subcategories are listed as part of Harrow's (1972) taxonomy, they are beyond the scope of this study to be discussed in detail. Instead, they are merely listed for the purpose of this review. These two subcategories comprise visual and auditory discrimination.

2.3.3.2 Visual discrimination

Visual discrimination entails "the identification, organisation and interpretation of sensory data received by the individual through the eye, and it plays a significant role in school learning, especially in reading" (Lerner & Johns, 2009, p. 266). Harrow (1972) includes the competencies of visual acuity, visual tracking, visual memory, figure-ground differentiation and perceptual consistency within visual discrimination.

2.3.3.3 Auditory discrimination

Auditory discrimination relates to "the ability to recognise or interpret what is heard (and) provides an important pathway for learning" (Lerner & Johns, 2009, p. 265). Harrow (1972) includes the competencies of auditory acuity, auditory tracking and auditory memory within auditory discrimination.

Although visual and auditory discrimination are predominately cognitive, many of their underlying competencies can be observed via movement tasks (Harrow, 1972). For example, according to Harrow (1972), ball bouncing demonstrates among other skills, figure-ground differentiation, while movement in a requested direction involves a physical demonstration by a child of auditory discrimination by understanding the spoken directional instruction. Therefore, while not primarily physical activities, the cognitive processes of auditory and visual perception can be rendered observable through physical movement. Returning to the physical/motor side of the continuum, tactile discrimination forms another subcategory of perceptual abilities (Harrow, 1972).

2.3.3.4 Tactile discrimination

Tactile discrimination refers to "the learner's (child's) ability to differentiate between varying textures simply by using the tactile modality, touching" (Harrow, 1972, p. 65). Tactile defensiveness (oversensitivity to different kinds of touch), along with the

inability to integrate tactile information forms an indicator for possible future learning difficulties (Ayres, 2005; Cheatum & Hammond, 2000). In addition, tactile sensation may assist the child in gripping writing instruments correctly in order to write adequately (Dixon & Addy, 2004). The final subcategory of perceptual abilities relates to coordinated abilities (Harrow, 1972).

2.3.3.5 Coordinated abilities

Coordinated abilities pertain to activities which “involve two or more of the perceptual abilities and movement patterns” and comprise eye-hand and eye-foot coordination (Harrow, 1972, p. 66). Eye-hand and eye-foot coordination entail the “ability of the learner (child) to select an object from its surrounding background and to coordinate the visually perceived object” with a hand or lower limb movement accordingly (Harrow, 1972, p. 67).

Coordination difficulties can be traced back to proprioceptive, vestibular (Ayres, 2005) and tactile difficulties through incorrect information about the location of the arm, hand and foot being given to the brain (Dixon & Addy, 2004). Difficulties with eye-hand coordination have been associated with dyspraxia (Dixon & Addy, 2004) and poor handwriting (Dixon & Addy, 2004; Santhanam *et al.*, 2008), as well as ADHD in preschool children (Yochman *et al.*, 2006).

The discussion of the level of perceptual abilities illustrates the interplay between perceptual (cognitive) and motor (physical) development of the young child. Difficulties in the development of perceptual-motor skills of young children have been found to be indicators of learning disabilities (NJCLD, 2006) and similarly, participation in perceptual-motor programmes has been linked to significant improvements in young children with learning disabilities (Fredericks *et al.*, 2006; Longhurst, 2006). However, it is argued that perceptual-motor programmes are not as effective in improving academic skills as is claimed and that further research into the benefits of such programmes is therefore needed (Hyatt *et al.*, 2009; Stephenson *et al.*, 2007).

The discussion of the perceptual abilities level also illustrates how movement may facilitate the development of the sensory systems of the child (Ayres, 2005). Hills *et al.* (2007, p. 537) explain that “through movement, a child receives and acts upon sensory information from external stimuli through visual, tactile and auditory

mechanisms, and internally from vestibular and kinaesthetic receptors". Ayres (2005) refers to this process as sensory integration.

Inadequate sensory integration or processing can be associated with learning disabilities (Ayres, 2005; NJCLD, 2006), general developmental delay (Baranek, Boyd, Poe, David & Watson, 2007) and delays in speech development (Ayres, 2005). Difficulties in sensory processing have also been associated with ADHD (Yochman *et al.*, 2006), since "focused attention depends on the ability to reject irrelevant sensory stimuli" (Goddard-Blythe, 2005, p. 154). In this regard, participation in sensory motor programmes has been linked to improvement in specific learning disabilities experienced by children (Cheatum & Hammond, 2000; Longhurst, 2006). Longhurst (2006) argues that having a sensory motor programme is a prerequisite for a perceptual-motor programme. Indeed, participation in integrated perceptual-motor and sensory programmes has been found to improve balance and fundamental movement skills in young children (Pienaar & Lennox, 2006). It is proposed that the Wilbarger protocol (Wilbarger & Wilbarger, 1991), widely used by occupational therapists for children identified with sensory processing difficulties (Aquilla, Sutton & Yack, 2003; Cole & Tufano, 2008; Kurtz, 2008), may effectively modulate children's levels of cortical stress hormones (Kimball, Lynch, Stewart, Williams, Thomas & Atwood, 2007).

Hyatt *et al.*, (2009) argue that the theory of sensory integration is controversial since interventions based on a sensory integration theory seem to be lacking in sufficient empirical evidence to support the effectiveness of the practices. Sensory integration theory could be validated if the current review of sensory processing disorder results in its inclusion in the Diagnostic and Statistical Manual of Mental Disorders - Version 5 (American Psychiatric Association, 2010). However, care should be taken when considering early childhood interventions in this area.

The first three levels of Harrow's (1972) taxonomy have outlined basic movement and physical competencies. The fourth level involves more skilled physical abilities (Harrow, 1972).

2.3.4 PHYSICAL ABILITIES

Physical abilities form the foundation for highly skilled movement and require endurance, strength, agility and flexibility (Harrow, 1972). Endurance requires the body to work for longer periods of time and can be cardiovascular (relating to Loland's [2006] health benefits of physical activity discussed earlier) or muscular (Harrow, 1972). Muscular endurance involves the "ability of a muscle or group of muscles to sustain for a long period of time" (Harrow, 1972, p. 70). Muscle tone is related to muscular endurance, involving the "amount of resistance we have to a passive movement" (Dixon & Addy, 2004, p. 154).

A child with low muscle tone (hypotonia) may display low muscle tension in response to passive movement (Dixon & Addy, 2004), or the downward pull of gravity (Ayres, 2005) for example when sitting at a desk for long periods at school. As a result, low muscle tone typically causes a child to fatigue easily in class, impacting on learning (Cheatum & Hammond, 2000). Low muscle tone appears to be directly associated with the scholastic adaptation of young children making the transition to school (Bart *et al.*, 2007) and is evident in children with dyspraxia (Dixon & Addy, 2004). As discussed earlier, muscle tone may be facilitated by adequately functioning vestibular and proprioceptive systems (Ayres, 2005; Cheatum & Hammond, 2000). Although both muscle tone and strength are required to maintain postural stability, or to hold the body still (Cheatum & Hammond, 2000; Woodfield, 2004), muscle tone is not regarded as equivalent to muscle strength (Dixon & Addy, 2004; Losquadro-Liddle & Yorke, 2004).

Strength is namely described by Harrow (1972, p. 72) as "...the maximum amount of force exerted by a muscle or muscle group" and is vital for academic as well as sporting achievement (Cheatum & Hammond, 2000). For example, while trunk strength needs to be sufficient to carry out locomotor movements (Losquadro-Liddle & Yorke, 2004), strength in the hands, fingers (Losquadro-Liddle & Yorke, 2004) and shoulders assist with handwriting skills (Dixon & Addy, 2004). In addition, strength of the eye muscles generally facilitates reading and writing, while neck strength is required to hold the head steady for such activities (Cheatum & Hammond, 2000). Kinaesthetic awareness (discussed earlier) is required in order to assess how much strength is needed to carry out movements (Woodfield, 2004).

Agility refers to a “learner’s (child’s) ability to move quickly” which involves stopping, starting and changing direction while in motion, without hesitation and with fast reaction-response time (Harrow, 1972, p. 72). Agility further refers to a high degree of fine motor dexterity required for writing (Harrow, 1972). Coordination and perceptual skills are in turn required to increase agility (Woodfield, 2004). Flexibility refers to the “range of motion in the joints that the learner (child) is capable of achieving” (Harrow, 1972, p. 72). Daily physical activity typically increases the strength, endurance and flexibility of young children (Cheatum & Hammond, 2000). Physical abilities form the foundation for highly skilled movements (Harrow, 1972) which is the fifth level of Harrow’s (1972) taxonomy.

2.3.5 SKILLED MOVEMENTS

Skilled movements infer a degree of efficiency or mastery when performing a learned, complex physical task and are characteristic of sports, recreation and dance (Harrow, 1972). Skilled movements are classified along two continuums, with the vertical continuum referring to the degree of difficulty of the movement skill and the horizontal continuum entailing the level of proficiency in the skill by the child (Harrow, 1972). The more skilled a child is during movements, the less conscious attention is required by the child to carry out the movement (Ayres, 2005). Skilled movements are generally smooth, with accurate timing and appear effortless (Woodfield, 2004). The final, sixth level of Harrow’s (1972) taxonomy is the level of non-discursive communication.

2.3.6 NON-DISCURSIVE COMMUNICATION

Non-discursive communication consists of “behaviours which can be labelled forms of movement communication”, ranging from postures to sophisticated dance choreographies (Harrow, 1972, p. 91). When considering this level in early childhood, the focus is on the exploration of movement (Harrow, 1972; Hills *et al.*, 2007), since children are not yet highly skilled in movement. As discussed earlier, divergent thinking can be developed in the young child through the exploration of movement which may be carried on to later academic achievement by problem-solving (Zachopoulou *et al.*, 2006).

Non-discursive communication involves expressive movement including posture and carriage, gestures and facial expressions (Harrow, 1972) which are forms of communicating how one might be feeling (Dixon & Addy, 2004; Losquadro-Liddle & Yorke, 2004). Interestingly, the ability to imitate postures requires motor planning by the young child (Ayres, 2005) and is significantly associated with the scholastic adaptation of young children making the transition to school (Bart *et al.*, 2007). Interpretive movement also forms part of non-discursive communication via aesthetic and creative movement (Harrow, 1972). In early childhood, participation in creative movement activities has been associated with increased imagination and creativity in other areas and academic tasks (Zachopoulou *et al.*, 2006).

2.3.7 SUMMARY OF HARROW'S TAXONOMY

The above overview of Harrow's (1972) taxonomy provides a framework for physical development in early childhood which sheds light on the integrated and hierarchical progression of physical competencies required by the young child towards academic achievement in school. Having reviewed literature regarding how isolated competencies in each level of Harrow's (1972) taxonomy can be viewed as laying the foundation for academic achievement, it is necessary to consider how the taxonomy may facilitate a process of tracking the path between the former and the latter.

The process of utilising certain levels of Harrow's (1972) taxonomy to understand the association between specified physical competencies and academic skills is illustrated by means of an example. As discussed earlier, many studies link physical competencies with the academic skill of reading (Cheatum & Hammond, 2000; Fredericks *et al.*, 2006; Goddard-Blythe, 2005; McPhillips *et al.*, 2000; Son & Meisels, 2006; Viholainen *et al.*, 2006). One of the key cognitive skills required to read, is the phonological awareness of sounds (Lane, Pullen, Eisele & Jordan, 2002; Lerner & Johns, 2009). Phonological awareness requires competencies of sufficient auditory discrimination (level three of Harrow's [1972] taxonomy) (Lerner & Johns, 2009). However, functioning of the auditory system is closely associated with adequate functioning of interrelated balance and vestibular systems (level three) (Ayres, 2005; Cheatum & Hammond, 2000; Losquadro-Liddle & Yorke, 2004). Balance and vestibular systems can in turn be stimulated through basic movement (level two) (Ayres, 2005; Hills *et al.*, 2007) and cannot function adequately without

inhibition of primitive reflexes (level one) (Goddard-Blythe, 2005; Taylor *et al.*, 2004).

The above example illustrates how Harrow's taxonomy (1972) may be utilised as a framework to make sense of the complex concept of physical development, as it pertains to early childhood and further cognitive and academic functioning. Despite the critical importance of physical development in preschool (Hardman, 2008; Wessels *et al.*, 2008), Riethmuller, Jones and Okely (2009, p. 782) indicate a "limited quantity and quality of interventions to improve motor development in young (preschool) children." Keeping this concern in mind, I now turn my discussion to physical development curricula in Grade R.

2.4 CONSIDERING PHYSICAL DEVELOPMENT CURRICULA IN GRADE R

Physical development forms an integral part of school curricula. Information presented in curricula, reflects understandings and conceptualisations of physical development, as well as possible purposes of PE, as discussed earlier in this chapter. In this section, I briefly highlight examples of curricula where the underlying understandings pertaining to early physical development and purposes of PE, may be reflected in the way they are formulated. It is beyond the scope of this study to detail the myriad of curricula which have been formulated by the world's nations, states and districts. Therefore, for the purposes of this study, I discuss curricula within stages of schooling equivalent to Grade R and that are underpinned by OBE ideologies, as is the case for the South African RNCS (DOE, 2002a).

Australian curricula differ by state, with Western Australia's curriculum, being "arguably one of the more fundamentalist interpretations of OBE approaches in the country" (Berlach & O'Neill, 2008, p. 51). Western Australia's curriculum framework comprises a combined learning statement for health and physical education (Curriculum Council of Western Australia [CCWA], 1998), thereby appearing to subscribe to Loland's (2006) purpose of PE as a means to improve health. Learning outcomes for the kindergarten section (equivalent to Grade R), include knowledge and understandings, attitudes and values, skills for physical activity, self-management skills and interpersonal skills (CCWA, 1998) in physical development. Thus, this curriculum also seems to subscribe to purposes of PE which develop morality, meaning (Loland, 2006) and observable physical skills (Harrow, 1972).

Canadian curricula differ by district, with the curriculum by the British Columbia Ministry of Education being utilised as an example. The physical education section for kindergarten (equivalent to Grade R), focuses on movement skills, active living, safety, fair play and leadership (Ministry of Education [MOE], Province of British Columbia [BC], 2006). The above mentioned foci suggest that this curriculum may be underpinned by Loland's (2006) purposes of PE for health and morality. The British Columbia curriculum prescribes learning in physical education along the domains of Bloom's (1956) taxonomy of learning discussed earlier (MOE, BC, 2006).

Scotland has a national curriculum for which PE falls as a subsection under health and wellbeing (Learning and teaching Scotland [LTS], 2004). The inclusion of PE in health and wellbeing points to this curriculum as focusing on Loland's (2006) purpose of PE as a means to improve health. Areas of cooperation and competition (LTS, 2004), would point to Loland's (2006) morality purpose for PE. Movement skills, competencies and concepts (LTS, 2004) may point to purposes of PE for the physical development of observable skills (Harrow, 1972).

The above consideration of selected curricula highlights the varying approaches to PE as a vehicle for physical development in school curricula. This discussion now turns to the curriculum within the South African context.

2.5 THE SOUTH AFRICAN CONTEXT

The curricula discussed above, together with aspects pertaining to the implementation of PE as a vehicle for physical development, leads to a consideration of the situation of PE in South Africa. Firstly, the current South African situation with regards to the structure and implementation of PE within the curriculum is discussed below.

2.5.1 PHYSICAL EDUCATION: IMPLEMENTATION AND CURRICULUM

The insufficiencies in the implementation of PE as evident on an international level are also evident in South African schools (Du Toit *et al.*, 2007; Van Deventer, 2004). These apparent insufficiencies in PE include shortages of facilities and financial resources, limited time allocation (Amusa & Toriola, 2008; Du Toit *et al.*, 2007) and

inadequately qualified teachers (Du Toit *et al.*, 2007; Van Deventer, 2009). Such insufficiencies in the implementation of PE reflect its low status in South African schools (Du Toit *et al.*, 2007). Interestingly, the perception of PE as having low status has seemingly filtered down to children and adolescents in South African primary and high schools, who despite enjoying PE, perceive it to be less important than other school subjects (Amusa & Toriola, 2008). Du Toit *et al.* (2007) and Van Deventer (2007) argue that the way in which PE is situated within the structure of South Africa's school curriculum, namely in terms of the RNCS, reflects the relegation of PE to be regarded as holding a relatively low status at governmental level.

In 1994, PE was dropped from the South African curriculum and 'fully' reinstated again in 2006 not as an independent subject, but as one of five focus areas (or subgroups) of the Life Orientation (LO) learning area (Du Toit *et al.*, 2007; Van Deventer, 2007), resulting in PE seemingly having a lower status than before it was removed from the curriculum. A learning area consists of specific outcomes that the child must achieve, with the LO learning area focusing on outcomes which may guide and prepare children for meaningful living in society (DOE, 2002a). Du Toit *et al.* (2007, p. 250) argue that "the unique five-fold composition of the learning area LO brings forth even more challenges for the training of teachers" (see Appendix B2: 2.1).

In other words, student teachers of LO need to be sufficiently trained in health promotion, social development, personal development, physical development and orientation to the world of work focus areas of LO (DOE, 2002a), so as to be proficient and skilled in all five focus areas. On this point, Van Deventer (2009) asserts that in current tertiary training of student teachers in LO, too little time is devoted to the physical development focus area. This statement brings to bear the situation of physical development in Grade R.

2.5.2 PHYSICAL DEVELOPMENT IN GRADE R: ADDRESSING GAPS IN THE LITERATURE

In the South African school context, the earliest age for which physical development is currently formalised via the RNCS, is Grade R (DOE, 2002a). As discussed, physical development forms one of five focus areas within the LO learning area (DOE, 2002a). A scarcity of literature seems evident on Grade R in terms of the

physical development focus area. Available studies regarding Grade R in South Africa often focus on early literacy (De Witt *et al.*, 2008; Lessing & De Witt, 2002; Menkveld & Pepler, 2004; Willenberg, 2007).

The focus of research on literacy in Grade R is motivated by the generally poor literacy levels of South African children (De Witt *et al.*, 2008). Yet this literature review suggests that in order to develop the cognitive skills required for literacy (and indeed, numeracy), the focus in early childhood needs to include and primarily concentrate on physical development as one of the foundational building blocks for the development of further cognitive functioning. In this regard, a request has been made for instating early childhood developmental movement programmes into the RNCS (Fredericks *et al.*, 2006).

In addition, research around the current implementation of PE in South African schools (Du Toit *et al.*, 2007; Van Deventer, 2004) which explores children's (Amusa & Toriola, 2008) and teachers' (Van Deventer, 2007; Van Deventer, 2009) perceptions of PE firstly focuses on PE for older children and adolescents. Secondly, existing research on PE does not focus on the key aspect of physical development as a vehicle for PE. Riethmuller *et al.* (2009, p. 790) argue that PE programmes "should be underpinned by a sound theoretical framework". This study aims to explore Grade R teachers' understanding and implementation of not just PE itself, but also of physical development practices which underlie PE, by using the theoretical framework of Harrow's (1972) taxonomy as a guide.

The RNCS was drawn up to inform Grade R teachers' understanding and implementation of physical development practices. Existing research on PE mostly explores how the RNCS is implemented in schools and not how the physical development curriculum itself may serve as a document intended to inform teaching practices. Therefore, this study uses a case study approach to explore how Grade R teachers at a specific school understand and implement physical development practices, as informed by the RNCS, including their thoughts on the curriculum itself. In this way insight into the physical development curriculum as it is understood and implemented in Grade R can be gained through the eyes of the teachers being the persons working closely with the RNCS.

2.6 CONCLUSION

In this chapter, I highlighted current concerns in existing literature regarding the facilitation of physical development in schools via the vehicle of PE. The inadequate implementation of PE is often a consequence of its low status, originating in turn from the lack of consensus about the purpose of PE. However, a consolidation of literature pertaining to various competencies of early physical development, together with the organising framework of Harrow's taxonomy (1972), shows that the key purpose of physical development in early childhood is to lay the foundation for further cognitive development and academic achievement.

With physical development having such a crucial function in early childhood, research is needed into physical developmental practices particularly in the Grade R school context where young children gain their first exposure to formal practices in this regard. Such research needs to explore not only the practices of teachers as facilitators of early physical development, but can also focus on the nature of the physical development curriculum itself, through the interpretation and implementation of the curriculum by teachers who work with it on a daily basis.

The call for structured early childhood physical developmental programmes, together with the lack of extensive literature regarding physical development in Grade R, means that this study could provide insight into physical developmental practices in Grade R where children are being prepared for their future academic paths.

In the following chapter, I describe the research design and accompanying methodological processes for this study as they pertain to the underlying paradigmatic framework. I also discuss the rigour of the study in terms of trustworthiness and explain the ethical guidelines I considered, before reflecting on my role as a researcher.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In Chapter 2, I discussed literature pertinent to the study, while situating the study within a theoretical framework. Both the literature and the theoretical framework form the backdrop for the research design and methodologies for the study. In this chapter, I present the paradigmatic perspective, research design and research methodologies that inform this study. My paradigmatic perspective informs both the design and methodology for the study by creating a framework of research purpose (Durrheim, 2006). Figure 3.1 outlines the research purpose and process for the study. I then describe each subarea outlined in Figure 3.1.

Title	Implementation of the National Curriculum for physical development in the reception year
Purpose	To explore how Grade R teachers at a selected pre-primary school understand and implement early childhood physical developmental practices, based on the Grade R RNCS
Paradigmatic approaches	<ul style="list-style-type: none"> • Interpretivist • Qualitative
Research design	<ul style="list-style-type: none"> • Instrumental case study: private pre-primary school • Research participants: grade R teachers
Data generation	<ul style="list-style-type: none"> • Document analysis • Focus group discussion • Observation-as-context-of interaction
Trustworthiness	<ul style="list-style-type: none"> • <i>Quality criteria:</i> credibility, transferability, dependability, confirmability and authenticity • <i>Ethical considerations:</i> informed consent, privacy, confidentiality, anonymity, respect and trust

Figure 3.1: The purpose and process of the study

3.2 PARADIGMATIC PERSPECTIVES

Terre Blanche and Durrheim (2006, p. 6) explain that paradigms are “all-encompassing systems of interrelated practice and thinking that define for

researchers the nature of their enquiry”. In the next sections, I discuss the selected metatheory and methodological paradigm of this study. The theoretical framework for the study was presented in detail in Chapter 2.

3.2.1 INTERPRETIVISM AS METATHEORY

The nature of my enquiry for this study is guided by Interpretivism, which places emphasis on understanding individual interpretations of the world (Cohen *et al.*, 2007). Instead of isolating and controlling variables, the interpretive researcher becomes the instrument through which to describe and understand specific aspects of the social world (Terre Blanche, Kelly & Durrheim, 2006).

Thus, for the purpose of this study, Interpretivism provides a framework for understanding how early childhood physical developmental practices for Grade R may be implemented within the context of a school as a case. Interpretivism also views people as acting on the basis of how they have interpreted past events (Cohen *et al.*, 2007). In this study I explore how teachers’ specific past experiences may impact on how they interpret and implement early childhood physical development practices, in addition to the influence of the Grade R RNCS.

Paradigms can be viewed along the dimensions of ontology (the nature of reality to be studied), epistemology (the nature of the relationship between the researcher and what can be known) and methodology (how to go about studying what is known) (Terre Blanche & Durrheim, 2006). Together the ontological, epistemological and methodological dimensions represent the underlying assumptions of paradigms about the social world (Cohen *et al.*, 2007). Table 3.1 summarises the interpretivist approach across the three mentioned dimensions.

Table 3.1: The three dimensions of Interpretivism (adapted from Terre Blanche and Durrheim, 2006, p. 6)

Interpretivism		
Ontology	Epistemology	Methodology
Internal reality of subjective experience	<ul style="list-style-type: none"> • Empathetic • Observer subjectivity 	<ul style="list-style-type: none"> • Interactional • Interpretation • Qualitative

Interpretivism's ontological focus on subjective human experience has been criticised for undervaluing the impact of the outside world on participants and in effect, imposing boundaries on participants (Cohen *et al.*, 2007). As the focus of this study is to explore a specific case as a bounded system, an interpretivist ontology allowed me to gain a rich, detailed understanding of this case by remaining focused within the bounded system or specific setting of the case (Gerring, 2004; Opie, 2004; Stake, 2000).

Epistemologically, an interpretivist framework allowed me to remain aware of my own influence on the study as a subjective observer (Terre Blanche & Durrheim, 2006). The interpretivist approach has often been criticised for inherent power differences, in that researchers may impose their points of view on participants (Cohen *et al.*, 2007). Awareness of my own subjectivity and role as a researcher, through researcher reflexivity and by keeping a reflexive journal (Etherington, 2004) assisted me in monitoring my own patterns of thought and influence on the participants.

Methodologically, Interpretivism encourages an interactional approach to research (Terre Blanche & Durrheim, 2006) which for the purpose of this study, included a focus group discussion and observations. Another potential weakness of the interpretivist paradigm lies in the fact that it does not lend itself to rigorous scientific procedures and generalisation of results (Cohen *et al.*, 2007). In my research, I did not aim to employ scientific measurement techniques, or to generalise the findings of the selected case into other contexts. Instead, I set out to gain insight into a selected case as a means of understanding a specific taxonomy of learning. Methodologically, Interpretivism also lended itself to qualitative research (Creswell, 2003; Terre Blanche & Durrheim, 2006), which I discuss in the following section.

3.2.2 QUALITATIVE METHODOLOGICAL PARADIGM

Durrheim (2006, p. 34) describes a research design as a "strategic framework for action" in the implementation of research. The interpretivist framework for this study could therefore be implemented practically through a qualitative research approach. Qualitative procedures are described by Creswell (2003) as typically focusing on textual data and utilising diverse methods of inquiry. Qualitative research allows for a deep, detailed understanding of the subject under investigation

(Berg, 2004; Durrheim, 2006) and takes place in the participants' natural environment (Creswell, 2003; Durrheim, 2006; Hittleman & Simon, 2006), which for the purpose of this study entails understanding the Grade R physical developmental practices of teachers in their own school environment. The fluid, flexible and non-sequential nature of a qualitative approach (Durrheim, 2006) allowed me to refer back to and focus on the various sources of data collection used in order to continually clarify, deepen and adjust my understanding of emerging content.

The fact that qualitative enquiry does not utilise standardised measures or broad and generalisable comparisons, is not to be viewed as disadvantageous (Durrheim, 2006). In this study I specifically chose a qualitative design because it allowed me to obtain deep insight into my topic of enquiry, as opposed to gaining broad, more generalisable results typical of quantitative designs. The qualitative research methodology and strategies which I utilised for the study are presented below.

3.3 RESEARCH METHODOLOGY AND STRATEGIES

My research methodology and strategies utilised for the purposes of this study were in keeping with the interpretivist and qualitative focus on gaining rich, detailed information (Creswell, 2007), as discussed above. Therefore, I utilised a case study design which could facilitate an in-depth exploration into my topic of enquiry (Opie, 2004).

3.3.1 CASE STUDY AS RESEARCH DESIGN

Case study design is often used within an interpretivist framework (Gerring, 2004), as both a case study design and Interpretivism aim to explore meaning (Stake, 2000). Case study design can provide for thick description (Stake, 2000) of the case under study, thereby facilitating an in-depth understanding (Creswell, 2007; Henning, Van Rensburg & Smit, 2004; Opie, 2004) of the case. Edwards (2001) argues that an in-depth examination of a case may allow for a topic to be viewed in a new way. Through my in-depth understanding of the case selected for this study, I was able to view the physical development curriculum in a new way, using a taxonomic approach.

An in-depth understanding of a case may be achieved in part by incorporating a selection of various research methods (Creswell, 2007; Edwards, 2001; Gillham, 2000; Rosenberg & Yates, 2007). For the purpose of this study, I triangulated various data collection strategies including a focus group discussion, observations and document analysis (discussed in detail in Section 3.4.) in order to facilitate an in-depth understanding of the case. However, I found the use of in-depth data collection (Creswell, 2007; Opie, 2004), using various methods and sources of information (Creswell, 2007; Henning *et al.*, 2004; Rosenberg & Yates, 2007) to be time-consuming (Gillham, 2000). Subsequently, I needed to adhere to a rigorous schedule in order to keep to the study's time constraints.

Similar to the challenges of qualitative enquiry discussed above, the nature of the in-depth enquiry of a few participants of case study design has also been criticised for a lack of representativeness or generalisability (Gerring, 2007). I therefore needed to ensure that the case study design I selected aligned with the purposes of my research in exploring the understanding and implementations of the physical development curriculum by Grade R teachers at a selected pre-primary school.

It is widely agreed that a case is a bounded system (Edwards, 2001; Gerring, 2004; Stake, 2000). In my study, the pre-primary school formed a bounded system wherein Grade R forms a subsystem. While case study design focuses on a case as a bounded system, the case is also viewed within a specific setting (Opie, 2004) or context (Stake, 2000). One of the purposes of case study research is to understand the interaction between the case and its context (Henning *et al.*, 2004) and how behaviour, thoughts and feelings may be influenced by context (Gillham, 2000). Within this study, the school and implemented teaching practices are impacted on by the context of the national schools group to which it belongs, as well as the current South African educational framework. The nature of case study design allowed for this study to acknowledge the impact of context on the school.

This study utilises an instrumental case study design (Berg, 2004). Instrumental case studies provide insight into phenomena, with the case forming a supportive role for understanding the research focus (Edwards, 2001; Stake, 2000). In this way, themes are identified based on the case (Creswell, 2007). For the purpose of this study, the pre-primary school's practices provided insight into building on Harrow's (1972) taxonomy of psychomotor functioning as it applies to early physical development in Grade R.

Furthermore, an instrumental case study “draws attention to the question of what specifically can be learned from the single case” (Stake, 2000, p. 435). Therefore, instrumental casework researchers are required to actively choose their cases, as those which potentially provide the most valuable learning (Stake, 2000). The school and its participants involved in this study were purposefully selected as a case from which in-depth insight could potentially be gained regarding specific knowledge and practices surrounding the physical development curriculum in Grade R. I now discuss the selection procedures I employed.

3.3.2 SELECTION OF THE CASE AND PARTICIPANTS

According to Durrheim (2006, p. 49), sampling entails “decisions about which people, settings, events, behaviours and/or social processes to observe”. I utilised purposeful sampling, which is consistent with case study research and which allowed me to select information-rich cases that can be studied in-depth and that are best suited for the research questions (Creswell, 2007; Opie, 2004).

Wallen and Fraenkel (2001) caution that purposeful sampling implies the potential disadvantage in the case of a researcher not estimating the representativeness of a sample correctly. In order to address this potential challenge of purposeful selection, I carefully considered my rationale for selecting the case and its participants for this study (Patton, 2002).

I employed purposeful sampling for both the case (the pre-primary school) and the participants (academic staff involved in the Grade R physical development programme) for this study. I required a school which offered Grade R and appeared to take an organised, active approach to physical development practices, and in which the staff were seemingly experienced and knowledgeable in early physical development and the RNCS. Participants needed to be conversant in English for the purposes of the focus group discussion.

The selected school is located in Rivonia, Sandton (South Africa) and has a total of 182 learners of which 48 are in Grade R. The selected pre-primary school belongs to a South African group of private schools which benchmark their students’ progress in further grades through internationally accredited school assessments. In 2003 this group of schools embarked on an initiative to enhance the RNCS by involving all staff

in collectively brainstorming an improved curriculum for their own use which a) starts at Grade 000 and b) addresses what the schools group regards as limitations in the current RNCS. This included making improvements to the physical development section. Ryan and Lobman (2007) insist that if a researcher is interested in exploring policy, participants who have experience in the policy must be selected. Thus, in addition to following the RNCS for Grade R, the selected participants have critically engaged with the curriculum with a view to improving it and therefore possess experience in the curriculum as a policy.

The staff of the selected school appear extensively trained and knowledgeable about literature regarding early physical development for various reasons. Firstly, the school is an internationally accredited 'Investors in People' member, meaning that a sizeable budget is set aside each year for the further training of staff for whom it is mandatory to attend at least four external training events per year. Secondly, professionals in fields related to physical development provide staff with in-house training relating to early childhood physical development. Finally, the school has a limited teacher's resource library where staff refer to books and articles pertaining to physical development in early childhood.

Case study design allows for focus on a small sample of participants (Hittleman & Simon, 2006). The selected participants in the study include five staff members who are directly involved in implementing the physical development programme. These are namely the school principal, two Grade R class teachers and two Physical Developmental Education (PDE) specialists. Focusing on a selected, small number of participants (Hittleman & Simon, 2006) allowed for in-depth enquiry into the teachers' understanding, approach and practices in early physical development. Table 3.2 outlines the participants in the study.

Table 3.2: Participants in the study

Participant Details				
Participant	Gender	Position at school	Years at school/Total years teaching	Level of formal study
1	Female	School principal	24/45	Teaching degree
2	Female	Grade R class teacher	24/30	Teaching degree
3	Female	Grade R class teacher	10/15	Teaching degree
4	Female	Physical Developmental Education teacher	7/22	Teaching degree
5	Male	Physical Developmental Education teacher	7/13	Teaching diploma

Stake (2000) argues that a case may be sampled as that which is most accessible and with which the most time can be spent. As I have been working at the selected school in a part-time capacity as a learning support teacher, which allowed me access to the study's participants, it may be argued that a component of convenience sampling was also present in this study. However, the school was sampled specifically due to the points outlined above deeming it best suited to offer the most comprehensive understanding of the topic of enquiry for this study, rather than for reasons of convenience. I agreed with the school that no research would be conducted during working hours. Stake (2000, p. 446) proposes that a case should be selected if it seems to "offer opportunity to learn". Participants' offered valuable learning opportunities regarding early childhood physical development practices, through their experience and expertise, which I documented by utilising specific data collection techniques.

3.4 DATA COLLECTION AND DOCUMENTATION

The data collection methods which I utilised for this study were informed by my interpretivist framework, in keeping with Durrheim's (2006) assertion that research paradigms infer particular methods of data collection and interpretation. Specifically, the observation and interviewing methods (Durrheim, 2006; Strydom & Delport, 2005), as well as the document analysis (Strydom & Delport, 2005) outlined below, align with both the interpretivist and qualitative nature of this study. Case study research includes extensive, systematic data collection from multiple sources (Creswell, 2007; Opie, 2004), in order to build on the strengths and minimise

weaknesses of each source (Patton, 2002, p. 307). The data collection methods I used included document analysis, a focus group discussion and observations, each of which is discussed in further detail below.

3.4.1 DOCUMENT ANALYSIS

According to Strydom and Delpont (2005, p. 314), document analysis is the “analysis of any written material that contains information about the phenomenon that is being researched”. I undertook a document analysis of the physical development section of the RNCS for Grade R (DOE, 2002a) in order to explore the curriculum’s views and guidelines for physical development in Grade R (see Appendix B2: 2.1). I recorded my thought processes regarding the RNCS via electronic notes (see Appendix B2: 2.4) and I also made hand-written notes on my copy of the curriculum (see Appendix B2: 2.2, 2.3, 2.5).

The RNCS is a public document, made accessible via electronic download. Therefore possible concern with accessibility of documents for analysis (Creswell, 2003; Patton, 2002) was not a challenge in this study, as the curriculum was easily accessible. Analysis of public documents can be helpful in familiarising the researcher with the language used by participants (Creswell, 2003). Documents can also provide valuable information directly or indirectly, through bringing additional questions to the attention of the researcher, which can in turn be pursued through other methods of data collection (Patton, 2002). During my study of the physical development section of the Grade R RNCS, I familiarised myself with the terminology within the curriculum, for me to be informed on the terminology during the focus group discussion.

3.4.2 FOCUS GROUP DISCUSSION

I gathered data for this study primarily by means of a focus group discussion (Berg, 2004). Krueger and Casey (2000, p. 5) define a focus group as a “carefully planned series of discussions designed to obtain perceptions on a defined area of interest in a permissive, nonthreatening environment”. The intended focus group participants included the school principal, the school’s two Grade R class teachers and the school’s two PDE specialist teachers, making a total of five participants. However,

one of the PDE specialists could not attend the focus group discussion, resulting in four participants participating in the discussion.

A focus group comprising four to six participants can be referred to as a mini focus group, which is generally more comfortable for participants and more in-depth insights may be gained (Krueger & Casey, 2000; Litoselliti, 2003). Mini focus groups are also preferable when each participant has a great deal to share due to a passion for and knowledge and experience of the topic of discussion (Krueger & Casey, 2000; Litoselliti, 2003), as is the case with the participants selected for this study.

Ryan and Lobman (2007, p. 72) support the use of focus groups in research which explores “the implementation of early childhood policies and practices” as a means of giving a voice to teachers. Ryan and Lobman (2007) further explain that focus groups may allow for insight into both the effectiveness of policies in practice as well as how policies are experienced by teachers. Srivastava and Kumari (2005) agree, stating that reflection with others is a valuable way of reflecting on early childhood curricula. Thus, a focus group provided an effective platform for the participants in this study to discuss their experiences of the Grade R physical development curriculum.

In addition, focus groups are well suited to explore different perspectives on a phenomenon (Litoselliti, 2003; Ryan & Lobman, 2007). The focus group discussion for this study facilitated lively debate concerning the physical development section of the Grade R RNCS and the school’s practices, with emphasis on participants’ multiple viewpoints (Berg, 2004; De Vos *et al.*, 2005). Thus, in addition to individual viewpoints, I gained data concerning the collective input and dynamic of the group (Ryan & Lobman, 2007). The latter provided me with insight into understanding how the teachers might be working together to develop extensive and innovative approaches to early physical development. A prominent challenge that may exist within focus groups entails dealing with participants who potentially dominate conversation (Krueger & Casey, 2000). Although some focus group participants were quicker than others to offer their insights, they gave each other ample time to respond before moving on to another topic of conversation.

Focus groups form a relatively efficient data collection strategy in that once conducted, the researcher generally has a comprehensive dataset from a few participants (Patton, 2002; Ryan & Lobman, 2007; Thomas *et al.*, 2005). This

efficient form of data collection was advantageous for this study, as I was able to obtain various views and perceptions within a limited time frame. Focus groups in the education setting are further regarded as beneficial to teachers, as teaching is often an isolated activity and focus group participants can discuss topics they would not otherwise have an opportunity to discuss (Ryan & Lobman, 2007). However, inherent in group discussion is the fact that the confidentiality in focus groups cannot be guaranteed (Patton, 2002). My approach to confidentiality for the focus group discussion is presented in Section 3.6.2.2 of this chapter.

As focus groups rely on the input of participants, sampling decisions imply another challenge which could impact on the quality of data collected (Ryan & Lobman, 2007). The rationale for my purposeful selection of the participants in this study is discussed in Section 3.3.2 of this chapter. Another challenge of focus groups relates to facilitating conversation in a structured way so that it remains focused on the topic of study (Ryan & Lobman, 2007). In an attempt to meet this challenge, I compiled semi-structured interview questions (Berg, 2004), comprising an opening question as well as further open-ended questions (Ryan & Lobman, 2007) to be used during the focus group discussion (see Appendix B3: 3.1). This schedule assisted me in keeping the discussion purposeful and focused.

Furthermore, specific skills are generally required from an individual conducting and moderating a focus group (Patton, 2002). As the facilitator of the focus group, I adhered to the following guidelines as stated by Ryan and Lobman (2007):

- I needed a solid understanding of the topic. Thus, in addition to my previous experience in physical education and pre-primary teaching, I familiarised myself with the physical development section of the RNCS for Grade R and early physical development at pre-primary level.
- I needed to keep the conversation focused on my topic of enquiry, which I did by referring back to the semi-structured focus group schedule as a guideline. I also prompted participants to elaborate on comments. Conversely, I had to monitor my own interactions with the participants to ensure that I was not leading them to respond in a manner I might have expected (Litoselliti, 2003).
- I needed to pay attention to the non-verbal behaviour of the participants. This task was fairly challenging as the participants' verbal input also required a great deal of focus and attention. I did however note the non-verbal behaviour of participants.

- I needed to show respect and interest in what the participants were saying. This required awareness and monitoring of my own listening and attention skills by being fully present and attentive for the duration of the entire focus group discussion.

I recorded the focus group discussion using a voice recorder (see Appendix B3: 3.3) and transcribed the recordings (see Appendix B3: 3.1) for analysis purposes (Berg, 2004). I also made hand-written notes during the focus group discussion (see Appendix B3: 3.2). I employed member checking (Gillham, 2000) for emerging focus group themes, through informal discussions with participants during my third and final session of observations (Berg, 2004) at the school, which I discuss in the following section.

3.4.3 OBSERVATION-AS-CONTEXT-OF INTERACTION

Angrosino and Mays de Pérez (2000) refute suggestions that during observations, a researcher can remain removed from the observed field and participants. Subsequently, Angrosino and Mays de Pérez (2000) propose observation-as-context-of interaction as an approach to observation. This approach to observation acknowledges that as independent as a researcher tries to stay from the phenomenon being observed, the researcher still interacts with the research context. Thus, observation-as-context-of interaction appears well suited for this study where I acknowledge that despite my efforts to remain a removed observer, my mere presence in the setting may have influenced the context of teaching practices.

Flick (2009) recommends that during observations, the observer maintains a certain distance from the participants in order to avoid influencing them (Flick, 2009). Observation-as-context-of interaction allowed my presence to potentially be inconspicuous, thereby keeping the learning environment as natural and spontaneous as possible. However, the fact remains that participants may have been self-conscious, anxious, or may have behaved differently when being observed (Flick, 2009; Patton, 2002). In terms of this potential concern, the fact that I have been working in a part-time capacity at the school probably made my presence more comfortable for the participants of the study.

Patton (2002) asserts that researchers should personally observe a programme in order to know which questions to ask participants. Researchers may also notice things during observations of which participants themselves are unaware (Patton, 2002). Thus, during my classroom observations (De Vos *et al.*, 2005) I focused on the implementation of Grade R physical development practices in order to gain a deep understanding of how such activities may be incorporated into the daily programme. As such, I focused my observations on teaching practices of the teachers and not on the quality of performance of the children. My observations took place on occasions before and after the focus group to inform focus group questions and then to observe at a later stage, what was reported during the focus group discussion. I observed teaching practices on three occasions, the first being on the school's 'sensory day' (see Chapter 4, Section 4.2.3), the second involving classroom practices and the third involving further classroom practices and general school practices around early physical development (see Appendix B4: 4.1).

I recorded my observations electronically on a laptop computer (see Appendix B4: 4.1). Cohen *et al.* (2007) prefer typed field notes to handwriting, citing the former as being quicker and easier to read. My field notes were descriptive (Creswell, 2003), in nature. Patton (2002) warns that researchers conducting observations must be aware that their selective perceptions may distort the data. Although it did not form a data collection strategy for my study, I reflected periodically in my reflexive journal (which served to enhance trustworthiness of the study, discussed in Section 3.6.1.4. of this chapter) to ground my interpretation of what I was witnessing (Flick, 2009). Data from my document analysis, focus group and observations was gathered in preparation for the process of data analysis.

3.5 DATA ANALYSIS: PREPARATORY, DESCRIPTIVE AND INTERPRETATIVE PHASES

Thomas *et al.* (2005, p. 353) describe analysis as "the process of making sense out of data". I discuss the process of data analysis for this study according to the descriptive and interpretative phases of data analysis (Patton, 2002), to which I add a preparatory phase. I conducted simultaneous collection and analysis of data (Thomas *et al.*, 2005). In keeping with the fluid, flexible and non-sequential nature of a qualitative design (Durrheim, 2006; Pope, Ziebland & Mays, 2006), I often revisited the various phases of data analysis in order to continually clarify, deepen

and adjust my understanding of emerging content. I now discuss the preparatory, descriptive and interpretative phases of my data analysis.

3.5.1 PREPARATORY PHASE

In the preparatory phase of data analysis for this study, I organised, protected and familiarised myself with the data. These steps rendered the data ready for closer inspection.

3.5.1.1 Organising and protecting the data

I transcribed the recorded focus group discussion into an electronic format for analysis (Berg, 2004; Gibson & Brown, 2009) and organised my typed field notes into folders by date. During transcription and typing, I encrypted participants' details in order to maintain anonymity (Flick, 2009). In terms of document analysis, I organised the RNCS for Grade R by locating all sections referring to physical development.

In order to protect the data, I made backup copies of all electronic data (Patton, 2002), as well as photocopies of written data. Organising (Patton, 2002; Thomas *et al.*, 2005) and preserving (Patton, 2002; Pope *et al.*, 2006) the data enabled me to start familiarising myself with the data.

3.5.1.2 Familiarisation with the data

I familiarised myself with the data by reading and re-reading through the data from the various sources of collection in an attempt to obtain an overview (Patton, 2002; Pope *et al.*, 2006). I read the focus group transcripts while listening to the audio recording, in an attempt to understand inflections in what was said (Etherington, 2004; Patton, 2002). My familiarisation with the data allowed me to begin the descriptive phase of data analysis for this study.

3.5.2 DESCRIPTIVE PHASE

The descriptive phase of data analysis entails the classification and coding of data (Patton, 2002). However, the coding system for this study cannot be understood without first discussing the specific methods of data analysis used on which the

former is based. The nature of the data collected required a twofold approach to analysis, incorporating both taxonomic analysis and thematic analysis.

3.5.2.1 Taxonomic analysis and coding

A taxonomy is a “system of classifying and organising terms” (Loiselle, Profetto-McGrath, Polit & Beck, 2010, p. 327) and ranges from folk taxonomies (mutually accepted and agreed on by a group of people) to scientific taxonomies accepted by scholars (Bernard, 2000; Bernard & Ryan, 2010). As discussed in Chapter 2, Harrow’s taxonomy of psychomotor learning (Harrow, 1972) underpins the theoretical backdrop for this study and therefore forms the taxonomic framework for my analysis of data. Therefore the taxonomic portion of my data analysis was deductive in nature, where deductive analysis involves analysis of data “according to an existing framework” (Patton, 2002, p. 453).

I conducted a taxonomic analysis by firstly employing Harrow’s (1972) already established taxonomy (as discussed above) as the framework for my analysis, thereby overcoming the lengthy and complicated process of constructing my own system of classification (Embree, 2006; Loiselle *et al.*, 2010). Secondly, I set about identifying taxonomic rules used within the dialogue and behaviour (Bernard & Ryan, 2010) noted within my data. Taxonomic analysis is applied not only in the analysis of text but also in observations of phenomena (Embree, 2006) which deems this method of analysis useful for both the textual and observational data collected in this study.

I began the taxonomic analysis of data with the process of coding described as “a procedure for organising the text of the transcripts, and discovering patterns within that organisational structure” (Auerbach & Silverstein, 2003, p. 31). I assigned each level of Harrow’s (1972) taxonomy a number from one to six. I then took the textual data collected from the focus group discussion and document analysis as well as the observations and numbered segments of the data according to levels of the taxonomy to which the data corresponded (see Appendix B2, B3 and B4: 4.2). I was mindful of Bernard and Ryan’s (2010) guidelines for taxonomic analysis, being aware of participant variation in the use of terms, the use of complex phrases for simple terms, covert categories for which participants cannot label a term directly and terms representing multiple taxonomic levels. Taxonomic analysis enabled me to classify data reflecting participants’ understanding and implementation of physical

development practices according to the six levels of Harrow's (1972) taxonomy. Thematic analysis of the data provided further insight into the nature of and meaning behind the data.

3.5.2.2 Thematic analysis and coding

Thematic analysis has the "aim of searching for aggregated themes within data" (Gibson & Brown, 2009, p. 127). Therefore, in order to identify themes within my data, I firstly read through the data in an attempt to locate and explore commonalities in the data (Gibson & Brown, 2009). These commonalities in the data emerged as themes, to each of which I assigned a colour (Pope *et al.*, 2006). By constantly rereading the data, I continued to code the data thematically (Ryan & Lobman, 2007) by assigning various segments of data with colours according to the theme with which they corresponded (see Appendix B3: 3.4). During the process of grouping the colour-coded data (Ryan & Lobman, 2007), I integrated various similar subthemes in my attempt to consolidate the emerging themes (see Appendix B3: 3.5). The thematic analysis of data was both deductive and inductive in nature because, while many emerging themes were anticipated, others were not (Pope *et al.*, 2006).

Pope *et al.* (2006) support the use of thematic analysis in conjunction with taxonomies, explaining that thematic analysis provides further insight into taxonomies. Thus, while taxonomic analysis was utilised to organise the data in terms of Harrow's (1972) taxonomy of psychomotor learning, thematic analysis provided further insight into the data itself, thereby facilitating the interpretation of data.

3.5.3 INTERPRETATIVE PHASE

Qualitative interpretation is concerned with merging data "into a holistic portrayal of the phenomenon" (Thomas *et al.*, 2005, p. 355) in order to find meaning (Creswell, 2007) and significance (Patton, 2002). The twofold approach of taxonomic and thematic analysis and coding methods used in this case study allowed me to gain a holistic and in-depth picture of the case in a specific context (Patton, 2002). During interpretation of the data, I did not merely consider the nature of Grade R practices implemented at the school, but how these practices could be informed by the setting

and greater context of the school, with the Grade R curriculum being one potential influential factor.

Descriptive information gleaned from the data offered an indication of the degree of comprehensiveness of the participating school's practices in terms of the taxonomy, what level/s of the taxonomy were focused on and to what extent practices at each level of the taxonomy were informed by the Grade R curriculum. I used this information for interpretation purposes, focusing on Patton's (2002) three guidelines for this phase of analysis, namely confirming what is known and supported by data, highlighting misconceptions and illuminating important concepts that should be known.

Finally, both the descriptive and interpretative phases of my data analysis included constant reviewing and revising of emerging meanings (Stake, 2000) through specific processes of member checking (Gillham, 2000; Onwuegbuzie & Leech, 2007), triangulation (Berg, 2004; Stake, 2000), crystallisation (Janesick, 2003; Maree & Van der Westhuizen, 2009) and researcher reflexivity (Etherington, 2004; Patton, 2002) which are among some of the processes outlined in the discussion on the trustworthiness of the study.

3.6 TRUSTWORTHINESS OF THE STUDY

Qualitative research is highly subjective since researchers' views of the world vary according to their personal perceptions of the world (Thomas *et al.*, 2005). The subjective nature of qualitative research often brings it under scrutiny in terms of rigour and quality, or trustworthiness (Lincoln & Guba, 1985). Trustworthiness is achieved in qualitative research when "the data collected generally are applicable, consistent and neutral" (Thomas *et al.*, 2005, p. 358). In order to ensure trustworthiness within this study, I firstly adhered as closely as possible to the quality criteria proposed by Lincoln and Guba (1985) for qualitative research. Rossman and Rallis (2003) state that trustworthiness of a study are also be contingent on ethical considerations, since ethics cannot be separated from the question of whether a study is competently conducted. Therefore secondly, I adhered to required ethical guidelines for undertaking research with human participants. I discuss the quality criteria and ethical considerations for the study, next.

3.6.1 QUALITY CRITERIA

Adherence to the quality criteria of credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985), as well as authenticity (Guba & Lincoln, 1989) can enhance the overall trustworthiness of a study. Therefore, in the following subsections I explain my approach towards quality criteria for this study.

3.6.1.1 Credibility

Thomas *et al.* (2005, p. 359) explain that credibility is “a quality achieved when the participants and setting of a study are accurately” understood and described. I strived to obtain credibility by member checking with the participants for the focus group data analysis, in an attempt to validate my provisional understanding of the case and emerging themes (Gillham, 2000; Onwuegbuzie & Leech, 2007). In this way research participants could assist me in the search for alternative explanations within data, a process that in itself can address credibility within a study (Patton, 2002). Thus, I employed member checking for emerging focus group themes, through informal discussions with participants during my third and final session of observations at the school (see Appendix B3: 3.6).

Although it has been suggested that researchers may lose some control in the process of member checking, this is outweighed by the benefit of having further knowledge added to research (Etherington, 2004). Member checking facilitated my understanding of the unique nature of the case under study. Yet, the uniqueness of a case in case study research, impacts on the transferability of a study.

3.6.1.2 Transferability

Transferability “addresses whether the results (of a study) would be useful to those in other settings or conducting research in similar settings” (Thomas *et al.*, 2005, p. 359). The uniqueness of the case under study means that the research conducted within this study is not generalisable in other contexts (Edwards, 2001). However, the findings of this study are transferable in that they may inform further study on the topic, using different research designs (Edwards, 2001). In addition, as a case study, this study is transferable in terms of the “reliability of findings to *similar* settings” (Opie, 2004, p. 74).

Thus, in an attempt to enhance the transferability of my study, I have provided thick descriptions of my case, participants and research methodology (Rubin & Babbie, 2010), and my recommendations (see Chapter 5, Section 5.6) include further research. In this way, consumers of my research can determine whether this study is relevant to their areas and populations of study (Rubin & Babbie, 2010). However, the criterion of transferability of the study is reliant on the degree of the study's dependability.

3.6.1.3 Dependability

Dependability "addresses the quality of the data in a qualitative study, including how well the researcher deals with change... based on previous data collection" (Thomas *et al.*, 2005, p. 359). For the purpose of this study, I strived towards dependability by firstly keeping detailed, comprehensive notes and data from multiple sources (Hittleman & Simon, 2006), as discussed in Section 3.4. Secondly, I coded and recoded the data, as discussed in Section 3.5.2, in order to be flexible in adjusting or finding new themes within the data. Thirdly, I used triangulation (Berg, 2004; Stake, 2000) and crystallisation (Janesick, 2003; Maree & Van der Westhuizen, 2009). In response to debates regarding the use of triangulation and crystallisation in conjunction in research (Janesick, 2003), Maree and Van der Westhuizen (2009) propose that both approaches can indeed be utilised in a study as each approach contributes to the overall trustworthiness of the study in different ways.

Triangulation facilitated my cross referencing of results and findings from various sources of data (Edwards, 2001; Gerring, 2004; Hittleman & Simon, 2006; Strydom & Delport, 2005) for the study, namely the document analysis, focus group transcription and observations. In this way, triangulation of data assisted me in clarifying emerging themes (Berg, 2004; Stake, 2000). Triangulation as a research strategy has been criticised for focusing on convergence around a fixed point (Janesick, 2003). However, Patton (2002) argues that triangulation can be used to discover multiple perspectives rather than a single truth. Seale (2003) adds that triangulation holds a valuable place within a variety of paradigms. Thus, triangulation formed a valuable process within this study.

Like triangulation, crystallisation also addresses trustworthiness via collection and analysis of data using multiple methods (Maree & Van der Westhuizen, 2009). However, crystallisation incorporates many facets of the social world (Janesick,

2003), thereby contributing further insight and perspectives (Janesick, 2003) into emerging themes and findings. One of the ways in which I approached crystallisation was through consultation with my supervisors and discussion of the data (Gillham, 2000; Maree & Van der Westhuizen, 2009; Seale, 2003) during the analysis and interpretation phases to gain a different perspective on results and themes. I also became immersed in the research process (Janesick, 2003; Kelly, 2006; Loiselle *et al.*, 2010) which led me to keep a reflexive journal (Janesick, 2003) as a means of addressing confirmability.

3.6.1.4 Confirmability

According to Thomas *et al.* (2005, p. 359), confirmability “addresses whether another can place faith in the results” of a study due to whether or not “the issue of researcher bias” has been adequately addressed. I strived to meet the criterion of confirmability firstly by establishing an audit trail (Patton, 2002), whereby my transcription, rough paperwork, drafts and analyses were preserved so that other researchers may retrace my research path (Kelly, 2006; Patton, 2002). Secondly, I addressed confirmability via researcher reflexivity, which can contribute towards the rigour of qualitative research (Etherington, 2004; Seale, 2003). Research reflexivity involves researchers engaging in critical thinking during the research process (Thomas *et al.*, 2005).

I aimed to enhance researcher reflexivity by keeping a reflexive journal throughout the process of the study (See Appendix B: 5.1 and 5.2). I was aware that as an employee at the school under study, I might have had pre-existing conceptualisations regarding the school and its practices around early physical development. As such, a reflexive journal facilitated my self-awareness and critically appraised my own possible preconceptions and biases towards the case under study. Furthermore, I reflected on the challenges experienced whilst having dual roles of both researcher and part-time employee during the research process. These challenges included participants’ possible preconceptions about my role as researcher, based on my role as employee and the possible influence thereof on the way in which participants responded and interacted with me during the research process.

Reflexivity is synonymous with qualitative research (Creswell, 2003), wherein the researcher is the instrument of observation (Durrheim, 2006). Etherington (2004, p.

31) defines researcher reflexivity as “the capacity of the researcher to acknowledge how their own experiences and contexts inform the process and outcomes of inquiry”. As such, reflexivity is a skill of self-awareness on the researcher’s part (Etherington, 2004; Patton, 2002) which can be developed through reflection (Stake, 2000). Journal writing can encourage reflexivity because it may assist researchers to monitor their internal responses (Etherington, 2004).

Etherington (2004, p. 127) regards a reflexive journal as “a private space where we can log our uncensored thoughts and feelings” and which helps to “focus our internal responses and capture our changing and developing understanding of method and content”. Keeping a reflexive journal enabled me to monitor my own thoughts and behaviour when carrying out the various data collection methods discussed above as well as reflecting on my role in the research process (discussed further in Section 3.7). My reflexive journal was also significant when considering the authenticity of the study, which I now discuss.

3.6.1.5 Authenticity

The first four quality criteria I discussed above infer primarily methodological approaches to trustworthiness (Guba & Lincoln, 1989). However, authenticity requires the researcher to approach a situation from the participants’ point of view (Guba & Lincoln, 1989). Although some researchers appear to view authenticity as separate from trustworthiness (Patton, 2002; Toma, 2006), Seale (2000) regards authenticity as a fifth quality criterion in qualitative research. Therefore, for the purposes of this study, authenticity is viewed as the final quality criterion.

In approaching authenticity, I aspired to the concept of fairness (Guba & Lincoln, 1989) by acknowledging the views and input of each of my participants, while reflecting on the influence of my own views (through my reflexive journal, discussed above). I approached tactical authenticity (Guba & Lincoln, 1989) by ensuring participants that I would make my findings and conclusions, as well as Harrow’s (1972) taxonomical framework for conceptualising early physical development, available to them as far as possible. Making this information available to the participants may benefit them in their further practices, thereby upholding the principle of beneficence (Wassenaar, 2006). Authenticity thus implies acting ethically towards participants, adhering to certain ethical considerations.

3.6.2 ETHICAL CONSIDERATIONS

Strydom (2005, p. 57) states that within research, “ethical guidelines (also) serve as standards, and a basis upon which each researcher ought to evaluate his own conduct”. Thomas *et al.* (2005) add that ethics plays an important role in the evaluation of a qualitative study by others. Consent for the implementation of this study was granted by the Ethics Committee of the University of Pretoria (see Appendix B1: 1.1 and Appendix A). Furthermore, I adhered to the required ethical considerations, as discussed below.

3.6.2.1 Informed consent

Strydom (2005, p. 59) defines informed consent as placing emphasis on offering “accurate and complete information, so that subjects will fully comprehend the investigation and consequently be able to make a voluntary, thoroughly reasoned decision about their possible participation”. I acquired informed consent (Berg, 2004) in writing from the school and the participants (see Appendix B1: 1.2-1.4). I explained the study to each participant so that they fully understood the process of the study (Cohen *et al.*, 2007) and could make an informed decision to be involved (or not).

Participation of the staff for the focus group as well as my observations was on a voluntary basis and participants were free to withdraw from the research at any stage, should they have wished to do so (Berg, 2004). I also compiled a letter of explanation for class observations for the parent/s or guardians of the Grade R children who were present during observations of teaching practices (see Appendix B1: 1.5). The informed consent of participants was contingent in terms of their privacy, confidentiality and anonymity.

3.6.2.2 Privacy, confidentiality and anonymity

According to Strydom (2005), privacy, confidentiality and anonymity can be viewed synonymously. Privacy refers primarily to personal privacy which may be ensured when information is given anonymously and handled in a confidential manner (Strydom, 2005). I addressed the guidelines of privacy, confidentiality and anonymity in various ways. All data was and still is securely stored (Hittleman & Simon, 2006) and I ensured that the identities of participants remained anonymous when interpreting and reporting the findings of this study (Flick, 2009).

The focus group itself presented a challenge to the privacy and confidentiality of the participants, as the degree of confidentiality is dependent on each participant's willingness to be respectful of what was discussed in the focus group (Wassenaar, 2006). Therefore, as suggested by Wassenaar (2006), I made the focus group participants aware of confidentiality risks and they were encouraged to maintain confidentiality. The participants also agreed that the topic of discussion for the focus group (by virtue of it being centred on teaching practices) was not particularly sensitive in nature. The participants seemed comfortable with the confidentiality briefing and had no questions arising from the briefing session. In terms of confidentiality of documents for document analysis, the RNCS (DOE, 2002a) is considered a public record and therefore "able to be publicised without breach of confidentiality" (Patton, 2002, p. 294).

3.6.2.3 Respect and trust

Respect and trust (De Vos *et al.*, 2005) are foundations which were laid down for the research participants throughout the research process and are inherent in the principles of informed consent, privacy, confidentiality and anonymity (Johnson, 2007). Due to my work at the school, I already had a certain level of rapport with participants built on respect and trust. My listening and attentive skills discussed in Section 3.4.2 assisted me in further establishing respect and trust during the study. Member checking with participants implied a relationship based on my respect for the participants' points of view (Israel & Hay, 2006).

3.6.2.4 Protection from harm

Protection from harm refers to the ethical principal of nonmaleficence, which requires the researcher to ensure that no harm comes to participants as a result of the study (Cohen *et al.*, 2007; Wassenaar, 2006). I aspired to the protection of harm for my participants through the combined outcome of following the ethical considerations discussed above (Boeije, 2010), while continually reflecting on my role as a researcher, as discussed below.

3.7 MY ROLE AS RESEARCHER

My role at the school is that of part-time learning support teacher, working two mornings a week. Therefore I needed to clearly delineate my role as a staff member

with my role as a researcher at the school for both myself and the participants of the study. My role as staff member was that of being an integral part of a team within the school system. However, my role as researcher required that I view the school from a different perspective, as if viewing the case as an outsider. I endeavoured to be aware, at all times, of my roles as a researcher and learning support teacher. I carefully explained and discussed with my participants, how and in what contexts I would approach each role for the duration of the research process.

My role as a researcher in the school required me to act as a facilitator during the focus group discussion (Ryan & Lobman, 2007), an observer (Creswell, 2003) of teaching practices and as a reviewer for member checking (Gillham, 2000). My reflexive journal (discussed above) assisted me in monitoring my own actions, responses and thought processes within these roles.

3.8 CONCLUSION

In this chapter, I discussed my underlying paradigmatic framework and ensuing designs and methodologies for the study. I explained aspects of trustworthiness relating to quality criteria and ethical responsibilities. In the following chapter, I present and discuss the integrated results and findings of the study.

CHAPTER 4

REPORTING THE RESULTS AND INTEGRATED FINDINGS OF THE STUDY

4.1 INTRODUCTION

In Chapter 3, I described the paradigmatic perspective, research design and methodology for the study as well as the procedures undertaken to ensure trustworthiness and ethical responsibility in order to enhance the rigour of the study. The methodologies and procedures discussed in Chapter 3 have contributed towards the processes of data collection and analysis, culminating in the results for this study. In this chapter I present the results and findings of the study in an integrated manner, thereby situating the study within the wider realm of research related to the topic of enquiry. Figure 4.1 outlines the results of the study.

Twofold data analysis	
Taxonomic (Understanding and implementation)	Reflex movements
	Basic fundamental movements
	Perceptual abilities
	Physical abilities
	Skilled movements
	Non-discursive communication
	A whole-school approach to physical development
Thematic	Theme 1: The impact of modern lifestyle on early physical development
	Theme 2: Current inadequacies of physical education in schools
	Theme 3: Keeping informed and educated in early physical development
	Theme 4: The role of early physical development in academic performance
	Theme 5: Physical development as a social and emotional experience
	Theme 6: Concern about the current physical development curriculum <ul style="list-style-type: none"> • Subtheme 6.1: Non-specificity of the physical development curriculum • Subtheme 6.2: The need for quality performance versus participation • Subtheme 6.3: The need for age-appropriate developmental norms • Subtheme 6.4: The what, why, how and when of the curriculum • Subtheme 6.5: Irregularities across the Grade R curriculum • Subtheme 6.6: Guidance for new or inexperienced teachers • Subtheme 6.7: Limited reliance on the curriculum to inform teaching

Figure 4.1: Results of the study

As discussed in the previous chapter, the analysis for this study was twofold, incorporating taxonomic analysis and thematic analysis. I discuss the results and findings for each method of analysis separately, beginning with the taxonomic analysis of data.

4.2 TAXONOMIC ANALYSIS: PHYSICAL DEVELOPMENT IMPLEMENTATION

I present the results and findings of the study for the taxonomic analysis in terms of the framework of Harrow's (1972) taxonomy of psychomotor learning. Riethmuller *et al.* (2009, p. 790) propose that "physical activity motor skill programmes should be underpinned by a sound theoretical framework". Thus, I situate and present the participants' understanding and implementation of early physical development practices in each of the corresponding six levels of Harrow's (1972) taxonomy, beginning with the first level, namely reflex movements.

4.2.1 REFLEX MOVEMENTS

The first level of reflex movements was reportedly understood and implemented by participants at the school through daily morning exercises drawn up by the Institute for Neuro- Physiological Psychology (INPP). Each of the participants had received training in the INPP programme through the school. During my observations, participants explained that the INPP programme was put in place to assist children whose reflexes have not been adequately inhibited, thereby potentially hampering their academic progress. During the focus group discussion, the following was explained:

✚ *We have got to make more and more allowance and provision for children to really move at school. Whether it's INPP... (P1, p. 4)²*

You mentioned INPP, what does that involve? (R, p. 4)³

It's a daily exercise programme based on neurological development and weaning the child off primitive reflexes so that they can develop postural reflexes in the right sequence. (P1, p. 5)

Would you say that forms a part of physical development in early childhood? (R, p. 5) Definitely! (P1, p. 5)

² P: Participant

³ R: Researcher

I observed the participants' implementation of the INPP reflex programme during the course of the school day and my observations revealed that the INPP exercises take place at the start of every school day, for the duration of ten minutes. The children warm up by running, skipping or galloping and then performing slow spinning movements. Then the children perform a series of slow, controlled movements lying either in a prone or supine position, in time to the teacher's counting. During my observations, participants mentioned that the wider schools group to which this school belongs, employs an INPP specialist who visits the schools to give advice and monitor the implementation of the programme. This specialist reportedly also works with children who have been identified by the teachers as having more severe reflex retention on an individual basis (see Appendix B4: 4.1, p. 4).

Harrow (1972) purports that despite the importance of reflex movements for physical development, they typically do not form part of planned curricula in schools, except in physical therapy programmes. From my document analysis, it would appear that reflex movements are not incorporated in the physical development section of the Grade R RNCS (see Appendix B2: 2.2). However, in this selected school the presence of a reflex programme as part of the school day seems evident.

The INPP programme is also practiced at a range of schools in the United Kingdom where research found that after a year of participation in the daily exercises, children showed decreased reflexes with improvements in balance, coordination and reading (Goddard-Blythe, 2005). However, further empirical research is needed on the impact of interventions for primitive reflexes to improve academic performance (Hyatt *et al.*, 2009). Harrow (1972, p. 43) explains that "The child should have a basic reflex system which has given way to a well-developed motor system manifested through a variety of controlled locomotor, non-locomotor, and manipulative movements". This brings my discussion of results and findings to the second level of basic fundamental movements.

4.2.2 BASIC FUNDAMENTAL MOVEMENTS

It is clear from both the focus group discussion and observations that a large portion of early physical development practices at the school are focused on basic fundamental movements. Various locomotor movements were mentioned by participants during the focus group, including *hopping, jumping, crawling, leopard*

crawling, skipping, running and rolling over. No reference was made by participants with regard to non-locomotor movements such as pushing and pulling, even though these movements were incorporated into practices as observed during classroom activities. However, manipulative movements were mentioned during the focus group discussion in terms of fine or small motor movements. The following statements, made during the focus group discussion, summarise the participants' understanding of manipulative movements:

- ✦ *Physical development isn't just large muscles; you've got to include the small muscles as well. Obviously you start with the large, moving down into the small but small muscle is also physical development. (P1, p. 1)*
- ✦ *Well, small muscle development in the body to be able to copy, to draw (P2: to manipulate too), to control all sorts of tools – scissors, crayons, staplers, whatever they're using. (P1, p. 2)*

Implementation of practices for basic fundamental movements seemed to incorporate primarily locomotor and manipulative movements in various ways. Implementation of locomotor movements at the school is reportedly incorporated into more formal physical development settings such as physical education rings:

- ✦ *I prefer just to work (in the first term) on large movement patterns, so they do obstacle work as well as a lot of locomotion... (P4, p. 7)*

In addition, locomotor movements are seemingly practiced incidentally in basic routines such as moving between classrooms and the playground or the activity room where specialist lessons such as music take place, as indicated in the following explanations by focus group participants:

- ✦ *I think the transition from one environment to the next is always utilised to develop their locomotion and the quality of it so they would (for example) skip rather than just walking. So there's a number of different movement patterns that you can incorporate into those transitions, rather than just not using that time constructively. (P4, p. 5)*
- ✦ *I think if you sit in my office you'll see, at 10 minute intervals, children going round the interior path ... bouncing and jumping and hopping. (P1, p. 6)*

I witnessed these incidental locomotor activities during my observations, where the children went to the central lawn around the path and to the activity room (for music, drumming and the big ball programme) by either skipping, galloping, walking sideways, backwards, hopping on one foot then changing feet when tired or clapping hands in front/behind and sometimes crawling for certain sections on a grassed area (see Appendix B4: 4.1, p.5, p. 7). Utilising various locomotor movement patterns

between locations at school appears to be an effective, time-efficient way of integrating movement patterns into the school day, especially when one considers Harrow's (1972, p. 108) statement that "Locomotor movements include those behaviours which transport the learner (child) from one location to another".

In the classroom, manipulative movements were focused on by participants through finger exercises. I observed how the children were each given a stress ball for each hand to squeeze repeatedly as hard as they could (see Appendix B4: 4.1, p. 4). The children also recited finger rhymes with appropriate finger movements (see Appendix B4: 4.1, p. 6). Furthermore, manipulative movements were incidental to art activities such as beading, tearing and pasting as well as using small equipment such as crayons and scissors. Children also made use of perceptual games requiring fine motor manipulation such as pegboards, small 3-D blocks and games where they had to push balls into place with finger tips (see Appendix B4: 4.1, p. 6). Harrow (1972) agrees that colouring, block-building and tool manipulation are behaviours that can be regarded as unique to manipulative movements.

From the above discussion it seems that basic fundamental movements were incorporated into a variety of activities at the school. From my document analysis, it would appear that basic fundamental movements feature a number of times in the physical development section of the Grade R RNCS (see Appendix B2: 2.2). Fundamental motor skills can facilitate the development of perceptual abilities (Harrow, 1972; Wessels *et al.*, 2008; Woodfield, 2004) by allowing the child adequate exploration of the required environment in order to engage in experiences which may develop perceptual abilities (Wessels *et al.*, 2008). Consequently, a direct relationship seems evident between efficient performance of a motor skill and a child's perceptual abilities (Harrow, 1972).

4.2.3 PERCEPTUAL ABILITIES

Perceptual abilities received significant attention by participants during the focus group discussion, with reference being made to various aspects of perceptual abilities (as proposed in Harrow's [1972] taxonomy). Indeed, Harrow (1972, p. 115) asserts that "the refinement of a learner's (child's) perceptual abilities usually becomes the responsibility of early childhood educators". In this study, reference was made to kinaesthetic discrimination by participants in terms of passing comments regarding

depth perception, spatial awareness, cross-lateral integration and bilateral integration. However, vestibular awareness featured regularly during the focus group discussion and was understood by participants in the following ways:

- ✦ *Well vestibular is the movement in the ear and how that movement affects their balance... (P3, p. 3)*
- ✦ *And their vestibular is also impacted if...their ear function isn't working optimally. (P3, p. 3)*
- ✦ *...and also, what I also find with the vestibular children is their posture and their desktop work is compromised because it's their bodies' awareness of space, but without confirmation from the other senses so, the eyes are not able to tell the body where it is so now they've got to rely on the vestibular system to do that, and if the vestibular system is compromised, then it impacts on all the output that is given by the brain. (P4, p. 3)*

Both visual and auditory discrimination were discussed during the focus group discussion where understanding of visual discrimination was primarily associated with spatial skills such as consolidating prepositions:

- ✦ *I think that your spatial skills also give you a lot of experience of all your prepositions so, under, over, besides, next to, around, on top. Cos the children need experience of those words – physical experience...(P4, p. 4)*

Auditory discrimination was seemingly understood primarily in terms of distractibility and speech:

- ✦ *Children who have a sensory deficiency in hearing, either loud noise bothers them, so they cannot...cope if there's too much noise...they don't pronounce words, their speech is affected... (P2, p. 3)*

Tactile discrimination was described by participants as the *sense of touch and* participants also perceived the sense of taste as impacting on physical development:

- ✦ *P2: Taste! P3: But that wouldn't really affect your physical development though. P1: Well it will if you're like the little one in (x) Group who refuses to eat anything, therefore is anaemic, therefore is tired...P3: low on energy, okay. (P1, P2 and P3, p. 3)*

My observations of school practices showed that healthy eating is encouraged in a variety of ways (see Appendix B4: 4.1, p. 6, p.7). The children drink only water during the school morning, bringing their own water bottles to school. The mid-morning snack provided by the school includes sandwiches on whole-wheat bread and fruit, with special eating requirements such as allergies, being catered for. A hot lunch is prepared for children attending aftercare. On the last day of term the children may bring their own snack for a picnic within healthy guidelines stipulated

by the school. During my observations the teachers stated that the children are very aware of the guidelines for their picnic to the point that some children correct their parents if an unhealthy snack is being packed. Indeed, an unhealthy diet may be another significant contributor to childhood obesity in addition to physical inactivity (Burdette & Whitaker, 2005; Veugelers & Fitzgerald, 2005). Brown and Summerbell (2009, p. 110) suggest that “combined diet and physical activity school-based interventions may help prevent children becoming overweight in the long term”.

Coordinated abilities were described by participants as *fluidity of movements* and *to work in a controlled and coordinated manner*. The following statement highlights participants’ understanding of coordinated abilities:

- ✚ *...interpretation of moving objects so, how your body moves in relation to other objects-whether that other object is stationary, or if it’s moving as well. How to marry them altogether to get successful movement. (P4, p. 4)*

Much of the participants’ discussions pertaining to the level of perceptual abilities centred on various aspects of sensory integration:

- ✚ *They’ve got to be able to use their senses and they’ve got to be able to control those senses...so they don’t go into sensory overload and need sensory integration (therapy). (P2, p. 2)*
- ✚ *A child who has a sensory problem either doesn’t get the feedback to their muscles and to their brain that they need to - in other words noise will worry them, scratchy clothes will worry them, textures of food will worry them, and these sort of things put them into sensory overload which means that they cannot learn and it needs to be monitored and sorted out. (P2, p. 2)*

Implementation on the level of perceptual abilities at the school repeatedly takes place through PDE classes:

- ✚ *A lot of jungle gym work, because... there’s a lot of height variation so there’s depth perception in that process. (P4, p. 4)*
- ✚ *...spatial - climb under, climb over, behind, in front, etc. etc. move backwards, move forwards, move to the left, move to the right. So you can do those things as well, which is giving them the vocabulary and being able to motor-plan the movement. (P2, p. 6)*

During my observation of a PDE session I found that the teacher integrated auditory instructions with movement, where children had to follow various series of instructions, by responding through movement (see Appendix B4: 4.1, p. 3). In addition to structured perceptual-motor programmes (such as the school’s PDE

classes referred to above), Harrow (1972) explains that pre-schoolers need to have the opportunity to explore a variety of movement activities in order to facilitate the development of essential perceptual abilities. The participating school provides these movement activities which are reportedly facilitated by teachers during outdoor *free play*, in the following ways:

- ✚ *There's jungle gyms, there's the bike track with different apparatus on the bike track which they have to move, you have (the) sandpit, your sensopathic trays, you also have... (P1, P3: hoops, swings, skipping ropes)...obstacle course! They're given balls to play with, (P3: balancing...), different sizes—there are different size balls, different size hoops, there are different widths to balancing... (P1 even building with the crates, involves motor planning and a lot of muscle work building with those crates)... (P2, P1 and P3, p. 6)*
- ✚ *Implement: Swinging as well is another one that I see you proactively advocating, that in that outside time, children actually go and use those, because children with vestibular system and concerns in those areas will not naturally vacillate to those pieces of equipment, they'll try and avoid them in fact. (P4, p. 6)*

My observations confirmed that children at the school have access to a variety of movement activities during outdoor free play. One of the teachers assisted the children in a climbing activity, while outdoors (see Appendix B4:4.1, p. 7). In response to what participants perceived as a need to enhance the sensory integration of the children, the school implemented two programmes, the first being a monthly 'sensory day':

- ✚ *Well we instituted sensory day simply because there are so many children who avoid anything that's messy, sticky, gooey, wet. So if everybody's outside enjoying sensory day, it encourages those children to participate. And they do need a lot of encouragement. So on those days they can get as messy, as wet and as dirty as they possibly can, which is definitely helping those children who are avoiders. Because in a normal classroom you haven't got time to let everybody get really filthy. (P1, p. 8)*

My observations of a 'sensory day' revealed that children were instructed to wear old clothes to school in order to engage in outdoor free play. Activities available to the children were mostly of a tactile and auditory nature, as teachers reportedly perceived children as having more than enough visual stimulation in their daily environments (see Appendix B4:4.1, p. 1, p2). It is argued that the young child should have maximum opportunities to engage in sensory stimulating activities so as to encourage sensory awareness and integration (Ayres, 2005; Harrow, 1972). Hyatt *et al.* (2009) propose that sensory integration is a controversial concept, arguing that sensory integration interventions lack adequate empirical evidence to support their effectiveness. However, sensory processing disorder is currently under

review for inclusion in the Diagnostic and Statistical Manual of Mental Disorders - Version 5 (American Psychiatric Association, 2010) which if included, would validate sensory integration theory.

The second programme for sensory integration (besides 'sensory day') implemented at the school targets children who are identified as having specific difficulties in this area of development:

- ✚ *The brushing is after Pat Wilbarger's protocol of giving children with sensory integration difficulties, deep pressure through body brushing with the special brushes and then joint contractions and it helps to calm children with sensory problems – especially those with sensory overload. And even a child who has not got sensory problems if they're deeply distressed, is calmed by brushing but those with identified difficulties are brushed on a 3 hourly basis. (P1, p. 8)*

Although widely used by occupational therapists for children with sensory sensitivities (Aquilla *et al.*, 2003; Cole & Tufano, 2008; Kurtz, 2008), the Wilbarger protocol (Wilbarger & Wilbarger, 1991) has been viewed as controversial, due to lack of empirical research into its effectiveness (Aquilla *et al.*, 2003; Kurtz, 2008). However, research has been carried out which shows that the Wilbarger protocol (Wilbarger & Wilbarger, 1991) is effective in young children with sensory difficulties in modulating the levels of cortical stress hormones (Kimball *et al.*, 2007). These findings on cortical stress hormones are interesting to note when considering my observations during which participants reported that children undergoing the Wilbarger protocol (Wilbarger & Wilbarger, 1991) were less anxious and distressed for a few hours after each intervention (see Appendix B4:4.1, p. 5).

The above discussion seems to indicate that perceptual abilities form an integral part of the day at this school. Yet, in my document analysis I seemingly found little indication that perceptual abilities are incorporated in the physical development section of the Grade R RNCS (see Appendix B2: 2.2), even though the preamble of the RNCS comments on perceptual motor development as a facet of physical development (see Appendix B2: 2.3). Harrow (1972) explains that further development of perceptual abilities is invariably linked to the development of physical abilities.

4.2.4 PHYSICAL ABILITIES

Harrow (1972) conceptualises physical abilities as major components of physical fitness. Participants made various references to these components of physical fitness. In terms of muscular endurance and muscle tone, the following comments were made by participants:

- ✦ *Endurance of movement. Children are quite capable of doing things for a few movements and then they run out of steam. (P1, p. 1)*
- ✦ *They've got to be able to use those muscles to maintain a certain amount of posture to maintain being able to sit, to stand, to move appropriately. (P2, p. 1)*

Participants' understanding of muscular strength primarily involved the weight-bearing of large muscles:

- ✦ *I think one thing that you should add to what skills, or what we are encouraging is weight-bearing as well because if you can get them to weight bear you're strengthening their hands for fine motor work. (P1, p. 7)*

Cardiovascular endurance was discussed in the following manner which is consistent with Harrow's (1972) view that endurance involves the supply and use of oxygen by the body during strenuous physical activity:

- ✦ *The increase in exercise increases the blood flow through the system and makes it more efficient, especially supplying oxygen to the muscles and to the brain... (P4, p. 8)*

Implementation of practices at the school to develop physical abilities was also evident in various contexts and activities:

- ✦ *That's part of our big ball programme that we do. All the classes get a chance to use the big balls and we use that for endurance, for cardio sort of effect so that bouncing, they do actions, clapping, lifting their arms, they're marching as they're bouncing so that develops their co-ordination, bilateral coordination, integration, all those skills as well as building endurance. And then we do things such as...making table tops on the ball which encourages the children to use their balance, weight bearing on their arms and shoulders. P2: It also establishes their core muscles...which a lot of children don't have these days. (P3, p. 7)*
- ✦ *Also I think the...core muscle grouping as well, it is important that, especially with jungle gym work, that... (we) encourage a lot of that. (P4, p. 7)*
- ✦ *Even building with the crates, involves motor planning and a lot of muscle work building with those crates... (P1, p. 6)*

- ✚ *So we're trying to...get them (the children) to do physical, aerobic type exercise before they do their academic work. (P1, p. 8)*

I observed how the teacher demonstrated and facilitated various sustained movements during the 'big ball programme'. Children were encouraged to engage in high energy, bouncing movements on the ball and slow, sustained postures using the ball (see Appendix B4:4.1, p. 5). Agility facilitates the development of physical abilities and involves changing direction while in motion (Harrow, 1972). My document analysis indicated that agility is possibly referred to in the physical development section of the Grade R RNCS, through "dodging games" (DOE, 2002a, p. 15) where dodging could imply changing direction while in motion (see Appendix B2: 2.2). Harrow (1972) explains that only once a child has developed a degree of proficiency in basic physical abilities and perceptual abilities, the child can then start to be a skilled mover. Skilled movements comprise the next level of Harrow's (1972) taxonomy.

4.2.5 SKILLED MOVEMENTS

The level of skilled movements was not often referred to during the focus group discussion. Participants seemingly placed more emphasis on aspects of early physical development pertaining to lower levels of Harrow's (1972) taxonomy. However, a reference to skilled movements was made in terms of the quality of movement:

- ✚ *I think the quantity or amount of quality movement (is important), because the more the child does, the more they are capable of doing the gross motor...determine how the fine motor behaves, so I think...that the level of experience that the child has in movement as well as the quality of that experience is important as well. (P4, p. 3)*

Skilled movements are reportedly introduced into teaching practices by grading movement performance from acquiring basic movement patterns, to refining them in the following way:

- ✚ *What I want them to do in this first term is (to) have mastered, all the locomotion. And then towards the middle and later end of the year we can then start moving on and refine it, so you start seeing quality in areas of force, accuracy, distance, timing-those kinds of things. (P4, p. 7)*

Since my school observations took place early in the school year, the PDE teacher explained that skilled, quality movements are not yet required of children (see

Appendix B4:4.1, p. 4). From my document analysis it would appear that little reference is made in the physical development section of the Grade R RNCS to the skill or quality required for specific physical movements (see Appendix B2: 2.2 and 2.4) and this is discussed further in Section 4.3.6.2. Researchers argue that PE needs to encompass more than just preparation for sporting proficiency through acquiring sports-specific skills (Fredericks *et al.*, 2006; Hardman, 2008). As discussed in Chapter 2, Loland (2006) argues that PE needs to fulfil purposes of health, morality and meaning. The purpose of meaning is addressed in the final level of non-discursive communication.

4.2.6 NON-DISCURSIVE COMMUNICATION

Aspects of early physical development pertaining to the level of non-discursive communication were not discussed by participants during the focus group discussion until they had examined the Grade R physical development Assessment Standards. Participants acknowledged that they had not initially considered non-discursive communication as an aspect of early physical development:

- ✚ (P1, reading one of the Assessment Standards) *'Performing expressive movements using different parts of the body'. We haven't really discussed that. That's more covered in music, dance (P2+P3: and drama). (P1, P2 and P3, p. 11)*

In my document analysis, I identified the above mentioned Assessment Standard as possibly referring to non-discursive communication in the physical development section of the Grade R RNCS (see Appendix B2: 2.2). The above comment led to a discussion on practices at the school about non-discursive communication. Participants agreed that non-discursive practices at the school primarily take place during rings which involve *dramatisation* and in specialist classes such as *music*:

- ✚ *They move to music, they have free movement where they have music and they can do their own thing, they have to dramatise–hear something and dramatise it–how they feel. (P2, p. 11)*

It was further agreed by participants that activities involving non-discursive communication can take place during free-play dramatisation:

- ✚ *Your theme corners...those are also important because different themes will lend themselves more to different movement patterns... (P4, p. 11)*

Integration of physical developmental skills into other aspects of the school programme, such as those mentioned above, has been a common observation throughout implementation practices by the school for each level of Harrow's (1972) taxonomy (see Appendix B4:4.1). This integration of physical skills into various aspects of the school programme warrants further discussion in terms of the school's whole-school approach to early physical development.

4.2.7 A WHOLE-SCHOOL APPROACH TO PHYSICAL DEVELOPMENT

Various comments by the participants, my observations and field notes discussed in the results of the taxonomic analysis above, highlight the school's holistic, or whole-school approach to physical development. Timperio, Salmon and Ball (2004) argue for a whole-school approach to physical activity interventions as the most effective means of facilitating physical development. The following participant statements illustrate how for example PE lessons and classroom activities are integrated across the school:

- ✦ *I don't think that any education can be compartmentalised so I don't think you can just have a Phys. Ed lesson without taking into consideration the themes that the teachers are utilising in the classroom... (P4, p. 5)*
- ✦ *(the teachers are) ...reinforcing what is being done on the academic side, but also giving the children a physical expression of that knowledge... (P4, p. 6)*

Participant comments together with my school observations, pointed to collaboration between teaching staff and non-academic office staff who assist with some aspects of early physical development, for example administering the Wilbarger protocol (Wilbarger & Wilbarger, 1991) discussed in Section 4.2.3. Collaboration between teachers regarding physical development practices also seemed evident:

- ✦ *...P2 and I discussed it on the bus the other day... (P1, p. 4)*

In addition, teachers stated that regarding physical development, they collaborate with school therapists including occupational therapists, neuro-developmental physiotherapists, a speech therapist and a play therapist. Collaboration between the school itself and the wider school system to which it belongs, was highlighted, for example where the school acts as a feeder school for Grade 1:

- ✦ *The Grade 1 teachers are given the (physical) assessments so that they can also build on those areas, before assuming that the child can just slot into Grade 1 work. (P1, p. 9)*

4.2.8 SUMMARY OF TAXONOMIC ANALYSIS

The results of the taxonomic analysis of the study indicate that a whole-school approach to early physical development is seemingly implemented by the participating school on all six levels of Harrow's (1972) taxonomy. This implementation can be regarded as indicative of the participants' extensive understanding and implementation of physical development practices in early childhood. Thematic analysis provided further insight into the perceptions, knowledge and attitudes which guide physical developmental practices in the school, as illustrated in the next section.

4.3 THEMATIC ANALYSIS: EMERGING THEMES

As discussed in Chapter 3, a thematic analysis comprises the second part of the twofold analysis of data for this study. I identified a number of themes that emerged from the data during the focus group discussion. Each theme is discussed in the next section and located within relevant literature in order to present via the findings of the study. During the focus group discussion, participants spent a fair amount of time debating the impact of modern lifestyle on the physical development of young children, thereby generating the first theme for this section.

4.3.1 THEME 1: THE IMPACT OF MODERN LIFESTYLE ON EARLY PHYSICAL DEVELOPMENT

During the focus group discussion, various comments by participants echoed literature which is concerned with the low levels of physical activity often displayed by children in contemporary times (Du Toit *et al.*, 2007; Hardman, 2008; Hills *et al.*, 2007). Participants referred to these perceived low levels of physical activity amongst children in the following way:

- ✚ *We've got so many children who are leading such sedentary lifestyles. (P1, p. 13)*
- ✚ *A lot of children just sit on the floor-they don't actually move. They flop on the floor. (P2, p. 12)*

Hills *et al.* (2007) argue that the increase in sedentary behaviour of children may be exacerbated by the fact that many parents do not engage in sufficient active play with their children due firstly to increased demands on parents' time and secondly

due to a lack of suitable infrastructure for physical activity. Sollerhed and Ejlertsson (2008) elaborate, arguing that the physical activity of rural children may also be compromised because although children can be physically active in the countryside, they have very limited access to sport clubs and activities for youth. Whether physical spaces are indeed available for children to play in or not, some parents may discourage their children from going out to play as they have concerns for their safety (Hills *et al.*, 2007). Parent concerns regarding their children's safety may in turn result in young children often spending more time watching television (Burdette & Whitaker, 2005).

Participants in the current study expressed concern with modern sedentary pursuits of children such as watching television and using cellular phones, along with associated childhood obesity, as reflected in the following comments:

- ✦ *When you get a 2 year old arriving at school, they (parents) tick off that he's watching 8 hours television a day. (P1, p. 14)*
- ✦ *Most of them (children in the foundation phase) are wafting around using their cell phones. (P1, p. 13)*
- ✦ *There's huge anxiety about obesity and people who are growing up without any exercise programmes in their lives at all. (P1, p. 14)*

Participants' concerns with childhood obesity is consistent with concerns reflected in literature on childhood obesity (Du Toit *et al.*, 2007; Hardman, 2008; Sollerhed & Ejlertsson, 2008; Van Deventer, 2004) and the association between obesity and physical inactivity with life threatening medical conditions (Du Toit & Pienaar, 2003; Hills *et al.*, 2007; Loland, 2006). Research in this area highlights Loland's (2006) theme of physical activity as a potential means of improving health.

Various studies indicate a direct association between childhood obesity and daily television viewing by young children (Adachi-Mejia *et al.*, 2007; Hancox & Poulton, 2006; Swinburn & Shelly, 2008). However, it is also argued that childhood obesity that is associated with watching television is not caused by the sedentary behaviour of television viewing itself, but rather by viewing advertisements for unhealthy foods (Zimmerman & Bell, 2010). In addition, sedentary pursuits (Desrochers & Holt, 2007) may affect the overall lifestyle of the young child. Consequently, Swinburn and Shelly (2008) suggest regulations to reduce television commercials for energy-dense foods as a way of reducing childhood and adolescent obesity. Although limited research exists regarding the association between cellular phone use and obesity of

children, a small correlation between body mass index and cellular phone use by adolescents has been found (Lajunen *et al.*, 2007), suggesting that increased cellular phone usage may indicate more sedentary behaviour.

Participants in this study traced the relationship between modern technology and the sedentary behaviour of children back to infancy and expressed concern about the use of modern devices for infants which may restrict or interfere with their movement, as expressed in the following ways:

✚ *...we have interfered with children's' development – physical development so much in the modern world that you've got to put something in place to counteract that. You've only got to look at the cots and the prams and the baby chairs and the baby walkers and...they compromise the overall development of each of the children. (P1, p. 5)*

✚ *...half of them (parents) put them (infants) in those cots and things and a baby never gets to move. (P2, p. 14)*

However, the concern expressed by participants about the impact of modern devices on early physical development in infancy is one which is not widely researched (Pin *et al.*, 2007). Pin *et al.* (2007) call for empirical research on how infant seats, car seats and swings may impact the motor development of the child. Current research with regards to baby walkers and physical development shows only short-term delays in motor development (Jernice & Nonis, 2008; Pin *et al.*, 2007). The impact of modern devices on infant and child physical development may form an important area for future research when considering the following statement made by a focus group participant:

✚ *Those foundations for whether you are an active adult are laid by 2. (P1, p. 15)*

Although further research is needed to determine a relationship between early physical activity and adult activity (Trudeau & Shephard, 2008), establishing physical activity early in life reportedly has a high impact on mortality (Hills *et al.*, 2007). Since young children are often living increasingly inactive lifestyles (Du Toit *et al.*, 2007; Hardman, 2008; Hills *et al.*, 2007), physical development programmes seem to be needed in preschools (Wessels *et al.*, 2008). In this regard, focus group participants viewed the school environment as an important contributor to promote physical activity and physical development in early childhood:

- ✚ *...it's becoming more and more obvious that...they haven't got space to move at home, so we have got to make more and more allowance and provision for children to really move at school. (P1, p. 4)*

The focus group participants' expression of the need for physical development programmes in the school environment led to a further discussion regarding their perceptions of the current state of physical education in schools. This forms the second theme for the study, which is discussed below.

4.3.2 THEME 2: CURRENT INADEQUACIES OF PHYSICAL EDUCATION IN SCHOOLS

As discussed in Chapter 2, physical development is formally practiced in the school context through physical education (PE). Participants felt that PE was being adequately implemented in their school. However, they expressed concerns with what they perceived as inadequacies of PE in other South African schools. Participants' concerns are in line with the concerns of South African researchers regarding perceived inadequacies in the implementation of school PE (Amusa & Toriola, 2008; Du Toit *et al.*, 2007; Van Deventer, 2009). Concerns of participants regarding PE in other South African schools included limited time allocation for PE, which is echoed by Amusa and Toriola (2008) as well as Du Toit *et al.* (2007):

- ✚ *I think a lot of the timetables in Grade 1 are now almost nothing for physical development. (P1, p. 13)*
- ✚ *It's (referring to PE) probably once a week... (P2, p. 13)*

Lack of equipment for physical activity or the lack of use of this equipment in schools, which is suggested in current research (Hills *et al.*, 2007; Sollerhed & Ejlertsson, 2008), was also raised as a concern by participants during the focus group discussion:

- ✚ *P1: In the playgrounds they've (foundational schools) got a jungle gym but... P2: they don't use it! (P1 and P2, p. 13)*

Participants suggested that teachers at other schools need to be proactive in facilitating and encouraging the use of physical equipment at school:

- ✚ *What I don't always see at a lot of other schools is the fact that when...it's free play outside, I think the teachers (at this school) are more proactively making sure that the children that for example do not actively seek the jungle gym are encouraged to go on and build the skills that are part of that process. (P4, p. 6)*

The quality of the PE lessons themselves at schools were questioned both in literature (Du Toit *et al.*, 2007; Van Deventer, 2009) and by focus group participants:

- ✚ *...and also you've got to look at the quality, or the work that the Phys. Ed teachers are presenting...we've all had the experience of "here's a ball, go kick it around" (P2: mm). So if you haven't got a constructive Phys. Ed lesson that has a set objective that is a part of their programme, what is the value of what those kids are doing in that lesson that's once a week, for half an hour? (P4, p. 13)*

In support, a research study which found a minimal correlation between hours of time spent in PE and academic achievement in mathematics and reading, highlighted the fact that the actual quality of the PE classes in that study were unknown and therefore could have altered the results, such as information about the class curriculum and the qualifications of the PE teachers (Carlson *et al.*, 2008). In addition, it is argued that the low quality of PE lessons in South Africa is often partly due to the fact that PE is widely taught by inadequately qualified teachers (Du Toit *et al.*, 2007; Van Deventer, 2009). In this study, participants made various comments which inferred that they continually aimed to remain informed and educated in early physical development, in addition to their formal training.

4.3.3 THEME 3: KEEPING INFORMED AND EDUCATED IN EARLY PHYSICAL DEVELOPMENT

Throughout the focus group discussion, participants made references to sources and practices indicating that they engaged in continuous learning and updating of their skills as well as gaining advice and further information from various sources. Reference was made to the use of literature regarding *developmental norms for 5 to 6 year olds*. In addition, specific practices around early physical development were mentioned, for example the Wilbarger brushing protocol (Wilbarger & Wilbarger, 1991) discussed in Section 4.2.3.

Various comments were made by focus group participants which indicated that staff are required to be updated with current research findings and integrate these into their daily practices:

- ✚ *...there's that research that's just gone on in the States where the students who do aerobic exercise before work - before their studies actually are coming 15-20% up in marks. So we're trying to follow that and get them (the*

children) *to do physical, aerobic-type exercise before they do their academic work.* (P1, p. 8)

- ✦ *According to that 'Child of our time' (based on a longitudinal study of children), those foundations for whether you are an active adult are laid by 2.* (P1, p. 15)

Hyatt *et al.* (2009) advocate that teachers should be consumers of research in order to enhance their teaching practices. In addition to keeping up to date with current research in physical development, reference was made to in-house research in terms of physical development by the schools group to which the school belongs:

- ✦ *If you go into the standard assessments that are done on children in August in Grade 0, they have been tracking them now for a few years and the last assessments showed that the gross motor skills had improved across the board, in the group and with that improvement has gone an improvement in the perceptual skills as well. So the development of the physical side is impacting positively on the development in academic skills. And that's been tracked into Grade 4.* (P1, p. 8)

The above statement made during the focus group discussion, is echoed in literature which links the development of motor skills with academic skills (Cheatum & Hammond, 2000; NJLCD, 2006; Son & Meisels, 2006; Viholainen *et al.*, 2006). It appeared as if the mentioned schools group utilises assessments of the physical skills of Grade R children before they go to Grade 1 as a potential indicator of their current academic potential as well as physical areas which can be improved to increase academic potential:

- ✦ *In terms of the testing what they do is...a whole range of different physical skills and dependent on how the child scores through those it gives you a good indicator, as to what developmental patterns are already entrenched in the child. As a result, then based on those scores you could make an educated recommendation to the parents as to how well this child is going to perform going into the Grade 1 arena – obviously if the circumstances stay the same for the child in their social/emotional development. ... So I would say the main building blocks of their physical development are done in that assessment to see if there's any areas of weakness that we could help the child develop through before they pass into Grade 1.* (P4, p. 9)

Current literature is in agreement with the participants that assessment of physical skills of young children can potentially identify children at risk for school failure (Bart *et al.*, 2007; Son & Meisels, 2006) and learning disabilities (Longhurst, 2006). Thus, Bart *et al.* (2007) argue that a need exists for a more structured assessment of physical competencies for young children in schools, which could in turn allow for intervention and facilitation of the transition to Grade 1.

The above statement highlights the participating school's proactive approach to making enquiries into the potential effect of early physical development on later schooling. The possible link between physical development and academic functioning was discussed by participants, as outlined in the next theme of the study.

4.3.4 THEME 4: THE ROLE OF EARLY PHYSICAL DEVELOPMENT IN ACADEMIC PERFORMANCE

The potential role and impact of early physical development on a child's academic functioning has formed a central point of focus for this study. It is therefore important to understand how participants viewed the possible link between physical and academic performance. The following statement made during the focus group discussion succinctly summarises the perceived link between the physical and academic performance of children:

- ✦ *If you understand how a child functions, especially on a gross motor level, you realise that that is taken into the classroom scenario and if those developmental areas are not in place in terms of a sound building block, it's going to compromise their academic journey in the classroom. (P4, p. 4)*

The above statement is in line with research highlighting the importance of early physical skills as the foundations for academic functioning (Fredericks *et al.*, 2006; NJCLD, 2006; Son & Meisels, 2006). During the focus group discussion, participants made references to specific physical developmental areas which could impact on academic performance. For example, literacy and numeracy skills were perceived by participants to be influenced by motor planning and spatial skills:

- ✦ *The two areas that I try and do a lot of work on is the motor planning and the spatial stuff because I think that impacts on the reading, writing, maths – all the academics. (P4, p. 4)*

Participants viewed concentration on academic tasks in the classroom as being potentially influenced by movement:

- ✦ *I also think that the more movement the children have, the more we develop their brains, the more we stimulate them, the more they are able to concentrate for the required period of time. (P2, p. 8)*
- ✦ *Where the children have been at a desktop I would do something physical...to actually stimulate the blood flow and gain the concentration necessary to complete a task. (P4, p. 5)*

In sum, one of the focus group participants stated that:

- ✦ *I think that the physical side impacts on every area of the child's development. (P4, p. 9)*

The above statement incorporates the potential influence of physical development on the social and emotional development of children. Although the social and emotional aspect of physical development has not been the focus of this study, it has been referred to in Chapter 2, in terms of Loland's (2006) theme of morality in physical activities. Participants discussed the impact of physical experiences on the social and emotional experiences of young children. Therefore this theme warrants further discussion.

4.3.5 THEME 5: PHYSICAL DEVELOPMENT AS A SOCIAL AND EMOTIONAL EXPERIENCE

Focus group participants made references to the potential effect of physical activities on the social and emotional development in the young child, making statements like the following:

- ✦ *I believe that the physical is holistic so it builds self-esteem, confidence, social skills. (P4, p. 9)*
- ✦ *Definitely on the self-esteem. Because those little ones who are very introverted often are not very good physically. (P1, p. 9)*

Literature confirms that physical development may influence young children's social and emotional development in various ways (Anderson *et al.*, 2005; Bart *et al.*, 2007; Hills *et al.*, 2007). It is argued that in early childhood, self-awareness and self-esteem can be enhanced by positive experiences in physical activities (Du Toit & Van der Merwe, 2006). In addition, PE in early childhood aims to teach character and assist with socialisation through the establishment of socialisation and behavioural norms (Loland, 2006; Hills *et al.*, 2007). A participant made reference to socialisation in PE, specifically through conflict resolution:

- ✦ *It also allows for conflict resolution, so when two kids go for the same piece of equipment you're able to then resolve that and say, 'ok well, we've got one piece of equipment, two children, how do we sort this out' and give the children the, the skills to actually resolve those conflicts when they happen. (P4, p. 9)*

Another reference to socialisation through physical activities made by a participant indicated a potential link between social acceptance and physical competence:

- ✦ *I also think there's a certain amount of social acceptance which comes with (physical) competence. (P4, p. 9)*

Hills *et al.* (2007) agree that confidence can be developed through mastery of and competence in physical skills. Yet the achievement of physical skills is generally guided by a programme or curriculum. As discussed in Chapter 2, physical development in Grade R is guided by the RNCS, which seemingly raised various concerns for the participants. These are discussed below in conjunction with the results of my document analysis of the RNCS.

4.3.6 THEME 6: CONCERN ABOUT THE CURRENT PHYSICAL DEVELOPMENT CURRICULUM

Zachopoulou *et al.* (2006, p. 290) state that "The curriculum is the guide by which teachers determine what will be presented to children." As such, I dedicated a large portion of the focus group to discussing the physical development section of the RNCS for Grade R. During this discussion, the participants voiced their concerns with the current physical development curriculum. Focus group participants used words such as the following to describe the curriculum:



From the above descriptive words it seems that the participants displayed distinct concerns regarding the physical development section of the current Grade R RNCS. The comments and concerns communicated by the participants, together with my document analysis of the Grade R RNCS are summarised in terms of seven key subthemes.

4.3.6.1 Subtheme 6.1: The non-specificity of the physical development curriculum

A key concern with the curriculum according to the focus group participants was its non-specificity in terms of providing guidelines on exactly which observable

movements were required of a Grade R child. The following comments illustrate this concern:

- ✦ *They're (referring to the Assessment Standards) very broad, they're extremely broad. (P2, p. 10)*
- ✦ *It (the curriculum) needs to be far more definitive. (P1, p. 10)*

Participants were also concerned with what they perceived as the lack of specificity of what is required for individual movements, stating that specific standards for movements are needed:

- ✦ *I think there's no definitive standards for any of the different movement patterns. That definitely requires attention. (P4, p. 12)*

It was agreed by focus group participants that the lack of specificity of the curriculum for individual movements could allow for a certain level of subjectivity to be introduced into the curriculum:

- ✦ *And what I see as something or what P4 sees as something are probably two totally different things. (P2, p. 13)*

Thus, participants felt that the curriculum could be interpreted subjectively, therefore not facilitating a standardised form of assessment for physical development. My document analysis found that for example, the Assessment Standard which concerns "using space safely" (DOE, 2002a, p. 15) may be loosely constructed, thereby being open to subjective interpretation by teachers (see Appendix B2: 2.2). Participants argued that the subjectivity of the physical development curriculum could be addressed by focusing on the specificities of each movement required in terms of the expected quality of performance of each movement.

4.3.6.2 Subtheme 6.2: The need for quality performance versus participation

The general feeling among participants was that the Assessment Standards for the physical development curriculum required mere *participation* of the child in movement activities without detailing the expected *quality* or competency of performance of each movement. Focus group participants argued that participation in activities would not necessarily imply actual competency in skills:

- ✦ *There's no qualitative (quality) expectation here. (P4, p. 13)*

My document analysis of the Grade R physical development Learning Outcome and Assessment Standards⁴ (see Appendix B2: 2.2 and 2.3) indicates predominant terminology which implies participation by the child as opposed to specific skill mastery such as “understanding”, “participates”, “plays” and “explores” (DOE, 2002a, p. 15). The RNCS preamble for physical development makes brief references to “perceptual-motor abilities” and “motor control” (DOE, 2002a, p. 10), neither of which is however reflected in the actual Assessment Standards. Thus, an overall lack of consistency seems evident between stated objectives of physical development as it pertains to cognitive development and the formulated Assessment Standards.

When applying Harrow’s (1972) taxonomy to the four Assessment Standards for Grade R physical development, various references are made to elements of movement within the second level of basic fundamental movements such as “running”, “chasing”, “locomote”, “rotate” and “elevate” (DOE, 2002a, p. 15). One reference is made to level four of physical activities, through reference to “dodging” and one reference is made to level six of non-discursive communication through reference to “expressive movements” (DOE, 2002a, p. 15). No references are made concerning levels one (reflex movements), three (perceptual abilities), or five (skilled movements) of Harrow’s (1972) taxonomy. Thus, taking into account the myriad of other elements in each level of the taxonomy as discussed in Chapter 2, the RNCS is not merely lacking in specificity, but it seems to also be lacking comprehensiveness in actual elements of physical development.

Hills *et al.* (2007) explain that the nature of the physical activity experience itself generally determines the potential benefits of the activity. The emphasis of the RNCS on participation within physical experience supports its preamble stating that physical development contributes to “social, personal and emotional development” and “developing positive attitudes and values” (DOE, 2002a, p. 6). Furthermore, the focus of the RNCS on moral development within physical participation is in line with Loland’s (2006) moral justifications for PE, as discussed in Chapter 2.

Yet, literature advocating early childhood physical development programmes which may contribute towards further cognitive development (Zachopoulou *et al.*, 2006),

⁴ Learning outcomes represent the main outcomes to be achieved by the learner by the end of Grade 9 (DOE, 2002a). Assessment Standards enable the achievement of learning outcomes by describing for each grade, the “depth and breadth of what learners should know and be able to do” (DOE, 2002a, p. 2). It is pertinent to note that assessment standards are to be referred to as subjects from 2011 (DOE, 2009).

places emphasis on assessing specific measurable competencies (Fredericks *et al.*, 2006; Hills *et al.*, 2007; Son & Meisels, 2006), motor abilities (Bart *et al.*, 2007; NJCLD, 2006; Sollerhed & Ejlertsson, 2008) and sensory functions (NJCLD, 2006) of the child, thus agreeing with arguments stemming from both my document analysis and the participants' view that the physical development Assessment Standards need to focus on a comprehensive array of specific movements and the quality thereof. It was further argued by the focus group participants that quality of movement is defined by and seemingly dependent on the age of the child:

- ✦ *So I think that you need to define the quality...age-appropriate quality (of movements). (P4, p. 12)*

As discussed in Section 4.2.5, further mention by a teacher, of the need for skilled movements occurred during my observations. Participants explained that in order for the physical development curriculum to define the quality required from each movement, Assessment Standards should be based on age-appropriate developmental norms for Grade R children, which have seemingly been researched and internationally accepted by professionals in child development, as discussed in the following subtheme.

4.3.6.3 Subtheme 6.3: The need for age-appropriate developmental norms

Participants argued for the need for age-appropriate developmental norms to be consulted when drawing up the physical development curriculum in order to increase its specificity for movements and decrease the subjectivity of each Assessment Standard. This argument for the inclusion of developmental norms is highlighted by the following statements made during the focus group discussion:

- ✦ *They (Assessment Standards) don't give you an expectation of what a Grade 0 child should be doing, or could be doing at this age. (P4, p. 10)*
- ✦ *But if you look at these Assessment Standards, you could apply them from 2 years old (P4: mm)! This is nothing to say...what are you expecting of a Grade 0 child? (P1, p. 10)*
- ✦ *We've got to be very specific about what you can expect for each age group. (P1, p. 12)*

Harrow (1972) agrees with the participants that teachers of physical movement need to be knowledgeable regarding the norms of children. In addition, Hills *et al.* (2007) argue that physical curricula for children are required to be evidence-based. For example, "explores different ways to locomote..." (DOE, 2002a, p. 15) does not

delineate age appropriate forms of locomotion that a Grade R should be able to perform out of the range of locomotor movements listed in Harrow's (1972) taxonomy (see Appendix B2: 2.1). Perceived shortcomings pertaining to evidence-based norms, quality performance and specificity of the Grade R physical development curriculum were continually referred to by the focus group participants, who summed up their concerns by referring to the 'what, why, how and when' of the curriculum. These key words describe the way in which the physical development curriculum can be made more specific, more objective and more theory-based in terms of developmental norms.

4.3.6.4 Subtheme 6.4: The 'what, why, how and when' of the curriculum

The 'what, why, how and when' of the physical development curriculum was a form of dialogue used by participants to illustrate exactly **what** teachers should be aware of, and looking out for, regarding children's observable movement; **why** they are observing specific movements; **how** the child needs to perform each movement in terms of the expected quality of movement and **when** it is developmentally age-appropriate for a child to be expected to perform a movement in line with accepted norms. During the focus group discussion, participants stated:

- ✦ *It's (the RNCS) not actually helping teachers to know **what** and the **how** and the **when**. (P1, p. 13)*
- ✦ *Teachers actually need to know **what** they should be doing, **how** they should teach it and **when** to teach it. (P1, p. 13)*
- ✦ *Most children can run, but it's **how** they run and **how** they move themselves and **what** parts of their bodies. (P2, p. 10)*
- ✦ **How** are they participating? (P2, p. 10)

For example, "explores different ways to...elevate (DOE, 2002a, p. 15) does not stipulate exactly *what* elevation movement the child should be performing (e.g. hopping, jumping over a raised object), or *how* the child should perform the movement (e.g. hopping on one leg, jumping over a raised object with two feet together). Nor does the above statement appear to clarify *why* and *when* it is developmentally age appropriate for the child to perform specific elevation movements (see Appendix B2: 2.1). Killen (2007, p. 66) asserts that OBE curricula regarding planning, teaching and assessment could be guided by four fundamental questions:

1. **What** do we want students to learn?
2. **Why** do we want students to learn these things?
3. **How** (and **when**) can we best help students to learn these things?
4. **How** will we know when students have learned what we want them to learn?

The above four questions relate directly to the ‘*what, why, how and when*’ approaches to the physical development curriculum that the participants experienced as being limited and which could provide a means for future re-evaluation. The four questions may be applied to any area of the curriculum (Killen, 2007) as illustrated in a further comment made by a participant during the focus group, who referred to the ‘*what*’ and the ‘*how*’ across the Grade R RNCS by comparing the physical development section to the numeracy section through an example of counting:

- ✚ *It’s like if you want a child to count, it’s got to be counting forwards, backwards, or whatever it is. Nothing here (in the physical development section) explains this. Whereas with your other skills, they’re explaining **what** they want and **how** they want it. (P2, p. 13)*

The above comment alluded to the participants’ belief and perception that the other sections of the Grade R curriculum were presented with more specificity and comprehensiveness than the physical development section. Comments were put forward by focus group participants that suggested perceived irregularities between the physical development section and other sections of the Grade R curriculum, as detailed below.

4.3.6.5 Subtheme 6.5: Irregularities across the Grade R curriculum

The focus group participants emphasised that they perceived the rest of the Grade R RNCS to be presented in a far more detailed and structured manner than the physical development section, which they viewed as being insufficient. In addition to the comment relating to counting as discussed above, the following comments were made during the focus group discussion:

- ✚ *It (referring to the physical development section) **needs to be far more definitive. Because the rest of the curriculum is extremely explicit, but the physical...is very vague.** (P1, p. 10)*
- ✚ *In fact the movement section (of the Grade R RNCS) **probably needs to be more specific than any of the others.** (P1, p. 12)*

My document analysis of the RNCS for Grade R confirmed participants’ concerns about the perceived unequal weighting and comprehensiveness of the physical

development section within the curriculum as a whole. Out of a possible 210 Assessment Standards across the various Grade R learning areas, four are allocated to physical development (see Appendix B2: 2.5). When considering the range and extensiveness of physical development elements in each level of Harrow's (1972) taxonomy detailed in Chapter 2, it would appear improbable to cover the various elements in a mere four Assessment Standards. This argument is especially important when considering that the skills required by many of the Grade R Assessment Standards for other learning areas are based on the acquisition of physical skills not covered by the Grade R Assessment Standards.

In addition, participants' claims that the Assessment Standards for physical development lack specificity in comparison with the rest of the Grade R curriculum in terms of clarifying specific skills, can be seen in the following examples of Assessment Standards for Grade R:

Example 1: Mathematics Assessment Standard for space and shape (DOE, 2002b):

Describes, sorts and compares physical three-dimensional objects according to:

- size;
- objects that roll;
- objects that slide.

Example 2: Languages Assessment Standard for thinking, reasoning (DOE, 2002c):

Works with words:

- groups words (e.g. words which rhyme);
- identifies a word, a letter and a space in print.

Example 3: LO Assessment Standard for physical development (DOE, 2002a):

Participates in free-play activities.

Examples 1 and 2 above specify the actions that a child is required to take, including sorting, comparing, grouping or identifying. Example 3 for physical development however, requires a child to merely participate, which in itself could entail any number of actions or requirements which are not specified. While the first two examples specify exact skills entailed in the Assessment Standards such as rolling, rhyming, or referring to a letter in print, the third example refers only to free-play activities – a term that seemingly does not specify or detail the exact nature of the activities referred to. The above examples, together with the discussion on the

relative numbers of Grade R Assessment Standards, confirm the apparent low status and underrepresentation of physical development in the Grade R RNCS.

As discussed in Chapter 2, current literature argues that PE has been relegated to a lower status by means of the structure of South Africa's RNCS (Du Toit *et al.*, 2007; Van Deventer, 2007). Du Toit and Van der Merwe (2006) put forward that physical and motor development is currently emphasised more in the Foundation Phase than in the other phases of schooling. However, this seems to still not be satisfactory taking into account and considering that "Appropriate evaluation and monitoring of progress in PE is as important as it is with the commonly regarded generic skills of literacy, numeracy and communication" (Anderson *et al.*, 2005, p. 8).

When considering the perceived shortcomings of the physical development curriculum, the focus group participants expressed their concern about the ability of the curriculum to guide and inform teachers who are new to the field, less experienced in or knowledgeable about early physical development, or who have had less training in early physical development. These further concerns expressed by participants are discussed next.

4.3.6.6 Subtheme 6.6: Guidance for newly qualified or inexperienced teachers

When considering the perceived shortcomings of the physical development curriculum, the focus group participants expressed their concern with the ability of the curriculum to guide and inform teachers who are new to the field, less experienced in or less knowledgeable about early physical development:

- ✦ *Unless you have a teacher with enormous experience, they are actually not going to know what they're looking for. (P1, p. 10)*
- ✦ *And you get somebody else who doesn't know very much about it and they're just going to say, 'well, this child can run', but the fact of the child's not lifting its legs, not using its arms, not using its whole body and things like that, or running up, with the body up in the wrong position-that's not actually running-running! (P2, p. 13)*
- ✦ *I think if you're going to be looking at teachers...newly qualified and even unqualified, we've got to be very specific about what you can expect for each age group. (P1, p. 12)*

A growing concern seems to exist that current training of student teachers in LO places primary emphasis on the other four focus areas of LO (discussed in Chapter

2), with insufficient emphasis on physical development (Du Toit *et al.*, 2007; Van Deventer, 2009). Concerns about the training of teachers seemingly continue, despite the RNCS envisioning “teachers who are qualified” and “competent” (DOE, 2002a, p. 3). Concerns with the ability of the RNCS to guide teachers in physical development, led to a discussion on the degree to which the participants perceived the physical development curriculum as guiding their own practices in early physical development, which forms the final theme in terms of the RNCS for Grade R.

4.3.6.7 Subtheme 6.7: Limited reliance on the curriculum to inform teaching

During the focus group discussion the participants explained that they perceived the physical development curriculum as a document which could not be relied on to inform their teaching practices at their school as a whole. This was reportedly due to the factors discussed in the above themes pertaining to the physical development curriculum. The participants’ sentiments are encapsulated in the following statement:

- ✚ *I certainly don't think we are reliant upon the curriculum to determine what we're teaching because it certainly isn't anywhere near the amount of information that we would require, to provide a comprehensive programme. (P4, p. 11)*

Further discussion regarding the capacity of the physical development curriculum to potentially inform their teaching practices revealed that participants apparently utilise other resources:

- ✚ *I think we are relying more on developmental norms given to us by O.T. (Occupational Therapist), physiotherapist and from various child developmental books, than we are relying on this (the RNCS). Even our reports are not based on this curriculum (for the physical development section). (P1, p. 11)*

The thread for this final theme is one which has been woven throughout the other themes pertaining to the RNCS, where participants discussed their concerns with the physical development curriculum.

4.4 CONCLUSION

In this chapter, I discussed the results of the study and then integrated the results with findings related to relevant existing literature. In this way, the results of the study could be situated within the wider realm of research in terms of the topic of enquiry. From Chapter 4, the question arises of 'where to now'? In Chapter 5, I close this study by formulating recommendations based on the findings I obtained and the conclusions I came to.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In Chapter 4, I discussed the results and findings of the study by integrating them with pertinent literature. I begin this chapter by presenting a short overview of the results and findings discussed in Chapter 4 and examine how they address the research questions of the study. After discussing the contributions and limitations of the study, I present my conclusions and recommendations. I close the chapter by offering concluding remarks and reflections on the study. Figure 5.1 presents an overview of this chapter.

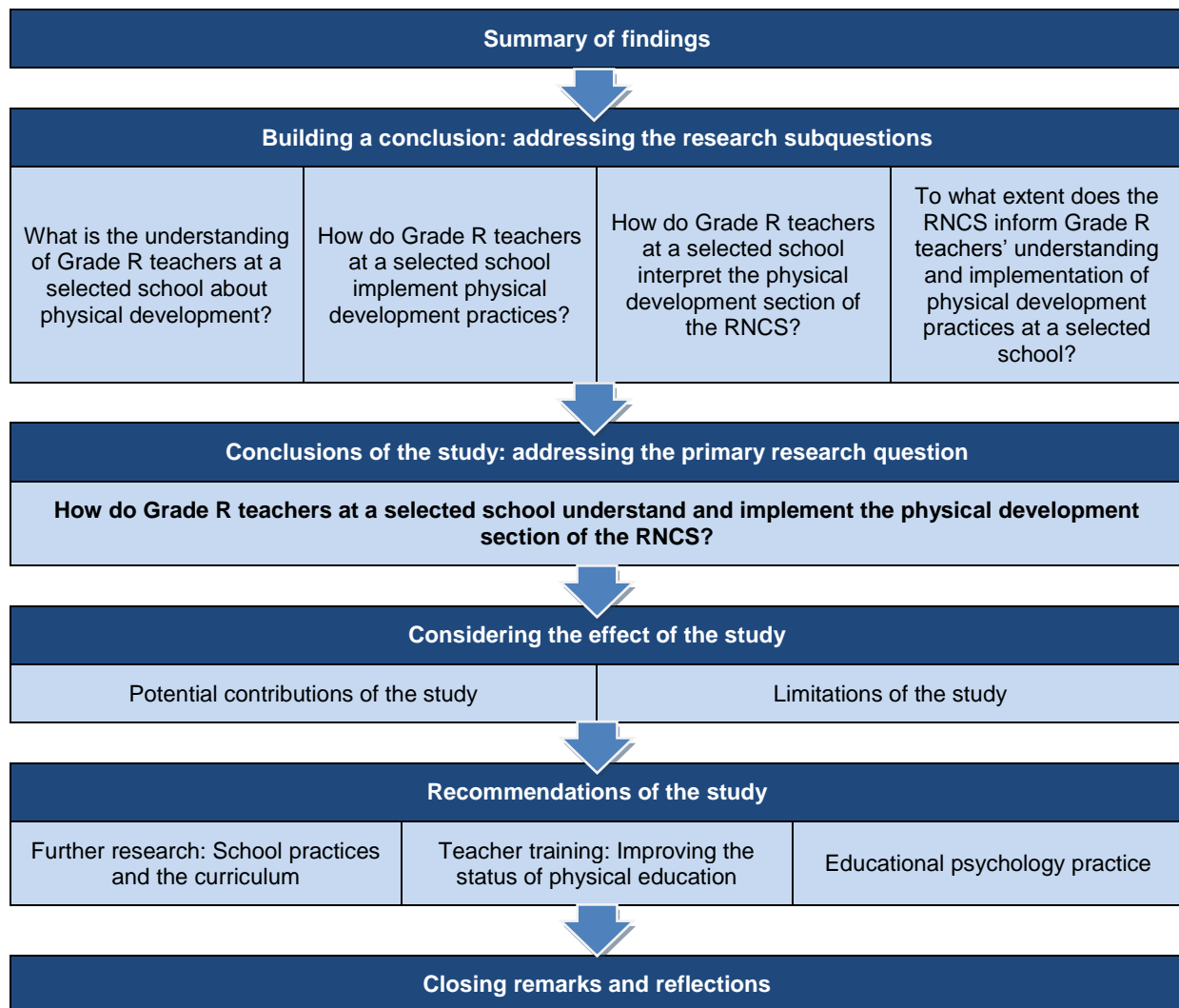


Figure 5.1: Overview of Chapter 5

5.2 SUMMARY OF FINDINGS

The results and findings discussed in Chapter 4 indicate that the participants seemingly employ a whole-school approach to implement physical development practices at the participating school. Although the participants reflected understanding of physical development at five levels of Harrow's (1972) taxonomy, it appeared that all six levels of the taxonomy were implemented at the school. The participants attributed significant importance to early physical development as a foundation for the development of various academic skills and competencies of the young child. However, participants reported that very little of their understanding of, and few of their practices in early physical development were informed by the Grade R curriculum itself and that they pursued additional training, research and collaboration with professionals in related fields for this purpose.

Various emerging themes reflected the participants' concerns with what they perceived as children's sedentary habits stemming from modern lifestyle and insufficient approaches to physical education (PE) in schools. Participants also voiced their concern with the physical development section of the RNCS for Grade R, in terms of its non-specificity, participative versus quality performance approach, limited age-appropriate developmental norms and irregularities with the rest of the Grade R curriculum. The results and findings summarised above served to address the various research questions of this study.

5.3 BUILDING A CONCLUSION: ADDRESSING THE RESEARCH SUBQUESTIONS

The results and findings summarised above address the subquestions of the study. Consideration of the study's subquestions forms the framework for building a conclusion which in turn addresses the primary research question of the study.

5.3.1 WHAT IS THE UNDERSTANDING OF GRADE R TEACHERS AT A SELECTED SCHOOL ABOUT PHYSICAL DEVELOPMENT?

The findings of the study indicate that although participants implemented physical development practices at all six levels of Harrow's (1972) taxonomy, their understanding of early physical development encompassed five of the six levels of

the taxonomy. Elements pertaining to physical development in the sixth level of Harrow's (1972) taxonomy, namely non-discursive communication (Harrow, 1972), was not mentioned by participants until they encountered an Assessment Standard in the Grade R curriculum which referred to elements of this level. Thus, in encompassing five of Harrow's (1972) six levels of the taxonomy of psychomotor learning, participants seemingly displayed a thorough, in-depth understanding of the elements and subareas of early physical development. I posit that the participants' in-depth understanding of physical development in early childhood is possibly facilitated by their being able to access seemingly extensive and varied resources. This is a postulation that requires further investigation.

Participants also communicated their understanding of the various purposes and roles of physical development, which seemed to correlate with empirical research. Participants appeared to understand the role of physical development in encouraging a healthy lifestyle, enhancing social and emotional skills and as a potential foundation for the development of academic skills and functioning. Additionally, participants displayed an understanding of current challenges and questions as reflected in empirical research, relating to the physical development of young children such as childhood obesity, inactive lifestyles of children and inadequacies in school physical education as a vehicle for physical development.

Overall, participants' understanding of the elements, purposes and current concerns related to early physical development seemed to be in-depth, reflecting current empirical research. However, participants reported that they felt that their thorough understanding of physical development was not evident amongst professionals at many other schools and that the additional training, research and collaboration with other professionals that they undertook, enhanced and deepened their understanding of physical development in early childhood. Participants' enhanced understanding of physical development was reflected in their implementation practices at the school as addressed by the second subquestion of this study.

5.3.2 HOW DO GRADE R TEACHERS AT A SELECTED SCHOOL IMPLEMENT PHYSICAL DEVELOPMENT PRACTICES?

Findings of the study indicate that early physical development practices implemented by participants incorporated all six levels of Harrow's (1972) taxonomy, thereby encompassing most of the elements of early physical development. Practices were

seemingly both direct and unstructured. Direct practices included for example physical education rings, daily morning reflex exercises, weekly rings with exercise balls and structured activities. More unstructured practices involved providing and facilitating physical development and skills through free play, exploration and problem-solving both in the classroom, during outdoor free play and in moving between venues within the school. Thus, participants seemingly implemented physical development practices in a way that could encourage participation in a variety of activities.

The participating school followed a whole-school approach to the implementation of early physical development practices, including the assistance of non-academic staff, specialist practitioners and parents. The school reportedly incorporates specialised programmes such as the Wilbarger brushing protocol (Wilbarger & Wilbarger, 1991) and exercises from the Institute for Neuro-Physiological Psychology (Goddard-Blythe, 2005). This whole-school approach to physical development implies that the children get opportunities to engage in activities that could promote physical development. These opportunities appear to be integrated into the school day, easily accessible and varied in approach.

The holistic approach of the school also seemed to extend to the nutritional needs of children, where the school reportedly endeavours to provide a healthy mid-morning snack as well as a nutritious lunch for children who remain for after school care. In addition children bring their own water bottles to school and are encouraged to drink water during the morning.

In sum, the implementation of physical development practices by participants at the school seems extensive, offering varying opportunities and ways to learn. The implementation model includes various role-players and is holistic, using a whole-school approach. As discussed earlier, participants' implementation of early physical development practices is informed by their understanding thereof. I therefore hypothesise that in schools where teachers may have a less comprehensive understanding of early physical development, the quality and extensiveness of physical development practices may be compromised. This hypothesis however, requires further exploration. The RNCS was drawn up in order to facilitate such understanding and implementation of physical development practices pertaining to Grade R specifically, which is addressed in this study's third subquestion.

5.3.3 HOW DO GRADE R TEACHERS AT A SELECTED SCHOOL INTERPRET THE PHYSICAL DEVELOPMENT SECTION OF THE RNCS?

Findings of the study indicate that participants had many concerns with the physical development section of the RNCS for Grade R. Firstly, participants seemed to be of the opinion that the physical development curriculum does not adequately specify exactly what is required of a child in terms of observable movements, leaving the curriculum open to subjective interpretation by teachers. It was argued that the curriculum required participation of children rather than quality performance. Participants maintained that the curriculum needed to be based on age-appropriate developmental norms. It was postulated that basing the physical development curriculum on developmental norms would specify the 'what, why, how and when' of the curriculum in terms of *what* observable movements teachers should look out for, *why* they need to observe those specific movements, *how* the child should perform the movement in terms of the expected quality of movement and *when* it is developmentally age-appropriate for a child to be expected to perform a specific movement.

Additionally, participants reported potential irregularities across the Grade R curriculum itself, stating that the other learning areas are far more comprehensive and specific in detailing what exactly is required from children. Thus, when compared to the rest of the Grade R curriculum, participants found the physical development section to have insufficiencies, both for themselves and especially for newly qualified or inexperienced teachers for whom the curriculum seemingly does not provide extensive substance and guidance. I theorise that participants' reported concerns with the RNCS are informed by their seemingly in-depth understanding of physical development in early childhood. Thus, I posit that teachers' interpretations of the Grade R physical development curriculum may differ across schools as a result of their possible varying depths of understanding in early physical development. This postulation requires further research. Participants' concerns with the physical development section of the Grade R RNCS seemed to impact on the extent of their use of the curriculum to inform their teaching practices, as discussed in the fourth subquestion of the study.

5.3.4 TO WHAT EXTENT DOES THE RNCS INFORM GRADE R TEACHERS' UNDERSTANDING AND IMPLEMENTATION OF PHYSICAL DEVELOPMENT PRACTICES AT A SELECTED SCHOOL?

Findings of the study indicate that participants are seemingly not reliant on the RNCS to inform their understanding and implementation of physical development practices. This is due to participants' reported concerns with what they perceive as the limited scope of the curriculum (as discussed above) and their argument that the curriculum is not comprehensive enough for their physical development programme implemented at the school.

Instead, participants seemingly endeavour to seek guidance for their physical development practices from various alternative sources, such as gaining additional training, keeping informed on research in the field of early physical development, referring to their teacher's resource library and collaboration with other professionals. I therefore hypothesise that the physical development section of the Grade R RNCS might currently be utilised to a greater extent, by teachers in schools that have limited access to alternative resources to inform their teaching practices. However, this hypothesis requires further enquiry. The findings of this subquestion, together with the first three subquestions build on the study's conclusions which relate to the primary research question.

5.4 CONCLUSIONS OF THE STUDY: ADDRESSING THE PRIMARY RESEARCH QUESTION AND ASSUMPTIONS

In coming to conclusions, the primary research question needs to be revisited, namely:

How do Grade R teachers at a selected school understand and implement the physical development section of the RNCS?

The findings of this study indicate that the teachers who participated in my research seemed to possess an in-depth and comprehensive understanding of physical development in early childhood, thereby affirming my assumption in this regard. The teachers' comprehensive understanding of physical development appeared to inform an implementation of teaching practices that seem integrated into a variety of learning opportunities and reportedly follow a whole-school approach to learning.

Therefore, my assumption that teachers' understandings of physical development in early childhood serve to inform their teaching practices, seems to be supported.

However, as a document formulated to guide and inform teachers' understanding and implementation of early physical development practices, the participants reportedly found the RNCS inadequate in informing their understandings of early physical development and not comprehensive enough for the school's implementation practices. Thus, my assumption that the RNCS informs teachers' understandings of physical development would appear not to be supported in this study. Furthermore, my assumption that the teachers interpret the physical development section of the Grade R RNCS according to their understandings of early physical development was not affirmed in the way in which I expected it would be, since teachers' understandings of physical development reportedly fuelled their concerns, instead of their engagement with, the RNCS when interpreting it.

Therefore, my assumption that the teachers would base their physical development implementation practices on the RNCS, was disconfirmed, since the RNCS reportedly had little influence on the in-depth understanding and thorough implementation of physical development practices by the participants. Instead, participants reportedly turn to other sources of guidance and information in order to enhance their teaching practices. As such, this study concludes that for the selected school in this case, teachers' in-depth understandings of physical development in early childhood and their comprehensive, whole-school approach to the implementation thereof, seemed to be neither informed nor guided by the physical development section of the RNCS for Grade R.

5.5 CONSIDERING THE INFLUENCE OF THE STUDY

The influence of the conclusions gleaned from this study can be considered in terms of the contributions and limitations of the study in various contexts. The following discussion outlines the potential outcome of the study, taking into account its conclusions and the nature of the research design itself.

5.5.1 POTENTIAL CONTRIBUTIONS OF THE STUDY

This study is intended to stimulate and facilitate debate and discussion on how early physical development can be understood and how its reconceptualisation may play a role in revisiting the physical development section of the RNCS for Grade R, with a view to critically appraising this curriculum. Thus, the findings of this research may be useful for:

- ✓ Grade R (as well as preschool and Grade 1) teachers who have an interest in improving the physical skills of children in order to potentially improve their cognitive functioning
- ✓ parents of children in early childhood who wish to become more aware and actively involved in enhancing the physical development of their children
- ✓ educational psychologists and other professionals working with young children who wish to inform their intervention strategies and dissemination of information
- ✓ curriculum development specialists who reassess and modify the South African OBE curriculum.

Thus, this study might be relevant to a range of professionals as well as parents working with children in early childhood. However, the potential impact of this study needs to be considered while keeping in mind the limitations of the study.

5.5.2 LIMITATIONS OF THE STUDY

As discussed in Chapter 3, this study took the format of a case study design of one well-resourced, private pre-primary school in Rivonia, Sandton. The high socioeconomic status of the school, together with the small number of participants and my dual roles at the school as researcher and part-time employee, might each have influenced my findings accordingly. Thus, in this study, I did not seek generalisability to other schools or to varying contexts. Instead I sought transferability (see Chapter 3) and I attempted to provide rich descriptions and detail, which aligns with my selected metatheory, being Interpretivism.

A pertinent point to consider is that the nature of case study design does not facilitate the implementation of changes (Opie, 2004) in varying contexts. Instead,

research based on case study design is limited to suggesting recommendations based on the findings of the study, which can be an impetus for further study on the topic (Edwards, 2001). Therefore, this study is limited in that the findings do not facilitate implementation of changes to the RNCS. Instead, it endeavours to stimulate debate and further investigation into the topic of enquiry.

5.6 RECOMMENDATIONS

The recommendations of this study are derived from the central conclusions and form a means of facilitating the contributions of the study for appropriate role-players. The recommendations are structured in terms of further research, training and practice, discussed below.

5.6.1 RECOMMENDATIONS FOR FURTHER RESEARCH

As discussed in Sections 5.4.1 and 5.4.2, although case study research is not generalisable to other populations, the case study design of this research forms a platform for embarking on further research. Further research into the understanding and implementation of early physical development practices at schools in various contexts and socio-economic circumstances could provide valuable insight into practices surrounding early physical development in larger populations. Within-case as well as across-case analyses could be useful in this regard, to compare understanding and practices surrounding early physical development in different schools. More specifically, future research could explore how teachers' understanding of physical development in early childhood could possibly be facilitated by access to extensive and varied resources, as postulated in Section 5.3.1. Further research could also investigate my hypothesis in Section 5.3.2, that teachers' understanding of early physical development could influence the quality and extensiveness of their physical development practices.

Pivotal to further research in early physical development is the need for further enquiry into the physical development section of the RNCS for Grade R. Future research could explore possible differing interpretations of the Grade R physical development curriculum, by teachers who may be informed by varying depths of understanding in early physical development (see Section 5.3.3). Furthermore, research could explore my hypothesis in Section 5.3.4, that the physical

development section of the Grade R RNCS might currently be utilised by teachers to varying extents, depending on the availability of alternative resources to inform their teaching practices. In addition, when considering curricula for physical development in early childhood, future research needs to focus on possible curricula or movement programmes for children younger than Grade R, as proposed by a participant of the study:

✚ *But I think if we're going to look in terms of children's movement being effective for learning, we've got to go beneath Grade R, into Grade 00, 000 and even beyond. (P1, p. 14)*

It seems important that future curriculum research which focuses on enhancing or changing the curriculum needs to include teachers themselves. Involving teachers in curriculum change is regarded as a contentious challenge, since teachers are often regarded by curriculum developers as conveyors of the curriculum rather than designers thereof (Srivastava & Kumari, 2005). However, including teachers' voices in future curriculum change, may add further insight and innovation to the curriculum, based on teachers' experiential knowledge. Additionally, in order for teachers to be involved in further research regarding curriculum change, teachers need to have a degree of knowledge, insight and experience in early physical development. This brings the discussion to recommendations regarding training of teachers, which is supported by the findings of the study.

5.6.2 RECOMMENDATIONS FOR TEACHER TRAINING

The findings of this study indicate that participants perceived newly qualified or inexperienced teachers as not having an in-depth knowledge base of early physical development. Related literature agrees that in South African tertiary institutions, not enough emphasis is placed on training teachers in physical development and that currently, physical education is often taught by teachers unqualified in this area of learning (refer to Chapter 2). Therefore, further research and consideration are needed in the training of teachers in physical development and also the manner in which physical development is facilitated through physical education. Further training could take the form of workshops and conferences.

However, an awareness of the various purposes of physical development needs to be central to teacher training. It seems as if training in early physical development needs to focus on the building of physical skills as a foundation for further cognitive

development and academic performance. Du Toit *et al.* (2007) argue that although teachers and principals are aware of the health implications of PE, they need further education with regard to other benefits of PE. If teachers, parents, policymakers and other stakeholders become more aware of the link between physical development in early childhood and future academic functioning, the status of PE in schools may be elevated, regardless of whether PE is an examinable subject. This study has demonstrated how the status of PE can be elevated by a school due to teachers' in-depth understanding of the nature, purpose and importance of physical development for the child, thus showing that teacher training itself can serve to elevate the status of PE in schools.

Physical development curricula, programmes and experiences for early childhood are however not limited to the school context. Thus, the final recommendation of this study pertains to the need for educational psychologists to be informed and proactive in encouraging various stakeholders, allied professionals and parents to facilitate optimal early physical development.

5.6.3 RECOMMENDATIONS FOR EDUCATIONAL PSYCHOLOGY PRACTICE

Educational psychologists and indeed, other professionals working closely with children (for example occupational therapists, physiotherapists) are in a position to educate and encourage stakeholders to promote optimal physical development in early childhood, in particular parents of young children. Hyatt *et al.* (2009, p. 334) explain that "professionals must ensure that they are informed about evidence-based practice and take an active role in disseminating research to consumers". The following statements were made by participants concerning parent education:

- ✚ *We've got to educate parents as well. Because parents are not understanding the importance of movement. (P1, p. 14)*
- ✚ *I think parents need to be educated more from when they have a baby, starting right then. (P2, p. 14)*

In addition, a need seems to exist to convince government (as curriculum developers and policymakers) about the potential benefits of optimal physical development in early childhood. As professionals in the education sector, educational psychologists and other helping professionals are in a position to liaise with government in this regard.

5.7 CLOSING REMARKS AND FINAL REFLECTIONS

For the purposes of this study, I explored how Grade R teachers at a particular pre-primary school understand and implement physical development practices based on the RNCS. What emerged from the study was that the curriculum seems to fall short as a valuable resource for the teachers at this school and consequently, that their facilitation of physical development appeared to have little to do with guidance by the curriculum. As a result, in addition to the insight sought by this study regarding physical development in early childhood, further questions were raised regarding the effectiveness of the curriculum itself.

Furthermore, the nature of the research as a case study design raised questions as to the possible similarities and differences regarding understanding and implementation of physical development practices in schools within varying contexts across the country. Throughout the research process, I reflected on the fact that my study took place in a privileged school where the abundance of both physical and intellectual resources played an integral part in the resulting understanding and implementation of early physical development practices by participants.

What this study highlights however, is that physical development seemingly plays a vital, if not central role in the young child's overall development and future academic achievement. As such, this should be regarded as a central component of the Grade R curriculum. In short, if Hardman's (2008) call for improving the relevance and quality of PE in the curriculum is to be heeded, then the Grade R curriculum needs to be critically engaged with a view to embracing the primary purpose of physical development in early childhood as a precursor to learning and academic achievement.

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APPENDIX A
DECLARATION OF ORIGINALITY
ETHICS CLEARANCE CERTIFICATE
