


**EXPLORING THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION
IN GRADE R: A CASE STUDY OF SELECTED EARLY CHILDHOOD
DEVELOPMENT (ECD) CENTRES**

BY

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DISSERTATION PRESENTED FOR THE DEGREE

OF
The crest of Stellenbosch University, featuring a shield with various symbols, topped with a crown and surrounded by a red and white wreath. Below the shield is a banner with the motto 'Pactum est in Verbo'.
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DECLARATION

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ABSTRACT

Planet Earth is plagued by a myriad of problems which have been on the increase in recent years. These include, among other things, e-waste; reduction in biodiversity, air pollution, global warming and many more. Undoubtedly, the greed of human beings more than the quest to satisfy needs has been at the core of these problems which threaten the sustainability of earth's ecosystems. For some years now, Environmental Education (EE) has been acknowledged and, consequently, employed as the vehicle to offset the impact of the challenges which continue to degrade Planet Earth. Hence, many levels of education, especially formal education; have been making some inroads towards empowering people to change their behaviour and help others through the integration of EE in learning and teaching activities.

Unfortunately, the early childhood stage of human development has been neglected when it comes to education issues, in general (Calman and Tarr-Whelan 2005; Davis 1998), and in the context of this study, in issues concerning Environmental Education (Davis 2009). For example, Davis (2009) conducted a literature survey for the period 1996 – 2007 with a focus on environmental education/education for sustainability and childhood education and discovered that little research had been conducted in this area. Hence, she laments, “in general, early childhood education researchers have not engaged with environmental/sustainability issues, and environmental education researchers have not focused on very young children and educational settings” (Davis 2009: 229).

Accordingly, this study was undertaken in response to Davis's (2009) outcry and the realisation that, indeed, even in the context of South Africa, there is paucity of research in the areas identified by Davis (2009). The purpose of this qualitative–interpretive paradigm guided inquiry was to investigate the extent to which Environmental Education is integrated in Grade R teaching and learning activities at selected Early Childhood Development (ECD) Centres in the North West Province of South Africa. In order to gain in–depth information and multiple perspectives (Creswell 2007) on the subject of inquiry, the maximum variation strategy, a subtype of purposeful sampling (McMillan and Schumacher 1997) was used for case selection.

Consequently, four Grade R offering ECD centres with diverse characteristics participated in this inquiry. From each of the selected centres, one Grade R classroom was selected for investigation. Likewise, the Grade R teachers whose classes were selected together with their principals participated in the investigation. Three data generation strategies were used in this inquiry, namely; participant observations, semi-structured interviews, and document and artefact analysis. And, in order to assign meaning to generated data, two data analysis strategies were utilized, namely; constant comparison (Leech and Onwuegbuzie 2007) and domain analysis (Neuman 2011).

Evidence from this study suggests that, to a very limited extent, some Grade R teachers do integrate environmental issues in their activities. However, this infusion of EE is done, mainly, in the form of teaching *about* the environment with little or no teaching *in/through* and *for* the environment. Hence, viewed from Kopelke's (2012) perspective, this integration of environmental issues can be considered to be environmental studies. Likewise, hindrances to the integration of EE in selected Grade R classes were identified. These included the following: classroom overcrowding, underfunding, inadequate teacher training and lack of resources. On the other hand, the following were some of the factors identified as enablers of EE infusion: collaboration among the Grade R teachers, well-designed Learning and Teaching Support Material (LTSM) and, enabling curriculum frameworks. The study makes the following recommendations, among other things: the prioritisation of Grade R teacher training and remuneration, on-going and meaningful professional support for Grade R teachers, adherence to the norms and standards for Grade R funding and empowerment of School Management Teams and Senior Education Specialists to adequately support the Grade R teachers. Additionally, studies of similar nature are recommended and the study is rounded off with some guidelines on the integration of EE in Grade R.

OPSOMMING

Planeet Aarde word deur ontelbare probleme wat in die afgelope jare verhoog geteister. Hierdie probleme sluit in, onder andere, e-afval, vermindering van biodiversiteit, lugbesoedeling, aardverwarming en nog meer. Sonder twyfel word die gulsigheid van die mens liewer as die voorsiening van behoeftes as die kern van hierdie probleme, wat die volhoubaarheid van die aarde se ekosisteme bedreig, beskou. Vir 'n paar jaar word Omgewingsopvoeding (OO) erken en gevolglik gebruik om die effek van die voortdurende uitdagings om Planeet Aarde te degradeer en te neutraliseer. Gevolglik het baie vlakke van onderwys, veral formele onderwys; deur die integrasie van Omgewingsopvoeding in leer- en onderrigaktiwiteite vordering t.o.v die bemagtiging van mense gemaak om sodoende hul gedrag te verander en ander mense in die proses te help.

Ongelukkig word die vroeë kinderfase van menslike ontwikkeling in die algemeen, verwaarloos waneer dit by onderwyskwessies kom (Calman en Tarr-Whelan 2005; Davis 1998), en veral in die konteks van hierdie studie, spesifiek die kwessies van Omgewingsopvoeding (Davis, 2009). Davis (2009) het 'n literatuuroorsig vir die tydperk 1996 – 2007 met die fokus op omgewings /opvoeding vir volhoubaarheid in kinderonderwys gedoen, en ontdek dat baie min navorsing in hierdie gebied gedoen is. Dus betreur sy die feit dat “in die algemeen navorsers in vroeë kinderonderwys nie die kwessies van volhoubaarheid aangeraak het nie en die navorsers in omgewingsopvoeding nie op baie jong kinders en hulle opvoedkundige kontekste gefokus het nie” (Davis 2009: 229).

Gevolglik is hierdie studie onderneem in respons op Davis (2009) se verweer en ook die besef dat, inderdaad; selfs in die konteks van Suid-Afrika, daar 'n gebrek aan navorsing in die areas wat deur Davis (2009) geïdentifiseer is bestaan. Die doel van hierdie kwalitatiewe-interpretatiewe ondersoek is om die mate waarin omgewingsopvoeding, in Graad R-onderrig en leeraktiwiteite by Vroeëkindontwikkeling (VKO) sentrums in die Noordwes Provinsie van Suid-Afrika geïntegreer is, te ondersoek. Ten einde, in-diepte inligting en veelvuldige perspektiewe (Creswell 2007) oor die onderwerp van ondersoek te verwerf, is die maksimum variasie-strategie (McMillan and Schumacher 1997), wat 'n sub-kategorie van doelgerigte steekproewe is as keuse vir hierdie gevallestudie gebruik.

Gevolgtik is vier VKO-sentrums, met uiteenlopende kenmerke, wat Graad R aanbied by hierdie ondersoek betrek. Uit elke gekose sentrum is een Graad R-klaskamer vir ondersoek gekies. Terselfdetyd het die Graad R-onderwysers van die gekose klasse en hul skoolhoofde aan die ondersoek deelgeneem. Drie strategiee is gebruik om data in hierdie ondersoek te genereer naamlik; deelnemer-waarneming, semi-gestruktureerde onderhoude en die analise van dokumente en artefakte. Twee strategiee is gebruik om data te analiseer en betekenis daaraan te gee, naamlik; konstant-vergelykings (Leech and Onwuegbuzie 2007) en domein-analise (Neuman 2011).

Bewyse uit hierdie studie dui daarop dat, sekere Graad R-onderwysers tot 'n baie beperkte mate, omgewingskwessies in hul aktiwiteite integreer. Hierdie integrasie van omgewingsopvoeding sluit hoofsaaklik onderrig *oor* die omgewing in met min of geen onderrig *of/deur* en *vir* die omgewing. Dus, vanuit Kopelke (2012) se perspektief, kan hierdie integrasie van omgewings-kwessies in aanmerking geneem word by omgewingsstudies. Daarbenewens is ook, hindernisse tot die integrasie van OO in gekoste Graad R-klase identifiseer. Dit sluit die volgende in: oorbevolkte klaskamers, swakbefondsing, onvoldoende opleiding van onderwysers en 'n gebrek aan hulpbronne. Andersyds is die volgende faktore identifiseer as geleentede wat die integrasie van OO kan bevorder: samewerking tussen die Graad R-onderwysers, goed ontwerpte Leer en Onderrig Ondersteuning Materiaal (LOOM) en bemagtigende kurrikulumraamwerke. Die studie maak onder andere die volgende aanbevelings: die prioritisering van Graad R-onderwyser-opleiding, deurlopende en betekenisvolle professionele ondersteuning aan Graad R-onderwysers, voldoening aan die norme en standaarde vir Graad R-befondsing, en die bemagtiging van Skoolbestuurspanne en Senior Onderwys-spesialiste tot die effektiewe ondersteuning van Graad R-onderwysers. Daarbenewens word, studies van soortgelyke aard aanbeveel en word die studie met 'n paar riglyne oor die integrasie van OO in Graad R afgerond.

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To God Be the Glory

DEDICATION

I dedicate this piece of work to:

- The memory of my late father, Ndubulani, who encouraged us to pursue education. While growing up in poverty-stricken conditions, he would persistently tell us: *Nifunde bantwana bam, ningafani nam. Mna, ndaphuma ku one eskolweni yilento ndikulentlupheko ndikuyo* (Don't be like me my children, pursue education. I left school in standard one; hence I am suffering the way I do). *Maz'enethole Mphankomo!*
- The spirit of my younger brother, Nkosinathi, who had the brains, the zeal and the hunger for education but was unfortunate to meet his gruesome death at a very young age.
- All the teachers and learners in the field of Early Childhood Education, globally, especially those who work under difficult conditions; on whose hands lies the greatest burden of building a strong educational foundation for a better tomorrow.
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LIST OF ABBREVIATIONS AND ACRONYMS

- CAPS.....Curriculum and Assessment Policy Statement
- CRT.....Culturally Responsive Teaching
- DBE.....Department of Basic Education
- DCSTs.....District Curriculum Support Teams
- DoE.....Department of Education
- ECD.....Early Childhood Development
- ECE.....Early Childhood Education
- EE.....Environmental Education
- EPA.....Environmental Protection Authority
- FUNDEB.....Fundo de Manutenção e Desenvolvimento da Educação Básica
- FUNDEF.....Fundo de Manutenção e Desenvolvimento do Ensino Fundamental
- HOD.....Head of Department
- ISAP.....Index of South African Periodicals
- LTSM.....Learning and Teaching Support material
- NAAEE.....North American Association for Environmental Education
- NCS.....National Curriculum Statement
- NWDE.....North West Department of Education
- OECD.....Organisation for Economic Co–operation and Development
- PED.....Provincial Education Departments

SAIDE.....South African Institute for Distance Education
SES.....Senior Education Specialist
SMT.....School Management Team
TVET.....Technical and Vocational Education and Training
UNESCO.....United Nations Educational, Scientific and Cultural Organization
UNICEF.....United Nations International Children's Emergency Fund

CHAPTER ONE

PROLOGUE: SETTING THE SCENE

1.1. INTRODUCTION

The purpose of this introductory chapter is to orientate the reader to this study. This is done by reflecting on the following aspects: the rationale/motivation for this study, statement of the problem, a reflection on the area demarcated for this study, the research method and design, used to direct this inquiry, and the clarification of some of the concepts that are deemed significant in respect of guiding the theoretical positioning of this study. However, before I do so, I commence by providing my brief background.

1.2. THE “SELF” IN CONTEXT: A BRIEF PERSONAL BACKGROUND

In qualitative research, the role of the inquirer as research instrument is acknowledged (Xu and Storr 2012; Klenke 2008). Therefore, in view of the fact that, the identity of the researcher has “the potential to impact the research process” (Bourke 2014: 1), it is expected of the researcher to identify their positionality (Holmes 2014). According to Knight (2011: 49), positionality is “a contextual subjectivity based on social dimensions such as race, class or gender and shaped by an historical matrix of habits, practices, and discourses”. Additionally, Holmes (2014: 3) points out that “positionality requires that both acknowledgement and allowance is made by the researcher in relation to their views, values and beliefs in relation to the research process and the research output(s)”.

Accordingly, in line with the preceding points, in this section I provide a brief reflection on my personal background. This should, somewhat, enable the reader to make an evaluation on how my identity or positionality impacted on this inquiry. However, it is important to mention that although “positionality can be described, at least in part, as reflexivity” (Bourke 2014: 1), in this study, reflexivity is discussed separately as one of the aspects used to ensure the trustworthiness of the findings (*refer to section 4.4*). Here, I focus mainly on ‘who I am’ and ‘where I come from’.

I am a ‘black’ African male, originally, from a geographical location currently referred to as the Eastern Cape Province within the Republic of South Africa. I spent the first eight years of my life in the rural village of Khubusi near a small town called Stutterheim. Those were, arguably, the most wonderful years of my life thus far! One was ‘immersed’ in serene life of

abundance and verdant beauty of nature; and melodious sounds of birds accompanied by rippling and burbling waves of the Khubusi River. This was in stark contrast to the perpetual hurly-burly life of uncertainty by people chasing shadows in their quest for 'descent' living and livelihood that characterised, virtually, all the urban and peri-urban places I found myself inhabiting in subsequent years.

My elder sister and I stayed with our paternal grandmother while both our parents toiled as "kitchen-girl" and "garden boy" for white people in Pretoria, the capital city of South Africa. I spent all my time, if not attending Khubusi Bantu Community School, in the company of my male cousins – the children of my father's elder sister, one of my two aunts at the time. Their household was 'wealthy'; they had livestock and arable land that was 'decorated' with maize all around during the crop-farming season. They also had a range of fruits such as pears, apples, fig, and so on. Therefore, while the elders spent time ploughing, tilling and discing the land, we (the boys) spent our time herding cattle and sheep in the field.

This was the period I enjoyed the most since it drew me closer to nature. The area had numerous natural features, among others, small hills, bushes, shrubs, trees, a water pond and Khubusi River to top. As young boys we would swim in the water pond (since I could not swim; I only dived in and out), hunt birds and rabbits or simply listen to the sounds of the river interspersed with melodious tunes of birds singings as if in some competition.

However, things changed when our grandmother passed on. My sister and I were forced to migrate and settle in a place called Winterveld, an urban village, in the north of Pretoria. This was a dense, crime-ridden squalor with different forms of pollution and no water facilities, among other challenges. Everything was different from what I was accustomed to; the culture, the language – in fact, although there was a variety of languages spoken, there were very few people who could speak isiXhosa. Hence, I had to enrol in one of the few private schools which offered IsiZulu, one of the four languages which, alongside isiXhosa, SiSwati and IsiNdebele, fall into the category of Nguni languages. Above all, except for our domestic dog, Rex, I was detached from nature.

As years passed away, and after completing Grade 6, the highest class at Lusizo Primary School, I had to move to Mamelodi, a township located about 75 kilometres south-east of Winterveld. This was due to the fact that Winterveld was under the governances of Bophuthatswana, one of the homelands promulgated as a consequence of the Group Areas

Act¹, and therefore the public schools in the area were meant to cater only for Setswana speaking learners. Additionally, even though there were schools that catered for learners who studied IsiZulu, like me, just across the railway line in Soshanguve; a township located less than 15 kilometres from Winterveld; children from Winterveld were not admitted in those schools unless they produced residential permits which depicted them as residents of Soshanguve. On the other hand, there was no red-tape in Mamelodi, hence I enrolled for my Grade 7 at Umthombo Primary School in Mamelodi West and, subsequently, proceeded to Ribane-Laka High School in Mamelodi East for my secondary school education.

It was during the to and fro commuting between Winterveld and Mamelodi that I took an interest in politics. This was during the 1980s, the period characterised by the hive of student politics, an era propelled by the famous 1976 uprising of Soweto. However, I must admit that since my father was an authoritarian who never minced his words, I was careful not to get ‘carried away’ and participate openly and actively in any form of politics. Hence, my involvement in politics while I was still living under his roof was restrained. It is for this reason that even when I returned home dripping of blood from the sjamboks of merciless white policemen from Silverton, next to Mamelodi, one day in 1985; I falsely claimed that I was not part of any grouping that ‘provoked’ the police. I only became openly and actively involved in political activism upon leaving my parents’ house after completing my Grade 12 (then referred to as Standard 10) at the end of 1988.

In 1989 I applied for admission and was, subsequently, admitted into the Senior Primary Teachers’ Diploma programme at Soweto College of Education with effect from January 1990. It was during my teacher training years that I became more active in political party, student and youth politics. Hence, in subsequent years I was elected and served in numerous leadership positions in various organisations. My participation in politics made me appreciate, even more, the plight of the marginalised and oppressed masses of our people, especially Black Africans. This entrenched my inclination towards the ideals of democracy, equal rights, political and economic emancipation and social justice for all.

¹ Group Areas Act of 1950 – This was one of the apartheid laws prior to the release of Nelson Mandela (and other political prisoners) and the subsequent advent of democracy in South Africa in the 1990s. This law was meant to separate not only Black people and other racial groups from white people but even various ethnic groups had to settle in areas designated by the apartheid regime for them. For example, the people who speak Setswana were settled in a place called Bophuthatswana, the people who speak isiZulu were settled in Zululand, and so on.

Apart from political activism; through literature, the English Department at the teachers' training college also played a prominent role in broadening my thinking and reflection on social, economic and political issues affecting not only South Africa at the time but one was exposed to the enduring plight of other Black people elsewhere in the African continent. Our lecturers encouraged, almost compelling us, to read almost exclusively; the *African Writers Series* novels and short stories. We had to read, analyse and reflect; both through discussions and writing, on how the issues addressed by various African writers resonated with South Africans. As a result, I was exposed to numerous writers, among others; Buchi Emecheta, Ngũgĩ wa Thiong'o, Tsitsi Dangarembga, Wole Soyinka, and my two favourite writers; Chinua Achebe and Bessie Head. I began to appreciate the difficulties faced by African people, especially, the impact of both Imperialism and Colonialism in terms of disturbing African 'orderliness' and African value systems. This 'devaluing' of African culture by Colonialism is, in my view, aptly captured in texts such as *No Longer at Ease* and *Things Fall Apart* by Chinua Achebe.

At the end of my three years of training I left Soweto and relocated to a small 'unknown' rural town of Makwassie which currently falls under the jurisdiction of the Maquassi Hills Local Municipality, an entity of the Dr Kenneth Kaunda District in the North West Province. My relocation took place in June 1993. This move was prompted by an apparent desperation by the only local high school to acquire the services of a geography teacher. My 'displacement' was a rather reluctant occurrence, all thanks to an incessant persuasion by a former college classmate who, in her own words, insisted that I was "the most appropriate person to assist those poor people who are struggling to get teachers".

During my association (which lasted from 1993 to July 2010) with the local high school, I taught mainly geography from grades 10 to 12². Unfortunately, I had very limited opportunities to teach my other favourite subject, biology. This could be attributed to a persistently dominant and very ill-informed notion among the majority of the School Management Team (SMT) members; who served during 'different eras' while I was at that school, that "if you were hired to teach subject X, you will only teach that subject". I found this to be an incredibly short-sighted, stifling and regressive view. Upon becoming part of the

²Grades 10, 11 and 12 are also referred to as the Further Education and Training (FET) phase in South Africa. On the other hand, the other two classes that usually form part of secondary school education, namely Grades 8 and 9, are part of the phase known as the General Education and Training (GET) which ranges from Grades R to 9.

SMT, I tried all I could to persuade them to rethink their stance, but since I was a lone voice, that was all in vain.

I had a great interest in geography hence I had intended to ‘take it’ as one of major subjects once I had enrolled for my bachelor’s degree at the University of South Africa (UNISA) in 1995. Unfortunately, I could not do so since their BSc curriculum was designed in such a way that geography could only be ‘taken’ with either Mathematics or Statistics as another major subject. In view of the fact that I had ‘failed’ mathematics at Grade 12, my dream ‘fell off’. My second option was biology as a major. Although I would be able to enrol for biology together with various other subjects such as physiology, the practical component of biology kept this option out of my reach. Regrettably, since the practical sessions were held during school hours I had to forgo that dream too. At that point teachers did not enjoy the current plethora of workers’ rights, which are often abused, such as study leave. In those days the department of education was characterised by too much red-tape, hence I did not have the heart for it, particularly since I was still learning the *ins* and *outs* of the system. Ultimately, as a ‘consolation prize’ (this is how I viewed it at the time); I took English and Communication Science as my majors.

My university studies, especially English, alongside my involvement with teacher–union politics (upon my arrival at Makwassie I became active in union politics), contributed towards shaping and re–shaping my thinking, writing and interaction with people. In respect of my studies, I was particularly drawn to poetry and critical writing. Therefore, it was papers such as “*Poetry: Poetic Voices*” and “*Protest, Satire and Subversion*” at second year level, as well as “*Poetry: Changing Worlds, Changing Texts*” and “*Literary Criticism: Writing about Writing*” at third year level that contributed toward shaping my view of the world. Possibly, it is my exposure to the ‘knowledge’ and ‘reality’ gained from my interaction with the texts (human and non–human) that I am still grappling with the concept of ‘knowledge’ and ‘reality’. Accordingly, I find it difficult to ‘categorise’ people, including the ‘self’ (me), into a particular epistemological and/or ontological perspective, particularly, due to the dynamic nature of human beings. For me, ‘classification’ and ‘categorisation’ amounts to not only confining people into restrictive cubicles but it is more like *othering* (Staszak 2008). Nevertheless, I must admit that as each day passes by I am beginning to suspect that ‘absolute truth’ might be a fallacy. This is because human beings are dynamic and therefore it is conceivable, in my opinion; that each person would have their ‘own’ individual view of what the ‘truth’ amounts to.

The quest for ‘knowledge’ made me commit myself to further studies, beyond an ‘entry–level’ degree. It was thus my hunger for ‘knowledge’ and, possibly, my love for subjects like geography and biology (and, probably my childhood experiences of nature) which prompted me to apply for and, subsequently, pursue a Master of Education (with specialisation in Environmental Education) degree upon its introduction around the year 2000 at UNISA. It was my belief that the programme would enable me to gain exposure to some aspects of both geography and biology and thereby enable me to expand my ‘knowledge’ in the two subjects and beyond – and it did. I was fascinated by the modules that introduced me to environmental science (i.e. the module that was referred to as, *Environmental education, definitions, concepts and literacy*), especially the chemistry component since it was ‘new’ to me, and the research module.

The research module introduced me to various approaches to the research processes – qualitative, quantitative, mixed methods, action research, and so on. However, my introduction to practical research (we dealt mainly with quantitative and qualitative research), via assignments, drew me closer to qualitative research. This is mainly due to the fact that qualitative research brings the researcher closer to the respondents – it has a personal element. Hence, during the completion of my M.Ed research component and, subsequently, my PhD inquiry, I felt ‘comfortable’ and ‘at home’ with qualitative research.

In respect of my decision to undertake an inquiry whose focus is on the exploration of the implementation of EE in an area where I might not be considered a “specialist”, namely; Early Childhood Education (ECE), a few points are worth noting. Since I was uncertain which topic or theme was ‘worth’ investigating at PhD level, I began to read various texts on EE. It was during this reading that I came across Julie Davis’s (2009) article entitled; *Revealing the Research ‘hole’ of Early Childhood Education for Sustainability: A Preliminary Survey of Literature*. I was immediately struck by the realisation that, apparently, little research was done which focuses on EE in ECE. Admittedly, I was sceptical at first because the ‘reality’ that I was not ‘trained’ in ECE, subliminally, invoked some hesitation in me. However, after a lengthy self–reflection I was convinced that I needed to take a leap and not restrict myself into some cubicle. Fortunately, two main reasons made my decision to pursue this study ‘simple’ at the end.

To begin with, I had grown weary of the incessant pressure by what I would call the ‘Grade 12 obsessed department of education’. In my view, the department had become more

concerned about Grade 12 examination results to the extent that, it would seem that South Africa is tacitly moving towards the secondary school league tables – a phenomenon prevalent in United Kingdom. In my observation, over the years, this is done to the disadvantage of the lower classes. For example, in my previous position as deputy principal I had to contend with a situation where the Grade 8 and 9 learners, often, had to go through their academic years without teachers in an array of school subjects. However, the FET classes, especially, the Grade 12 class, rarely went without subject teachers. Subsequently, as an FET teacher, I was one of the teachers who had to ‘fill the educational gaps’ discernible in the majority of learners who entered this phase. Additionally, my household conversations were (and still are) characterised by interactions about educational issues since both my spouse (an ECE teacher and subject adviser with more than twenty years experience in the field) and I are in the field of education. Naturally, since I had grown tired of both the educational situation and the persistent politics surrounding promotional posts at the high school where I was stationed (and the uneven-handedness of the departmental officials in addressing the situation), I enjoyed discussing issues concerning ECE. These discussions did not only serve the purpose of diversion, if you will, but were empowering. My view of educational issues, somewhat, expanded due to my ‘new found’ interest in the ECE field. Subsequently, guided by the research gaps raised by Davis (2009); I decided to undertake my PhD with focus on EE in ECE.

In rounding off the discussion in this section, I need to point out that at the time this study was undertaken I was no longer part of the department of education. My lengthy exposure to what could be conceived in terms of Herzberg’s motivation–hygiene theory, also known as the two-factor theory (Teck–Hong and Waheed 2011; Baron and Byrne 2003) as an unhygienic work environment, which led to some deterioration in my health; culminated in my resignation. Therefore, at the time this study was undertaken, I had eventually agreed to assist UNISA as Teaching Practice Supervisor, on a part time basis. This responsibility exposed me to observations of a variety of, generally, high quality teaching lesson presentations in diverse settings by student–teachers who hailed from an array of backgrounds. Therefore, it is my contention that there is a multiplicity of factors; as briefly accounted for in this discussion, which conspired, if you will, to shape my interaction with the research processes and the texts (both human and non–human) that formed part of this inquiry. These include, among other factors, my teacher union politics, my experience as a

school teacher and deputy principal as well as my teaching practice supervision experience. The next point of discussion focuses on the motivation/rationale for this inquiry.

1.3. MOTIVATION FOR THE STUDY

Planet Earth is plagued by a myriad of environmental problems which “pose a threat to environmental sustainability” (Steg and Vlek 2009: 309). These include, among other things; pollution, global warming resulting, mainly, from greenhouse effect, scarcity of water, loss of biodiversity, environmental degradation due to exploration and exploitation of resources, e-waste, excessive human consumption, and so forth (Reddy 2011; Gaidajis, Angelakoglou and Aktsoglou 2010; Chan, Choy and Lee 2009; Eregha and Irughe 2009; Omubo-Pepple, Israel-Cookey and Alaminokuma 2009; Steg and Vlek 2009; Yan and Fengfeng 2008; Davis 1998). The majority of these problems can be attributed to the often unhealthy relationship we, human beings, have with nature and our general behaviour towards the environment (Liefländer, Fröhlich, Bogner and Schultz 2012; Steg and Vlek 2009). In order to offset the impact of current and prospective environmental problems on future generations and on the general well-being of the broader environment, it is necessary to equip young children with befitting competences. Hence, there is a need to expose young children to quality education that addresses a wide range of issues including, in particular, environmental matters and sustainable development issues. Environmental Education (EE)³ is, undoubtedly, the key vehicle in equipping and preparing children from the stage of early childhood, with skills, values, attitudes and knowledge that would enable them to negotiate environmental challenges so as to promote sustainable livelihoods and respect for the environment (Elliott and Davis 2009; Hägglund and Pramling Samuelsson 2009; Kaga 2008; UNESCO 2008; Yan and Fengfeng 2008; United Nations 2002; Van Wyk 2000; Arms 1994).

Evidence suggests that EE has, over the years, been acknowledged as an effective tool which plays a critical role in the broad field of education (Kudryavtsev, Krasny and Stedman 2012; Skanavis and Sakellari 2011; Tidball and Krasny 2010; Rickinson 2001). For example, it empowers the learners to gain a better understanding of the interdependence that exists between the various natural systems and the role of human beings in these systems (Davis 1998). Some approaches to EE also promote and champion the ideals of sustainable

³Some prefer concepts such as Education for Sustainability (EfS) and Education for Sustainable Development (EfSD). However, I prefer the concept Environmental Education (EE) because this concept, viewed in the context of the Tbilisi Conference (1977), is not narrowly limited to “greening the environment” as some EfS and EfSD proponents argue but it is inclusive of both EfS and EfSD. It should also be noted that this concept is used interchangeably with the term environmental learning in this thesis.

development (UNESCO 2008; United Nations 2002 and UNESCO 1992). It is thus not surprising that various major world conferences such as the Tbilisi Conference on Environmental Education (UNESCO 1978), the UNESCO Conference on Environment and Development (UNESCO 1992) and the Ahmedabad Conference on Environmental Education (UNESCO 2008), to name just a few, amplified the significance of EE as one of the vehicles for attaining a sustainable world.

Similarly, literature also indicates unequivocally that it is imperative to introduce education, in general, and EE, in particular, as early as the stage of early childhood (Bokova 2010; Davis 2009; Hägglund and Pramling Samuelsson 2009; Calman and Tarr–Whelan 2005; Department of Education⁴ 2001). Early childhood is a very important stage in human development because it is the foundation upon which the rest of human life, especially in respect of growth and development, is constructed (Spies 2011; Davis 2009). And, as the DBE (2001: 1) writes, “what happens during the early months and years have dramatic consequences for the rest of childhood and adolescence” because “experiences in children’s present life are likely to have long–lasting bearing on future competence to contribute to sustainability”(Hägglund and Pramling Samuelsson 2009: 59). More importantly, early childhood is the stage in which various skills and competences such as reasoning, problem–solving, language, perception–motor skills, and ability to relate to the environment are acquired (Bokova 2010; Kaga 2008 ; DoE 2001); and all these factors influence actions when the child reaches adulthood. Therefore, it is appropriate that education for sustainability must begin in early childhood (Davis 2009; Kaga 2008; Pramling Samuelsson and Kaga 2008).

However, despite the significance of early childhood, as indicated above, this stage of human development has experienced a high level of educational neglect (Elliott and Davis 2009; Calman and Tarr–Whelan 2005; Davis 2005; DBE 2001; Davis 1998). The main concern in respect of early childhood, as far as this study is concerned, is that there is a major absence of research that gives attention to EE in the field of Early Childhood Education (ECE). For example, Davis (2009) conducted a literature survey with a focus on EE/education for sustainability (EfSD) and childhood education by examining relevant premier global journals for the period of 12 years (1996 – 2007) and discovered that there was little research conducted in this regard. She asserts that, “in general, early childhood education researchers have not engaged with environmental/sustainability issues and environmental education

⁴The South African National Department of Basic Education (DBE) was previously known as the Department of Education (DoE). However, for consistency, I shall use the new concept – DBE, throughout the discussion.

researchers have not focused on very young children and educational settings” (Davis 2009: 229).

The paucity of research in the broader field of ECE and, more specifically, in the area of EE/EfSD in early childhood (Davis 2009) poses some hindrances in terms of influencing policy discourse and (re)directing pedagogical interaction (Reid and Scott 2006) in the field of education. Undoubtedly, there is a serious need to focus a great deal of research on ECE in order “to find out what works, why and how, and what are the barriers and opportunities for implementing education for sustainability” (Davis 2009: 237) and, to determine the context within which certain EE practices work or do not work (Sheridan, Edwards, Marvin and Knoche 2009).

In a country such as South Africa which is, just like the rest of the world, plagued by environmental challenges, a study that explores the integration of EE in ECE, as this one seeks to do, is necessary. Such a study would contribute towards filling the research gap identified by Davis (2009) in ECE, in general, and EE, in particular. This study should, among other things, contribute towards identifying effective learning and teaching methods that could enable the integration of environmental learning; and should also make it possible “to explore the ways in which early childhood already has foundations for building sustainable principles into its educational philosophies, theories and practices”(Davis 1998: 119). Additionally, this enquiry could also contribute towards identifying “developmentally and culturally appropriate practices of early childhood education for sustainable development” (Yan and Fengfeng 2008: 46). Likewise, since Grade R is a class that is meant to prepare the learners holistically for the first class of formal schooling, namely; Grade 1, this study could also provide some indication concerning the extent to which certain Early Childhood Development Centres (ECDs) in South Africa prepare their Grade-R learners for formal schooling. More importantly, through this study, the reader could gain some knowledge as regards the incorporation of EE in Grade R. For example, one could be enlightened in terms of the strategies as well as the hindrances that impact on the infusion of EE in Grade R. Hence it was essential to undertake a study of this nature. The next point of discussion focuses on the statement of the problem of this investigation.

1.4. STATEMENT OF THE PROBLEM

The dearth of research in the field of ECE, in general, and in the area environmental learning as a focal point within the field of ECE, in particular, has been vividly highlighted in preceding paragraphs. However, there is one key challenge that was identified by several researchers which stimulated my interest and, subsequently, prompted me to undertake this inquiry. Various researchers have berated the existence of a phenomenon in which young children are being deprived of the opportunity to engage with and are disconnected from natural outdoor settings by modern lifestyles (Prince 2010; Elliott and Davis 2009; Hacking, Barratt and Scott 2007; Davis 1998). This phenomenon which is referred to by Louv (2005: 532 cited in Davis 2009: 228) as “nature deficit disorder” inhibits environmental learning (Prince 2010; Hacking, Barratt and Scott 2007) and is, allegedly, imposed by adults. The profoundness of this occurrence is captured in Dighe (1993: 62 as cited in Elliot 2015: 47) who writes that “one can hardly imagine a generation of persons with neither interest nor knowledge of outdoors making responsible decisions about the environment”. Viewed through the lens of someone who has been in the area demarcated for this study for more than twenty years, I contend that this phenomenon is also rife in the area. This could be attributed, in part, to the fact that, the socio–ecological landscape selected for this study is characterised by an absence of some of the phenomena such as streams, rivers, nature centres, museums, zoological gardens, all of which could enable young children to interact with nature (Kola–Olusanya 2005; Oltman 2002).

The South African situation appears to be more serious than the global scenario, as outlined above, in respect of conducting research within the area of ECE and EE. This is discernible from the fact that the Boolean search of concepts such as Environmental Education and Early Childhood Development, Education for Sustainable Development and Early Childhood, Education for Sustainability and Early Childhood, in various combinations, on the Index to South African Periodicals (ISAP), the Nexus database as well as during the examination of the Southern African Journal of Environmental Education for the periods ranging from 2001 to 2011 yielded unfavourable results. For example, the nexus database yielded only one M.Ed study which focussed on the influences of policy and context on environmental teaching and learning processes in ECD. This study was completed by Priya Vallabh (2005). The only other study of relevance was accessed after a search of repositories of several South African universities. This study entitled “early childhood development as a pathway to sustainable development” was conducted by Magdelien Spies (2011) for an M.Phil thesis. Evidently,

there seems to be little investigation that focuses on EE in the area of ECE in South Africa, especially inquiries whose focus is on the integration of EE in Grade R.

The other problem is that there are “many different types of ECD services” (DBE 2001: 8) that are available in South Africa and these ECD centres are “largely fragmented” (DBE 2001:8). This suggests that the functioning of these learning institutions is, possibly, not well coordinated. At the same time, the school-based ECD centres (DBE 2001) are given more attention in terms of professional and financial support compared to the community-based and home-based ECD centres which receive “some or no financial support from government” (DBE 2001: 8 – 9). Therefore, the impact of “some or no financial support” on these learning centres is an aspect worth investigating.

Apart from the above points, it is worth noting that since the advent of democracy in 1994, the vigorous education policy changes in South Africa have; rightfully, sought to include environmental teaching and learning as one of the core aspects of the curriculum (DBE 2011a; DBE 2010; DBE 2003 ; DBE 2002; DBE 1995). However, in view, of the fact that the curriculum currently in use in South African public schools came into effect only in 2012, and thus, there is a need to evaluate the extent to which the teachers are able to integrate EE, a component which forms part of the principles underpinning the school curriculum in South African public schooling system (DBE 2011c).

Flowing from the preceding statements, the question that is central to this study and, thus, constitutes the **main problem** of this inquiry can be posed as follows:

What is the current status in respect of the implementation of Environmental Education in Grade–R of selected ECD centres in the North West Province of South Africa?

The following **sub-questions** can also be linked to the main question of the study:

- What opportunities/challenges/hindrances exist in respect of the implementation of environmental education in Grade–R in the North West Province?
- What types of programmes are utilised to aid the implementation of environmental education in Grade–R?
- To what extent are the ECD practitioners equipped to implement environmental education?

- What impact does the funding of ECD centres have on the implementation of educational programmes, in general, and environmental education in particular, in the North West Province?
- What type of support is provided by the North West Department of Education (NWDE) to the ECD centres?

Therefore, the major purpose of this study was to investigate whether there is an integration of EE in selected Grade R classrooms in the North West Province. The above-mentioned questions played a major role in terms of guiding the processes entailed in data generation, analysis, discussion and presentation. In the following section I reflect briefly on the area selected for this investigation.

1.5. DEMARCATION OF THE STUDY

In line with The Constitution of the Republic of South Africa (*refer to figure 1.1 for the map of South Africa*), the South African National Department of Basic Education, grants each of the nine provincial legislatures of the country the authority to manage “educational affairs (other than universities and universities of technology), subject to a national policy framework” (Burger 2005: 209). Hence, the North West Department of Education (NWDE), just like the other eight Provincial Education Departments (PEDs) of South Africa, has the authority to, *inter alia*; demarcate its own boundaries of operation. Consequently, for ease of administrative and managerial functions, the North West Provincial Department of Education is subdivided into four districts, namely; Bojanala, Dr Kenneth Kaunda, Dr Ruth Segomotsi Mompati and Ngaka Modiri Molema. Each education district is further divided into various area offices and these area offices are, in turn, split into circuits.



Figure 1.1: Map of South Africa

This study was conducted in the geographical area known as Maquassi Hills in the Dr. Kenneth Kaunda District. This is the location of Maquassi Hills Area Office, one of the three education offices that form part of the Dr. Kenneth Kaunda Education District. Matlosana and Tlokwe⁵ are the other two area offices that complete the Dr. Kenneth Kaunda Education District (*refer to figure 1.2 for area offices*). The four learning institutions which participated in this inquiry were located in each of the three circuits, namely; Naledi, Wolmaransstad and Tswaing which fall under the control of Maquassi Hills Area Office. These education circuits are spread across the following rural towns: Makwassie, Leeudoringstad, Wolmaransstad, Ottosdal and Sannieshof (*refer to figure 1.3. for the location of these towns*).

⁵This area office is also referred to as Potchefstroom; hence it appears as such on the map. Likewise, the town called Ventersdorp (*refer to figure 1.2.*) is not a standalone as depicted on the map, it forms part of the Tlokwe area office.

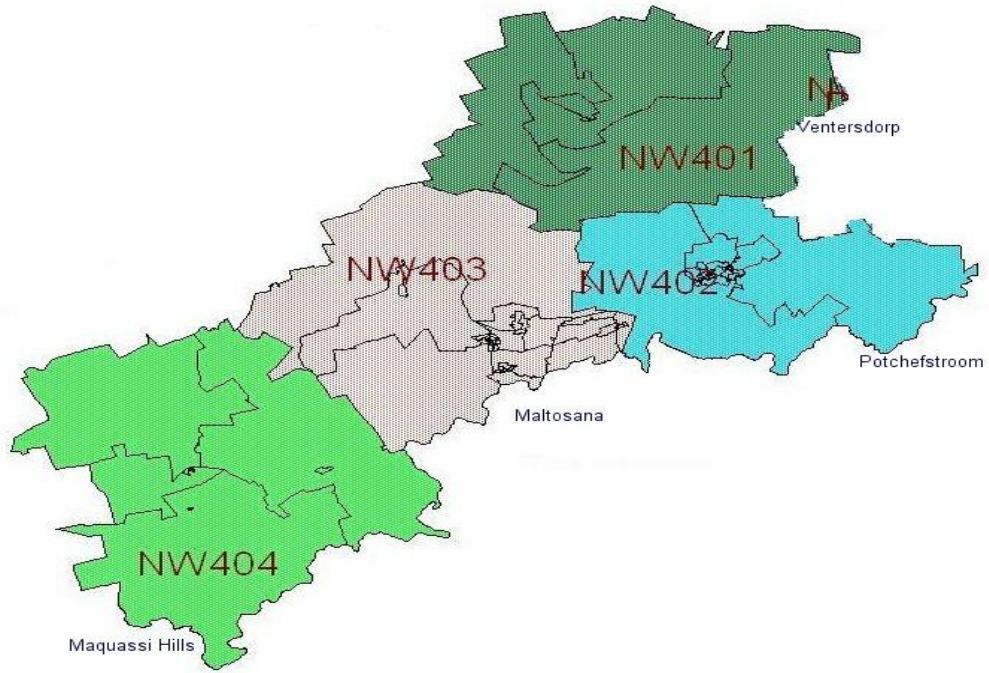


Figure 1.2: Map of Dr Kenneth Kaunda Education District

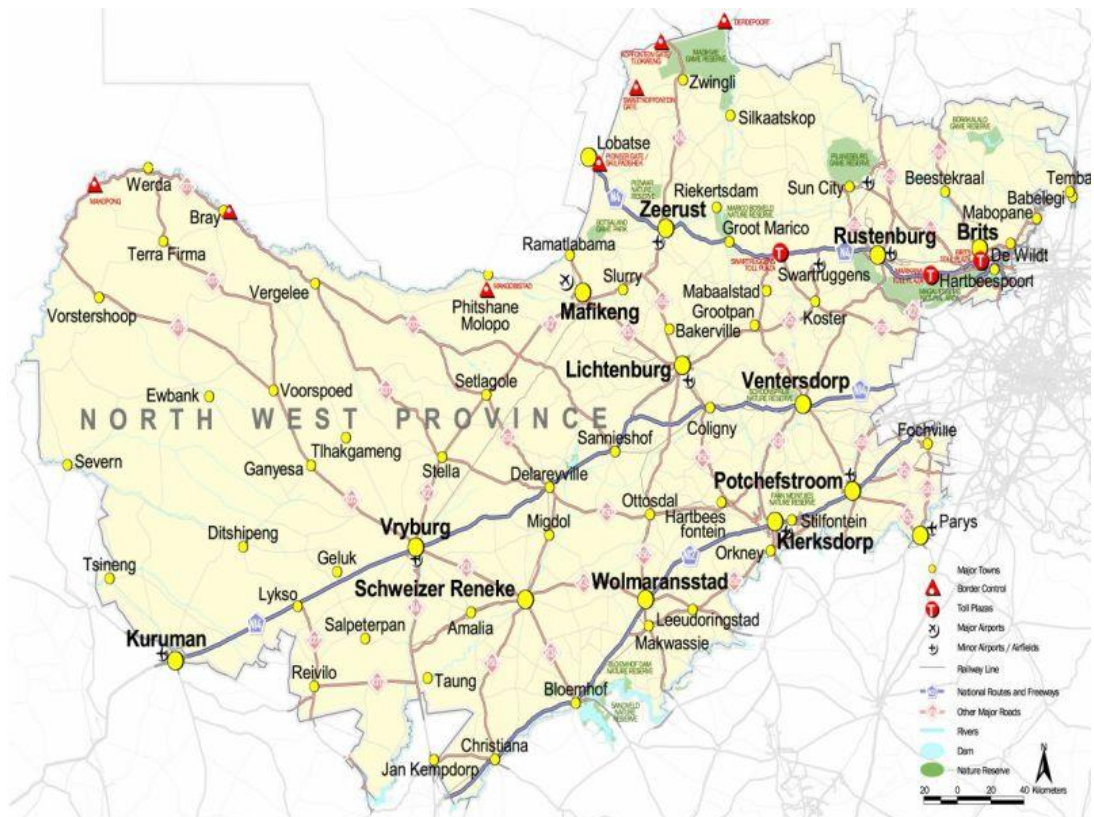


Figure 1.3: Map of the North West Province

In the following section my discussion focuses on the methodological framework which guided this inquiry.

1.6. RESEARCH METHOD AND DESIGN

In view of the fact that this study was undertaken in order to explore an issue that is not well researched (Terre Blanche, Kelly and Durrheim 2006), namely; the extent to which EE is integrated in Grade R, this inquiry was guided by the qualitative interpretive perspective. Various authors (Terre Blanche, Kelly and Durrheim 2006; Babbie 1995; Creswell 1994) assert that this paradigm is appropriate in instances where there is either paucity or “a conspicuous lack of previous research” (Creswell 1994: 146) in respect of a phenomenon under investigation. Accordingly, I deemed the qualitative interpretive paradigm relevant, especially, in terms enabling me to obtain in–depth information from an insider’s perspective since this approach allowed me to immerse myself in everyday settings (Greene 1990) of the respondents.

In order to gain in–depth and varied perspectives on the phenomenon under investigation, I had to use both data and methodological triangulation. Hence, I used the case study design to enable me to access information–rich cases (Kelly 2006; Babbie and Mouton 2001) by selecting four Grade R offering learning sites from the area demarcated for this inquiry as discussed in *section 1.3*, above. The use of purposive sampling (Koerber and McMichael 2008) ensured that although these learning sites are located in the same geographical area they were dissimilar in their make–up (*refer to 5.3.1*). Furthermore, I used three different methods for data generation, namely: semi–structured interviews, participant observations, and document and artefact analysis. Consequently, rich data were obtained and analysed through the use of two methods; the constant comparison also known as ‘coding’ (Leech and Onwuegbuzie 2007) and domain analysis (Neuman 2011). From this data, two overarching and nine ‘basic’ themes emerged.

Therefore, through the use of emergent themes from generated data I was able to use a holistic theme–based approach to present and discuss the findings and thereby respond to the main research question of this study. At the same time, in order to crystallize the arguments made in respect of the findings, I used literature and quoted liberally from the field notes emanating from participant observations as well as from the interview statements. Furthermore, information concerning research methodology and design is found in chapter

four. Likewise, in chapters five and six, respectively, more details as regards the findings of this study are presented. The next point of discussion focuses on the clarification of some of the concepts that are deemed significant especially in respect of the title of this thesis and the theoretical framework of this study.

1.7. CLARIFICATION OF SOME KEY CONCEPTS

There are certain concepts that are used in the title of this study and throughout this discussion. In order to avoid ambiguity I deemed it essential to clarify them so as to locate them within the context in this study:

1.7.1. Exploring

In this study, this concept is used in the same way as the process entailed in the word “explore” as defined by Lechner (2004: 333) in reference to an action of working towards discovering more about a particular phenomenon in “to travel or voyage through (an unknown or little known region) in order to add to man’s⁶ knowledge. Lechner (2004) also uses concepts such as “investigation”, “examination”, “analysis” and so forth in reference to the process of exploration. Therefore, in this study, “exploring” as used in the title of this study suggests the activity of investigating and analyzing, closely, the extent and/or the manner in which the “little known” phenomenon called ‘the integration of environmental education in Grade R’ takes place in selected classes in the North West province.

1.7.2. Implementation

In this study, the concept “implementation” is used in line with the verb “implement”, from which it is derived, to imply the action “to carry into effect”(Lechner 2004: 468) or to “put into effect”(Kipfer 1992: 451) or to actualise the integration of EE in learning and teaching activities of Grade R. Furthermore, it is essential to state that the view adopted in this study in respect of the implementation of EE is the ‘traditional approach’, if you will, to the integration of environmental learning. This approach is premised on the notion that the best way to implement EE in formal education is through an interdisciplinary or multidisciplinary manner whereby environmental learning is incorporated into the subjects that are already part of a particular school curriculum (Adeyemi 2010; Rosenberg 2009; UNESCO 1985; UNESCO 1978).

⁶It should be noted that I do not subscribe to the use of “man” in this context since to some readers it might appear to be gender biased or sexist. I would prefer the use of human beings’ or humans’ rather than “man’s”.

1.7.3. Environment

The term ‘Environment’ has multiple meanings. This can be attributed to the fact that it is used by different people in various contexts, hence its multiplicity of meanings reflects the personal views of the persons and the entities attempting to define it in a particular context (Agola and Awange 2014; Ramlogan 2004; Chacko 2000). According to Parola (2013: 30), the concept environment owes its origin to the French concept “*environner*” which means “to encircle” or as De and De (2009: 1) put it, “all that surrounds us, i.e. all the physical and biological surroundings – earth, air, water, humans, plants, animals, micro–organism, roads, buildings, etc”. Therefore, in the interest of this discussion, the concept environment can be regarded as the total environment consisting of all entities which share the same space with humans. These include but are not limited to biotic (living) factors – e.g. humans, animals, plants, microbes, etc; and abiotic (non–living) factors – e. g. air, water, sunlight, physical infrastructure, etc, which interact on an on–ongoing basis. The environment and the various factors that interact on an on–going basis are aptly illustrated by O ‘Donoghue and Jansen Van Rensburg (1995) in the following diagram:

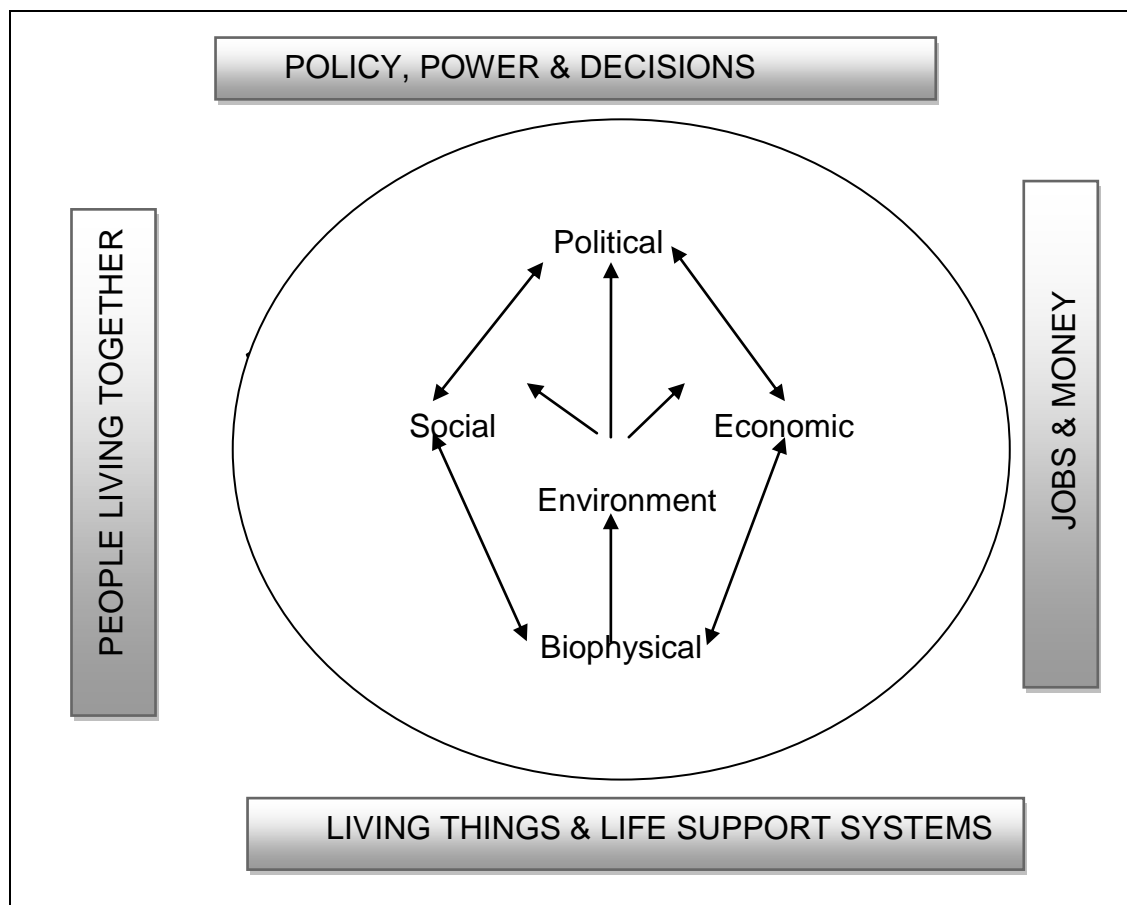


Figure 1.4: The Environment

Source: O'Donoghue and Jansen Van Rensburg 1995

The above diagram depicts various factors/dimensions that interact as part of the environment on an on-going basis. These aspects include the biophysical world, the social, economic and political factors. At the centre of this interaction are human actions which are aimed at satisfying both the basic needs and insatiable wants on a daily basis. It is my considered view that learners should, from early childhood, be introduced to the concept of environment. They need to be aware of the aspects that form part of the environment and how the actions of one aspect affect the whole environment. In particular, they should be enabled to learn about and get enlightenment on human actions and their consequences, both in the short term and in the long term, on the environment. More importantly, learners at early childhood level need to be introduced to education that should empower them to participate in actions that are aimed at addressing the challenges facing the environment.

1.7.4. Environmental Education

The concept of ‘Environmental Education’ has no universally accepted definition (Disinger 2001). Accordingly, in the interest of this study, and as highlighted in the introduction of this chapter (*refer to 1.3*), my broader view of EE is entailed in the Tbilisi Declaration (UNESCO 1978). Tidball and Krasny (2010: 1 cite Stapp 2001) to summarize the Tbilisi Declaration’s view of EE as “a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and has the attitudes, motivations, knowledge, commitment and skills to work individually and collectively towards solutions to current problems and the prevention of new ones”. Furthermore, it is essential to underline the fact that “an important focus of environmental education is to encourage people to understand, appreciate and implement sustainable practices” (Liefländer, Fröhlich, Bogner and Schultz 2012: 2). Hence, in order to attain the preceding ideals of encouraging people to understand, appreciate and implement sustainable practices, there are a number of environmental goals that need to be realised. In the context of this study, the goals of environmental education, as contained in Final Report of the Tbilisi Conference (UNESCO 1978: 26 – 27) should, in my view, entail the following significant roles by the teacher:

The process of fostering *awareness* in children, from early childhood, of the environment, i.e. its various components, their functioning and interrelationships, the beauty of the environment and the sets of challenges besetting the environments. Furthermore, identify a variety of activities and opportunities that could be used to empower the learners and enable them to acquire, through *active participation* and meaningful practical experiences, the *skills* and *knowledge* that should help them to, ultimately, develop a pro–environment *attitude* characterised by caring and protection towards the environment. This should be done with the hope that they will become active citizens who engage in environmental activism.

The realisation of the afore–mentioned EE goals would require well thought–out planning processes and implementation of educational programmes that seek to accommodate environmental learning. The infusion of environmental learning can be realised through the use of the “three–fold structure” (Palmer 1998: 136) or approaches to EE, namely; education *about, in/from/through* and *for* the environment. According to Palmer (1998: 136) this approach which “has become almost commonplace nowadays” was “first formalised and published in the UK Schools’ Council *Project Environment* in 1974’ (ibid.). However, this

approach to EE was first introduced by Lucas (1972) through his PhD thesis entitled *Environment and Environmental Education: Conceptual Issues and Curriculum Implications*. Hence, in an attempt to illuminate the three-fold approach to EE, I shall refer mainly to Lucas in this discussion. This is due to the fact that it would appear that, to some extent, the literature on environmental learning which came after Lucas (1972) seems to be in line with this work. Lucas (1972: 98) illuminates the three-dimension approach entailed by ‘education *in, about* and *for* the environment by writing that:

The label “environmental education” makes literal sense when applied to a number of different classes of educative programs. It can refer to education *about* the environment, *for* the (preservation) of the environment, or *in* the environment. Combinations of any two or all three of these possibilities are also sensible. It is meaningful to speak of education *about* the environment being conducted *in* the environment, and of education *about* the environment being designed *for* preservation of the environment. It is also meaningful to speak of education *about* the environment being conducted *in* the environment so that the learners will attempt to preserve the environment.

The distinction among the three approaches to EE was echoed, if not further clarified, by various writers (e.g. Robottom 2007; Lee and Ma 2006; Ali 2001; Le Grange 2000; Palmer 1998) in subsequent years following Lucas’s (1972) introduction of this approach. For example, Palmer (1998: 137) cites the School’s Council (1974) to distinguish these three dimensions as follows:

...education *about* the environment seeks to discover the nature of the area under study often through investigatory and discovery approaches; the objectives are chiefly cognitive ones in that the aim to amass information;

...in education *from* the environment, teachers must have sought to forward the general education of the child using the environment as a resource in two main ways; firstly as a medium for inquiry and discovery which may lead to the enhancement of the learning process, the most important aspect being learning how to learn; secondly as a source of material for realistic activities;

...to be education *for* the environment...is education which is environmental in style with emphasis on developing an informed concern for the environment. The

objectives go beyond the acquisition of skills and knowledge and require the development of involvement to the extent that values are formed which affect behaviour...Thus the aim is to develop attitude and levels of understanding which lead to personal environmental ethic, that is, to educate pupils so that their actions and influences on collective action will be positively for the benefit of the earthly environment.

The above distinction among the three approaches to EE can be summed up as education *about* the environment being more concerned with the learning of ‘facts’ related to, for example, the components, the nature of and the processes that take place in the environment. On the other hand, education *in* the environment is more about using the environment, outside of the four walls of the classroom, as the physical space within which learning about the environment occurs. While, education *for* the environment is concerned with enabling the learners develop the ethos of caring *for* and protection of the environment.

For the purposes of this discussion, it is essential to also mention that there are some authors who do not necessarily subscribe to the EE approaches highlighted above even though they might or do acknowledge them. Huckle (1993) is one of those writers. For example, according to Huckle (1993: 20 – 22) EE exists in three forms, namely:

- *Education for environmental management and control*, which predominantly serves the technical empirical – analytical science, and coheres most closely with the notion of education *about* the environment;
- *Education for environmental awareness and interpretation*, which predominantly serves the practical human interests, is based upon hermeneutics or interpretive science, and coheres most closely with the notion of education *through* the environment; and
- *Education for sustainability*, which predominantly serves the critical human interests, is based upon critical science, and coheres most closely with the notion of education *for* the environment.

Nevertheless, it is essential to underline the fact that the EE approaches, and related terminology, used by Lucas (1972) are; particularly due to their apparent practicability and ‘unfussiness’, preferable in this study. Therefore, before rounding off this discussion, it is necessary to highlight other aspects that are relevant to this study in so far as Lucas’s (1972) postulations regarding the teaching of EE is concerned. These aspects are in respect of the

distinctions in terms of the goals that guide each of the three approaches to EE as well as the kinds of activities and skills that could be developed through these approaches.

Lucas (1972) points out that the design of a specific EE programme will determine the set of goals and these goals should not necessarily be the same as those that would be chosen when designing a different dimension of EE – in the ‘tripartite’ approach to EE. In essence, if a teacher seeks to, for example, develop a programme that is inclined towards education *about* the environment, then the goals selected for this programme would not be same as those selected when dealing with education *for* the environment. This point is essential to make since the selection of goals can determine the success or failure of the programme.

There is a wide range of activities that could be undertaken through the three-fold approach to EE as discussed in this section. And, for these activities to be meaningful, they need to be aligned with the goals underlying the specific EE approaches(s) towards which the teacher’s educational programme is inclined. For example, Lucas (1972: 101) points out that the programme goals associated with education *about* the environment are “cognitive objectives”. These objectives serve the purpose of enabling the learner to acquire “information concerning the environment” (ibid.). This is done through not only the assimilation of information “into existing structures” (Robottom 2007: 92) but numerous cognitive processes are also involved. According to Lucas (1972: 1010) the following are some of the “cognitive objectives/level” involved in education *about* the environment: comprehension, interpretation, synthesis and evaluation of information. Furthermore, the process of “amass(ing) information” (Palmer 1998: 137) **[my emphasis]** *about* the environment also encourages learners to undertake actions such as “investigation” and “discovery” (ibid.) in the acquisition of environmental information. While; Ali (2001: 22) elucidates and simplifies this EE dimension by writing that; “education *about* the environment emphasizes the content aspect of the curriculum, including facts, concepts, environmental and social processes and patterns”. As pointed out by Lucas (1972), this is done through the use of various cognitive processes with the view to guide the learners towards becoming more knowledgeable *about* the environment.

On the other hand, and as stated earlier in this discussion, Lucas (1972) conceives education *in* the environment as a process which takes place “*in* the environment” (p.98), outdoors. Education *in* the environment can include cognitive processes such as investigation and discovery. However, of significance is that the teacher needs to decide, before hand, on “a

particular pedagogical technique” (Lucas 1972: 107); or a set of pedagogical techniques, that would lead “to the enhancement of the learning process” (Palmer 1998: 137) in the learners as they acquire direct experiences *about* the environment (and various environmental processes) *in* the environment. If the learners are to benefit from observing and even interacting, meaningfully, with the complexities of “the natural and built world” (Ali 2001: 21), then the decision on the ‘appropriate’ pedagogical approaches employed by the teacher is vital.

Lee and Ma (2006) highlight an array of experiences that could be deemed both relevant and significant in respect of education *in* the environment within the context of ECE. According to Lee and Ma (2006: 84) “these experiences include: providing opportunities for exploration in the outdoors, playing with water and sand, collecting fallen leaves, creating habitats for birds and small animals, and for building responsive and earth–nurturing attitudes, and gardening”. I need to point out that some of the preceding points by Lee and Ma (2006) are, as reflected in chapter two (*refer to section 2.3.6.3*), accommodated in the Grade R National Curriculum Statement (NCS); as entailed in Curriculum and Assessment Policy Statement (CAPS) documents (DBE 2011a; DBE 2011b; DBE 2011c) pursued in of South African public schools.

The final point in this section is in respect of education *for* the environment. Lucas (1972: 104) describes education *for* the environment by writing that;

The programs of education *for* the environment aim to assist the preservation or improvement of the environment for a particular purpose...typically, programs for the environment will attempt to inculcate attitudes of concern for the features of the environment that enhances the chances of continued human life, which enhance the quality of life, or which are claimed to have value in and of themselves.

In addition to the points by Lucas (1972), above, Palmer (1998: 141 – 144) underlines education *for* the environment as a medium which could cultivate, in the learners, the “values, attitudes and positive actions...and behaviours necessary for the development of sustainable living patterns and caring use of the planet and its resources”. While, Ali (2001: 24) asserts that the acquisition of various skills, through education *for* the environment, including; “evaluating, debating, being open to other points of view and clarifying personal views about themes and then using them to benefit the individual, social and natural

environment”, should, in the long run, enable the learners to become significant role players who participate in community issues, encapsulating environmental issues.

In rounding this discussion off, it is important to indicate that, of the three EE approaches discussed in this section, some authors (e.g. Robottom 2007; Kopelke 2012) consider only education *for* the environment to be “distinctively environmental education” (Robottom 2007: 92). On the other hand, as far as Kopelke (2012) is concerned, education *in* the environment is outdoor education and education *about* the environment is environmental studies. Nevertheless, Robottom (2007: 92) concedes that “it is possible (and completely acceptable for EE practitioners to employ the label of EE to describe their practice in any or all) of these approaches”. Personally, even though I agree with the view that only education *for* the environment could be considered, to use Robottom’s (2007: 92) words; “distinctively environmental education”, I share Ali’s (2001: 25) view that “education *for* the environment should not be viewed in isolation from education *in* and *about* the environment but rather should be considered complementary to these other approaches”. It is through all three EE dimension that learners, especially in the context of ECE, could be assisted to acquire both practical and theoretical knowledge and skills that would enable them to gain invaluable insights, values and attitudes that should lead them to participate meaningfully in pro-environmental activities, especially in the long run.

Flowing from the above points it is, thus, my considered view that, as I attempt to highlight in the proposed guidelines for the integration of EE in Grade R (*refer to 6.7*), the infusion of EE should seek to engage the active participation of young children in meaningful activities. These activities should not only focus on learning *about* the environment, but they should encapsulate learning *in* and *for* the environment. Likewise, learners at the level of early childhood should be able to relate to the activities in which they participate. Hence, as far as possible, young learners need to be brought closer to natural phenomena and be granted opportunities to interact with various systems in the environment. It is through such interaction that they would get to know about the reciprocal effect that exists between human beings and their environments. Subsequently, the notion of sustainability and its significance should gradually develop in young children. In my view, this has the potential to assist the learners to learn how best to relate with their environments in future.

1.7.5. Early Childhood Development/Early Childhood Education

It would appear that, in the context of South Africa, the concept of Early Childhood Development (ECD) is preferred over the term Early Childhood Education (Department of Social Development 2006; Department of Education 2001). However, there seems to be no tangible difference, if any, between the two concepts. For example, the Department of Basic Education (2001: 9) refers to ECD as “an umbrella term that applies to the process by which children from birth to at least 9 yrs old grow and thrive physically, mentally, emotionally, spiritually, morally and socially”. This “thriving” is effected through educational stimulation. On the other hand, Gullo (2005: 5) writes that “chronologically, early childhood is defined as age birth to 8 years old” and that “the developmental definition of early childhood is understandably very closely related to the chronological definition” (ibid.). While, Gordon and Browne (2011: 5) define Early Childhood Education (ECE) as the “group settings deliberately intended to affect developmental changes from birth to 8 years of age”. It should be evident from the above-mentioned points that there is a thin line between the concepts ECD and ECE, respectively. For this reason, in this study, the two concepts are used interchangeably. However, the focus of this study is on the Grade R child as defined below.

1.7.6. Grade R

The class of Grade R, also known as the ‘Reception Year’, as used in this study “refers to the year before Grade 1” (Department of Social Development 2006: 1). This class which is populated by learners who are, mostly, aged 5 years old is also known as ‘Kindergarten’ in the United States of America (Lenyai 2006) and in several countries globally. According to Gordon and Browne (2011: 57) “the kindergarten is one of transition from early childhood programs into more formal school settings”. Likewise, Grade R is considered as the class which comes before the formal class, in this case Grade 1. In the interest of this study, it is also important to note that in other countries, as it is the case with Sweden (www.sweden.se), the Grade R equivalent is simply referred to as the ‘Preschool Class’.

1.7.7. Early Childhood Development Centres

An Early Childhood Development (ECD) centre is defined by the Department of Social Development (2006: 6) as “any building or premises maintained or used, whether or not for gain, for the admission, protection and temporary or partial care of more than six children away from their parents. Depending on registration, an ECD centre can admit babies, toddlers

and/or preschool aged children. The term ECD centre can refer to crèche, day care centre for young children, a playgroup, a preschool, afterschool care, etc. ECD centres are sometimes referred to as ECD sites”.

In the interest of this study, the above-mentioned definition of an ECD centre is acceptable. However, as demonstrated in subsequent chapters, in this study; the activities of a Grade R learner are not limited to “the admission, protection and temporary or partial care” of children but include meaningful learning and teaching activities, guided by relevant curricula pursued in various institutions of learning that cater for Grade R learners. Likewise, it is essential to also mention that the Grade R ECD centres, as clarified in chapter five (*refer to 5.3.1*), can also be located in schools that cater for older children. Nevertheless, irrespective of their location, the ECD centres are, usually; clearly demarcated from the other classes in the broader school context.

1.7.8. Independent and Public Institutions of Learning

The institutions of learning which took part in this study represented the categories referred to, in terms of the South African Schools Act, as “independent schools” and “public schools”. Hence, I deemed it essential to, briefly; distinguish between the two categories in order not to confuse the reader. In this study the term “independent school” is used in accordance with the definition of the Gauteng Department of Education (2013: 4) which writes that “an independent school means a school registered in terms of Section 46 of the Act⁷, including Grade R sites that are provided in the community sites and independent institutions”. On the other hand, in the context of South Africa, public schools are the schools established by the Ministry of Education in terms of chapter three of the South African Schools Act (Department of Education 1996). However, in my view, an even clearer distinction between the two categories is provided by the Independent Schools Association of South Africa (ISASA) which writes that:

The *South African Schools Act* (SASA) of 1996 established a national schooling system and recognised two categories of schools: public and independent. Public schools are state controlled and independent schools are privately governed. All private schools were included into the independent school category.

⁷The South African Schools Act No. 84 of 1996.

Within the public school category, SASA created a sub-category of “public schools on private property” comprising state schools on private land owned by religious bodies, farmers, mines and forestry companies (<http://www.isasa.org>).

In the interest of this discussion, the above distinction between independent and public institutions of learning, as referred to in this study; should suffice. Moreover, clear distinctions in respect of participating institutions are provided in chapter five of this study.

1.7.9. Grade R Teacher/Grade Practitioner.

In this study, as it is the case with the terminology which is, generally, used in the education context of South Africa, the concept ‘practitioner’ is used only in reference to Grade R teachers who are not yet academically ‘qualified’ to teach (Naicker 2010). However, since it is sometimes cumbersome to seek to distinguish the Grade R ‘practitioners’ from the teachers who are considered to be qualified to teach at this level, and possibly beyond, the word ‘teacher(s)’ is used conveniently in reference to all the Grade R teachers who participated in this study. Therefore, in instances where the concept ‘practitioner’ is used this is done with specific reference only to the teachers who are deemed ‘unqualified’ while the word ‘teacher(s)’ refers to all the teachers who participated in this study and, where applicable, to Grade R teachers in general. In the next section I provide a brief outline in respect of the contents of the thesis chapters.

1.8. OUTLINE OF THESIS CHAPTERS

This thesis is composed of six chapters. The following is, therefore, a brief indication concerning the contents of each of the chapters entailed in this study:

Chapter One

Prologue: Setting the Scene

This introductory chapter sets the scene for the entire thesis. It covers the following elements which could be regarded as the framework of the study: orientation to and motivation for this inquiry, statement of the problem, research method and design, demarcation of the study; and the clarification of concepts deemed in need of clarification so as to contextualise the study. Likewise, a brief background of the researchers is also provided.

Chapter Two

A Fragmented Global Approach to Early Childhood Education: Implications for Environmental Education

This chapter is centred on the review of literature. The purpose is to highlight the fact that Early Childhood Education is not given substantial attention, globally. I also highlight how this ‘neglect’ of ECE impacts on the integration of EE. In order to achieve the purposes of this chapter I juxtapose six different countries, namely: South Africa, Australia, Brazil, Japan, Sweden and the United States of America.

Chapter Three

Locating Environmental Education in Selected Paradigms: An Early Childhood Education Context

This chapter underlines the feasibility of using educational theories in the integration of environmental issues in Grade R. In this chapter I make an expressive effort to argue that environmental education can be infused through the aid of theories. To achieve this purpose, I use the CAPS documents of the National Department of Basic Education applicable to Grade R to demonstrate how each of the following theories can be used in the integration of EE in Grade R: Piaget’s Cognitive Development Theory, Erikson’s Psychosocial Perspective; the Sociocultural Paradigm by Vygotsky, the Bio–ecological tenet attributed to Bronfenbrenner, the Social Learning theory, and the theory of Multiple Intelligences postulated by Gardner.

Chapter Four

Methodological Framework

This chapter expands on the points made in chapter one as regards the methodology and design employed in order to respond meaningfully to the main questions of this inquiry.

Chapter Five

Presentation and Discussion of the Findings

This chapter provides a detailed presentation and discussion of the findings emanating from the investigation conducted in this study. In this chapter I rely, extensively, on the use of evidence generated from this study as well as literature to crystallize the arguments raised in the discussion.

Chapter Six

Epilogue: Synopsis, Main Findings, Contributions, Limitations and Recommendations

In this concluding chapter I provide a summary of the main findings of this study. This is followed by a brief reflection on some of the, theoretical and practical, contributions made by this inquiry in the field of EE at ECD level, in general, and at Grade R in particular. Furthermore, I reflect on aspects I deemed to be the limitations of this study. As informed by the findings of this inquiry, I round off this discussion by presenting some recommendations that could aid policy and guide further research. Ultimately, I conclude by proposing some guidelines that could aid the integration of environmental education in Grade R.

1.9. CHAPTER SUMMARY

In this chapter I commenced by introducing the reader to the key instrument of this study, the researcher, by providing a brief reflection on my background. Subsequently, I provided the rationale for undertaking the inquiry. I did this by, among other things, highlighting some of the challenges and problems facing the environment, and the role of EE in addressing them. In order to further illuminate the importance of this inquiry, I reflected on the paucity of research that focuses on EE in the field of Early Childhood Education ECE. To this end, I used literature, especially, Davis (2009) and various databases. Hence, it is my view that I was able to validate the need for this investigation.

Subsequently, I presented the statement of the problem of this inquiry. This was followed by reflection on other relevant aspects that also guided this investigation such as: the demarcation of the study, research method and design; and the clarification of certain concepts, particularly, the terms that form the title of the study. In rounding off this chapter I presented and outline of the thesis chapters.

In the next chapter I discuss the state of affairs in respect of ECE, particularly the Grade R class or its equivalents, in six different countries; namely: South Africa, Australia, Brazil, Japan, Sweden and the United States of America. My focus is on the following issues; provision and access, monitoring and support, funding, teacher training and curriculum. I also present the implications that each of the preceding issues have or might have on the integration of EE in the Grade R classes of each of the countries under discussion.

CHAPTER TWO

A FRAGMENTED GLOBAL APPROACH TO EARLY CHILDHOOD EDUCATION: IMPLICATIONS FOR ENVIRONMENTAL EDUCATION

2.1. INTRODUCTION

Early childhood education has, in recent years, received some attention in the public, political and academic spheres of society (Urban 2009; Pearson and Degotardi 2009; Becker 2007). Many countries around the world, as participants in and as signatories to various international conferences, conventions and declarations; committed themselves to quality education that should be accessible to all people, including young children. Ki-Moon (2007: 37) underlines the preceding points by writing that “in 1989, the UN General Assembly adopted the Convention on the Rights of the Child which says: ‘Make Primary education compulsory and available to all’. In 1990, at the World Conference on Education for All in Thailand, representatives from 155 countries again committed themselves to taking all necessary steps to achieve the goals of education for all”.

Similarly, during the World Education Forum held in Dakar, Senegal, in April 2000, a forum attended by about 164 governments; various governments committed themselves to achieving education for all (UNESCO 2010b). One of the major goals of the forum was; to solicit a commitment to “expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children” (UNESCO 2010b: 24; UNESCO 2007: 31). Recently, in March 2012, the South African Ministry of Social Development⁸ held a conference on Early Childhood Development in East London, South Africa. The conference had, as one of its commitments, undertaken to “promote and protect the rights of young children between the ages of 0 – 6 years thus ensuring their growth, development and survival” (<http://www.dsd.gov.za>). This conference also highlighted and acknowledged the importance of ECE.

Despite the pledges made by various countries, as indicated above, regarding the promotion of access to and the implementation of quality ECE; literature suggests that a lot still needs to be done in order to realise this ideal. For example, Becker (2007: 516) asserts that the right to

⁸The Department of Social Development is, partly, responsible for issues related to young children in the ECD age group.

ECE “has been neglected, as many countries do not have an official program for the early years” and in most cases where such programs exist, their effectiveness is very minimal. Similarly, UNESCO (2010b: 50) indicates that, globally, there is “slow and unequal expansion” in the provision of pre–primary education.

In view of the fact that the implementation of EE hinges on its meaningful integration into a variety of existing curricular, subjects, and learning and teaching programs (Gürsoy and Sağlam 2011; NAAEE 2010; Bajaj and Chiu 2009), the points made by Becker (2007), UNESCO (2010b) and other authors concerning ECE evoke some concerns in respect of the implementation of EE in the field of ECE. My view is that if young children have limited or no access to meaningful and quality ECE then, by extension, their exposure to environmental learning is compromised as well.

In light of the above–mentioned points, I contend that it is necessary to have a global view regarding the current status quo in respect of ECE. This would in turn make it easier to postulate about the extent to which environmental learning is implemented in the field of ECE, globally. Likewise, it is my considered view that a country which is in the process of transforming its education system, as South Africa has been doing since 1994, would benefit from the depiction of a global perspective in respect of the field of ECE.

Accordingly, in this chapter, I make an attempt to reflect on the state of ECE, particularly Grade R and its global equivalents, in various countries around the world. However, it is vital to highlight that since literature on ECE is scanty (Organisation for Economic Co–operation and Development 2012a) and that this discussion does not seek to do an almost impossible task of covering all components of ECE in each country around the world, therefore, only six countries are referred to in this discussion. The selection of these countries was informed by two factors. First, I considered it necessary to have some ‘global perspective’ thus the selection of ‘representatives’ from various continents. And more importantly, each of the countries selected has some ECE literature to work with when compared to a number of other countries. On the other hand, the inclusion of South Africa was logical since the study is conducted in the country. Therefore, the following are the countries referred to in this discussion: South Africa, Australia, Brazil, Japan, Sweden and the United States of America.

The state of ECE in respect of each country mentioned above shall be discussed with focus on the following aspects: provision and access, monitoring and support, funding, teacher training, curriculum and the implementation of environmental education (or the implications

of the five preceding issues on the integration of EE). However, before I present the discussion as detailed in the preceding point, it is in the interest of this study, in my view, to commence by reflecting on the significance of early childhood education.

2.2. THE SIGNIFICANCE OF EARLY CHILDHOOD EDUCATION

The significance of ECE is well documented in literature and any attempt to exhaust all aspects that depict the importance of this field of education would, to say the least, amount to futility. In this regard a few points should, for the purposes of this study, suffice.

Viewed from the developmental perspective, early childhood is deemed the most critical period in the life cycle of human beings (Urban 2009; Department of Social Development 2006). This stage is characterised by rapid physical, intellectual, social and emotional growth (Gordon and Browne 2011; Department of Social Development 2006). According to Soudée (2009: 16), “this is a critical time for a person’s brain to be prepared for future learning through stimulation by educational activities”. For that reason, all young children should have access to ECE (Urban 2009). Likewise, since ECE is considered the foundation to lifelong learning and development (Urban 2009), the exposure of young children to this level of education is cardinal. This assertion is attributed to the fact that ECE enables children from all backgrounds, especially the disadvantaged (UNICEF 2010), to acquire linguistic abilities, perceptual–motor skills that assist in the formation of reading and writing skills, basic numeracy skills and problem–solving competencies (Naicker 2010; UNICEF 2010; Department of Social Development 2006). The skills and competencies acquired through ECE are, therefore, fundamental for the process of facilitating learning in the latter years of the human lifecycle. More importantly, in the long run, ECE may assist in the moulding of mature, independent and balanced adults with the total personality that enables them to contribute more meaningfully to the advancement of their communities (Montessori 1976).

ECE is also very important when it comes to the formation of attitudes and values (Johansson 2009; Department of Social Development 2006; Baron and Byrne 2003). Although an elaboration, in respect of attitudes and values, is made in chapter three of this study, it is important, in my opinion, to stress that research indicates very succinctly that these human features are acquired very early in life. For example, Baron and Byrne (2003: 118 – 123) argue that attitudes and values are learned during the process of social learning and that “they are formed as early as during early childhood”. Similarly, Johansson (2009: 81) states that, “early in life children show care for others’ wellbeing, and a sense of rights and justice”.

Hence, “the early years have been recognised as the ideal phase for the passing on of values that are important for the building of a peaceful, prosperous and democratic society” (Department of Social Development 2006: 12). It is for this reason that Kagan (2007), duly, projects ECE as an empowerment tool for children because “by equipping them with values and basic skills that allow them to critically reflect and make informed decisions about issues and course of action” (Kagan 2007: 54 cited in Pearson and Degotardi 2009: 99); young children are more likely to grow up to become responsible adults with the ability to distinguish right actions from wrong ones. This would, in turn, enable them to contribute more meaningfully towards the creation of a balanced global ecosystem.

Furthermore, it is essential to mention that attitudes and values also play an important role in the promotion and implementation of environmental education. This is attributed to the view that “attitudes towards the environment are generally acquired very early in life” (Environmental Protection Authority 2003: 6) and as such if young children are exposed to environmental learning very early in their lives, they might grow up to become “environmentally responsible adults” (ibid.) These children would have acquired a holistic concept (NAAEE 2010) of the environment in that they would have engaged themselves, throughout their lives, in the process of exploring and applying a plethora of solutions to a variety of challenges and problems affecting the environment. The NAAEE aptly presents the significance of EE in the field of ECE as follows:

Environmental education in early childhood is a holistic concept that encompasses knowledge of the natural world as well as emotions, disposition and skills. According to Ruth Wilson (1994) environmental education in early childhood includes the development of a sense of wonder; appreciation for the beauty and mystery of the natural world; opportunities to experience the joy of closeness to nature; and respect for other creatures. It also includes the development of problem-solving skills and the development of interest and appreciation in the world around us. These goals acknowledge that learning is more than a cognitive process and, that emotions also play a particularly important role (NAAEE 2010: 2).

The final points worth mentioning regarding the significance of ECE amplify the notion that this field of education is also valuable in as far as economic, political and social perspectives are concerned. For example, according to Urban (2009) the reasons behind the drive by the

European Union to increase the number of childcare places and the participation of young children in education are both economic and political. Furthermore, Urban (2009) argues that ECE is aimed at increasing the participation of women in the job market in order to promote economic growth as well as help governments accomplish political equity between men and women.

Various authors (Naumann 2011; Penn, 2008; Essa 2007; UNESCO 1995) concur with Urban (2009), above. For example, the OECD (2006: 12 cited in Penn 2008: 10) accentuates that “among the immediate factors turning governmental attention to Early Childhood Education and Care issues are: the wish to increase women’s market participation, to reconcile work and family responsibilities on a basis more equitable to women; to confront the demographic changes faced by OECD countries”. Additionally, Penn (2008: 17) points out that ECE is cost effective and economically beneficial, especially in the long run, in the sense that countries “get better economic results by investing in young children because they become more productive citizens in adulthood”.

On the other hand, Essa (2007) and Kamerman and Gatenio–Gabel (2007) do not stress economic and political factors as the only reasons that warrant investment in ECE but they also underline the social value of ECE as well. For example, Essa (2007: 6) argues that investment in ECE contributes to, among other things, “lowered delinquency and arrest rates, and decrease welfare dependence”. This happens because ECE propels “greater schooling success” (ibid.) in later years of a child’s adult life. Similarly, Kamerman and Gatenio–Gabel (2007: 24) argue that, “research clearly shows that high–quality preschool education improves later success, employment and earnings. It lessens crime and delinquency and unhealthy behaviours like smoking and drug abuse”. In view of all the points raised regarding the significance of ECE, I am tempted to reiterate Urban’s (2009) assertion that it is absolutely necessary to expose young children to ECE by making it accessible to all those who need it, especially, the vulnerable and the disadvantaged.

There are, indeed, many other points that could be raised regarding the importance of early childhood education. However, as pointed out earlier, the intention of this section was not to exhaust all of them. Therefore, in my opinion the afore–mentioned points should suffice in terms of highlighting the significance of ECE. In the next section I make an attempt to provide a synopsis of the state of affairs in respect of ECE, especially the Grade R class, in South Africa.

2.3. EARLY CHILDHOOD EDUCATION IN SOUTH AFRICA

The advent of democracy in 1994 ushered in a wide range of policy changes in various spheres of government in South Africa. This culminated in more attention being given to areas that were, broadly, neglected particularly as far as the majority of South Africans were concerned, one such terrain is education. In comparison to other population groups, the white minority had immeasurable privileges when it comes to education. These privileges included access to ECE (Naicker 2010; Lenyai 2006; DBE 1995).

However, the sweeping changes that have been on-going in the post-apartheid era have had, to a large extent, a positive impact in respect of ECE. Early childhood education is, for example, no longer a privilege enjoyed by a select few – at least on paper. The government has committed itself in an array of policy documents, but more especially in White Paper 5, to the provisioning of ECE to all the young children of South Africa. As Naicker (2010: 190) writes:

The issue of ECD enjoyed much attention in the post 1994 period with a response from the new government regarding the challenges facing ECD. According to White Paper 5 (DoE 2001: 10), the medium term policy goal was to progressively realise the constitutional obligation to provide all learners with ten years of compulsory education, including one year of early childhood development called the Reception Year.

It is evident from the preceding points that the South African government has some noble commitments toward enabling young children access to ECE, especially the Reception Year. However, notwithstanding these noble commitments by government, as shall be highlighted later in this section, the reality suggests that an array of challenges exists in respect of the presentation of the Grade R class. By extension, the challenges that impact on Grade R are likely to have an effect in the implementation of EE in this class. This assertion is made in view of the fact that this study is premised on the notion that the meaningful implementation of EE depends on its integration into existing educational programmes that take place in Grade R. Therefore, the activities that occur in the Reception Year would have profound ramifications for the implementation of EE. The following is, thus, a brief reflection on the status of ECE in South Africa.

2.3.1. Provision and Access

The Department of Basic Education (DBE) has the responsibility of providing access to Grade R for all learners in South Africa (Berry, Jamieson and James 2011; Department of Social Development 2006; UNESCO 2006). In order to realise this ideal, the government set itself a target of ensuring “that by 2010 all learners that enter Grade 1 should have participated in an accredited Reception Year” (Naicker 2010: 188). In pursuance of this goal, the DBE, commencing in 2002 (Department of Social Development 2006) embarked on a process of gradually introducing a government-funded Grade R in various public schools (DBE 2005). This was done (and is still being done) in order to enable the majority of children to gain access to this programme.

The ‘roll-out’ of Grade R is done by provinces, and each PED determines which public schools are to introduce Grade R and when (DBE 2005). At national level, the directive of the DBE is that each provincial department should produce a ‘roll-out’ plan in September of each year to indicate which schools will offer Grade R in the following year (DBE 2005). In order to facilitate this process, “individual schools are encouraged to apply for the establishment of the class. The provincial department of education makes the final decision regarding the establishment of a class” (Naicker 2010: 191). It is essential to mention that; since this was never the intention of government, the introduction of Grade R in public schools has not resulted in the closure of independent or community-based schools that cater for Grade R. Hence, apart from the public school-based Reception Year classes, there are other types of ECD centres that cater for Grade R learners such as the community-based independent sites in South Africa (DBE 2005; UNESCO-IBE 2006).

In line with the recommendations of White Paper 5, the purpose of the Department of Basic Education was to make the Reception Year universal and compulsory by 2010. As already stated, 2010 was earmarked as the period in which every eligible child, i.e. in terms of age, would be enrolled in Grade R (Feza 2015). This suggests that once the department of education had made it possible, through the provision of the necessary resources, for the majority of learners to access Grade R; then the class would be compulsory for all appropriately-aged children (DBE 2005). This goal, as suggested in the 2008/09 education report by the national department of education (DBE 2009), was not realised as it had been hoped by 2010. Subsequently, a strategic plan for 2011 – 2014 was produced in 2010, with

the view to make Grade R universal, i.e. accessible to all eligible children, by 2014 (Feza 2015).

Nevertheless, it is significant to note that the level of Grade R enrolment has increased substantially between 2001 and 2012 (Feza 2015; van der Berg, Girdwood, Shepherd, van Wyk, Kruger, Viljoen, Ezeobi and Ntaka 2013; Biersteker 2010). According to van der Berg *et al.* (2013), during this period, Grade R enrolment increased three-fold in public and independent school from 242 000 to 768 000, while another 55 000 was enrolled in other ECD centres. Hence, according to Feza (2013; 88, 6% of all 5 – 6 year-old children attended Grade R in 2011.

The increasing access to Grade R is, in my considered view, a positive development in that it enhances the chances of enabling young children; very early in their lives, an opportunities to access ECE, and by extension, the possibility of introduction to EE early in their lives is also increased. Nevertheless, as I shall try to amplify later in this discussion, there are various challenges that still need to be negotiated in order to make the Reception Year not only universal but to also enhance the quality of education provided in Grade R. The following point of discussion reflects, albeit briefly, on the monitoring and support in respect of ECE, especially Grade R, in South Africa.

2.3.2. Monitoring and Support

The processes of monitoring and providing support are some of the most essential inputs that contribute to both effective and efficient delivery of quality services by organisations and institutions. This is also true even with regard to the field of education. For example, Owusu-Mensah (2008) states that the strength of any education system largely depends on the quality of teachers, and in order for this quality to be attained; continuous development and on-going monitoring and support are essential. The South African Institute for Distance Education (2010: 15) concurs with this assertion by pointing out that, “it seems to be widely understood that a prerequisite for ensuring quality teaching is ongoing monitoring and support”. This ongoing monitoring and support is the responsibility of various stakeholders in education and should also be backed up by a strong legislative framework.

In South Africa, the provision of Grade R is, as per the provisions of White Paper 5, the responsibility of the DBE (Berry, Jamieson and James 2011; RSA and UNICEF 2005). Hence, UNESCO (2006: 4) writes that through “the policy framework outlined in the ECD

White Paper 5 of 2001...the DoE is responsible for the phasing in of Grade R in the system”. Similarly, informed by the guidelines contained in the same White Paper 5, and other relevant documents, the DBE has the responsibility to, among other things, “ensure that the institutional framework governing and facilitating the delivery of ECD services is improved and monitoring systems are introduced by establishing an improved system of registering and monitoring ECD centres; establishing norms and standards relating to early childhood education, providing guidelines in all official languages for caregivers on the management of centres and providing curriculum support” (Naicker 2010: 189). In a nutshell, White Paper 5 is the main vehicle through which the DBE is expected to go about the process of presenting Grade R in ECD centres. This does not, however, imply that other documents that are currently in use or that are still to be developed are any less significant in this regard.

The national office of the DBE relies, mainly, on the Provincial Departments of Education and their district offices to fulfil the mandate of implementing the Reception Year of high quality in appropriately registered ECD centres, be they public primary schools or community-based centres. These offices have the responsibility of taking the lead in providing the centres with all the necessary support. Naicker (2010) mentions the following as some of the areas that should be viewed as significant enough in terms of support needed by ECD centres, and therefore, must be provided for by the department of education when it comes to ECD centres: infrastructure, Learning and Teaching Support Material (LTSM), guidance on curriculum issues, financial support and the training of practitioners. Support around the already-mentioned and other related aspects, should be accompanied by ongoing monitoring by officials so as to, ultimately, provide a quality Reception Year that should help in building a strong foundation towards lifelong learning.

I must point out that, as indicated in this discussion, there is tangible evidence to suggest that the DBE has made some strides towards making the Reception Year accessible to as many eligible young children as possible. However, there is also some evidence which suggests that an array of challenges exist in terms of providing a meaningful and quality Grade R education that is accessible to all who need it. This could be attributed to some deficiencies, mainly, on the part of the department of education. In respect of monitoring and support provided to ECDs by the Provincial Departments of Education, the following challenge is highlighted by SAIDE (2010: 15):

In earlier report SAIDE (SAIDE 2007) found that, with the exception of Western Cape, which has a dedicated provincial office for ECD and Foundation Phase, and where there are up to 20 dedicated regional positions, most provinces lack the capacity and experience to run a comprehensive Grade R programme. Our conversations and more recent research appear to indicate that this is still the case.

The shortcomings referred to above made the National Treasury (2008: 6 as cited in SAIDE 2010: 15) caution that “adding Grade R to the existing responsibilities of people with no knowledge, and limited understanding of what it entails, is viewed as a problematic approach”. Therefore, it should be evident from the above-mentioned points that most provincial departments of education seem not to have the necessary capacity to enable the DBE to realise the ideal of enabling all deserving young children access to the Reception Year. In fact SAIDE (2010) underscores numerous points to accentuate the shortcomings of the DBE in respect of monitoring and support in Grade R. Let me hasten to indicate that because of the scarcity of literature that is relevant to the monitoring and support of Grade R in South Africa I shall, for the remainder of this subsection, refer exclusively to SAIDE (2010).

The challenges experienced by the provincial departments of education, in respect of monitoring and support in Grade R, also extend to aspects of financial management and the provision of resources. This point is clearly illustrated in the assertion by the National Treasury (2008: 4 as cited in SAIDE 2010: 15) that, “... the reality is that not many provinces have made a special provision for grade R infrastructure, furniture, outdoor play areas, security and ablution facilities”. In respect of the handling of funds by provinces and the districts, the National Treasury (2008: 7 in SAIDE 2010; 15) states that:

There is a very large budget for Grade R and the national Department has ensured very clear allocation to provinces. However, within provinces the financial planning processes are not conducted in a constant manner. In most provinces, funds are not delegated to districts, but rather are held centrally and paid directly to providers, contractors, schools and suppliers...when questions are asked at district level there is no knowledge of funding allocations, and at a school level the perception is of very limited funding being available...the general consensus is that money, is being spread too thinly...”

The points stressed above, particularly with regard to financial mismanagement, should be a matter of great concern. It does not bode well for the implementation of quality Grade R programs. In rounding this subsection on monitoring and support off, two points need to be mentioned as well, namely: the question of understaffing and lack of proper communication among officials of certain districts in some provincial departments of education.

According to SAIDE (2010: 22), “one of the main challenges is the problem of understaffing in the districts. For example, in Cradock, Graaff-Reinet and Sterkspruit there is only one DCES to attend to all Grades R – 3 activities”. This results in deficiencies in the coordination of ECD programs in areas affected by the problem of staff shortages. Furthermore, there seems to be a problem of miscommunication within certain sub-divisions in some districts. Additionally, SAIDE (2010: 22) points out that:

Other challenges outlined in a number of provinces included delays in infrastructure projects, procurement procedures and organisational challenges. For example, one province indicated that there is a structural separation between Curriculum Support and Institutional Development Support within the department. This leads to a number of challenges, including a lack of clear lines of communication between the two. So, often the institutional support doesn't correspond with the curriculum challenges facing Grade R teachers.

In view of the points made in this subsection, it is appropriate for Penn (2008: 31), in my view, to assert that “the support and monitoring is almost non-existent” in respect of the Reception Year in South Africa. In concluding this subsection, it is necessary to mention that having highlighted some of the challenges, notwithstanding the strength, regarding the monitoring and support that impact on the Reception Year, the question that needs an answer is; what implications do these challenges have in respect of the integration of EE in the Grade R class? I shall make an attempt to answer this question later in this discussion. For now, the next matter that needs to be reflected upon is the funding of ECE in South Africa.

2.3.3. Funding

The funding of Grade R in South Africa is carried out by the government, parents, non-governmental organisations and, generally, civil society (Berry, Jamieson and James 2011; Penn 2008; UNESCO-IBE 2006; DBE 2005). Since the majority of Grade R learners in South Africa, as indicated in the preceding subsection, are found in government public

primary schools, the bulk of funding comes from the government, in this regard, the DBE. This funding is in line with the norms and standards laid down by the department of basic education (DBE 2008). Each provincial department of education is responsible for funding the schools under its jurisdiction.

Although there are national norms and standards in respect of Grade R funding, it does not necessarily mean that there is uniformity across the provinces. There is provision for some minor variations hence, “the amount may differ slightly from one province to another” (DBE 2005: 4). The DBE advocates for a ‘pro-poor’ funding model in which learners found in the poorest schools receive more funding compared to those in better off schools. According to the DBE “quintile 1, 2 and 3 schools will receive enough funding to provide quality Grade R without needing to charge fees” (DBE 2005: 4). As far as the DBE is concerned, “the pro-poor approach is informed by two factors: it costs more to educate learners from disadvantaged backgrounds, and non-poor communities are in a better position to supplement the state’s resources through private resourcing” (DBE 2008: 6).

Similarly, the funding of Grade R learners is informed by the recommendations entailed in White Paper 5, and is on a per learner basis. In its norms and standards document, the DBE recommends that each Grade R learner in a school should be allocated an amount that is, at least, “equal to 70% of the total per learner cost for Grade 1” (DBE 2008: 8) in the same school. However, in instances of financial constraints the provincial department of education may allocate “a minimum of 50% of the Grade 1 per learner expenditure figure” (DBE 2008: 8). “However, this must be an interim arrangement only, and should not compromise quality” (ibid.).

In respect of community-based schools that cater for Grade R, funding is, generally, the responsibility of parents. These schools may only be funded by government if they register as independent schools (Berry, Jamieson and James 2011; DBE 2008). However, registration as an independent school does not automatically enable schools to receive funding. The provincial departments of education have to lay down certain criteria that must be fulfilled by the independent schools in order for them to be considered for funding. The position of the DBE is that, “a key factor in determining these criteria will be the need for experimentation and piloting that can add value to ECD service delivery as a whole” (DBE 2008: 18). Generally, and due to lack of funding by government, independent schools tend to be more expensive than the public schools (Shepherd 2008 cited in Naicker 2010: 191).

For the purposes of this discussion, I need to underline the fact that the financial provision made available for the funding of Grade R by government incorporates a variety of “inputs” including the salaries paid to practitioners. The following is an indication of some of the “inputs” catered for in the per learner “package” meant to fund the Grade R learners:

...per learner cost determined by the PEDs must cover the full cost of a basic package of inputs. This basic package of inputs must include the cost of an educator working as an ECD practitioner, teaching a class deemed reasonable by the PED, as well as a non-personnel recurrent inputs required by the Grade R learners such as learner support materials, minor building repairs, utilities such as electricity and water, administrative support, copying of materials and media collections (DBE as cited in SAIDE 2010: 15)

It is worth noting that the provincial education budget is a national mandate of treasury. The National Treasury allocates a budget to the DBE, in turn; the DBE allocates the budget to various provinces. Each provincial department of education applies its formulae to fund whatever inputs it deems part of its budget plans for a specific financial year. The inputs catered for include the Reception Year. Consequently, each province allocates a different amount to Early Childhood Development, including Grade R. For example, in 2005 the North West Province was the leading province, at R126 million, in terms of ECD funding. The Northern Cape, on the other hand, was the lowest at R15 million (Gauteng Department of Education undated: 15).

Apparently, there are numerous challenges associated with Grade R funding. Hence, writing in reference to Grade R funding, Feza (2015: 11) points out that “this funding is revealed to be thinly spread, this leads to poor quality provision” of Grade R education. The challenge of “poor quality” in the provision of Grade R education is also underlined by van der Berg *et al.* (2013: 2) who argue that “the existing literature shows poor quality in many ECD and Grade R centres”. According to Feza (2015: 11), it is due to the challenge of funding that there are problems such as “large class sizes, lack of learner/teacher support materials, and poor infrastructure provision in some areas”. It appears that apart from insufficient funding, the provision of quality Grade R is also negatively affected by challenges of financial mismanagement.

Various authors (Feza 2015; van der Berg 2013 *et al.*; Penn 2008; SAIDE 2010) raise an array of concerns regarding to the handling of ECD funding by some provincial education

departments. For example, Streak (2008 cited in Penn 2008: 31) states that “there is considerable evidence from recent case studies carried out by HSRC to suggest that much of the money allocated to ECD at provincial level is unspent or redirected to other areas because of lack of capacity”. Similarly, the National Treasury (2008: 4 quoted in SAIDE 2010: 15) concurs with Streak (2008 in Penn 2008: 31) by pointing out that, “...the reality is that not many provinces have made special provisions for Grade R infrastructure, outdoor play areas, security and ablution facilities”. Furthermore, the National Treasury (2008 cited in SAIDE 2010: 15) argues that “there are difficulties and inconsistencies with delegation of funds once they get to the provinces”. The preceding point is reiterated by Feza (2015: 11) who writes that, there are “inconsistencies in the use of funds of Grade R at provincial level, such as directing funds into other priorities rather than Grade R, and money remaining unspent”. Additionally, apart from inconsistencies in the spending of Grade R funds, van der Berg *et al.* (2013: 2) point out that there are also “inaccuracies on how Grade R spending is categorised or recorded”.

It should be evident from the issues covered above that the government is making some strides in respect of funding the implementation of the Reception Year. However, it seems to me that there are still many hurdles to overcome in respect of the handling of funds by various provincial departments of education. Apparently, the mismanagement of funds has far reaching implications when it comes to the presentation of quality educational programmes in Grade R, and by extension; the integration of EE into this level of education is, in all likelihood, also compromised. The other point that warrants some attention because of its profound impact on the implementation of educational programmes in Grade R pertains to teacher training and qualification.

2.3.4. Teacher Training and Qualification

One of the greatest challenges facing ECDs in South Africa is the level of teacher training and teaching qualifications. Until recently, the norms and standards for Grade R teacher training have been non-existent. Hence, for a long time, many institutions and individuals who have an interest in the implementation of Grade R have been without appropriate guidelines regarding the qualifications required for one to be considered ‘qualified’ to teach the Grade R learners. This uncertainty is discernible from the following assertion by Atmore, van Niekerk and Ashley-Cooper (2012: 15) who write that “there is no clear statement available anywhere as to who is employable as a Grade R educator, what their minimum

qualification should be, or which institutions/agencies should train them and certify them”. Consequently, the training of Grade R teachers has been, apparently, ‘fragmented’ with training institutions following their individual guidelines in respect of Grade R teacher training. It would seem that, over the years, some training institutions have been guided by “the National guidelines for costing Grade R” (SAIDE 2010: 16 – 17) which recommended ECD NQF LEVEL 4 as an entry level for Grade R teachers (ibid.). However, SAIDE (2010) asserts that even this recommendation had not been applied consistently by provinces. For instance, the School Governing Bodies in Gauteng require at least an ABET Level 4 qualification and 3 years ECD experience (SAIDE 2010).

At the same time, it is essential to point out that even if attempts had been made to fulfil the recommendation of appointing ECD NQF Level 4 qualified practitioners for the Reception Year, and for ECDs in general, evidence suggests that at the moment there is a serious shortage of qualified Grade R teachers. Umalusi, the Centre for Education and Policy Development (CEPD) and Wits (2010) assert that research underlines an existence of challenges in respect of the qualifications of Grade R practitioners by pointing out that:

Historically, many of the ECD practitioners are women who do not have Grade 12, but who have completed either the ECD Level 4 and/or the ECD Level 5. Some of these women have gone on to teach Grade R. The draft findings of the HSRC Teacher Qualification Survey (TQS) (DoE 2009) commissioned by the DoE, provide some interesting insight into the qualification status of Grade R teachers. The survey was of a statistically significant sample of schools nationally. 7 380 serving teachers in 580 public schools completed survey questionnaires. In the sample there were 374 Grade R teachers of which only 42% have a professional teaching qualification. Of the 42% with recognised professional teaching qualifications such as a Teacher’s Diploma or NPDE, only 12% have a specialisation in pre–primary teaching. Less than 5% of the professionally qualified Grade R teachers (i.e. the other 48%) have ECD/ABET qualifications. Those who are qualified mostly have the old teaching diploma, rather than a qualification from HE” (Umalusi, CEPD and Wits 2010: 19 – 20).

In essence, the above findings imply that there is a serious shortage of teachers who are adequately trained to teach the Grade R learners in most parts of South Africa. This argument is amplified and further elaborated by Naicker (2010: 193) who writes that:

In South Africa, ECD practitioners have the equivalent of matric, are employed in the poorest schools. They lack pedagogy suitable for poor environments and lack intellectual tools to understand the relationship between poverty and education. Many have not been socialised into an intellectual culture. Therefore, they may not regard reading as important. They may not understand the implications of a print environment for teaching and learning. Teachers in ECD classrooms in South Africa should have skills that enable them to understand the context they are teaching in, understanding the learners in relation to the context, be creative, reflexive and imaginative, and generate problem-solving strategies.

The assertion presented by Naicker (2010), above, is in agreement with the research conducted by the School of Education of the Witwatersrand University (WoSE 2009) in the province of Gauteng. Furthermore, this research emphasises the lack of guidance on the side of practitioners as one of the hindrances to their ability to provide a quality service to the Grade R learners. This point is captured in the following assertion by Umalusi, CEPD and Wits (2010: 8 – 9) who write that:

As our research (WoSE, 2009) has shown, many Grade R practitioners in Gauteng are unqualified, lack status and have insufficient support from school management teams, school principals and HoDs. The lack of support comes, we found, from a general limited understanding of the unique requirements of Grade R and the fact that it should not be a ‘watered down’ Grade 1. Even the practitioners themselves, it was found, have a limited understanding of high quality practice, they lack sufficient insight and layered understanding of appropriate practice as well as the impact of contextual factors. Furthermore, their understanding of the range of responsibilities in relation to rich language usage as well as the optimization of learning and teaching support materials (LTSM) and assessment is limited. There is also evidence of minimal understanding of how to implement meaningful play that can enhance learning both in and outdoors. A good Grade R practitioner knows when to mediate in the context of play and when to stand back. Mediation used efficiently allows the maximization of teachable moments that occur spontaneously in the Grade R day. Practitioners also pay insufficient attention to opportunities for the implicit and explicit promotion of values inherent in the NCS, for example, respect.

The challenges highlighted in preceding paragraphs in respect of Grade R teaching qualifications are also underlined by more recent literature (Feza 2015; van der Berg *et al.* 2013). For example, Feza (2015) points out that there is a qualification gap among the Grade R teachers with some of them being in possession of Grade 12 only while there are also those with postgraduate degrees. Furthermore, Feza (2015: 13) asserts that in 2011 “only 39% of Grade R teachers in public schools had a diploma; about 11% a degree or postgraduate diploma; 13% with ECD Level 4 and 15% had an ECD Level 5 certificate”. Additionally, apart from the gaps in Grade R teacher qualifications, as suggested in preceding paragraphs, some researchers found that; “practitioners have limited understanding of their role in child development” (van der Berg *et al.* 2013: 2). It should be evident from the preceding points that South Africa is plagued by challenges in respect of the level of teaching qualifications among Grade R teachers.

In concluding this discussion, one can only hope that the recent promulgation of the norms and standards for Grade R teacher training by the Department of Higher Education and Training (DHET) will culminate in the provision of more focussed quality training to teachers and thereby put an end to the uncertainty which has, for some years, characterized the training of Grade R teachers in South Africa (SAIDE 2010; Naicker 2010). In February 2015, the DHET gazetted the *Revised Policy on the Minimum Requirements for Teacher Education Qualifications*. One of the key inclusions in this policy is the Diploma in Grade R Teaching as the minimum qualification for Grade R teaching in South Africa. The purpose of the diploma is highlighted by the DHET (2015: 52) as follows:

The Diploma in Grade R Teaching is the minimum qualification for Grade R teachers. The purpose of the Diploma in Grade R Teaching is to develop teachers who can demonstrate general principles, as well as focused knowledge and skills appropriate for Grade R teaching. The qualification requires in-depth specialisation of knowledge, as well as practical skills and experience in a Grade R classroom teaching context. As part of the qualification, students are expected to gain experience in applying such knowledge and skills in the context of working with Grade R learners in a school.

Certainly, the introduction of the minimum qualification required for people to practice as Grade R teachers should auger well for the delivery of quality Grade R programmes and, by extension; the integration of EE could be positively affected, at least in the long run.

However, as things stand at the moment, owing to the legacy of inadequate Grade R teacher training as outlined in this subsection, in my considered view, it is to be expected that inadequately trained practitioners would struggle to deliver the curriculum in a manner that would help young children to develop. And, a poorly delivered curriculum would have profoundly negative implications for the implementation of environmental learning in the Reception Year. The next subsection focuses on curriculum issues in respect of the Reception Year in the context of South Africa.

2.3.5. Curriculum

The post-1994 era culminated in the introduction of the new curriculum in South African public schooling system. However, owing to the challenges that were noted as the processes of curriculum implementation unfolded, the department of education had to, inevitably, undertake, ongoing curriculum reforms. This point is aptly captured by the Minister of Education, Ms Angelina Motshekga, in her preface of the CAPS document in which she asserts that “since 1997 we introduced outcomes-based education to overcome the curricular divisions of the past, but the experience of implementation prompted a review in 2000. This led to the first curriculum: the Revised National Curriculum Statement Grade R – 9 and the National Curriculum Statement Grade 10 – 12 (2002). Ongoing implementation challenges resulted in another review in 2009 and we revised the Revised National Curriculum Statement (2002)” (DBE 2011b: 30). The foregoing statement is not entirely true with regard to Grade R. The following assertion by Clasquin-Johnson (2011: 4 – 5), an individual who has worked with ECD practitioners for many years, is more appropriate in this regard:

Since 2004, Grade R teachers, who are mostly under-qualified and have inadequate resources, have been compelled to implement the official curriculum. Prior to this, there was no official curriculum and teachers created their own curriculum based on the universal milestones of development.

At the moment, the official curriculum for Grade R is contained in the National Curriculum Statement for Grade R – 12, and it came into effect in January 2012 (DBE 2011b). “In general terms the curriculum aims to develop the full potential of each learner as a citizen of a democratic South Africa. It seeks to create a lifelong learner who is confident, literate, multi-skilled with the ability to participate in society as an active citizen” (UNESCO 2006: 6). The Grade R class caters for three subjects: Home Language, Mathematics and Life Skills, and there are clear indications as regards time allocation in respect of teaching time

per subject per week. Home Language has been allocated ten hours per week, Mathematics seven hours per week while Life Skills, which should cater for aspects such as beginning knowledge, creative arts, physical education and personal and social wellbeing, has been provided six hours each week (DBE 2011b). Additionally, the Grade R curriculum espouses the constitutional imperatives of South Africa. These include: social transformation, human rights and social justice, valuing of indigenous knowledge systems, credibility, quality and efficiency, active and critical learning, high knowledge and skills, progression and inclusivity (DBE 2011a; DBE 2011b; DBE 2011c).

One of the key aspects regarding the curriculum document that came into effect in January 2012 is that, unlike the previous documents, it is clearer and more detailed. For example, the framework has clear specific aims, skills, focus content areas, the weighting of content areas, guidelines on dealing with barriers to learning mathematics and the role of aspects such as mental mathematics in the curriculum, and so on (DBE 2011b). The document also contains a lucid outline on how a Grade R daily program should look like. This includes suggestions on the roles of both the practitioner and the learner in the learning and teaching context. Another point of significance is that the document has an overview that guides the practitioners on the topics/themes that should be addressed in each quarter of the school year. Likewise, an assessment guideline detailing the procedures and processes that should be followed is provided as well. The policy document also calls upon the Grade R practitioner to consider a variety of factors that should enable the holistic development of a child. For example, in the Grade R Mathematics policy document, this call for the holistic development of a child is aptly presented as follows:

All aspects of Grade R including the classroom environment and teaching and learning practices, should promote the holistic development of the child. Development that is an integral part of emergent numeracy includes cognitive development (problem-solving logical thought and reasoning), language development (the language of mathematics) perceptual motor as well as emotional and social development. All these aspects can be developed through stories, songs, rhymes, finger games and water play, educational toys including board games, constructions and exploration activities (mass, time capacity, measurement, etc), imaginative play, outdoor play and ‘play games’...” (DBE 2011b: 14).

In order to facilitate the implementation of the curriculum, the DBE has made some efforts to provide some LTSM to schools. For example, SAIDE (2010) indicates that various support materials are available on the “Thutong website” (the resource website of the department of education). These LTSMs include the following:

A Numeracy Handbook for Foundation Phase Grade R – 3 and a ‘Grade R Teacher Resource Book’ among others. There is also “ A Grade R Toolkit, known as the ‘pizza box’ because it comes in a brown cardboard box, which consists of, inter alia, lesson plans for Grade R, milestones and posters (SAIDE 2010: 16).

However, it essential to mention that these ‘pizza boxes’ are not distributed to all schools (DBE 2009). Similarly, the schools that received the ‘pizza boxes’ do not usually know how to use them (SAIDE 2010). The Department of Basic Education seems to have a tendency of sending resources directly to school. Unfortunately, the teachers who receive them do not usually know what to do with them. For example, anecdotal evidence solicited through informal interactions with one Senior Education Specialist for Foundation Phase in one of the education districts the North West Province suggests that some schools did receive both the ‘pizza boxes’ and some Handbooks that were, to use her own words of frustration, “dumped” at schools for use by Grade R. Apparently no explanations are provided as regards the manner in which such resources ought to be used. A problem arises when teachers enquire from the district offices as to what to do with these resources only to hit a wall because even the officials do not know about the resources.

Besides the challenges already–mentioned, there are several others that were noted by several researchers as well. For example, in its study regarding the state of affairs in the Reception Year, the National Treasury of South Africa made the following findings, among other things, that:

There is much confusion as to what quality Grade R entails. It is vitally important that the DoE sets out clearly what a quality Grade R class is, including being explicit about the importance of structured play for this age group, the expected methodologies to achieve Grade R learning outcomes, and a number of measures and indicators that can be used to judge the quality of provision. Without such clarity it is likely that the focus will continue to be on numerical

targets...unfortunately these...do not equate to quality (National Treasury 2008: 11 cited in Umalusi, CEPD and Wits 2010: 18)

Equally, the research conducted by the DBE in the Eastern Cape also revealed that there is a long way to go before the programmes in Grade R could be considered to have reached an 'ideal stage'. The report states, in part, that:

The province has increased access to Reception Year. The quality of the classrooms and the educational programmes, however, may generally be harmful to the wellbeing of children; this raises concerns about the readiness of schools to incorporate children into the Reception Year....

The quality of learning and teaching in 250 Reception Year classrooms, however, has been found to be exceptionally low. Fully competent ECD programmes (according to the NCS for Reception Year and the level 4 ECD practitioner outcomes) exist in only about twelve schools of the two hundred and fifty which were visited in this first cycle. (Eastern Cape Department of Education 2008: 9 & 97 as cited in Umalusi, CEPD and Wits 2010: 18 – 19).

In concluding this discussion, I must mention that several points that are of concern were raised in this subsection. Most of these points have serious implications for the integration of environmental learning in Grade R. As I shall attempt to reflect later in the next point of discussion, some of the issues raised in this section have serious implications for the learning and teaching and, by extension, the integration of EE in Grade R. In the following section I focus on the integration of environmental learning in Grade R.

2.3.6. The Integration of Environmental Education in Grade R

The National Curriculum Statement R – 12 (NCS) currently in use in South Africa is, just like the curriculum policy statements preceding it, designed with the view to accommodate environmental learning. As I shall demonstrate later in this discussion, this is discernible from some of the principles entailed the Curriculum and Assessment Policy Statements (DBE 2011a; DBE 2011b; DBE 2011c). However, before I elaborate further on this point, it is necessary in the interest of this discussion to underline that the accommodation of environmental learning in the curriculum was informed by an array of developments undertaken by various stakeholders both in South Africa and across the globe, for example,

Non-governmental Organisations (NGOs), governments, environmentalists, lobby groups, and so forth (Maila 2003).

The commitment to the accommodation of environmental learning in the curriculum, both in South Africa and elsewhere, could be attributed to, among other things; the establishment of the International Union for Conservation of Nature's (IUCN), in which; during its founding conference in 1948 the concept of 'Environmental Education' was used for the first time (Palmer 1998). To this day, an array of activities, notably, conferences, workshops and numerous other programmes; which have sought to highlight the plight of the deteriorating environment emanating from human actions and the concomitant need to promote environmental learning, continue to take place globally. In view of the fact that the number of such developments is, somewhat, huge for one to provide a detailed account thereof; I provide only a brief outline in the form of a table, of some of the events that could be considered as having contributed to the efforts of enabling environmental learning at school level; both in South Africa and elsewhere.

Table 2.1: Some of the International Events that Contributed towards the Integration of EE in School Curricula

International Event	Period	Contribution to the Course of EE
International Union for Conservation of Nature (IUCN) Conference	1948	IUCN officially founded; the term 'Environmental Education' is used for the first time (Palmer 1998)
UN Conference on the Human Environment	1972	The conference underlined the importance of education in respect of environmental matters for both younger and older generations; contributed to the formation of the United Nations Environment Programme(UNEP) (Palmer 1998)
The Belgrade Conference	1975	The Belgrade Charter was adopted. This charter is a global framework for

		Environmental Education (Palmer 1998)
The Tbilisi Conference	1977	The first inter-governmental conference. It prepared the recommendations for the application of EE in formal and non-formal education sectors (Palmer 1998).
World Commission on Environment and Development	1987	Produced the document <i>Our Common Future</i> (the Brundtland Report). The report presented a global agenda on sustainable development (Palmer 1998).
UN Conference on Environment and Development (Earth Summit)	1992	Numerous documents were signed including the agreements on Agenda 21 , the document containing a global plan of action to promote sustainable development (Palmer 1998)
UN General Assembly Special Session on the Environment	1997	Reviewed the implementation of Agenda 21 ; renewed commitment to sustainable development (UN ⁹)
World Summit on Sustainable Development (WSSD)	2002	Highlighted education as an indispensable element for achieving sustainable development; proclaimed the period 2005 – 2014 as the UN Decade of Education for Sustainable Development (UN ¹⁰)

⁹ <http://research.un.org/en/docs/environment/conferences>

¹⁰ un.org/en/development/devagenda/sustainable.shtml

UN Decade of Education for Sustainable Development	2005 – 2014	Focused on activating educational resources, globally, to advance the course of a more sustainable future(UNESCO ¹¹)
UN Conference on Sustainable Development	2012	Reaffirmed previous commitments to Sustainable Development; endorsed the conference outcome document of the entitled " <i>The future we want</i> " (UN ¹²)

It should be evident from the above table that, indeed, there are numerous events that contributed to the global efforts towards enabling the integration of environmental learning, not only at school level but in other facets of society. Having reflected on the global scene, I now discuss the current situation in respect of the Grade R curriculum in South African, especially, as regards the position of environmental learning. However, before I do so, I reflect very briefly on some of the circumstances and factors that preceded and, subsequently, led to the current status of EE in the Grade R curriculum (and of course the other levels in our school education system as well).

Literature (for example, Le Grange 2002; Ballantyne and Oelofse 1989¹³) suggests that prior to the 1990s – the period which was, in my view, characterized by tangible changes that led to the infusion of environmental learning in the school curriculum in South Africa – there were some efforts that were made to enable the accommodation of EE in formal schooling in South Africa. For example, Ballantyne and Oelofse (1989: 7) point out that the then government tried, through “a Cabinet Committee on Environmental Conservation” which was established, to draw “attention to the importance of environmental education in their recommendations regarding a National Policy Environmental Conservation” (ibid.).

¹¹ UNESCO, 2005, UN Decade of Education for Sustainable Development 2005 – 2014: The DESD at a glance Paris: UNESCO

¹² <https://sustainabledevelopment.un.org/rio20>

¹³ According to Ballantyne and Oelofse(1989) the following literature provides a detailed history of EE in South Africa prior to the 1990s: Hurry, L,B(ed) 1987, Teaching for Environmental Conservation, Pretoria: Council for the Environment; Irwin, P, 1984, the Origin and Development of Environmental Education – a World Perspective, South African Journal of Environmental Education, 2: 7 – 9.

Subsequently, an Environmental Conservation Act of 1982 which led to the establishment of the Council for the Environment in 1984 came into being (Ballantyne and Oelofse 1989). It was through this Council on Environment that a White Paper on Environmental Education (ibid.) was drawn in 1989. However, that White Paper which “was not broadly inclusive” (Le Grange 2002: 84); did not get to be implemented since it was never ratified in parliament (ibid.). Therefore, it was during the 1990s that meaningful and collective initiatives and consultations, which involved various stakeholders, occurred; eventually culminating in the accommodation of environmental learning in the school curriculum. Accordingly, I provide a brief reflection on some of the efforts by various stakeholders that contributed to the current status of EE in the school curriculum.

2.3.6.1. Some of the Factors that Contributed to the Infusion of Environmental Learning in South Africa in the 1990s and Beyond: A Brief Reflection

In 1995 the Environmental Education Policy Initiative (EEPI) produced a source document for curriculum development in environmental education (EEPI 1995). This document was meant to encourage debate among various stakeholders “from classroom to national level” (EEPI 1995: i) with the view to help them explore some ideas that would lead not only to an enhanced orientation towards the teaching of environmental topics but “to promote curriculum development in environmental education” (ibid.) as well. The EEPI was established through the efforts of the Environmental Education Association of Southern Africa¹⁴ (EEASA) in 1992 (Pillay 2004).

According to Pillay (2004: 72), “in 1996 the success of the EEPI led to the development of the Environmental Education Curriculum Initiative (EECI)”. This is yet another initiative that contributed, significantly, towards the accommodation of environmental learning in the school curriculum in South Africa. In fact, the EECI contributed to the drafting of “the document entitled *Enabling Environmental Education in the Outcomes-Based Curriculum Framework*, which was aimed at supporting policy and curriculum initiatives” (Pillay 2004:

¹⁴ EEASA – The Environmental Education Association of Southern Africa (EEASA) was founded in September 1982 as a result of interaction between educationalists and environmentalists. It is a multidisciplinary Association concerned with the education process, which leads to changes of attitude and behaviour towards the environment <http://eeasa.org.za/the-association/>. It endeavours to achieve this by providing opportunities for the exchange of ideas and opinions on environmental education through its publications, the annual conference and workshops, and the activities of working groups in the regions <http://www.botany.uwc.ac.za/inforeep/eeasal.htm>.

73). Hence, when curriculum 2005 came into being in 1997, environmental learning was catered for through the theme “Environment” in the curriculum (ibid.).

The other project which contributed significantly towards the integration of environmental learning came as a result of the collaboration between the government of Denmark and the South African government in 2000 (Pillay 2004). This project which came to be known as the National Environmental Education Project for the General Education and Training (NEEP–GET) band was aimed at enabling the realisation of environmental learning in Grades R to 9. Therefore, it was through the NEEP–GET project that the department of education was able to issue a set of nine booklets to schools (DBE 2004). This was intended to assist teachers with the interpretation of the theme “Environment” in each of the eight Learning Area Statements of the Revised National Curriculum Statements (ibid.).

The above–mentioned initiatives were certainly not the only ones that led to the infusion of EE in the South Africa. Indeed, there are numerous other factors that contributed to the realization of environmental learning in the school curriculum. Among these factors a number of policies, programmes and legislative guidelines come to mind. Hence, in the interest of this thesis, I reflect on the following documents: the Reconstruction and Development programme (1994), the Bill of Rights – chapter two of the Constitution of the Republic South Africa (1996), the National Environmental Management Act (1998), the White Paper on Education and Training (1995), and the Revised National Curriculum Statement (2002) as some of the factors that contributed to the realisation of EE integration in the school curriculum in South Africa.

2.3.6.2 The National Policy Guidelines that Contributed towards EE in South Africa

There are numerous policies, laws and/or programmes that contributed to the ultimate infusion of environmental learning in the school curriculum in South Africa. In this subsection I highlight only a few of them and provide some of the aspects of those policies/programmes which indicate that, indeed, the environment needs attention.

(vi) The Reconstruction and Development Programme (RDP) – 1994

The Reconstruction and Development Programme (RDP) was conceived by the African National Congress, the ruling party in South Africa, and subsequently ratified as one of the policies through which government could address the imbalances of the past. Among other things, the RDP document acknowledges that the numerous practices, by the previous

government, that led to the degradation of the environment. Accordingly, the document points out that, “South Africa's apartheid policies, combined with the underregulated activities of local and transnational corporations, contributed to the degradation of environmental resources, including soil, water and vegetation; they encouraged the misuse of fertilizers and pesticides” (ANC 1994: 42). In light of these and other challenges, the RDP document recommends that environmental education should become one of the strategies to address the challenges affecting the environment. Hence the ANC (1994: 43 – 44) proposes that:

Environmental considerations must be built into every decision....strategies to include *environmental education programmes* to rekindle our people's love for the land, to increase environmental consciousness amongst our youth, to coordinate environmental education with education policy at all levels, and to empower communities to act on environmental issues and to promote an environmental ethic....[my emphasis].

In my view, it should be evident from the above–mentioned point that that, indeed, the RDP policy made a meaningful contribution towards enabling the integration of EE in the South African school curriculum. Likewise Chapter 2 – Bill of Rights of the Constitution of South Africa is another document that highlights the significance of the environment attaches a lot of significance to the environment, especially the human rights.

(vii) The Bill of Rights – 1996

The Bill of Rights underlines not only the rights of South African citizens to a healthy environment but the need to protect the environment and resources. The importance of sustainable development for the benefit of present and future generations is also emphasized. The Bill of Rights highlights the preceding points as follows:

Everyone has the right – (a) to an environment that is not harmful to their health or wellbeing; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development (Republic of South Africa 1996: 9).

The above excerpt is one of the key reasons for the inclusion of environmental learning in the school curriculum in South Africa. As shall be illustrated later in this section, the curriculum statements refer to the constitution of the country as the basis for the inclusion of topics related to environmental learning in the curriculum.

(viii) The National Environmental Management Act – 1998

The National Environmental Management Act of 1998 is another document which underscores the importance of, among other things, taking measures to address the challenges affecting the environment, especially the challenge of environmental degradation. There are numerous points highlighted by this act which illustrate that, indeed, on-going interventions are needed to offset the multitudes of challenges affecting the environment. However, in the interests of this discussion I highlight only the one which relates specifically to environmental learning. Accordingly, the act underlines the importance of environmental education in promoting awareness about environmental challenges among South Africans by stating that, “community wellbeing and empowerment must be promoted through *environmental education*, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means”(Department of Environmental Affairs and Tourism. 1998: 12) [my emphasis].

It should be evident from the preceding points that the National Environmental Management Act could be regarded as one of the factors that enabled the inclusion of environmental learning into the school curriculum in South Africa. Hence, as the next points indicate, commencing with the White Paper on Education and Training; all the curriculum statements used to guide teaching and learning in the post-1994 era in South Africa have made an effort to accommodate environmental learning.

(ix) The White Paper on Education and Training – 1995

The White Paper on Education and Training could be regarded as the foundational document for all curriculum statements that have served to guide learning and teaching in South Africa, in the era of democracy. Just like the documents already highlighted, in this discussion, as contributors to the inclusion of EE in the curriculum, this document also underlined the importance of environmental learning in the South African public school curriculum. Chapter four of the White Paper on Education and Training contains the *Values and Principles of Education and Training Policy* (DBE 1995). Principle number 20 of this document

underlines the importance of EE and the concomitant need to integrate EE across all levels and programmes of education as follows:

Environmental education involving an inter-disciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training system, in order to create environmentally literate and active citizens and ensure that all South Africans, present and future, enjoy a decent quality of life through the sustainable use of resources (DBE 1995: 18).

As already pointed out in preceding paragraphs, apart from the White Paper on Education and Training; all curriculum statements which came after this document also underlined the importance of environmental learning. The Revised National Curriculum Statement Grades R – 9 is one of those documents.

(x) ***The Revised National Curriculum Statement (RNCS) – 2002***

In the year 2000, the curriculum review committee appointed by the then Minister of Education Kader Asmal presented a report in which a set of recommendations on how “to streamline and strengthen Curriculum 2005¹⁵ (DBE 2002).” This report culminated in the Revised National Curriculum Statement. Among the elements that formed part of the curriculum were its principles, these principles which “build on the vision and principles of the Constitution and Curriculum 2005” (DBE 2002: 10). The RNCS had, among the principles, “Social Justice, a Healthy Environment, Human Rights and Inclusivity” (ibid.). This principle reads as follows:

The curriculum can play a vital role in creating awareness of the relationship between human rights, a healthy environment, social justice and inclusivity. In some countries this is done through subjects such as civics. The Revised National Curriculum Statement has tried to ensure that all Learning Area Statements reflect the principles and practices of social justice, respect for the environment and human rights as defined in the Constitution (DBE 2002: 10).

The above-mentioned principle is, in my view, cardinal in terms of underlining the significance of environmental learning in the school curriculum. Hence, it was carried through, albeit with some modification, to the National Curriculum Statement (NCS)

¹⁵ The curriculum which came into effect in 1997 was called Curriculum 2005 or C2005.

currently in use. My next point of discussion focuses on the position of environmental learning in the NCS.

2.3.6.3. The National Curriculum Statement Grades R – 12 (NCS) and the Integration of Environmental Education in Grade R

In the next few points I argue that environmental learning is accommodated in Grade R. However, it is essential to first indicate that the National Curriculum Statements Grades R–12 (NCS), the curriculum currently in use in South African public schools, just like the RNCS (2002), also came as a result of the review ratified by the Minister of Education. Hence, in presenting the background to this curriculum, the department of education points out that:

The *National Curriculum Statement Grades R-12 (NCS)* stipulates policy on curriculum and assessment in the schooling sector. To improve implementation, the National Curriculum Statement was amended, with the amendments coming into effect in January 2012. A single comprehensive Curriculum and Assessment Policy document was developed for each subject to replace Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines in Grades R-12 (DBE 2011a: 3).

The subsection on the general aims of the curriculum highlights a number of principles that form the basis of the National Curriculum Statement (NCS) Grade R – 12 (DBE 2011c). Accordingly, the NCS has the following as one of its principles:

Human rights, inclusivity, environmental and social justice: infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa. The National Curriculum Statement Grades R-12 is sensitive to issues of diversity such as poverty, inequality, race, gender, language, age, disability and other factors (DBE 2011c: 5).

In addition to the above points, the CAPS document, cited above, also highlights numerous other aims of the National Curriculum Statement Grade R – 12. In the interest of this discussion, the following aim is worth mentioning, namely; “to produce learners that are able to use science and technology effectively and critically showing responsibility towards the environment and the health of others” (DBE 2011c: 5).

It should be patent from the preceding and, indeed, an array of other aims; that the National Curriculum Statement (NCS) seeks to accommodate environmental learning throughout the schooling system, commencing in Grade R. This can be gleaned from the CAPS documents that serve to guide teachers in respect of each of the subjects taught in Grade R (DBE 2011a; DBE 2011b; DBE 2011c). In the interest of this study, particularly in view of the practical examples presented in chapter three, I shall highlight just a few points to illustrate that environmental learning is accommodated in the Grade R curriculum. Although, in this discussion, I only make reference to the subject called Life Skills, at the end of this discussion I do provide, somewhat, detailed tables to highlight that in fact all three subjects, namely; Language, Mathematics and Life Skills, catered for in Grade R, do accommodate environmental learning. This decision is based on the fact that, my analysis of the already mentioned Grade R documents suggests that Life Skills, vis-a-vis the other two subjects, provides more opportunities that enable environmental learning. Hence, the English Language document (DBE 2011a) underlines the importance of an integrated approach to Grade R teacher, and further recommends that the Grade R teacher may use any of the topics in the Life Skills document for language teaching purposes. For this reason, it is my contention that the Life Skills document provides a larger scope for the integration of EE, thus I am using it for illustration purposes in this discussion.

The subject, *Life Skills*, covers study areas such as *Beginning Knowledge*, *Personal and Social well-being*, *Creative Arts* and *Physical Education* for learning and teaching purposes in Grade R (DBE 2011c). All the study areas catered for in *Life Skills* accommodate the infusion of environmental learning. For example, in *Beginning Knowledge* as well as *Personal and Social well-being* the topics that deal with the child, his/her immediate environment, family and the community are covered. This includes “festivals and special days celebrated by the community” (DBE 2011c: 15). Similarly, topics related to seasonal changes and their effects on the environment as well as issues about farming, healthy environment, etcetera are also addressed in the study areas called *Beginning Knowledge* and *Personal and Social well-being* (DBE 2011c). In my view, the topics covered in the already-mentioned areas provide the learners with opportunities to learn about their immediate environments and beyond.

In the same breath, study areas such as *Creative Arts* and *Physical Education* also accommodate environmental learning in Grade R. For example, in *Creative Arts* various forms of art such as storytelling, poetry, drama and music are accommodated. These forms of

art could be done through the exploration of the immediate environment. Learners could learn about creative arts that exist within their immediate environments and beyond. For example, in one of the topics teachers are encouraged to engage learners in “dramatisation, using an existing indigenous story, poem, nursery rhyme or song as stimulus” (DBE 2011c: 23). Activities of this nature require learning and teaching to be more about knowing one’s environment. Similarly, the study in *Physical Education* enables learners to engage in activities such as sports and games including “buck and hunters, cat and mouse, wolf and sheep and etcetera” (DBE 2011c: 28). Through such games learners do not only get a chance to develop their motor skills but they could be helped to develop cognitively as well. This could be done through learning about relationships that exist among different organisms in the ecosystems including predation. Ecosystems are significant aspects when it comes to learning about the environment (Arms 1994). Likewise, this could enable them to learn *for* the environment by discussing way in which a particular species of animals, e.g. rhino, could be saved from extinction.

Therefore, based on the preceding points, it is my view that the NCS, through the CAPS documents (DBE 2011a; DBE2011b; DBE 2011c), highlights both explicitly and implicitly that EE integration is possible in Grade R. The tables below illustrate how environmental learning is accommodated in the Grade R curriculum. In these tables I make an attempt demonstrate that various topics/themes, which were drawn from the Grade R CAPS documents, could be used to enable the integration of EE in Grade R. Furthermore, I illustrate how some of the EE approaches postulated by Lucas (1972), as discussed in chapter one (*refer to 1.7.4*) of this study; namely; education *about*, *in/through/from* and *for* the environment, could be used in the integration of environmental learning in Grade R. I also highlight some of the aspects that could be developed through the integration of EE in the same class. The following are therefore the tables which depict the explicit and implicit curriculum expectations for the integration of environmental learning in Grade R:

Table 2.2: The National Curriculum Expectations for EE Integration in Grade R: English Home Language

THEME/TOPIC	EE APPROACH	CHILD DEVELOPMENT ASPECT (INCLUDING BUT NOT LIMITED TO...)
	<i>ABOUT, IN AND FOR THE ENVIRONMENT</i>	
Weather Chart	Learners could “talk about the day, date, the weather chart , children who have birthdays and any special events for the day” (DBE 2011a: 11).	Mainly cognitive development. Possibility of the acquisition of knowledge about the weather processes that occur in their immediate environment.
News	In addressing this topic, the teacher could give himself/herself time to listen to and “hear a few children share their news , ‘show and tell’ about a picture or object, talk about the diary, sports, concerts, topical events and story-telling ” (DBE 2011a: 11)	Cognitive development, mainly, but other levels/aspects of development can be catered for, e.g. awareness (knowledge) about events in the immediate environment and beyond.
Outdoor <i>free play</i>	“Climbing on a wooden climbing frame or riding on the cycle track ... opportunities for children to ‘read’ road signs ” (DBE 2011a: 20 – 21). Learning about the environment.	Promote spatial awareness ; Encourage letter/word recognition. (DBE 2011a).
Stories, songs	“Listening to and talking about stories and singing songs”	Development include; cognitive, physical,

	(DBE 2011a: 23). Learning about their environment is possible since these stories and songs can be based on themes about the learners' environment.	emotional, linguistic, spatial awareness. (Singing would involve dancing and movement, and talking about stories also involves imagination/thinking).
Pictures <i>in</i> poster and common objects <i>in</i> pictures	Talking about and "recognizing common objects in pictures" (DBE 2011: 23 and 26). Could promote learning about the environment.	Knowledge about various people and/or events and phenomena.
Sound <i>recognition</i>	Learning about sounds and organisms as well as phenomena in their immediate environment and beyond (DBE 2011a).	Cognitive skills (e.g. thinking); Perceptual skills (e.g. visual memory, auditory memory), etc. Emotional development (certain sounds evoke certain emotions), etcetera.
Recognizes <i>own name</i>	Learning about self and 'others' could enable awareness about one's position in the immediate environment.	Knowledge that the learner is part of a bigger environment with various role players and, the reciprocal relationships that exist in the environment.
Draws or paints <i>pictures</i>	The learner "draws or paints pictures to convey a message" (DBE 2011a: 30). This could provide opportunities to learn about, in and for the environment. For example, the teacher could instruct learners to draw pictures about the environment (how it looks like	Areas of development include: cognitive skills, emotional skills, etc.

	<p>and how they would like it to look like), talk about how they feel about the environment and discuss what they think could be done to solve environmental problems – e.g. sewer spillage as experienced in the surrounding, papers littered around the school yard.</p>	
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Table 2.3: The National Curriculum Expectations for EE Integration in Grade R: Life Skills

STUDY AREA	THEME	EE APPROACH	CHILD DEVELOPMENT ASPECTS (INCLUDING BUT NOT LIMITED TO...)
		ABOUT, IN AND FOR THE ENVIRONMENT	
BEGINNING KNOWLEDGE AND PERSONAL AND SOCIAL WELL-BEING	<p>Festivals and special days (This occurs across the four study areas and throughout the year)</p>	<p>“Festivals and special days community” (DBE 2011c: 15). Could be done in the form of learning about the environment. However, it is also possible to learn in and for the environment, e.g. visits to and participation in local cultural festivals and in the promoting of a specific environmental</p>	<p>Various areas of development can be accommodated, for example, physical (dancing in celebration of a specific festival in the learners’ environment), social, personal, emotional and cognitive development</p>

		theme.	
	Me; at school; in the classroom	Learning about the self in relation to the environment. The learner gets to know more about rules, roles, expectations, personal relations, etc, in respect of him/her and the people as well as other phenomena in the immediate surroundings. Learning in and for the environment is possible (e.g. keeping surroundings clean and free from pollution)	Physical, personal (e.g. each learner in relation to others in the immediate surrounding), emotional and cognitive skills can be developed.
	Summer (all four seasons are accommodated)	Learning about the weather associated with the season, its effects on abiotic and biotic factors, etc. It is also possible to learn in and for the environment (e.g. perform certain activities outdoors like planting trees in spring to replenish vegetation).	Numerous skills to aid development can be learned: for example, cognitive, emotional, physical, etcetera.
	Safety	Learning about safety at home, at school and elsewhere (e.g. on	Mostly cognitive skills (e.g. skills, knowledge and values concerning

		the road, safety from strangers, etc).	safety).
	Transport	Learning about various modes of transport and how they affect people and their environment (e.g. accidents, air pollution due to transport). “Transport long ago” (DBE 2011c: 19) – could make it possible to make provision to talk about transport evolution and how this affects people and other environmental phenomena.	Cognitive (e.g. thinking about various transports and how they affect the environment), emotional, physical (e.g. demonstration of how a mode of transport moves), etcetera.
	Jobs people do	Learning about people and their activities in the environment.	Cognitive skills, linguistic (e.g. communication about jobs done by people known to the learners, etc.), emotional skills (some jobs evoke emotions in people).
	Water	All three approaches, learning about, in/through/from and for the environment possible (e.g. sources and uses of water; activities in the rivers/oceans, effect of pollution	Cognitive and scientific skills (e.g. investigation the uses of water at school), communication (talking about water, its sources and its role), etc.

		and how to deal with it; practical activities on water conservation around the school, etc.).	
	Farming: Dairy, wool, fruit and vegetable	Learning about farming should help learners know more regarding the land as a source of various products. They could also be helped to appreciate the importance of phenomena such as water and soil in terms of enabling human survival. Likewise, learners could be able to learn in the environment (e.g. they could explore the school garden) and for the environment (e.g. the need to control invasive 'wild' vegetation that might destroy the land and, thereby, lead to the reduction in the productivity of the land).	Cognitive skills(e.g. ability to use memory to recall various dairy products), communication about various farm products and their various uses, etc
	Healthy Environment	This theme provides opportunities concerning learning about "the importance of a	Development of cognitive skills (thinking, observation); linguistic skills

		<p>clean environment...ways in which people pollute the environment...and the importance of recycling” (DBE 2011c: 20), among other things. It is also possible to learn in/from the environment (e.g. by observing various ways in which pollution affects the learners in their immediate surroundings). Likewise, an action-oriented learning for the environment is possible (e.g. learners discussing about and undertaking activities to address pollution in their school environment).</p>	<p>(verbal interaction), physical skills (fine-motor and gross-motor skills), etc. Attitudes and values too could be learned.</p>
	<p>Animals: Birds, Reptiles, Dinosaurs; other Wild animals</p>	<p>Learning about different types of animals, their characteristics, habitats, general behaviours, etc. For example, learning about “general characteristics of a bird” (DBE 2011c: 21), “Find out more about at least one reptile” (ibid.), etc.</p>	<p>Various skills could be learned/developed, e.g. cognitive skills (investigation and observation; linguistic skills (communication); etc. Attitudes and values could also be learned.</p>

		<p>Learning <i>in/from</i> the environment also possible, e.g. learning <i>in</i> the wild/animal captivity about “how wild animals live” (DBE 2011c: 21). It is also possible to learn <i>for</i> animal preservation and safety. For example, learners can “choose one animal to study” (DBE 2011c: 21) such as rhino and learn more <i>about</i> its possible extinction and discuss how they think they could contribute towards its protection.</p>	
<p>CREATIVE ARTS</p>	<p>Dramatization, Music and Make-believe</p>	<p>Learning <i>about</i> personal environment through the use of personal experiences e.g. dramatization and singing based on local events and experiences.</p>	<p>Cognitive, personal, communication, cognitive and physical development could be encouraged.</p>
<p>PHYSICAL EDUCATION</p>	<p>Sports and Games</p>	<p>Learning <i>about</i> ecological processes and relationships, for example, exposing learners to games such as “buck and hunters; cat and mouse; wolf and</p>	<p>Apart from the inculcation of attitudes and promotion of positive values towards various organisms, numerous skills could be developed as well.</p>

		sheep; catch the tail; etc” (DBE 2011c: 28). Opportunities could be created to enable learning about the roles played by and the need to preserve various species in the ecosystem. Therefore learning about and for the environment could be made possible.	These include, <i>inter alia</i> , cognitive; linguistic skills.
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Table 2.4: The National Curriculum Expectations for EE Integration in Grade R: Mathematics

THEME/ CONTENT AREA	EE APPROACH	CHILD DEVELOPMENTASPECTS (INCLUDING BUT NOT LIMITED TO...)
	ABOUT, IN AND FOR THE ENVIRONMENT	
Space and Shape (Geometry)	Learning about the environment could be attained since the focus on geometrical shapes and patterns can enable the “learners recognise and describe shapes and objects in their environment that resemble mathematical objects and shapes” (DBE 2011: 10). This should help the learners realise that there various phenomena which form part of their physical environment. The teacher could, where possible, also expand environmental learning from learning about to include learning in and for the	Cognitive skills (e.g. spatial awareness), language skills (communication skills), etc.

	environment. For example, this could be done through discussions on the value/role of these phenomena in the environment and how they could be preserved.	
Money	Learning about various monetary units used in South Africa can enable learners to know the value of certain natural resources, e.g. trees, in the manufacturing of money; and the concomitant need to preserve these resources.	Cognitive skills (e.g. thinking about the uses of various resources), awareness about the kinds of commodities used in their daily lives (in this case money) and where these come from. Communication (e.g. sharing of ideas about what various resources are used for).
Counting	Learning about the environment by using resources/phenomena in the immediate surroundings of the learners, e.g. counting can be taken outside of the classroom (i.e. count some phenomena in the environment) to enable the learners to grasp the notion of countable nouns.	Cognitive skills (e.g. observation of and counting some of the object that form part of the learner's environment).
3-D objects	Learning about the environment is possible in this respect. For example, the learners could be guided in the process of identifying and thinking about various objects in their environment which have three dimensions. The topics on 3-D objects should help learners to become aware of the various phenomena that are found in their environment.	Cognitive skills (observation ; thinking about various objects; communication (e.g. sharing of ideas on various objects found in the environment of the learner and how they are shaped)).

<p>Passing of time</p>	<p>Learning about and in the environment is possible. This could be done through the integration of mathematics and experimentation. For example, learners could use a seed planting experiment outside the classroom. This could be done by using an experiment and control group to determine the number of plants that grow and the reasons why they grow over a particular period of time. Focus on the role of water and sunlight could be 'appropriate' in this experiment.</p>	<p>Cognitive skills (observation and thinking about the experiment outcomes); communication skills (discussion about the changes in the experiment and control groups over time) and physical skills (the teacher could allow the learners to plant the seeds themselves, this could help in the development of fine motor skills.)</p>
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In my view, even though, the above tables might not necessarily be sufficiently comprehensive in highlighting the opportunities for the integration of EE in the Grade R curriculum, however, it is evident that, indeed, all three subjects do provide for environmental learning in Grade R. Hence, it could be argued that the following diagram provides an 'appropriate' illustration on how environmental learning is positioned in the current NCS as entailed in the CAPS (DBE 2011a; DBE 2011b; DBE 2011c) documents.

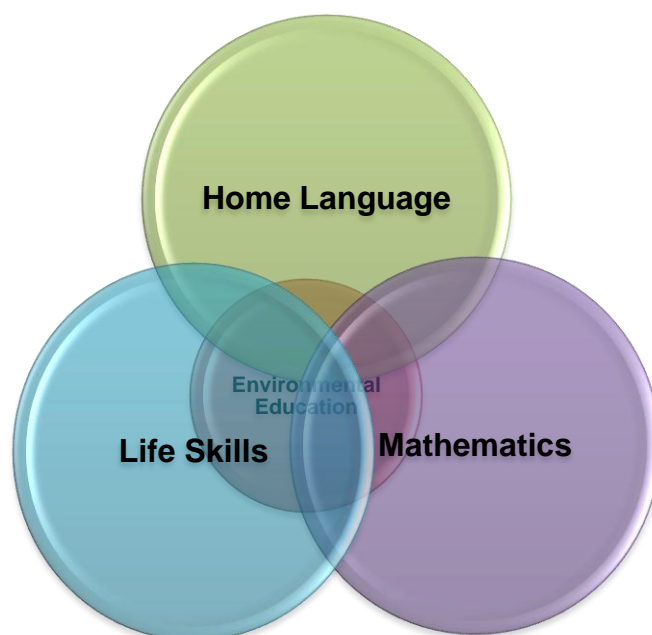


Figure 2.1 The Position of Environmental Education in the Grade R Curriculum

The diagram above suggests that EE can be integrated in the teaching of Home Language, Mathematics and Life Skills in Grade R. An integrative approach as an underpinning philosophical and pedagogical approach central to the teaching of environmental education is thus advocated.

Notwithstanding the opportunities offered by the curriculum in the integration of EE in the Reception Year, there are certain issues that could hamper the possibility of accommodating environmental learning in Grade R. As highlighted in preceding sections (*refer to sections 2.3.1 to 2.3.4*) there are numerous challenges that seem to have a negative impact on the Grade R class. These challenges were noted, as per the literature reviewed, in respect of aspects such as; funding, Grade R teacher qualifications and shortcomings in monitoring and support provided to Grade R teachers by office-based officials of the department of education as well as the SMTs.

The discussions that follow will focus on the situation in respect of ECE in other countries. One of the purposes of this exercise is to compare and contrast South Africa to other countries. This should help in identifying areas where South Africa could improve as the country continues to 'roll-out' the Reception Year.

2.4 AN INTERNATIONAL PERSPECTIVE ON EARLY CHILDHOOD EDUCATION

In preceding paragraphs, I made an attempt to provide a synopsis of the status quo in respect of ECE in South Africa, with key focus on Grade R. The areas that received attention are: provision and access, monitoring and support, funding, teacher training and curriculum. The discussion was rounded off with the exploration of the feasibility of the infusion of EE into the learning and teaching programmes in Grade R. The purpose of this section is; therefore, to briefly reflect on the status of ECE in Australia, Brazil, Japan, Sweden and the United States of America. The focus shall, as far as possible, be on the Preschool or Kindergarten class, that is, the equivalent to the Reception Year in South Africa. In concluding this discussion, I shall as I did in respect of South Africa make an attempt to reflect on the infusion of EE into the teaching and learning programmes of Preschool/Kindergarten in each of the countries.

2.4.1. Provision and Access

Literature (Elliott 2006) suggests that, generally, ECE and more importantly; in the interest of this study, the Preschool/Kindergarten class, has been receiving some attention in terms of provision and accessibility for many young children in Australia, Brazil, Japan and Sweden. However, this does not imply that ECE has become universal, i.e. accessible to all deserving young children in each of the countries mentioned. On the other hand, it seems the same cannot be said about the United States of America. This is in contrast to the claim made by Kamerman and Gatenio–Gabel (2007) that kindergarten coverage is essentially universal for five–year olds and that more than half of all the kindergarteners attend full school day programs in the USA. Due to the need to present a, somewhat, comprehensible argument and guided by available data I shall in the initial part of this section, endeavour to juxtapose the countries of Australia, Brazil, Japan and Sweden. I shall then dedicate the latter part to the reflection on the state of affairs in the USA.

In Australia access to ECE is guaranteed by law. UNESCO–IBE (2011a: 1) underlines this point by asserting that, “education legislation and practice in Australia are essentially based on the principle of equality of access to all levels”. Similarly, the Australian government made a commitment in 2008 that it would radicalise ECE by 2013. They committed themselves by affirming that:

All children in the year before formal schooling will have access to high quality early childhood education programs delivered by degree qualified early childhood teachers, for 15 hours per week, 40 weeks of the year, in public, private and community-based preschools and childcare. (UNESCO-IBE 2011a: 23)

The commitment demonstrated by Australia in terms of providing access to ECE is shared by Japan. The Japanese believe that ECE is crucial in building a strong base for lifelong character formation. For this reason every young child should be given a chance to access quality preschool education (<http://www.mext.go.jp>). As pointed out earlier in this discussion, Brazil and Sweden are, just like Australia and Japan, dedicated to the provision of ECE. This is discernible from the figures, reflected in the next paragraphs, regarding aspects such as enrolment and access rate to ECE, especially in respect of kindergarten, in all four countries.

Despite the fact that preschool education, including the kindergarten, is not compulsory in any of the five countries discussed in this section, there is an indication that each one of them, with the exception of the USA; has made some effort to increase access to ECE. For example, although the preparatory year is not compulsory in Australia (Dowling and O' Malley 2009; UNESCO 2006), participation by young children at this level of schooling has almost become universal (Australian Education Union 2007). According to AEU (2007), the enrolment in the kindergarten was approximately 85, 7% in 2005/06 across Australia. Likewise, there has been an increase in participation by young children aged 0 – 6 years old in ECE programmes in Brazil (UNESCO 2010a; UNESCO 2007a; Becker 2007). On the other hand, UNESCO (2007a) points out that in 2003 the Gross Enrolment Rate (GER) for Grade R was 68% in Brazil, and it improved to 78% in 2010 (Kubacka 2012).

As it is the case with Australia and Brazil, figures suggest that both Japan and Sweden have, in recent years, also experienced high ECE enrolments, especially at kindergarten level. In respect of access to preschool, (UNESCO-IBE 2011c: 15) points out that “in 2009 there were 13,516 kindergartens (of which 8,261 private) with 1,630,336 children enrolled and 110,692 teachers (of whom 103,487 females)”. Similarly, Urban (2009: 26) writes that, Sweden “is characterized by higher levels of early childhood provision than the European average”. Therefore, in Sweden access to ECE can be said to be universal because the enrolment figures of young children aged between one to five-years-old is above eighty percent (Ärlemalm-Hagser and Sandberg 2011; Naumann 2011; Hägglund and Pramling Samuelsson

2009; Urban 2009). Furthermore, “about 96% of 6-year-olds attend preschool classes” (UNESCO 2007b: 1) in Sweden.

It should be evident from the above-mentioned points that Australia, Brazil, Japan and Sweden have made some strides towards ensuring that many young children access preschool education, particularly, in respect of the kindergarten class. However, I must state that there are certain geographical regions; and in certain instances, specific components of the population among some of the four countries in which access to ECE still requires a great deal of improvement. Australia and Brazil are, particularly, affected by this challenge. For example, in respect of Australia, the AEU (2007: 1) asserts that the greater portion of the ± 15% of kindergarteners that were not enrolled in 2005/06 came from “Aboriginal and Torres Straits, children with special needs and children from disadvantaged backgrounds”. On the other hand, the regions that are more affluent such as the South Eastern parts of Brazil have the highest numbers of enrolments in the 4 – 6 year-old-age group (Education International; Becker 2007; UNESCO 2007a), and these are the richest areas in Brazil. For that reason, Education International (2010) asserts that children who come from well-to-do families are more likely to participate in ECE programmes than those from poor families. Likewise, the education status of parents is also a determining factor when it comes to learner enrolment in the sense that the parents who are educated are more likely to enrol their children than uneducated parents (Becker 2007).

In respect of who provides ECE in each of the four countries, both the government and the private sector are responsible for the provision of ECE in Australia, Brazil and Sweden. Hence, there are both public and community-based private institutions that provide kindergarten and other forms of ECE in these countries. On the other hand, ECE in Japan is provided, mainly, by private institutions. In respect of Brazil and Sweden, it is also significant to point out that the municipalities are given a greater responsibility in terms of providing access to ECE. I must mention, though, that it seems the municipalities in Brazil tend to prioritise several other services at the expense of ECE (Becker 2007). Consequently, ECE receives less attention in terms of resources. The impact of this ‘neglect’ is so profound that challenges such as overcrowding, inadequate furnishing of classes, non-existence of ablution facilities and lack of water are often experienced in several ECE centres (Becker 2007). Similarly, in order to enhance the provision and access to ECE, Australia and Brazil, just like South Africa, have embarked on the process of “rebadging” (Dowling and O’ Malley 2009: 2) the kindergarten class into becoming “the first year of schooling” (ibid.). Hence,

since 2006 the Grade R class in Brazil has been integrated to public primary schools to become part of the *ensino fundamental 1*, and is now referred to as Grade 1 or First Year (<http://www.globeserver.com/en/brazil/education>).

In contrast to the other four countries discussed in this section, ECE in the United States of America is, generally, “a fragmented system of wide-ranging quality with skewed access” (Kamerman and Gatenio–Gabel 2007: 23). This is due to the fact that the states rather than the federal government have the prerogative over the provision of ECE. Subsequently, the provisioning of and access to kindergarten varies from state to state in the USA. Therefore, due to lack of ‘universal legislation’ that guides the provisioning of ECE, each state has its own rules regarding kindergartens and about ECE in general. It is thus not surprising that some of the states do not seem to attach much significance on access to and provisioning of ECE. There are various points that illustrate the ‘fragmented’ nature in respect of ECE provisioning and access in the USA.

For example, UNESCO (2010: 51) states that “virtually every 4-year-old in Oklahoma can start school at age 4. In eight other States – including Florida, South Carolina and Texas more than half of 4-year olds attend a public preschool programme”. UNESCO (2010) further amplifies the situation in respect of kindergarten education in the USA by citing Barnett *et al.* (2008 in UNESCO 2010: 51) who writes that, “at the end of the range, twelve states have no regular pre-school education programmes and in eight states less than 20% of children are enrolled”. Furthermore, Kamerman and Gatenio–Gabel (2007: 25) point out that, “fourteen States and the District of Columbia require children to attend kindergarten (Education Commission of the States 2007). The other 36 States mandate the local school district to provide kindergarten but it is the parents’ decision whether to enrol the child”.

It should be evident from the above-mentioned points that countries such as Australia, Brazil, Japan and Sweden have made tangible efforts to make ECE accessible to all those who need it. However, it would appear that a lot still needs to be done especially in respect of poorer communities. Equally, it seems to me that with regard to the USA, more could still be done to ensure that ECE becomes universal. The following subsection reflects on some measures followed to ensure quality by way of monitoring and support in the kindergarten domain in the five countries under discussion.

2.4.2. Monitoring and Support

In the discussion on South Africa, I argued that quality assurance is very important in the field of education. In order for quality to take effect in any education setting, relevant policies have to be put in place and these policies should be properly implemented. This implementation would occur, in my view, through proper monitoring and support by competent and knowledgeable people. In this section I make an attempt to reflect on monitoring and support in respect of ECE, especially at preschool level, in Australia, Brazil, Japan, Sweden and USA.

According to UNESCO–IBE (2011a: 1), “the Australian Constitution vests the control of education in the States and Territories”. Furthermore, “within each State and Territory, ministers, departments and individual schools determine policies and practices...” (UNESCO–IBE 2011a: 37). Each state and territory has the latitude to determine how its ECE system should be structured and operated. For example, “in some jurisdictions, mainly the Australian Capital Territory, the Northern Territory and South Australia, many or most preschools are an integral part of the school system. In the Australian Capital Territory and the Northern Territory, almost all children attend a free preschool program for at least a few hours per week in the year before school entry” (Elliott 2006: 7). On the other hand, “in NSW and Victoria, preschool education is seen as ‘pre–education rather than as the early years of the education continuum and there are limited links to school...However, NSW now has 100 preschools attached to government schools” (AEU 2007: 1 – 2). Evidently, the government of Australia, through its education departments in various states and territories, has been very busy making an attempt to change the landscape in order to provide a quality preschool class.

However, it would appear that the preschool legislative framework poses a challenge for Australia. There are two pieces of legislation that seem to cause confusion in preschool education, “one for childcare and one for schools” (Dowling and O’Malley (2009: 6). Therefore, certain states and territories do not know which prescript applies or does not apply to them. Hence, some prefer to use both prescripts in their operations. Apparently, at the centre of this confusion is the background to each of these acts. Dowling and O’Malley (2009: 6) provide some detail as follows in this regard:

This divide stems from the emergence in the late nineteenth century of the kindergarten movement on the one hand, with its focus on early learning and preparation for school, and day nurseries, on the other, with their charitable and

welfare focus (Elliott 2006; Hayes, 2006). The practical consequences of this divide is that different regulations can cover the ‘care’ aspect of preschool, traditionally associated with Long Day Care (LDC), as opposed to ‘education’ aspects, traditionally associated with ‘stand alone’ preschool. In summary, the different regulations mean that:

- ‘Stand alone’ preschools tend to employ qualified teachers who tend to be early childhood qualified while LDC centres tend not to employ qualified early childhood teachers (except in New South Wales, where it is mandated but only above a certain threshold point of 29 children in a centre).
- Teachers in LDC work longer and appear to be paid less than those in other settings, and are often not eligible to be registered as teachers by State teacher registration boards, despite in many cases holding a formal four year teaching qualification.

Contrary to the approach followed in Australia, the implementation of ECE in Brazil is the responsibility of all three spheres of government, namely: Federal government, the States and the Municipalities. The municipalities were given the direct responsibility of ensuring that there is an effective system of education, not only in the early childhood education system but in all fields of education (UNESCO–IBE 2011b; Becker 2007; UNESCO 2007a). However, the municipalities have not been very effective in fulfilling this mandate (UNESCO2007a; Becker 2007). UNESCO (2007a) points out that the Constitution and the 1996 law on education called for the three tiers of government to cooperate in the implementation of ECE. However, “ten years later, there is a lack of public establishments, and the local governments do not give high priority to this stage of education in their spending” (Becker 2007: 516). Consequently, many ECE centres “are not integrated in the education sector and recognised as education institutions” (McConnell–Farmer, Cook, and Farmer 2012).

Apparently, one of the challenges that are central to slow progress in terms of fulfilling the Constitutional mandate in Brazil is the lack of cohesion between the different spheres of government. There seems to be a lack of harmony between the federal government and the municipalities because “the policy goals for early childhood education established in the National Education Plan are not necessarily reflected in municipal government’s policy planning on early childhood education” (UNESCO 2007a: 25). This situation affects the general quality of ECE, especially, in poor communities. UNESCO (2007a: 9) writes as follows in this regard:

Public early childhood services attended by the poor tend to be of lower quality, especially with regard to facilities and pedagogical environment, and private services of good quality are among the rich. Quality problems are more urgent and pronounced in day care centres.

The final point worth mentioning in respect of Brazil is that, as it is the case in some parts of South Africa, Brazil also seems to have deficiencies in terms of monitoring and support in the certain parts of the country. Apparently, these shortcomings can be attributed to either insufficient personnel or unskilled human resources. To emphasise this point, UNESCO (2007a: 25) writes that:

Despite the advances in standards, much of what is prescribed for quality has not yet been put into practice. The problem is most pronounced as regards supervision. Supervisory responsibility, even for public services, has been taken up sparsely or superficially. The problem is attributed to lack of personnel and/or insufficient technical capacity.

On the other hand, in comparison to countries such as Australia, Brazil, Japan, USA and South Africa; Japan has a cohesive ECE system. The provision of ECE in Japan, and by extension, monitoring and support; is the responsibility of more than one governmental ministry. The ministries involved in ECE include the Ministry of Health, Labour and Welfare and the Ministry of Education, Culture, Sports, Science and Technology with the latter ministry being the one that takes the lead in respect of issues such as the provision and the general administration of ECE (UNESCO–IBE 2011c; Abeo 2005; <http://www.ocha.ac.za>). At local level the municipalities and independent groups of private schools work together to promote the quality of kindergarten education. This collaboration is aptly indicated in the following statement:

Public kindergartens are supervised by the municipal government's educational committee with the supervisor providing guidance on how early childhood care and education is carried out. Private kindergartens are supervised by the municipal government's private schools division (<http://www.ocha.ac.jp>

On the other hand, York (2004) points out that one of the responsibilities of the Ministry of Education, Culture, Sports, Science and Technology is to set out the objectives that must be fulfilled by kindergartens nationally. In addition to the directives of the national Ministry of

Education, Culture, Sports, Science and Technology; the local municipalities may also outline more specific objectives that should be fulfilled by kindergartens at local level (York 2004). Apart from the preceding roles, as part of ensuring quality control, the Ministry of Education, Culture, Sports, Science and Technology of Japan also “prescribes guidelines for the curriculum, courses and credit requirements for kindergartens”(Abe 2005: 17) and other levels of education including elementary and secondary schools at national level.

Likewise, in collaboration with the Ministry of Health, Labour and Welfare; the Ministry of Education, Culture, Sports, Science and Technology also promotes quality at different levels of ECE by harmonising learning and teaching contents in Japan. This is discernible from the following point:

The content of early childhood care and education is regulated by the Course Study of Kindergarten stipulated by the Ministry of Education, Culture, Sports, Science and Technology; while day care centres are regulated by Guidelines for Nursery Care at Day Nursery prescribed by the Ministry of Health, Labour and Welfare. These Guidelines have certain commonalities for the contents of early childhood care and education (<http://www.ocha.ac.jp>).

Apart from the roles played by the ministries mentioned above as well as the local government, the universities are also involved in the process of improving quality in early childhood education in Japan. The universities assist kindergartens through some research programmes, among other things. This is aimed at improving the quality of early childhood education (<http://www.ocha.ac.jp>).

The last point worth mentioning since it borders on quality assurance in ECE is that, unlike in South Africa where the issue of facilities and resources for the Reception Year is, as pointed out in the National Treasury Report (2008 in SAIDE 2010), a serious challenge; Japan does not seem to have that kind of a problem. This point is highlighted in the assertion that “there are also specific standards for buildings and facilities, which are strictly speaking observed” (<http://www.ocha.ac.jp>).

With regard to monitoring and support provided to ECE in Sweden, I need to point out that it seems to me that there is not much in terms of literature that focuses on how and who is responsible for this important task. However, it is appropriate to state that the role of monitoring and support which is aimed at attaining quality education in the Swedish ECE

system is the ultimate responsibility of the Ministry of Education. As custodian of education in the country, the Ministry of Education has, over the years, been responsible for quality assurance in ECE; as entailed in the processes of monitoring and support given to learning institutions (Ärlemalm–Hagser 2011). However, due to the fact that education control is decentralized in Sweden, this role falls within the ambit of local government.

Concerning the USA, on the other hand, I need to commence by pointing out that the discussion on monitoring and support provided in respect of Japan highlighted an existence of cohesion between various ministries as well as the local government. This cohesion is, I contend, essential for quality assurance in the ambit of ECE everywhere in the world. In terms of the USA however, it seems there are no cohesive structures in place to ensure quality through monitoring and support in ECE. Writing in reference to the lack of cohesion which emanates from lack of ‘system’ in respect of ECE in the USA, the OECD argues that:

An important point for trying to understand the U.S. system of early childhood education and care is to realise that there is no ‘system’. There is no nationally coordinated policy framework, and none of the 50 states across the country has as yet established a coherent within–state approach concerning early services for children under compulsory school age (OECD 2000: 18).

The point made by OECD (2000), above, is reiterated by (Kamerman and Gatenio–Gabel (2007: 26) who assert that “the U.S. has no coherent ECEC policy. The primary responsibility for education is at the level of the States; not the Federal government, creating a barrier to the development of a national system of ECEC”. The fact that the states rather than the federal government play a central role in the monitoring and support of ECE culminates in, for lack of a better phrase, fragmented quality assurance in the USA. Hence, Kamerman and Gatenio–Gabel (2007: 30) write that “some states set high quality standards and monitor programs closely, while others place high quality control at local level”. This inevitably culminates in a fragmented ECE ‘system’ in the USA. This point is made by Barnett *et al.* (2008 cited in UNESCO 2010b: 51) who assert that:

There are also marked differences in the quality provision (Ackerman *et al.* 2009). Ten benchmarks have been established for assessing quality standards. Ten standards include teacher and assistant–teacher degrees and specialised training, in–service training provision, class size, staff/child ratios, support–services, meals and monitoring. Just two states – Alabama and South Carolina –

meet all ten benchmarks. However, programs in Florida are required to meet only four benchmarks and Texas sets no limits on class or staff/child ratios. Spending levels per child also vary markedly: five states spend more than US\$8 000 per pupil while another five spend less than US\$ 3 000.

Apart from the role played by various states, the federal government has its own input in terms of the monitoring and support of ECE in the USA. One of the roles played by federal government in respect of ECE is policy formulation. According to Kamerman and Gatenio–Gabel (2007: 26), “the Federal government’s policy making efforts have primarily focused on making services available to children who are at risk, due to economic, biological, social or psychological circumstances or combinations of these; providing child care services as an incentive for mothers receiving social assistance to gain entry to labour force”. Similarly, organisations such as the National Association for the Education of Young Children (NAEYC) are also enlisted by the federal government to promote quality in ECE in the USA. For example, (York 2004: 23) states that “many centre–based child centres in the United States are voluntarily validated by the accreditation process that NAEYC offers”. Furthermore, the NAEYC also supports ECE by offering voluntary guidelines especially with regard to the development of learning–teaching programmes for ECE in the country (York 2004).

It should be evident from the discussion in this subsection that, just like South Africa, countries such as Australia, Brazil, and the United States of America have numerous shortcomings in terms of quality assurance through monitoring and support provided to ECE. These include, among other things, some confusion caused by legislation in Australia, the lack of cohesion between different spheres of government or ministries that are supposed to provide monitoring and support in Brazil, and the fragmented approach caused by an absent ECE ‘system’ in the USA. On the contrary, a country such as Japan seems to have a cohesive approach to monitoring and support in ECE. This is made possible; it would appear, through collaboration among different ministries.

2.4.3. Funding

In Australia, the departments of education across different states and territories bear the responsibility of funding preschool education. The country uses two funding models to fund preschool education (Dowling and O’Malley 2009). In model 1, the model which “delivers the majority of preschool services” (Dowling and O’Malley 2009: 4), the government funds

the preschool class in totality. On the other hand, in model 2 the government subsidises the programme but “non-governmental organisations deliver the services” (ibid.). At face value, it would seem that one model of funding is preferred over another by certain states and territories. However, in reality “no jurisdiction entirely fits the ‘government’ or ‘non-government’ model” (Dowling and O’Malley 2009: 4).

It must be mentioned that Australia does not contribute as much as one would have expected in terms of the funding of preschool. For example, for two consecutive years, during the 2004 and 2005 respective financial years, the country contributed roughly 0.1% of their GDP into pre-primary school education, for children aged 3yrs and older. This is below the “OECD average of 0.45percent” (Dowling and O’Malley 2009: 2) and this placed Australia at position 30 out of 32 countries in the OECD set up in 2005 (Dowling and O’Malley 2009).

However, the Australian government also plays an important role in funding community-based activities that are aimed at developing the education of young children. These activities are meant to encourage parents to participate in the education of their children while also drawing poorer communities into the ECE fold. The OECD writes as follows in this regard:

In Australia, community play groups are generally initiated by parents or caregivers and are supported by state/territory playgroup associations, funded by the Australian government. The government’s Parental and Community Engagements Program also supports Aboriginal and Torres Strait families and communities to reach into schools and education providers and develop partnerships to enhance children’s educational outcomes. Australia also remunerates parents who work as tutors in the Home Interaction Program for Parents and Youngsters. Parents currently participating in the home-based interaction programmes are given financial incentives to become future tutors (OECD 2012b: 3)

As it is the case with Australia, in Brazil the funding of ECE is, mainly, the responsibility of government. The Constitution of Brazil makes it obligatory for the national government, through the municipalities, to fund education at various levels (Becker 2007; UNESCO 2010a). In 1988 approximately 18% of the national budget was to be set aside by national government for the funding of public education. In turn, the states and municipalities would each allocate 25% of their budget to education (Becker 2007). Changes were effected in respect of education funding in 1996 through the promulgation of a new law which

effectively altered the percentages allocated to education. As Becker (2007: 520) notes; “according to this new law, the municipalities would be able to determine a different percentage for this end (always respecting the minimum of 25%) through the Organic Law of each town”.

The funding of education by government is done through the Fund for the Development and Maintenance of Basic Education (FUNDEB). According to Education International (2010: 31) “from 2007 until 2020 the Fund for the Development and Maintenance of Basic Education (FUNDEB) is a government bill that establishes minimum per-child expenditure for all three levels of education in Brazil”. Becker (2007) points out that FUNDEB came into existence in 2006 as a replacement to the Fund for Maintenance and Development of the Fundamental Education and Valorization of Teaching (FUNDEF). FUNDEF made provision for the funding of secondary, elementary and ECE at municipal level (UNESCO 2007a). However, “this funding did not help the course of Early Childhood Education” (Becker 2007) because priority was given to elementary education and secondary education (UNESCO 2007a; Becker 2007). In fact, UNESCO (2007a) states that because certain municipalities funded tertiary education and, also, prioritised other services they deemed important, ECE suffered extremely. Hence, Becker (2007: 522) argues that “the creation of this funding aggravated the funding situation of Early Childhood Education even in municipalities, which only offered this stage of education”.

On the other hand, FUNDEB prioritises the funding of early childhood, elementary and secondary education (UNESCO 2010a; Paiva, Schneider, Machado and Perinazzo 2009; Becker 2007; UNESCO 2007a). Therefore, the advent of FUNDEB culminated in a changed perspective regarding ECE; hence “it can be considered that Early Childhood Education is no longer conceived as a stage of education of minor importance” (Becker 2007: 522). Apart from government funding, ECE is also funded; though to a lesser degree, by private sector through social responsibility programmes (UNESCO 2010a).

The last point worth mentioning, in respect of ECE funding in Brazil, is that although the government of Brazil could be commended for the funding of ECE (and education in general), much could still be done in this area. This argument is based on the fact that it seems that some countries that are poorer than Brazil contribute a greater percentage of their Gross Domestic Product (GDP) to education, in general, than Brazil does. For example, UNESCO (2007: 33) states that “Brazil’s public expenditure on education was 4% of GDP in

2002, compared with an OECD country mean of 5.1%. The Brazilian expenditure level, in 2002, was also below those of some other developing countries including Jamaica (6.1%), Paraguay (4.5%), Tunisia (6.4%) and Zimbabwe (5.6%)”.

On the other hand, in Japan ECE is funded by both the government and parents because “there are public and private establishments for both kindergarten and day care centres. Public kindergartens and day care centres are financed through tax payer’s money, while private facilities are funded by the fees for day care from the children’s guardians as well as subsidies from the national and municipal governments” (<http://www.ocha.ac.jp>).

However, even in public institutions parents are required to augment the amounts paid by governments. In these institutions parents pay kindergarten fees in accordance with their income levels, and fees are discounted in instances where a parent sends more than one child to the same kindergarten or day care centre (York 2004). Private institutions charge more than public institutions. For example, in one municipality, the fee was US\$ 616 per year in public kindergarten while the private institutions charged US\$ 2,291 per year in 2003 (York 2004).

In Sweden, as it is the case with Japan, the government and parents have the responsibility to fund ECE. According to Taguchi and Munkammar (2003: 6) the “funding of preschool services, childcare for preschool children as well as compulsory and upper secondary schooling is the full responsibility of the municipalities, and is financed by central government grants plus local tax revenue and parental fees”. While, UNESCO (2007b: 1) points out that “fees are regulated, being waived for children from low-income families and capped for all families at about 9% of real costs” in Sweden. UNESCO (2007b) further indicates that preschools are more expensive than the compulsory classes (such as Grade 1).

In respect of GDP contribution to the financing of ECE, Sweden surpasses the one percent that was recommended by the European Union (EU) in 1996. The European Commission Network on Childcare (1996) recommended that the European member states should each dedicate one percent of their GDP into the financing of their (each country’s) ECE sector. According to the statistics issued to the Organization for Economic Co-operation and Development (OECD) for the 2004 financial year, at 1.7% of GDP, Sweden was the second highest contributor, after Denmark, to the funding of ECE. A total of only four countries, namely: Denmark, Sweden, Finland and France managed to meet the EU recommended 1% targeted for financing ECE (Urban 2009).

With regard to the United States of America, as it is the case with all the countries discussed in this study, ECE funding emanates from a variety of sources. Similarly, the extent of contribution made by each source of funding varies. For example government provides ECE funding at all three levels, namely: federal, state and local levels. The private sector provides some funding for ECE as well. However, the bulk of funding; approximately between 60% and 70% of ECE funding, is the responsibility of parents who enrol their children in ECE programmes in the USA (Education International 2010; Kammerman and Gatenio–Gabel 2007; York 2004; OECD 2000).

Government funding is aimed, mainly, at facilitating access to the programmes offered by public institutions. According to (OECD 2000: 22), “the two major funding sources are at the federal and the state levels. Local government funding policies (at a county or district level) depend greatly on the responsibilities granted to localities at state level”. Funding can be in the form of: grants, contracts, tax incentives, subsidies to private provider and financial subsidies to parents (Kammerman and Gatenio–Gabel 2007). Federal government, generally, focuses its funding “at children with disabilities and children from low–income families” (Education International 2010: 85).

Similarly, various States in the USA “have increased dramatically” (Essa 2007: 15 – 16) their funding of pre–kindergarten programmes over the years. According to Essa (2007), the States tend to focus on “four year olds who are identified as having some risk factors that might keep them from being successful when they start schooling”(ibid.). The United States Department of Education is responsible for the administration of the funds that are injected into ECE (Kammerman and Gatenio–Gabel 2007).

On their part, the private sector, particularly big companies, make some contribution towards encouraging access to ECE. Notably, this contribution, as pointed out by Essa (2007) and Gordon and Browne (2011), is aimed at assisting the employees focus on their work and thus become more productive. These companies tend to; for example, create early childhood centres that are attached to or are nearer to their employees’ places of work. One must point out though, in line with the assertion by Urban (2009), that such arrangements however commendable are not necessarily ‘goodwill gestures’ since they would not exist if these centres were not linked to the economic aspirations of the businesses that fund them.

For the purposes of this discussion, the final point worth–mentioning is that in comparison to other developed countries; the USA could do better in terms of ECE funding. This point is

discernible from York's (2004: 42) assertion that, "American parents are still paying sixty percent of the expenses for their children's childcare while parents who are in other developed countries commonly cover only twenty-five to thirty percent of the expenses for childcare". This could be attributed to the apparent lack of government regulation in respect of the fees charged by various ECE centres across the country. York (2004: 40) highlights this shortcoming by writing that, "in the US, childcare costs vary tremendously" and are determined by the location of ECE centres. Urban-based centres and 'specific curricula' ECE centres such as Montessori schools are more expensive compared to rural-based centres (York 2004).

Funding is significant in the context of ECE because it impacts on the nature and quality of educational programmes presented by ECE centres. Similarly, the integration of environmental learning into ECE programmes might be facilitated by the availability of funds. Therefore, it is my considered view that it might be in the interest of ECE for countries that are not doing so already, including some of those discussed in this section, to also give attention to the ECE in their education funding priorities.

In the next section I shall attempt to provide a synopsis of the level of ECE teacher training and qualification in each of the five countries. This is in view of the fact that teachers are, in my opinion, very significant in the implementation of educational programmes, and their training has to be of good quality so as to enable them to deliver a quality service in the context of ECE.

2.4.4. Teacher Training and Qualification

Teacher training and the minimum qualification required for a person to teach in the field of ECE in Australia seem to run along the same lines as in South Africa. This assertion is, partly, informed by Elliott (2006: 34) who writes that:

Staffs in early childhood centres across Australia have a wide range of qualifications and experience. Each State and Territory has its own early childhood staffing requirements and/or regulations. There is no nationally shared understanding of appropriate credentials for staff responsible for the development, education and care of children below school age or about the content of focus on course preparing early childhood practitioners.

In the discussion on South Africa I indicated that, for a long time, there has been no universal approach in respect of training and qualification required for a person to work as an ECD practitioner, particularly, as Grade R teachers. Likewise, each province seems to have its own discretions, especially in respect of teaching qualifications, when it comes to the appointment of ECD practitioners. The points raised by Elliot (2006), above, suggest that Australia follows an approach similar to that of South Africa. For example, Elliott (2006) indicates that each State/Territory has its own requirements regarding staff qualifications. Evidently both Australia and South Africa have fragmented approaches in respect of ECE teacher training and qualification.

On the other hand, unlike in Brazil where secondary school education enables a person to teach in ECE, Australia seems to have higher demands in respect of minimum teacher qualification and training. This point is captured by UNESCO–IBE (2011a: 37) which states that:

...Teacher education for **all** levels of schooling takes place in universities or accredited non–governmental colleges. To become a teacher, most states and territories require at least four years of university level training as the minimum pre–service or initial teacher education component [**my emphasis**].

Although the point made by UNESCO–IBE (2011a: 37), above, clearly suggests that, in Australia, ideally a teacher, including a kindergarten teacher, should have a minimum of four years of university training, however, in reality this does not seem to be happening in respect of preschool education. In reality states, territories, and even individual institutions that offer preschool education tend to make their own determination regarding the qualifications of the teachers they require (Dowling and O’ Malley 2009). Subsequently, most states and territories are inclined to appoint people who are ‘unqualified’ to teach at ECE level. This could be one of the reasons why Australia has too many unqualified teachers in the field of ECE. It is estimated that “up to 45 percent of the early childhood and care workforce have no formal childcare qualifications” (Dowling and O’ Malley 2009: 7). This challenge is compounded by the “significant drop in ECE graduates” (Dowling and O’ Malley 2009: 9) and the accompanying decline in graduate completion (ibid.).

The preceding points by Dowling and O’Malley (2009) clearly suggest that many ECE teachers do not have, at least, the four years minimum initial teacher training considered ideal by most states and territories in Australia (UNESCO–IBE (2011a). In my considered view,

this could be considered a shortcoming that, probably, has serious implications for the provision of quality ECE in the country. Viewed, from the points raised in section 2.3.4, it seems to me that this situation does not differ very much from that experienced in South Africa. The challenge of low teacher qualification in the field of ECE is not limited to Australia and South Africa. Apparently, it is widespread and seems to affect numerous countries.

For example, as pointed out in preceding paragraphs, Brazil has some of the lowest minimum ECE teacher qualifications requirements in the world. According to UNESCO (2007a: 27) “Brazil is one of the few countries where the minimum requirement for early childhood teachers is limited to secondary education”. Pakistan and Bangladesh were the only other countries whose requirements were reflected as “secondary education” (UNESCO 2007a: 27). On the contrary, there are certain countries which set the minimum qualification for ECE teachers very high. For example, countries such as Estonia and Spain had set a master’s degree as their minimum requirement for a person to be deemed fit to teach in the field of ECE (ibid.).

Notably, the minimum requirements for teacher qualification were not changed even after the kindergarten class was transferred to become the first class (Grade 1) that forms part of *ensino fundamental* with effect from 2006 in Brazil. This situation persisted despite the fact that the law dictates that “the training of teachers for early childhood education and *ensino fundamental* (grades 1 – 8/9) must be organised at the tertiary level programmes offered at licensure level offered by universities and higher education institutions” (UNESCO–IBE 2011b: 30). Secondary education is still recognised as the minimum qualification for a person to be appointed to teach the Grade 1 class in Brazil. UNESCO–IBE (2011b: 30) highlights this point by asserting that “qualifications attained at the secondary level (e.g. teacher education programmes or normal courses offered by secondary schools and usually lasting four years) are permitted for early childhood education and the initial years of *ensino fundamental* (grades 1 – 4)”.

In terms of the numbers of teachers in *ensino fundamental* 1, “there were 685 025 teachers in the first years of *ensino fundamental*” (UNESCO–IBE 2011b: 31). Out of that number, about 87% had the legally required minimum tertiary–level qualifications (some 50% holding a higher education qualification with specialisation in pedagogy)” (ibid.). This implies that out of an estimated 695 025 teachers that were involved in Grades 1 – 5 teaching, as per the

2007 School Census of Basic Education in Brazil (UNESCO–IBE 2011b), about 595 971 (87%) had the minimum qualification required for them to be classified as ‘qualified’ teachers. The remaining 77 476 (13%) could be classified as ‘unqualified’ and therefore “[**did**] not fulfil basic teacher education requirements to perform their duties with quality, as announced by the Ministry of Education on October 20th, 2008” (Paiva *et al.* 2009: 36) [**my emphasis**]. This figure (77 476) is fairly large considering the possibility that the greater portion might have been employed to teach the Grade 1 class. Accordingly, the handling of very young children by individuals who are not highly trained in the field of ECE should be viewed in serious light. The following point of concern by UNESCO (2007a: 27) becomes very pertinent in this regard:

The extension of schooling pedagogy down to younger ages cannot be handled properly by generalists who do not fully understand the needs of young children or, more importantly, how young children learn and develop. Early childhood education is a specialised discipline that requires a specialised workforce.

On the basis of the points noted above, my view is that it would be very challenging for ‘non–specialist’ teachers to develop learning programmes that are relevant to a “specialised” discipline such as the Grade 1 class of Brazil. By extension, one would expect it to be more challenging for “under–qualified” teachers to integrate EE into learning–teaching programmes.

On the other hand, in Japan unlike Australia and the USA where states and territories determine the minimum qualification for ECE teachers; the national government sets the standards that must be fulfilled by individuals who want to be accredited as kindergarten teachers (<http://www.ocha.az.jp>). This is done mainly by the Ministry of Education, Culture, Sports, Science and Technology (York 2004). Accreditation may be obtained by undergoing training that qualifies individuals to practise as kindergarten teachers. The following is the route that one would have to pursue towards this end:

The teachers, who, upon graduation from high school, complete two years of training in a vocational school or junior college, are given Class II Certificates. Teachers who complete four years of training at a university obtain Class I Certificates. Teachers who go to graduate school can obtain a “Specialised Certificate” during their master’s programs (<http://www.ocha.ac.jp>).

Another significant point is highlighted by York (2004) who writes that, “currently almost all the kindergarten and certified nursery schools hire graduates who have a degree in early childhood and have a teaching certificate” (York 2004: 33). This suggests that, unlike in South Africa and countries such as Brazil, kindergarten schools in Japan, expose young children to a high level of education that prepares them meaningfully for lifelong learning. In my opinion, one other element that is impressive about kindergarten teacher training in Japan is that, unlike in South Africa, the teachers who want to study further seem to find it easier to do so. It must be recalled that SAIDE (2010) mentioned that it is difficult for ECD Practitioners who are in possession of NQF Level Certificates but lack the Grade 12 certificate to enrol for Higher Education degrees such as the Bachelor of Education (Foundation Phase) degrees.

The other issue that is worth amplifying is in respect of the content of teacher training programmes. In the discussion on South Africa, I pointed out that, for a long time there was no clarity regarding the minimum qualification required for one to teach in Grade R. Hence, there have been diverse programmes offered by a variety of FET Colleges and universities aimed at training ECD Practitioners. This is, however, not the case with Japan because in that country, “courses and subjects for teacher development are governed by laws relating to teacher training courses stipulated by the national government; instructors of these programmes are also required to pass national examinations” (<http://www.ocha.ac.jp>).

With regard to Sweden and as it is the case in Japan, the teachers in the field of ECE are highly qualified. This is in contrast to countries such as Australia, Brazil and South Africa where ECE teachers are, generally, not highly qualified. According to Ärlemalm–Hagser and Sandberg (2011: 187 – 188), “there are two staff categories in Sweden’s preschools; teachers and day care attendants. Over half of all preschool employees (i.e. preschool teachers) have university degrees in Early Childhood Education. The day care attendants have vocational qualification at post–secondary level. In the Swedish pre–school units, preschool teachers and day care attendants work together with children aged one to six years”. This could be attributed to the fact that in a quest to improve quality and in order to create some form of cohesion between teachers in different education fields in the schooling system of Sweden, some transformation in teacher training was effected in the country. UNESCO (2007b) points out that, in Sweden there was a reform of the teacher training system in 2001, which unified the training and qualifications of preschool teachers, school teachers and leisure time pedagogues into a single scheme.

However, despite the fact that the current approach to teacher training seems to be on a sound footing, there are signals that due to “re-orientation of education” (Hägglund and Pramling Samuelsson 2009: 55), ECE might be negatively affected in future. The so-called “political-reorientation for the status and position of the preschool in relation to the rest of education system” (Hägglund and Pramling Samuelsson 2009: 55), might water down the quality of preschool teacher training. Hägglund and Pramling Samuelsson (2009: 55) argue that, “according to a recently launched official report (SOU 2008: 109), the period of training will be shorter and less integrated with school-teachers to be, compared to today’s organization”. In my considered view, if this were to happen then that would be unfortunate since, just like in all sectors of education, there is a need for a highly trained teaching corps in the field of ECE, globally. As a final point of discussion in this section I turn my attention to the USA.

As it seems to be the case with countries such as Australia, the USA has no universal framework regarding the minimum teacher training and qualification in the field of ECE. Each state sets the minimum standards and rules regarding teacher training (Kamerma and Gatenio-Gabel 2007; York 2004; OECD 2000). The absence of universally agreed upon requirements laid down by Federal government in respect of ECE teacher training and qualification amplifies the inherent nature of problems at this level of education in the country (OECD 2000). For this reason, “pre service requirements may be very low by professional standards” (OECD 2000: 30). For example, Kamerma and Gatenio-Gabel (2007: 31) state that 20 states did not require preschool kindergarten teachers to have completed a Bachelor’s degree while ten states did not require special training for ECEC. Likewise, (York 2004: 31) writes that “Georgia and Alabama do not require any college education for child care centre teachers (Scarr 1998; Blau 2001). In fact thirty out of fifty states and the District of Columbia do not require any pre-service education experience or training for child care teachers”.

Apparently, the No Child Left Behind (NCLB) Act of 2002 also leaves the matter of teaching qualifications at ECE, and other levels of school education, in the hands of the states rather than the federal government. Hence, in my view, this could enhance the likelihood that the ‘fragmented’ approach to ECE teaching qualification requirements, as described by York (2004: 31), above, to continue unabated. This situation, in my opinion, does not assist in terms of providing quality education at ECE level. According to the NCLB (2002) Act, “the law requires public elementary and secondary teachers to meet States definition of highly qualified teachers...” (U.S. Department of Education 2004: 10). The US Department of

Education further points out that, “in general, under No Child Left Behind, a highly qualified teacher must have: A bachelor’s degree; full State certification, as defined by the State and demonstrate competency, as defined by the State in each core academic subject he or she teaches” (ibid.).

It should be evident from the above points that some of the countries referred to in this discussion have numerous shortcomings in respect the qualifications required for individuals to practice as ECE teachers. For example, despite the fact that ECE requires highly specialised knowledge and competence (UNESCO 2007a), in countries such as Brazil, as it is the case in South Africa; people with only secondary education are allowed to teach in the field of ECE. Likewise, in countries such as Australia and the USA there seems to be no universal approach in terms of qualifications required for people to teach in ECE, the states and territories make a determination in respect of minimum teacher qualifications in this regard. Consequently, in some states, for instance in the USA (York 2004), individuals with neither training nor experience are sometimes employed to teach in ECE. Hence, in my view, the quality of education provision and, by extension, the integration of environmental learning into educational programmes is likely to be compromised by such arrangements. The next focuses on curriculum in the ECE in the countries referred to in this discussion.

2.4.5. Curriculum

In some of the preceding sections of this discussion, I highlighted the fact that as it is the case with other levels of education, environmental learning can be implemented effectively through integration into (existing) educational programmes in the field of ECE. Therefore, this suggests that the curriculum framework should be designed in a manner that facilitates the integration of EE. In my view, one of the elements that enable the integration of EE in learning and teaching programmes is the way in which curriculum is designed and presented. Accordingly, this section seeks to reflect on ECE curriculum in Australia, Brazil, Japan, Sweden and the USA.

In respect of Australia, Dowling and O’Malley (2009: 10) assert that “all jurisdictions have a curriculum ‘framework’ for preschool but these are not mandatory and there is no formal mechanism for assessing children’s progress in preschool before they enter full time school”. The two authors caution, however, that “curriculum frameworks are not prescriptive and the term ‘curriculum’ is generally used to focus more on what professionals do than on what children experience or learn” (ibid.).

Furthermore, UNESCO–IBE (2011a) states that; the curriculum in Australian kindergartens is designed in such a way that the education programs are “play–based”. Dowling and O’ Malley (2009: 10) concur with UNESCO–IBE (2011a) and further elaborate that “it is often argued that preschools should not be bound by a formal curriculum or assessment for preschool children. Even those jurisdictions with the most formalised frameworks, such as South Australia, Western Australia and Tasmania, emphasise non–assessed, play–based learning rather than formalised assessment”. The kindergarten curriculum focuses on the overall development of young children, and it is structured in such a way that it should fulfil the function of preparing the learner for Year 1 of formal schooling with focus on literacy, mathematics, physical as well as personal and social skills (UNESCO–IBE 2011a: 23). As I will try to elucidate in the next subsection, some of the above–mentioned points have implications in terms of the integration of environmental learning at kindergarten level.

On the other hand, in Brazil the learning and teaching activities at ECE level are informed by the *National Curriculum References for Early Childhood Education* (RCNEI). The RCNEI came into effect in 1998 and are regarded as the first curriculum framework for the entire age group of the 0 – 6 year–olds (UNESCO 2010a; UNESCO 2007a). UNESCO (2010: 54) argues that “these references are intended to guide day care workers and preschool teachers of children 0 – 6 years to reflect on the objectives, content and didactic orientation of early childhood education, while respecting pedagogical styles and the country’s cultural diversity”.

According to UNESCO–IBE (2011b: 14) “the curriculum is structured around a common core defining nationwide subjects” and has various aims with the main one being to develop numerical and literary ability, especially, for the Grade 1 class institutions. On the other hand, UNESCO (2007) states that the implementation of the curriculum is not done in accordance with the guidelines that encourage an interaction between the learners and teachers but rather teachers tend to teach. UNESCO (2007a: 26) underlines this point by asserting that:

Even though the curriculum emphasizes interactive methodologies, teachers tend to teach things to children rather than interact with them in a constructive learning process. In most services the review team visited, except some upscale for–profit services, children were sitting in desks working on numeracy and literacy sheets. Such early primary situations were especially common for literacy classes and for preschool classes’ setup in primary schools.

Evidently, the pedagogical approach highlighted above is not in line with developmental needs of the children in the 4 – 6 years–old age group, that is the kindergarten or preschool age group, in the sense that a teacher–centred rather than a learner–centred approach is pursued in most ECE classes in Brazil. Hence, UNESCO (2007: 26) argues that, “viewed from this perspective, preschool education in Brazil for 4 to 6 year olds seems closer to early primary education”. For this reason, the argument by UNESCO (2010a: 34) that “...programs for those over 3 place greater emphasis on the curricular framework of schools indicating an instrumentalist and academic–based approach that must be overcome” could be deemed appropriate.

With regarding to Japan, the objectives and contents of the curriculum pursued in ECE are determined by The Ministry of Education, Culture, Sports, Science and Technology. According to York (2004: 25), one of these objectives is “to foster interest and concern about nature and other things close at hand and to cultivate the awakening of a wealth of feelings and the power to think about these things”. Another objective, among others, is “to foster a richness of emotion through diverse experiences and to foster creativity” (ibid.). On the other hand, Holloway (2000 cited in York 2004: 29) states that the kindergarten curriculum in Japan is “designed to provide stimulation cognitively and socially” to the learner. This is done in a variety of ways. For this reason; there are different forms of curricula pursued by various kindergarten offering institutions in the country. And, each one of them caters for different interests. Apparently, each form of curriculum views play to be a central component of learning.

Ochanomizu University, for instance, distinguishes between three forms of kindergarten curricula as follows: a form of early childhood care and education that is based on nurturing the human relationship within the group, its main objective is for children to learn the basic routines of daily life and study habits; a form of early childhood care and education that extends the child’s ability to perform functions: the basic curriculum focuses on having the child learn study skills in a group setting, and a form of early childhood care and education that is child–centred in which the majority of the time is used by the child for free play (<http://www.ocha.ac.jp>).

There are certain common features that are shared by the above–mentioned forms of curricula. These include: learning to greet others; bonding with other children, especially in group settings; physical exercises; and learning social roles of children (ibid.). The three

forms of curricula evolved, mainly, from the Japanese approach to EE. There are, however, traces of influences from Maria Montessori's philosophy, Reggio Emilia's approach and the Developmentally Appropriate Practice advocated by the Americans (<http://www.ocha.ac.jp>).

Additionally, the Japanese Ministry of Education, Culture, Sports, Science and Technology encourages each kindergarten to maintain its unique qualities (UNESCO–IBE 2011c) and to use play–based instruction to achieve its objectives. UNESCO–IBE (2011c) also points out the importance of holistic development as espoused by the education authority of Japan by stating that:

According to the revised course study for kindergarten (2008), kindergarten education integrates all aspects of each child's development: health (physical and mental health); human relationships (the relationship between the child and other people); environment (children's surroundings, and relationship to them); language (the process of language acquisition); and expression (feelings and expression). All objectives and related content are to be achieved through play–based learning UNESCO–IBE (2011c: 13).

One other significant aspect of the Japanese kindergarten education is the role accorded to writing as an activity in learning and teaching. According to York (2004) the Ministry of Education, Culture, Sports, Science and Technology forbids kindergartens from compelling young children to write. Lewis (1995 cited in York 2004: 29) points out that the Ministry of Education, Culture, Sports, Science and Technology directs that “systemic instruction about the alphabet begins in elementary school, so at preschool direct instruction in this area should not be included. Rather, each individual child's interest, concern, and feeling about alphabet should be fostered naturally”. This is contrary to an observation made in respect of South Africa where writing was found to play a prominent role in Grade R pedagogy (Clasquin–Johnson 2011).

On the other hand, in Sweden the integration of the preschool class into formal education by the Swedish government in 1998 resulted in an introduction of the Swedish preschool curriculum, otherwise known as Lpfö 98 (Ärlemalm–Hagser and Sandberg 2011; Urban 2009). According to Naumann (2011), the Lpfö 98 comprised of 22 pages, mainly, the mission statement and; Urban (2009: 85) considers it to be the “most concise curriculum document in Europe”. Just like the Australian approach to preschool curriculum, the Swedish

preschool curriculum does not seem to be too prescriptive. This point is underscored by Urban (2009) who writes that:

Because unlike many other European preschool curricula; it abstains from giving direct instructions to practitioners. No detailed “early learning goals” are listed in the document; neither does it come with directions or suggestions for day-to-day activities or assessments. Instead, the Swedish preschool curriculum is a value-based framework that provides fundamental orientation and states overall purposes and goals of preschool in the Swedish society (ibid.).

The Lpfö 98 was revised in 2010 and the English version is contained in a document of 20 pages. In the interest of this discussion I highlight only a few aspects that are, in my view, relevant and in line with the interests of this study. The document is still concise and it covers two main aspects, the fundamental values and tasks of the preschool as well as the goals and guidelines. Under the goals and guidelines seven aspects are outlined, namely: norms and values; development and learning; influence of the child; preschool and home; co-operation between the preschool class, the school and the leisure-time centre; follow-up, evaluation and development; and responsibility of the Head of the Preschool (Skolverket Swedish National Agency for Education 2011).

The Swedish preschool curriculum document considers preschool education as a significant building block to lifelong learning. For that reason, holistic development is regarded as a fundamental aspect of learning and teaching. This is discernible from one of the following tasks of the preschool:

The preschool should lay the foundations for lifelong learning. The preschool should be enjoyable, secure, and rich in learning for all children. The preschool should stimulate children’s development and learning and offer secure care. Activities should be based on a holistic view of the child and his or her needs and be designed so that care, socialisation and learning together form a coherent whole. Children’s development into responsible persons and members of society should be promoted in partnership with the home (Skolverket Swedish National Agency for Education 2011: 4).

Additionally, the position of the learner is very important in Swedish preschool pedagogical practises. Hence, individualised teaching is given prominence in order “to embrace a holistic

view of the child and provide a satisfactory learning environment for all children with individual needs” (Taguchi and Munkammar 2011: 14). The quest to meet the needs of individual learners is also ensured through the use pedagogical approaches drawn from both preschool and school practices, keeping the child’s holistic development as its overall aim (UNESCO 2007b). The amalgamation of pedagogical practises from both the preschool and the first class of compulsory schooling is done because “it is conceived as a bridge between the two distinct cultures, i.e. preschool and compulsory school, balancing their integration in an equal manner and enabling children to make a smooth transition from one educational stage to the next” (ibid.). However, if this infusion of pedagogical approaches is not well managed then the preschool class might, inadvertently, become a ‘watered down’ Grade 1 or Year 1 class (Umalusi, CEPD and Wits 2010). This assertion is based on the observation made by UNESCO (2007b: 2) in respect of Sweden that “recent evaluations (seem to) show that school codes are more prominent in the preschool class than those of the preschool”.

Another significant aspect of the Swedish Preschool curriculum relevant to this discussion is the promotion of values of respect. The curriculum puts an emphasis on reciprocal respect among human beings as well as between human beings and their environment. This point is clearly articulated in the one of the fundamental values which partly reads:

An important task of the preschool is to impart and establish respect for human rights and the fundamental democratic values on which Swedish society is based. Each and every person working in the preschool should promote respect for the intrinsic value of each person as well as respect for our shared environment (Skolverket Swedish National Agency for Education 2011: 3).

In order to highlight the importance of the environment, the curriculum document presents; as one of the tasks of the preschools in Sweden, the need to actively involve learners in activities that are centred on ecology. Therefore, the learning activities envisaged for preschool learners attach significance to learning *about*, *in* and *for* the environment. This point is evident from the following task as proposed by the Skolverket Swedish National Agency for Education (2011: 7):

The preschool should put great emphasis on issues concerning the environment and nature conservation. An ecological approach and a positive belief in the future should typify the preschool’s activities. The preschool should contribute to ensuring children acquire a caring attitude to nature and the environment, and

understand that they are a part of nature's recycling process. The preschool should help children understand that daily reality and work can be organised in such a way such that it contributes to a better environment, both now and in the future.

The last point that needs to be mentioned in respect of the ECE curriculum of Sweden is highlighted by Hägglund and Pramling Samuelsson (2009). These authors, point out that Swedish preschools are structured around Froëbel pedagogical theory. According to Hägglund and Pramling Samuelsson (2009), the child's lived experiences are used as the basis for directing the processes that take place in the learning and teaching setting. Hägglund and Pramling Samuelsson (2009: 55 – 56) elaborate as follows in this regard:

All activities performed at home, like kitchen work, sewing, working with wood, gardening, etc served as basic foundations for learning. This can be seen as a way of coming closer to children's experiences and to what is familiar and well known to them (Sommer *et.al*, in press). Learning should start from where children are, according to Froëbel. He also knew that young children were different from older children and therefore he advocated a pedagogical approach based on play, learning and work. As he saw it, young children have to be active in body and mind in order to find interest in and respond to opportunities for learning.

On the basis of the above-mentioned points, it would appear that the Swedish approach to ECE pedagogy is mindful of developmental needs of young children. Among the aspects emphasised in the curriculum document is lifelong learning, holistic development of the young child and respect for other people and the environment. Therefore, it is envisaged that pedagogical approaches should place the learner at the centre of all activities and processes entailed in learning and teaching, including play-based activities. Furthermore, the socio-cultural needs of each child seem to be duly considered in curriculum development at ECE level. To this end, even the activities that take place at the young child's home are viewed as important in the holistic development of the child. Therefore, in my view, the Swedish Preschool curriculum makes a meaningful attempt to promote a holistic development of the young child and could also enable the development of environmental ethos in the learner since the environment is also considered an important aspect of the learner's experiences.

The discussion in this section suggests that Brazil, Japan and Sweden each have an ECE curriculum. Similarly, although Australia has curricula that are 'jurisdictional', nonetheless

their curricula do seem to guide ECE pedagogy. On the contrary, with regard to the USA, Katz (2003 cited in York 2004: 26) argues that, “in the United States, national curriculum for child care centres does not exist”. Consequently, each ECE centre determines its own curriculum. The NAEYC plays a significant role in respect of providing guidelines and accreditation of early childhood education curriculum for ECE institutions in the USA. The NAEYC includes the following section in its curriculum accreditation rationale:

The curriculum includes the goal of the program (the content that children are learning) and the planned activities as well as the daily schedule, the availability and use of materials, transitions between activities, and the way in which routine tasks of living are used as learning experience. Criteria for curriculum implementation reflect the knowledge that young children are active learners, drawing on direct physical and social experience as well as culturally transmitted knowledge to construct their understanding of the world around them (NAEYC 1998: 22 cited in York 2004: 26).

It should be evident from the above excerpt that the NAEYC insists that preschool education should be guided by a curriculum that perceives the experiences of children as the basis for the construction of new knowledge. Such a curriculum should, therefore, be able to help the learner to assign meaning to the world around him or her through the use of physical and social experiences as well as through culturally transmitted knowledge, all of which could be accessed from the surroundings of the child. Thus, the curriculum is constructivist and is informed by developmental and learning needs of the child at early childhood level (Goldstein 2007; York 2004).

Kindergartens in the USA do not only rely on NAEYC guidelines for curriculum issues. According to (York 2004: 28) “there are many preschools in the U.S. using specific curriculum”. The most popular curricula followed in preschools include the Montessori Method, High Scope, Creative Curriculum and Reggio Emilia approach (ibid.). Generally, the preschools in the United States of America cater for a variety of activities and elements in their programmes, for example, academic skills, independence, and self reliance (York 2004).

The points made in respect of each of country concerning ECE in terms provision and access, monitoring and support, funding, teacher training and curriculum, have certain implications in terms of the integration of environmental learning in ECE programmes in each of the

countries discussed in this chapter. Accordingly, in the following discussion I make an attempt to briefly reflect on some of those implications.

2.4.6. The Integration of Environmental Education in Early Childhood Education

In the main, the position of EE in Australian preschools is informed by two issues, namely: the fact that education is governed by various States and Territories, and the type of teacher training provided by teacher training institutions. Each State or Territory has the final say on whether to include environmental education or not in their curriculum, and “so it is not surprising to find that the status of EE and ESD varies across the country” (Tilbury 2005: 75). The Environmental Protection Authority (2003: 17) points out that, “with no national curriculum document and limited reference to environmental education in State curriculum documents to inform the implementation of environmental education in early childhood programs, the situation is very much an *ad hoc* affair based on values, commitment and knowledge of individual educators”.

Likewise, teacher training, just like the absence of a national curriculum document regarding the implementation of environmental education, has an influence on the integration of EE in Australian preschools. According to the EPA (2003: 17), the “limited program resources and lack of recognition of environmental education in regulatory standards” contributes to either a total absence or infrequent inclusion of environmental education in pre-service and in-service teacher training in Australia. Consequently, teachers do not integrate EE into their teaching programmes because they were not trained on how this should be done (Tilbury 2005).

However, the EPA (2003) points out that there are several centres that are leading by example in the implementation of environmental learning in ECE in Australia. For example, in the state of Victoria there is a centre called *One World Children’s Centre*. This centre caters for children “from birth to six years old and has a holistic approach to environmental education” (EPA 2003: 17). Among the things that were done by this centre was to publish a text with the title “Playing for keeps”. In this document “the aims, strategies and experiences of the program and the process of change towards an environmentally aware centre” (ibid.) are described. Similarly, “the centre’s program is supported by an environmental policy, and an environmental code of practice, which all parents, staff, students and visitors are asked to recognise and implement where possible” (EPA 2003: 17). Apart from the *One World Children’s Centre*, several other centres that endeavour to integrate EE in the teaching and

learning programmes of ECE exist. Kinma Preschool which is attached to Kinma Primary school in the New South Wales is one such example (<http://www.kinma.nsw.edu.au/kinma-preschool> ; EPA 2003).

Therefore, there are commendable efforts made by some preschools to, integrate EE in the learning and teaching programmes in Australia. This is despite the shortcomings such as limited or lack of training of teachers on the integration of EE in pedagogy, lack of resources to assist the integration of EE and the absence of a national document that guides the integration of environmental learning in ECE. On the other hand, the situation in Brazil, is, expectedly, given the dichotomies between the two countries; different from that of Australia. Perhaps, before I reflect on the situation or what the situation would look like in terms of EE integration in ECE in Brazil, it is vital to point out that the texts accessed and reviewed for this discussion do not reflect on the integration of environmental learning at ECE level in Brazil. Therefore, the following reflection is informed by the points discussed in this chapter in as far as the ECE situation is concerned in Brazil.

There are several issues that could be viewed as impediments to the integration of environmental learning in the field of ECE in Brazil. The following are some of those issues: the deficiencies in respect of monitoring and support given to ECE institutions, the low level of training and qualifications among ECE teachers, the restrained funding of ECE and the challenges of pedagogy.

In preceding paragraphs, I underlined the absence of cohesion between the different spheres of government when it comes to education policy goals in Brazil. For example, the policy goals that the federal government espouses are not clearly articulated by the municipalities. This means that what is done at municipal level, which is the level of policy implementation, might not be what is expected by the national office of education. This fragmented approach to the conceptualisation of policy would create some confusion when it comes to the integration of EE in ECE. Therefore, individual teachers are likely to do what they believe is right rather than what ought to be done in ECE classes. Subsequently, the integration of EE into learning and teaching programmes is likely to be an *ad hoc* matter.

The challenge highlighted above would be compounded by the lack of skilled personnel from municipal offices of education and this (lack of skilled personnel) could impact unfavourably on pedagogical support, including EE integration, given to teachers. Similarly, the low levels of teacher qualification emanating from the low benchmark in respect of minimum teacher

qualifications would also exacerbate this challenge. My view is that the integration of EE into educational programmes depends, largely, on aspects such as, to mention just a few; the level of knowledge, competence, experience and attitudes of the teachers. Some of these elements would have been acquired through teacher training. The absence of these and other relevant factors would make it difficult for teachers with minimal qualifications to infuse EE in learning and teaching activities.

Likewise, I indicated in preceding paragraphs that the government of Brazil seems to be allocating a fairly low percentage of funding into education. This would, in my view, make it difficult for teachers to accommodate educational programmes that are environmentally-directed in the primary schools of Brazil. This implies that there is a possibility that the Grade 1 learners would not undertake EE related educational activities.

Unlike Brazil, which seems to have a fair share of challenges in ECE, Japan seems to be in a favourable position that could facilitate the integration of EE in ECE. For example, in Japan, ECE teachers receive high quality training, they are appropriately accredited and are able to gain access to institutions of higher education if they so wish. Similarly, the ECE curriculum in Japan seems to accommodate an array of needs of kindergarten children. This is due to the fact that there are various forms of curricula followed by different kindergartens in the country. These forms of curricula are developed in line with the philosophical views that are grounded on the Japanese way of life interspersed with various tenets such as those espoused by, for example, the perspectives of Montessori and the Developmentally Appropriate Practices of American ‘origin’. More importantly learning *about/in/for* the “environment (children’s surroundings, and relationship to them)” (UNESCO-IBE 2011a) is significant in Japanese kindergartens.

On the basis of the above-mentioned points, I argue that the integration of EE into the learning and teaching programmes is likely to take place in Japanese kindergartens. Hence, although “EE is not clearly positioned in the formal education curriculum” (Abe 2005: 17), and possibly even in kindergarten; it is possible that, with time, EE could be given prominence in Japanese ECE. This remains a possibility considering that the “elements of the comprehensive-system EE were incorporated into the formal school curriculum in 2002” (ibid.).

In respect of Sweden, it is essential to reiterate that their curriculum does not necessarily state what the teachers should teach at preschool, but rather, it points out the goals that must be

attained (Hägglund and Pramling Samuelsson 2009). Hägglund and Pramling Samuelsson (2009: 54) further state that “when it comes to a curriculum specifically directed toward sustainable development, such a curriculum is not available in Sweden or the rest of the world”. However, there is an indication that environmentally-oriented teaching does take place at preschool (and at school) level in Sweden.

Ärlemalm-Hagser and Sandberg (2011: 187) argue, for example, that “in contrast to research, Swedish preschools (and schools) have a long tradition of working with the natural and environmental issues (Sandell and Ohman, 2010). The practical experience has not been documented to any large extent in research but in several ‘hands-on’ textbooks and descriptions. From this, we may assume that educators in Swedish preschools have plenty of knowledge and understanding on how to put it into practice”. The assertion by Ärlemalm-Hagser and Sandberg (2011) in respect of a ‘hands-on’ approach to environmental learning is also attested to by Urban (2009).

Furthermore, Urban (2009) argues that sustainable development, a component of environmental education, can be presented practically in preschool settings in Sweden. He states that, “in line with the curriculum, Lpfö 98, learning for sustainable development is to be grounded in democracy and involves a multi-fold of educational approaches where critical reflective perspective is prevalent” (Urban 2009: 86 – 89). The concept of “reflective practice” entails the ability by teachers to interpret the contents of the curriculum document and put the theory contained in the document into practice.

The fact that the preschool teachers of Sweden, in contrast to, for instance; those of South African and Brazil, are highly trained makes it easier for them to commit to and put into action the concept of “reflective practice”. Urban (2009) provides one case study in which a team of preschool teachers collaborated, and in their collaboration enlisted the active participation of young children, in the process of finding practical solutions to environmental problems. One teacher in Urban (2009: 86 – 89) explains that:

Together with the children we collected bottle caps, weigh them and talk about the damage they can make in the environment to people and animals, and what we can do if, instead of just throwing them on the ground, we recycle them. We tidy up the surrounding environment to make it nicer and talk about the cost for cleaning this and what we could do with the money if we did not have to spend it on trucks to collect the garbage and take it to the garbage dump.

It should be evident from the above example that preschool learners can be assisted, through meaningful and well thought out activities as well as their active participation, to find tangible solutions to environmental problems. And, the fact that Swedish teachers are highly trained should enable them to integrate EE into ECE programmes with some ease. However, it must be emphasised that reflective practice requires on-going teacher development. Hence, Urban (2009) asserts that “support and in-service training are essential” to empower teachers to be able to translate theory into practice.

On the other hand, and as highlighted in preceding paragraphs, the USA has an array of challenges in respect of ECE. These challenges have the potential to hamper the integration of EE into the learning and teaching programmes. For example, the greatest challenge seems to be the lack of a nationally shared vision regarding the outlook of ECE. Their early childhood education is very fragmented with each state bestowed with the responsibility of deciding on the manner of structuring ECE within its borders. An array of shortcomings that could be attributed to this fragmentation, and therefore impact on ECE, can be noted. These include: low funding from government, the absence of national framework that guides the curriculum of ECE and the lack of integrated approach to early childhood teacher training and qualification. In my view, all these challenges have the potential to water down the quality of ECE. Consequently, the integration of environmental learning in both the kindergarten and other levels of ECE could be negatively affected.

Nevertheless, as it is the case with Australia, there is some evidence to suggest that numerous centres and institutions are committed to the implementation of environmental learning to benefit young children who are appropriately-aged for ECE, especially the kindergarten cohort, in the USA. For example, the North America Association of Environmental Education is committed to EE and has, over the years, developed guidelines as well as learning and teaching support materials that cater for various age groups including the kindergartens. There are also various schools that are dedicated to environmental learning and, therefore, cater for various age groups. For example, the Waldorf School of Saratoga Springs in New York caters for learners aged between 3½ years and 6 years old. The Waldorf School’s Forest Kindergarten is committed to learning activities such as the process of “reconnecting children with nature” (<http://www.waldorfsaratoga.org>). Children also get an opportunity to plant gardens, explore the forest and, generally, spend time outdoors. There is also the Ford Elementary School that is based in Atlanta Georgia which is dedicated to environmental education. “The mission of Ford’s EE program is: to bring awareness of

environmental issues such as habitats, pollution and conservation of resources” (<http://eeingeorgia.org>) especially to young children. The school caters for children from kindergarten level up to the fifth grade. In my view, the efforts to integrate EE in ECE curricula as these and other schools are doing is, undoubtedly, commendable and should contribute toward creating the citizenry that is environmentally aware. In my opinion, this could assist in negotiating the scourge of environmental challenges in the long run.

2.5. CHAPTER SUMMARY

The aim of this chapter was to reflect on the position of ECE in selected countries around the world. This was prompted by the view that the meaningful implementation of EE occurs through integration into existing school curricula. Therefore, by reflecting on the status quo of ECE, especially the Grade R class and its equivalents, I was hoping to gain an idea regarding the status of and/or the possibility of EE integration in South Africa and elsewhere around the globe. The suggestions by authors such as Becker (2007) that ECE is, globally, not on a sound footing made it essential for me to test this claim. Six countries were identified for this purpose, namely: South Africa, Australia, Brazil, Japan, Sweden and the United States of America. The focus of the discussion in respect of each country was on the following aspects: provision and access, monitoring and support, funding, teacher training, and curriculum. The last point of discussion focused on the integration of EE (or the possibility thereof) in each country, the learning–teaching programmes within the field of ECE. The discussion of the last point was informed by the five other factors preceding it in the line of discussion.

In my considered view, the points made in this chapter suggest that, globally, ECE is, indeed, not receiving the attention it deserves. The approaches followed in each country discussed, with the exception of Japan, could be regarded as fragmented and lacking in cohesion. For example, in respect of provision of and access to ECE, the preceding discussion suggests that countries such as Australia, Brazil, Japan, Sweden and South Africa, have made strides towards making ECE accessible to the majority of young children. Notwithstanding the preceding point, it would appear that in countries such as Brazil some poor areas do not have access to this level of education. Likewise, in certain instances, where there is access to ECE, some countries, for example Brazil and South Africa; are faced with challenges such as: inadequate resources, lack of infrastructure, inadequate support for ECE teachers, and so on. In respect of the USA, the fact that each state determines access and provision to ECE results

in many young children not accessing ECE. This is mainly due to the fact that some states have not made the provision of and access to ECE either compulsory or universal.

In respect of funding, evidence from reviewed literature suggests that, generally, ECE is underfunded in numerous countries. Some of the the countries reviewed in this chapter do not contribute adequately – if ‘adequacy’ is measured in terms of each country’s GDP – to ECE. For example, Australia and Brazil have been highlighted, in the preceding discussion, as not contributing sufficiently to the funding of ECE. In countries such as South Africa, one of the challenges seems to be financial mismanagement because the studies referred to in this chapter (SAIDE 2010, HSRC 2015) suggest that upon distribution from National Treasury monies do not always reach their intended destination (the schools).

Regarding teacher training, evidence from reviewed literature indicates that, in most of the countries referred to in this chapter; some work still needs to be done in order to empower teachers in the ECE sector. Four countries, with the exception of Japan and Sweden have high percentages of ECE teachers who still need professional training to be considered ‘qualified’ in terms of professional training standards laid down by the countries (or states and/or territories in countries such as Australia and the USA). Accordingly, in respect of teacher training, numerous challenges were highlighted in the preceding sections. For example, it seems a lot still needs to be done in terms of determining, among other things, the curriculum for teacher training, the type of training and who should provide it, the skills that are required from trainers, provision of on-going (especially in-service) training for teachers as well as proper remuneration; career-pathing and lifelong learning and development for teachers.

In terms of curricula pursued in the countries referred to in this chapter, evidence from literature suggests that curricula and pedagogical practises followed in some of the countries, for example, Brazil, are formal and tend to tilt towards academics rather than play-based teaching-learning activities, usually, recommended for young children. In some countries, for example, Australia and the USA, the process of ECE curriculum is neither ‘universal’ nor centralized. Each state or territory determines its curriculum and the implementation process; consequently, diverse ECE standards exist in such situations. The challenges related to ECE curriculum were also noted in respect to South Africa. For example, some studies conducted in South Africa (SAIDE 2010, Umalusi, CEPD and Wits 2010) highlighted that there were several challenges concerning curriculum implementation, notwithstanding the fact that there

is a new curriculum that became effective in January 2012. According to SAIDE (2010), for example, some ECD practitioners were found to have shortcomings with regard to curriculum implementation, especially play-based curriculum. Likewise, some dichotomies in respect of policy interpretation were noted and, generally, monitoring and support given to ECE teachers were also highlighted as matters that needed attention (SAIDE 2010; Umalusi, CEPD and Wits 2010).

In rounding this discussion off, I would like to reflect on some of the challenges that exist in respect of literature and the research on matters related to ECE. There is, as I have experienced during the writing of this chapter, a dearth of both literature and research on ECE. And, in instances where literature exists, there is virtually no distinction among the various levels of ECE. Hence, throughout this chapter I found it challenging to distinguish Grade R and/or its equivalents from classes such as those catering for the younger age groups within the ambit of ECE. The challenge concerning literature and research in ECE is highlighted by Penn (2008: 35) who writes that:

There is no vibrant research community concerned with ECEC, only a few isolated researchers in each country. There is no comprehensive data collection on which to base estimates for services. There is no overall information in any country about the plethora of small interventions supported by overseas donors, which may or may not amount to a significant contribution. There is very little government infrastructure, support, monitoring or standard setting.

The challenges highlighted by Penn (2008), above, were made with specific reference to ECE in Southern Africa. These shortcomings are reiterated by Atmore, van Niekerk and Ashley-Cooper (2012: 10) who assert that “having completed extensive literature search, there is very little up-to-date quantitative data on the ECD sector in South Africa”. However, these challenges resonate right across the globe; hence they are echoed by the Organisation for Economic Co-operation and Development as follows:

Internationally, information is lacking across all areas of ECEC provision (Hustedt and Barnett, 2010), which makes research on the effects of implementing and maintaining well-designed data bases difficult to conduct. We know very little about who is being served across the various ECEC sectors, what resources are committed to the programmes, the characteristics of the staff, the cultural characteristics of many programmes and the dynamic quality

characteristics. Although extensive data on children and programmes will help answer questions about subgroups and programme effectiveness, government and other funding agencies often do not conduct studies that are rigorous in their design and thus, leave too many unanswered questions...

...Thus, we not only need to develop and build extensive data bases that can connect information across sectors, but we must ensure that these are connected with rigorously designed research studies if we are to use the data to inform programme improvements leading to increasing effectiveness of our early learning efforts globally... a lack of coherent monitoring policies at the international levels makes it difficult to obtain a full picture of the ECEC services provided and impedes international comparisons of programmes and their outcomes (OECD 2012a: 7).

The points made by the OECD (2012), above, are very significant in respect of this study. These points serve to underscore the challenges highlighted in chapter one of this study, that is, the dearth of research in the terrain of ECE, especially, the research that focuses on the role of EE in the field of ECE. Hence, the assertion by OECD (2012) also serves to amplify the importance of this study.

On the above note, I would like to indicate that in the next chapter an attempt will be made to reflect, very briefly, on some of the learning and teaching paradigms that are pertinent to ECE. The aim being to illustrate how those theories could assist in the integration of EE in learning and teaching programmes in the field of ECE.

CHAPTER THREE

LOCATING ENVIRONMENTAL EDUCATION IN SELECTED PARADIGMS: AN EARLY CHILDHOOD EDUCATION CONTEXT

3.1. INTRODUCTION

In the previous chapter I made an effort to reflect on the state of ECE in South Africa and some countries globally. This exercise was prompted by the notion that an effective implementation of EE hinges on its integration into various subjects that are presented at school. My contention is that the reflections made in chapter two contribute towards facilitating postulations about the integration of EE in the ambit of ECE around the world.

Various paradigms are deemed significant in respect of guiding pedagogical practices and processes across the field of education (Gordon 2011; Woolfolk 2010). In this chapter I discuss some of those theories that are considered relevant to the field of early childhood education. The discussion that follows, therefore, focuses on six paradigms, namely: the Cognitive Development Theory credited to Piaget, Erikson's Psychosocial Perspective; the Sociocultural Paradigm by Vygotsky, the Bio-ecological tenet attributed to Bronfenbrenner, the Behavioural and Social Learning Theories, and the theory of Multiple Intelligences postulated by Gardner. In discussing each theory, I shall also make an effort to highlight some of the factors that prompted the choice of the theory for discussion in this study. The discussion of each perspective will be rounded off with a reflection on how the theory could be applied to the integration of EE in the teaching of various topics in various subjects as highlighted in the Grade R CAPS documents. However, before discussing these theories, I reflect on the logic behind the selection of these theories.

3.2. THE RATIONALE FOR THE CHOICE OF THEORIES DISCUSSED IN THIS STUDY

There are numerous reasons which informed the choice of the paradigms discussed in this chapter, namely: the relevance of each theory to ECE, an emphasis placed on one or more aspects that contribute to the course of learning and development, applicability to the integration of EE in the teaching and learning of each of the subjects catered for, as per the education policy, in the Grade R class of South Africa; and more importantly, the link between the theory and the NCS. It is important for me to point out; as I shall reflect later in

this chapter (*refer to 3.4*), that some of the theories also have been used historically in environmental learning; hence it can be argued that since their role and applicability in environmental learning has been historically ‘proven’ then they are worth discussing. Likewise, in view of the fact that; in the true sense of the word, neutrality is difficult to attain in qualitative research (*cf. section 1.2 and section 4.4.5*), before I round off this chapter I will also provide a view (*refer to 3.5*) on how and why one of the perspectives discussed in this study could be ‘more appropriate’ in the integration of EE in Grade R. As reflected in the preceding points, the theories discussed in this chapter can be aligned to the NCS as entailed in the CAPS documents. Hence, a few points are worth highlighting in this regard.

There are numerous general aims that are entailed in the NCS as entailed in the CAPS documents (DBE 2011a: 4 – 5). Therefore, in an attempt to illustrate that the theories discussed in this chapter are aligned to the curriculum I refer to just a few of them since a reflection on all of them would, possibly, require a full chapter. Likewise, let me hasten to indicate that the aims of the curriculum are not the only aspects entailed in the NCS that can be linked to these theories. There are numerous principles and activities (*refer to table 2.1. for some of the activities*), which can be aligned and, arguably, be facilitated through the use of some of the theories discussed in this chapter. The following is one of the aims of the NCS entailed in the CAPS (DBE 2011a: 4):

- (a) The *National Curriculum Statement Grades R – 12* gives expression to the knowledge, skills and values worth learning in South African schools. This curriculum aims to ensure that children acquire and apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes knowledge in local contexts, while being sensitive to global imperatives.

Arguably, no less than three theories among those discussed in this study are underpinned by some characteristics that are in line with the preceding aim. Therefore, in my view, it is not unreasonable to claim that those theories present a possibility to give expression to the preceding aim. For example, both the cognitive development and the socio-cultural theories seek to enable learners to acquire knowledge and skills that are relevant and thus, as the above aim, partly points out, “meaningful to their lives” (*cf. Wals and Dillon 2013*). This is done through, *inter alia*, thinking (cognition) – this partly, highlights the role and importance of the cognitive development theory – and engagement through discussion (language use) – this aspect underlines the value of the sociocultural theory which

emphasizes interaction between the learner and his/her significant others (e.g. peers; parents, teachers, etc). Likewise, in my opinion, the aims highlighted in DBE (2011a: 5), below, can be addressed, in part, by the theories (highlighted in brackets):

(d) The National Curriculum Statement Grades R – 12 aims to produce learners that are able to:

- Identify and solve problems and make decisions using critical and creative thinking (cognitive development theory; sociocultural theory – both theories advocate for critical and creative thinking, especially, during engagement with other learners, for example, in play activities, cf. Berk 2009);
- organize and manage themselves and their activities responsibly and effectively (psychosocial theory – this theory provides for learner developmental needs such as independence, initiative, etcetera, cf. Bernstein 2010, Corey 2009; hence it can be argued that this theory can give expression to the aims entailed in “organize and manage themselves”);
- demonstrate an understanding of the world as a set of related systems by recognizing that problem solving contexts do not exist in isolation (cognitive development theory; sociocultural theory; bioecological systems theory – the former two theories are premised on the notion of learner engaging in cognition and verbal thought and action hence both can enable “an understanding of the world..” – cf. Berk 2009, Aschermann 2001. While, the bioecological theory underlines the significance of the world as composed of multiple and interrelated systems, cf. Krishnan 2010).

It should be evident, in my view, that the theories in this study can be aligned to and thus, it is possible to use them, to give expression to the aims of the NCS. However, in the interest of this discussion, the following aim is used as the last example to underline the notion that, indeed, there is some link between the theories discussed in this chapter and the curriculum entailed in CAPS documents (DBE 2011a; DBE 2011b; DBE 201c). The NCS assigns meaning to the accommodation of and the provision for the needs of all learners irrespective of their status. The following aim, clearly, illustrates this point:

(e) Inclusivity should become a central part of the organization, planning and teaching at each school. This can only happen if all teachers have a sound understanding of how to recognize and address barriers to learning, and how to plan for diversity (Multiple

Intelligences Theory – Athman and Monroe (2000: 44) point out that the Multiple Intelligences theory “reminds educators that not all students learn and respond to learning situations in the same way”. Hence, since this theory provides for more than one form of intelligence, it can be argued that it can assist in respect of accommodating learners with diverse needs.).

The following discussion focuses on the discussion of the theories as already referred to in 3.1, above.

3.3. LEARNING AND DEVELOPMENT THEORIES RELEVANT TO EARLY CHILDHOOD EDUCATION

The following is, therefore, a brief discussion of each of the above–mentioned paradigms. An endeavour shall be made to reflect on the aspects highlighted in the preceding paragraph.

3.3.1 PIAGET’S COGNITIVE DEVELOPMENT THEORY

The theory of cognitive development was postulated by Jean Piaget, a trained biologist, hence this theory has a distinct biological flavour (Berk 2009; Mooney 2000). This paradigm is premised on the view that learning and development occur due to the interaction between a child, especially the cognitive processes in the child, and the environment (Gordon and Browne 2011). Piaget distinguishes between four stages of cognitive development: namely, sensori–motor (0 to 2 yrs), pre–operational (2 to 7 yrs), concrete–operational (7 to 11yrs) and formal operational (11 yrs to adulthood) (Woolfolk 2010; Berk 2009; Louw, Van Ede and Louw 1998).

The argument that there is reciprocity between nurture and nature which facilitates learning and development, and the notion that there is a continuum between the stages (Berk 2009) justifies the discussion of this perspective in this chapter. More importantly, although “Piaget did not make specific educational recommendations” (Woolfolk 2010: 48), his theory has, over the years, impacted very profoundly on the field of education. In my view, the depictions of the cognitive changes that occur in children enable an informed planning and delivery of learning and teaching programmes; hence the relevance of this theory to this study. In keeping with the aims of this study, the following synopsis of the theory of cognitive development shall focus on the sensori–motor and the pre–operational stages with more bias towards the latter since Grade R falls within this stage of cognitive development.

3.3.1.1. A Synopsis of the Theory of Cognitive Development

Cognition, a process which entails, among other things, the acquisition and transformation of information about the world into knowledge that is stored and later retrieved so as to be used when a person interacts with the environment (Louw, Van Ede and Louw 1998) is very central to learning and development. “According to Piaget human infants do not start out as cognitive beings. Instead, out of their perceptual and motor activities, they build and refine psychological structures – *organised ways of making sense of experience that permit them to adapt more effectively to the environment*. Children develop these structures actively, using current structures to select and interpret experiences, then modify those structures to take into account more subtle aspects of reality” (Berk 2009: 224). The process explained by Berk (2009), in preceding sentences, leads to cognitive development (Woolfolk 2010). On the other hand, cognitive development is facilitated by maturation and heredity of the child, regular utilisation of experience, interaction and sharing of knowledge with other people and equilibration (Louw, Van Ede and Louw 1998). Cognitive development, therefore, aids the process of learning and development and it occurs from childhood through adulthood.

Various interdependent processes and cognitive structures are involved in cognition, as entailed in the theory of cognitive development. As children interact with and learn about the world, they engage in an ongoing action of restructuring information so that it makes sense to them. This process is called organisation (Woolfolk 2010; Berk 2009). The mental structures known as schemes are responsible for the organisation of information. These mental structures can also be regarded as mental systems or categories of perceptions as well as representations of behavioural patterns and experiences (Woolfolk 2010; Louw, Van Ede and Louw 1998) that contribute to development and learning. Cognitive schemes are, therefore, cardinal in enabling people to interpret information, solve problems and, generally, in determining how people learn and respond to different situations (Reber and Reber 2001).

The significance of cognitive structures is also discernible in the process called adaptation. “Adaptation involves building schemes through direct interaction with the environment. It consists of two complementary activities: assimilation and accommodation” (Berk 2009: 225). The process of adaptation could be illustrated by means of numerous practical examples. However, for the purposes of this discussion, only one should suffice. For example, suppose a preschool girl whose cognitive structure contains the conceptual and mental representation of a domestic dog sees, for the first time in her life, a jackal at a game

reserve. In her excitement, she yells to her mother, “Mama, mama, look...a dog!” In this regard, the girl uses the information in her cognitive structure to make sense of what she sees. The process in which a person uses the information that already exists in the cognitive structure in order to adapt to the environment is called assimilation (Gordon and Browne 2011; Woolfolk 2010).

On the other hand, accommodation would occur if the mother of the girl were to attempt to clarify the situation to her, by stating, for example, that “No Bongekile that is not a dog, it is a jackal”. Accommodation, therefore, is the process in which cognitive structures are increased or expanded to create a new place for new information (Gordon and Browne 2011; Berk 2009). If the processes of assimilation and accommodation are accomplished then equilibration, “a sense of balance” (Gordon and Browne 2011: 117), would occur in the cognitive structure of the child. In turn, the child would adapt to the new situation or would be comfortable with the new information hence equilibration is referred to as the ability to balance new information with existing information in the cognitive structure (Woolfolk 2010). However, it must be pointed out that equilibration, which is also regarded as Piaget’s term for the “back-and-forth movement between equilibrium and disequilibrium” (Berk 2009: 225); and occurs during adaptation in the cognitive structure, does not take place with ease. This point is aptly expressed by Berk (2009: 225) who writes that:

When children are not changing much, they assimilate more than they accommodate – a steady, comfortable state that Piaget called cognitive equilibrium. During times of rapid cognitive change, children are in a state of disequilibrium, or cognitive discomfort. Realizing that new information does not match their current schemes, they shift from assimilation to accommodation. After modifying their schemes, they move back toward assimilation, exercising their newly changed structures until they are ready to be modified again.

The point made by Berk (2009), above, suggests that Bongekile, the preschooler who sees a jackal for the first time, as mentioned in an example presented earlier, and her mother would have to do some work to enable her to accommodate the new information encountered in her environment. This is due to the fact that it would not be easy, one would imagine, for a preschooler to comprehend with ease the distinction between a domestic dog and a jackal. Indeed, a back and forth movement between equilibrium and disequilibrium interspersed with

discomfort is likely to occur until the new information becomes part of the girl's cognitive structure.

As stated in preceding paragraphs, there are four stages identified by Piaget in his theory of cognitive development, however, only the first two are discussed in this chapter. The following is, therefore, a brief reflection on the sensori-motor and the pre-operational stages, respectively.

(i) *Sensori-motor stage*

Sensori-motor is the first of the four stages of cognitive development referred to by Piaget. Berk (2009: 226) writes that the name of this stage "reflects Piaget's belief that infants and toddlers "*think*" with their eyes, ears, hands and other sensori-motor equipment. They cannot yet carry out many activities mentally". However, there is evidence to suggest that babies are able to carry out various cognitive expansion processes that are significant for learning and development during the latter stages of their lives. For example, Louw, Van Ede and Louw (1998: 75) point out that:

During the first 18 months, babies develop problem solving skills but they solve problems without the benefit of mental images. They know their world in terms of their perceptions (sensory) and their actions (motor)...

The most advanced stage in the sensori-motor period is when infants are able to mentally think out possible solutions to problems (18 – 24 months). This implies that infants can find a solution to a problem through insight. This stage is called symbolic representation through mental combination.

Berk (2009: 225) concurs with Louw, Van Ede and Louw (1998), above, by asserting that at eighteen months "the toddler shows evidence of thinking before she acts". Hence, there are various activities that are performed by babies as well as numerous processes that take place during the sensori-motor stage. These include, among other things, imitation of other people, the development of memory and thought, an understanding that even if an object is no longer visible to the baby it still exists (object permanence) and the replacement of reflex action by goal-directed activities, for example, a baby attempting to remove a toy from a container (Woolfolk 2010; Berk 2009; Louw, Van Ede and Louw 1998).

The behavioural changes that occur in babies during the sensori–motor stage, as indicated above, are made possible by the cognitive schemes that change on a regular basis (Berk, 2009). This is due to the process of adaptation. Berk (2009: 224) further points out that, “all aspects of cognition change in an integrated fashion”. In essence, the learning and developmental processes that take place in each of the stages of cognitive development identified by Piaget contribute to the child’s ability to negotiate each of the subsequent stages of cognitive development.

The above–mentioned points seek to highlight just a few characteristics associated with the sensori–motor stage of cognitive development. The following discussion reflects on the pre–operational stage.

(ii) Pre–operational stage

The concept of “operations” refers to the process in which a child performs actions by thinking them through rather than acting them out (Woolfolk 2010). The pre–operational stage is, therefore, a stage of cognitive development where children use operations (internalised cognitive schemes) for thinking but not at an advanced stage (Woolfolk 2010; Louw, Van Ede and Louw 1998). Children at pre–operation level, especially during the initial phase (2 – 4 yrs) of the stage, find it difficult to represent reality through an image or reconstruction (Louw, Van Ede Louw 1998). In order to amplify the challenge encountered by children in terms of using operations, Piaget and Inhelder (1969: 94) argue that, “the first obstacle to operations, then is the problem of mentally representing what has already been observed on the level of action”.

However, there are very significant changes that occur as a result of cognitive development as the child juts into the pre–operational stage. These changes occur due to increased assimilation and accommodation, culminating in an expansion in the cognitive schemes of a child. To highlight this point, Berk (2009: 236) writes that “as children move from the sensori–motor to the pre–operational stage, the most obvious change is an extraordinary increase in mental representations. Infants have some ability to represent the world, in early childhood this capacity blossoms”.

Another point that needs to be mentioned regarding the pre–operational stage is that this stage serves, for lack of a better phrase, as a launching pad for more advanced mental processes that occur later in the child’s life. Likewise, signs of integrated development begin to emerge

during this stage of development. In essence, as the child develops cognitively during the pre-operational stage, some cohesion becomes discernible in respect of aspects such as socialisation, moral development, and emotional functioning. Some of the fore-going points are amplified by Piaget and Inhelder (1969: 114) as follows:

...there is a preparatory period (two to seven) characterised by systematic assimilation to child's own action (symbolic play, non-conservations, pre-causality, etc) which constitutes an obstacle to, as well as a preparation for, operatory assimilation. The affective and social development of the child follows the same general process, since the affective, social, and cognitive aspects of behaviours are in fact inseparable.

There are various behavioural traits that serve to substantiate the notion that children at pre-operational stage have “advances in mental representation” (Berk 2009: 236) and that this stage of cognitive development is characterised by a “functional unity that binds cognitive, playful, affective, social and moral reactions into a whole” (Piaget and Inhelder 1969: 128). Berk (2009) further points out that language and play; especially make-believe play, are some of the aspects from which significant changes could be noticed in children at the pre-operation stage of cognitive development.

Although “Piaget did not regard language as the primary ingredient in childhood cognitive change” (Berk 2009: 236), he did acknowledge “that language is our most flexible means of mental representation” (ibid). Accordingly, it is important to appreciate the role played by language in respect of child development and learning during the pre-operational stage of cognitive development. Woolfolk (2010) and, Louw, Van Ede and Louw (1998) point out that language development is very rapid at this stage and that it facilitates symbolic and semiotic functions that enable children to use words, images, pictures, etcetera to communicate about a variety of objects and events; even when these are not present or visible before the child. For example, children are able to use the picture of a dog to talk about a dog. In respect of children's play, especially make-believe play, Berk (236 – 237) has the following to say:

Make-believe play is another excellent example of the development of representation in early childhood. Piaget believed that through pretending, children practice and strengthen newly acquired representational scheme...

An 18-month-old can pretend to drink from a cup but does not yet combine pouring and drinking...By age 4 to 5, children build on one another's play, and have ideas, create and coordinate several roles, and have a sophisticated understanding of story line...Play not only reflects but also contributes to children's cognitive and social skills.

According to Berk (2009), make-believe play is important because it involves the use of various cognitive schemes and it enables children to become less self-centred. Through play, children interact with peers thereby broadening their perspectives of the world. Accordingly, play can be said to enhance the knowledge base of children and, by extension, it facilitates the learning and development process. Similarly, play also aids the processes of cognition, emotional development and socialisation.

In rounding off this discussion on the pre-operational stage of cognitive development, it is essential to also mention some of the challenges that Piaget highlighted as limitations that are displayed by children in respect of cognition. This is essential because later in this discussion an attempt is made to provide some suggestions on how EE could be integrated through the use of Piaget's theory in Grade R. Accordingly, by highlighting some of the shortcomings of cognition that are displayed by children at this stage of development, a better understanding of how preschoolers tend to behave is made possible. In my view, this should facilitate the development and design of lesson programmes that seek to integrate environmental education in Grade R.

The following are, therefore, some of the shortcomings associated with children at pre-operational stage. Woolfolk (2010) points out, for example, that children at this stage of development are unable to apply reverse thinking. In essence, their logical reasoning is unidirectional. They are inclined to use what Piaget terms *cognitive egocentrism* in that they view things from their own perspectives and expect others to do the same (Woolfolk 2010; Louw, Van Ede and Louw 1998). It must be mentioned as well that Piaget tends to also use the concept *egocentrism* in reference to children's private speech; a phenomenon he deems insignificant (Louw, Van Ede and Louw 1998). Another challenge identified by Piaget in respect of the pre-operational stage is de-centering. This entails an inability to focus on more than one dimension of an object at a given time (Woolfolk 2010; Louw, Van Ede and Louw 1998). One other challenge that is worth mentioning since Piaget regards it as an initial signal that the child has reached "operational thinking" is the concept of conservation. According to

Piaget and Inhelder (1969: 97), the “notions of conservation may therefore serve as psychological indication of the completion of an operatory structure”. Piaget and Inhelder (1969), above, seem to suggest that a child who understands the concept of conservation, for example, that a liquid does not change in amount simply by transferring to a shorter or taller glass; may be regarded as having attained the operational stage. It may be argued, therefore, that the shortcomings associated with the pre-operational stage as identified by Piaget would only be addressed when the child reaches the next stage of development – the concrete-operational stage.

The final point that should be underscored before an attempt is made to reflect on how this theory could be applied in the integration of EE in Grade R is that this discussion does not purport to exhaust all aspects of Piaget’s theory. Equally, it is important to mention that although the cognitive development theory has been commended by many since “to date, no theory has had a greater impact on developmental psychology than that of Jean Piaget” (Lourenco and Machado 1996: 143), this theory has been subjected to some criticism. For example, Bennett (1981: 139) points out that “the most common criticism of cognitive development concepts has been levelled at the idea that stages of development are biologically driven phenomena that emerge in full-blown, step-like fashion”. Additionally, Piaget perceived children’s cognitive development to be occurring as if it were a “uniformly sophisticated thinking about all manner of problems” (ibid.), i.e. Piaget is criticized for, apparently, expecting all children in a particular age group to reach the same level of cognitive development at the same time. Furthermore, Shelley (2012: 64) writes that, “Piaget is criticised for focusing too much on the individual’s maturation and not attending to the influence of the environment”. However, it seems to me that, in recent years, numerous researchers tend to argue, in the main, that most of the children’s activities, as per Piaget’s postulations, occur earlier than he claimed they do (Shaffer and Kipp 2014; Woolfolk 2010; Berk 2009; Newman and Newman 2009; Russell, Jarvis and Gorman 2004). Accordingly, Russell Jarvis and Gorman (2004: 78) write that “there have been challenges to Piaget’s ideas about the ages at which children develop different abilities. Most contemporary psychologists believe that children achieve object permanence and conservation at an earlier age than was suggested by Piaget but that abstract reasoning is achieved later if at all”.

Of course, there are, certainly; many other points that could be mentioned in respect of Piaget’s theory. However, in my view the preceding points should, in the interest if this

discussion, suffice. The following is therefore, a brief reflection on how this theory could be applied in the integration of EE in Grade R.

3.3.1.2. Applying Piaget's Cognitivist Theory in the integration of Environmental Education in Grade R

There are various ways in which the theory of Cognitive Development could be employed to integrate environmental learning in Grade R, and this is possible in all subjects catered for in Grade R. In this instance, I have chosen mathematics to try and indicate how EE could be integrated in the Grade R teaching and learning processes. The theme/topic “numbers, operations and relationships” (DBE 2011b: 19 – 22) is used in this regard. According to the CAPS document (DBE 2011b), teachers are required to focus on issues such as teaching and enabling Grade R learners to, among other things; count concrete objects, estimate and count at least ten everyday objects, count forwards and backwards, and solve word problems (story sums) in context. Teachers are required to utilise various pedagogical approaches including the use of “number rhymes and songs, and say and use familiar number names in familiar contexts” (DBE 2011b: 19 – 20).

There are many ways in which the above mathematical activities/aspects could be presented. However, I concur with Loop's (2012) contention that the teacher must know which aspects of Piaget's pre-operational stage that match mathematics could be addressed and how this could be done. As indicated in the discussion of the theory of cognitive development in preceding paragraphs, processes such as assimilation, accommodation and equilibration occur throughout the various stages of cognitive development. For this reason, an attempt must be made, in my view, to ascertain that these cognitive processes are factored into the learning-teaching activities. Similarly, the fact that children at pre-operational stage begin to understand symbolism (Loop 2012) should be taken into cognisance when planning or designing the lessons in this regard. Equally important is that, since its importance was accentuated in preceding paragraphs, due consideration should be given to the role of play in learning and teaching activities. For this reason, I would suggest that a Grade R lesson that involves counting should involve the process of play or singing. The teacher could use the following handclapping rhyme as part of the lesson, perhaps at the beginning of the lesson, to teach forward counting in a fun way.

Table 3.1: A nursery rhyme that could be used for teaching forward counting

<p style="text-align: center;">One Potato, Two Potato (Handclapping Rhyme)</p> <hr/> <p style="text-align: center;"><i>Author: Unknown</i></p> <p style="text-align: center;">One potato, two potato, three potato, four, five potato, six potato, seven potato more.</p> <p style="text-align: center;">Icha bacha, soda cracker, Icha bacha boo.</p> <p style="text-align: center;">Icha bacha, soda cracker, out goes Y-O-U!</p> <p style="text-align: center;">Source: www.scrapbook.com</p>
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The above rhyme, its variation (that caters for forward counting up to the number “ten”) or any other relevant rhyme would not only serve as an ice-breaker but it could bring fun to learning. Excitement is one of the ingredients that are essential in a foundation phase classroom because it has the potential to maintain the interest and enthusiasm of young children. Besides; singing is part of play, and as Fox (1996: 19) points out “research indicates that children learn best in an environment which allows them to explore, discover, and play. Play is an important part of a developmentally appropriate child care program. It is also closely tied to the development of cognitive, socio-emotional, and physical behaviours.” What is also interesting about the above rhyme, in my view, is that it already accommodates forward counting. The singing of the rhyme would also provide the learners with an opportunity to draw, as it were, a mental picture that links each number, for example; the number “one” to a tangible object such as “one potato” or any other object. Therefore, the aspect of mental representation, as referred to by Piaget, is catered for in the rhyme.

After the singing of the rhyme, the teacher may enable the learners to count familiar objects, first inside the classroom and, later, outside the classroom. Once the children are outside the classroom, they would be able to get an opportunity to further venture into a lifelong activity of learning about an array of factors that are perpetually interacting, namely the “social,

political, and economic forces with the bio–physical world”(O’ Donoghue 1994 in Rosenberg 2009: 4). At the same time, children would be engaged in outdoor activities, a significant component of environmental learning. This engagement would, therefore, provide children with a chance to learn holistically “about, in and for the environment” (Lee and Tong 2006: 83). According to Lee and Tong (2006: 83 – 84), “education in the environment encourages outdoor activities that afford personal enhancement as well as child–centred and activity–based learning”.

Outside the classroom, the teacher could guide the learners through the process of counting, physically, some objects that are visible through the naked eye. For example, children may count various trees found within the ECD centre. The teacher may ask the learners to mention as well as enumerate and point at (and assist where necessary) the fruit borne by each tree, e.g. “there are one, two, three, peach trees in our garden”. Similarly, learners might also be asked to state the importance of the trees found in the ECD yard as they go along identifying them. Additionally, the teacher may highlight that since a particular tree, just like other trees, is important then there is a need for its preservation. In order to encourage more learner participation and thinking, which should facilitate cognitive development, the teacher may ask the learners to talk about the actions that could be undertaken to ensure that trees are protected from harm.

The teacher may use any other types of objects that are found in the immediate vicinity of the learner to facilitate this learning activity. The significance of this activity is not only to practice forward counting but this process also has an environmental value in that young children are exposed to their surroundings. At early childhood level, learning about one’s surroundings is an important aspect of environmental education (Kola–Olusanya 2005; Lee and Tong 2006).

In respect of backward counting, from ten to one, the teacher may, in the same breath, use an array of approaches. Again, a rhyme is an element of play that could be used for this purpose. The following rhyme (or its variation that caters for the number “ten”) may be used. The teacher could be innovative and let the class act like frogs instead of using the fingers to represent frogs and arms to represent the log. The most important thing is that the teacher should be innovative and try to make learning fun.

Table 3.2: A nursery rhyme that could be used for teaching backward counting

<p style="text-align: center;">"Five Little Speckled Frogs"</p> <p>Five Little Speckled Frogs (Hold five fingers to represent frogs) on top of your other arm (log) Sat on a speckled log Eating the most delicious bugs. Yum! Yum! One jumped into the pool (jump a finger off the log into the pool) Where it was nice and cool Now there are Four green speckled frogs (Hold up four fingers)</p> <p style="text-align: center;">(the teacher should continue until only one frog is left)</p> <p>One little speckled frog Sat on a speckled log Eating the most delicious bugs. Yum! Yum!</p> <p>It jumped into the pool Where it was nice and cool Now there are no more speckled frogs.</p> <p style="text-align: center;">Source: www.grandparents.com</p>

There are, indeed, many other approaches that might be used to teach forward and backward counting. What is of significance is that learning, especially play-based learning; should be encouraged. In this regard, it might be necessary to reiterate the value of play in early childhood education. According to Fox (1996: 19), "Piaget (1962) defined play as assimilation, or the child's efforts to make environmental stimuli match his or her own

concepts”. In essence, play-based learning enables learners to understand new concepts much better. An equally important point is made by Kola-Olusanya (2005: 229) who assert that, “play is another important way children freely engage in learning during early years, play allows children to investigate the world on their own terms, and for their own purposes (Falk and Dierking 2002) and is a key means by which children learn without being taught; it is also a basic process of doing, exploring, discovering, failing and succeeding”. Indeed, it would do teachers a lot of good to carefully consider and plan their teaching and learning programmes to accommodate play-based learning in the field of ECE.

In concluding this discussion, I would also suggest that once the teacher is convinced that learners have, somewhat, grasped the notion of backwards and forwards counting, then he or she may present the concept of a problem sum and, also, factor in the use of mathematical operations. The following example or its variation could be used:

Table 3.3: An example of a problem sum that could be used in Grade R

There are five peach trees in our school garden. How many more peach trees must be planted to have ten peach trees?



+

= 10

There is indeed, an array of other ways in which the Piaget's theory of cognitive development could be used to integrate environmental learning in the teaching of Grade R mathematics. Even the examples referred to in the above illustration might do with a lot of modification. The next paradigm that is worth reflecting upon, in the quest to fulfil the intents of this chapter, is Erik Erikson's Psychosocial Perspective.

3.3.2 ERIKSON'S PSYCHOSOCIAL PARADIGM

The psychosocial perspective was inspired by the theory of psychoanalysis which was originated by Sigmund Freud. According to Gordon and Browne (2011: 109), Erik Erikson "expanded and refined Freud's theory of development". His effort culminated in this perspective which offers "a basic framework for understanding the needs of young people in relation to society" (Woolfolk 2010: 17). Erikson's psychosocial theory has had a profound influence in the field of ECE hence Gordon and Browne (2011: 109) assert that "it is Erikson whose ideas have most affected early childhood education". Furthermore, Gordon and Browne (2011: 109) point out that, "Erikson is perhaps the most influential psychoanalyst in the study of children and development. His interest in children and education included a teaching background in progressive and Montessori schools in Europe".

It should be evident from the preceding paragraph that not only did Erikson participate actively in the field of ECE but his psychosocial theory is very relevant to the terrain of ECE. For this reason, it is appropriate to include it for discussion in this chapter. Another point that makes this perspective worth noting is that, just like Piaget's theory of cognitive development, this theory also stresses the fact that a human being goes through various stages of development. This is significant to point out because by distinguishing between various stages of human development, teachers would be able to understand that children in the different stages of development have different pedagogical needs. Consequently, planning would have to consider this distinction very seriously. In essence, it is cardinal for a teacher to realise that the planning and delivery of lessons should be informed by the developmental needs of children. Similarly, as it is the case with Piaget's and Vygotsky's theories, respectively, Erikson's theory also acknowledges the influence of the social environment on the developing child.

There are various points that could be mentioned as regards the nature or the premise of Erikson's psychosocial theory. However, the following brief reflection on this perspective should suffice.

3.3.2.1. An Outline of the Psychosocial Paradigm

According to Erikson, human beings develop by undergoing “progressive and lifelong evolution” (Meyer, Moore and Viljoen 1997: 205). This process depends on the interplay between the developing person, especially the psychosocial factors, and the “social world” (Corey 2009: 66) of the person. It is because of this reciprocal relationship that exists between the psychosocial factors and the social world of the developing person that this theory is aptly referred to as the “psychosocial theory”. However, it must be mentioned that Erikson does not attach significance only to the psychosocial components of a developing person but there are other factors he regards as equally important. There are various other factors that are also considered vital in the learning and development of a person. These include the biological, intellectual, social and emotional aspects of a developing person (Gordon and Browne 2011; Woolfolk 2010).

Erikson’s theory projects human development as “an independent series of stages, each with its particular goals, concerns, accomplishments and dangers” (Woolfolk 2010: 84). Each stage “is a period during which changes occur” (Gordon and Browne 2011: 109) in a developing person. These changes occur as a result of “inherent developmental tendencies” (Meyer, Moore and Viljoen 1997: 207) that exert pressure on the developing person forcing the person to act in a certain way (Louw, Van Ede and Louw 1998). And, very often the dichotomies posed by the challenges, opportunities, expectations, limitation, etcetera presented by the social world vis-à-vis the outlook of the developing person cause some confusion in the person (Gordon and Browne 2011; Corey 2009).

Erikson uses the concept *identity crisis* or *developmental crisis* (Gordon and Browne 2011; Woolfolk 2010) in reference to the confusion that arises when a person has to choose between the polarities emanating from “innate developmental tendencies” and the demands of the social world of the developing person. According to Erikson, the ability to resolve the crisis of each stage depends “on the development of previous stages” (Gordon and Browne 2011: 109). At the same time, even if a crisis in each stage of development is resolved this does not mean that it ‘goes away’ because “the crises of the previous stages are also still present ‘beneath the surface’ and also still have to be handled” (Louw, Van Ede and Louw 1998: 51). It is also important to mention that the resolution of a crisis depends on the collaborative functioning of both polarities that exist in each stage of development. Meyer,

Moore and Viljoen (1997: 211) write as follows in respect of how the crises in various stages of human development are synthesised:

In each developmental crisis, the two poles are seen as a thesis and an antithesis respectively, leading to a synthesis in the form of a particular ego strength. The solution of a developmental crisis is therefore not achieved by excluding one of the opposites nor merely by some form of compromise between the two but through a synthesis which includes both opposites, although, of course, the positive pole carries more weight than the negative. This synthesis thereby enables the individual to advance to a higher level of development.

Erikson distinguishes between eight stages of human development. The stages are presented, each with both negative and positive polarities or alternatives that are synthesised as well as the ideal ego strength that emerges in the event of a positive alternative being realised. For example, infancy stage (0 to 12 months): trust versus mistrust (the polarities associated with the stage of development): hope (ideal ego strength). The following are therefore the eight stages of human development by Erikson: Infancy (0 to 1 year): trust versus mistrust: hope; Early childhood (1 to 3 years): autonomy versus shame and doubt: will–power; Preschool age (3 to 6 years): initiative versus guilt: purpose; School age (6 to 12 years): industry versus inferiority: competence; Adolescence (12 to 18 years): identity versus role confusion: fidelity; Young adulthood (18 to 35 years): intimacy versus isolation: love; Middle adulthood (35 to 64 years): generativity versus stagnation: care; Late adulthood (65 years to death): integrity versus despair: wisdom (Gordon and Browne 2011; Corey 2009). In line with the intents of this study, the discussion below focuses, very briefly, on the first three stages referred to by Erikson.

(i) Infancy: Trust versus Mistrust (Synthesis: Hope)

In terms of Erikson’s theory, infancy, which ranges from birth to about one year, is the first stage of psychosocial development. At this stage, infants rely on their senses and “the whole body” (Meyer, Moore and Viljoen 1997: 51), especially the hands and mouth to interact with the world. According to Meyer, Moore and Viljoen (1997) the main social behaviour of children at this stage of development is the incorporation which entails the in–taking of food, warmth, love and various other impressions that are incorporated through the use of senses. Apart from incorporation, children also learn to trust or not to trust their immediate environment as well as to trust or not trust themselves.

Infants depend on significant others, especially their mothers, for consistent care. This care includes affection, emotional security and provision of food (Gordon and Browne 2011; Woolfolk 2010). Consistent care establishes the foundation for trusting the outer world of an infant child. Likewise, infants also learn to trust or mistrust themselves. Trust in the self would emerge when they are able to “affect changes and cope with a variety of circumstances” (Gordon and Browne 2011: 110) in their environment. Corey (2009: 67) points out that “if basic needs are not met, an attitude of mistrust towards the world, especially towards interpersonal relationships, is the result”. Ideally, trust is the alternative that enables children to face the world with hope. The significance of hope in human development is highlighted by Louw, Van Ede and Louw (1998: 51) as follows:

A basic synthesis between basic trust and mistrust will equip children well in dealing courageously but carefully with new situations. This synthesis, which Erikson characterised with the word hope, is of great importance throughout life.

For the purposes of this study, the above points in respect of infancy should suffice. The next few points focus on the stage referred to by Erikson as the early childhood stage.

(ii) *Early Childhood: Autonomy versus Shame and Doubt: (Synthesis: Will–power)*

Early childhood, the stage that ranges from one to three years in terms of Erikson’s theory, is one of the most important stages in human development. The polarities that need to be negotiated by children as they learn and develop are, on the ‘positive’ end, autonomy and, on the ‘negative’ end; shame and doubt (Gordon and Browne 2011; Corey 2009). If a child succeeds in negotiating the crises associated with this stage of development by balancing the demands of the social world and inherent needs for personal growth and autonomy, the ego strength called will–power would emerge. The significant others, especially the parents, play a vital role in the child’s learning and development. This point is amplified by Woolfolk (2010: 84) who writes that:

Erikson’s second stage, autonomy versus shame and doubt, makes the beginning of self–control and self–confidence as young children begin to assume responsibility for self–care such as feeding, toileting and dressing. During this period, parents must tread a fine line between being protective but not overprotective. If parents do not reinforce their children’s efforts to master basic motor and cognitive skills, children may begin to feel shame; they may learn to

doubt their abilities to manage the world. Erikson believes that children who experience too much doubt at this stage will lack confidence in their own abilities throughout life.

Evidently, at this stage of development children have to learn to cope with the pressure exerted by the need to be autonomous while also avoiding instances that inflict shame and doubt. The support provided by parents and caregivers such as creating an enabling environment where children are allowed to make mistakes without feeling ashamed as well as learning to “manage and control impulses and to use both motor and mental skills” (Gordon and Browne 2011: 110) cannot be sufficiently emphasised. Therefore, if they are to help children become autonomous, parents and caregivers should provide them with stimulation for supported independent learning. Supported independent learning enables a young child to gain confidence that may lead to self-belief and; ultimately independence. Independent learning, therefore, culminates in autonomy (Gordon and Browne 2011; Woolfolk 2010).

However, as stated earlier in this discussion, both polarities; in this case autonomy together with shame and doubt, are essential for optimal development. It is, therefore, important to stress that the coexistence between autonomy and the negative alternatives of shame and doubt enable children to learn some of the vital rules that are essential for their interaction with the social world. This point is highlighted in Louw, Van Ede and Louw (1998: 52) as follows:

But great autonomy and freedom brings children into contact with rules and standards. This, in turn, leads to the possibility of failure and consequently shame and doubt about their own abilities. This conflict between freedom and discipline is, however, essential for the development of children’s moral conscience.

In rounding off this discussion on the stage of early childhood, it is necessary to state that parents and caregivers have a central role to play (Woolfolk 2010) in enabling young children “to achieve the synthesis which Erikson calls will-power” (Louw, Van Ede and Louw 1998). This manifests when children demonstrate “the ability to make independent choices and exercise self-control” (Meyer, Moore and Viljoen 1997: 217). These abilities are, indeed, necessary for future development.

The last psychosocial stage of development that requires attention, as per the aims of this study, is the preschool age. This is the stage in which the Grade R learner is located.

(iii) Preschool Age: Initiative versus Guilt: (Synthesis: Purpose)

In preceding paragraphs, I highlighted that successful negotiation of challenges encountered in earlier stages of development enables people to cope with future demands associated with human development. The preschool age which, according to Erikson's theory, is characterised by interplay between the developmental thesis of initiative and an antithesis of guilt clearly depicts the interdependence between the various psychosocial stages of development. The significance of autonomy, the thesis of the previous stage, in the preschool stage is reflected in the following point by Louw, Van Ede and Louw (1998: 52):

This stage, which lasts from approximately three to six years, is characterised by the task of learning to show initiative while at the same time overcome a feeling of guilt. Children's greater freedom of movement and autonomy enables them to act more independently than before so that they can now begin to explore their world with a new sense of purpose. They make contact with a wider circle of people and learn how to manipulate all sorts of things.

The preschool stage of psychosocial development is also referred to as the play stage (Meyer, Moore and Viljoen 1997). This is due to the fact that play is the major activity which takes place at this stage. The autonomy that first emerged in the previous stage of development enables children to take a lot of initiatives while also learning from the perspectives of their peers (Gordon and Browne 2011). Erikson (1963: 255 cited in Woolfolk 2010: 84) states that the stage of initiative versus guilt "adds to autonomy the quality of undertaking, planning, and checking a task for the sake of being active and on the move". Some of the activities that keep children active at this stage include: devoting themselves to "learning their gender role, in which identification with the parent of the same sex plays a major part" (Louw, Van Ede and Louw 1998: 52); make-believe play (Gordon and Browne 2011); and learning social rules that enable them to avoid guilt about the initiatives taken in fulfilment of certain developmental activities (Gordon and Browne 2011; Woolfolk 2010; Meyer, Moore and Viljoen 1997).

The most important challenge associated with this stage, it would seem, is the possibility of children becoming too inhibited either through self-imposed or adult-imposed restrictions. This inhibition delays or, at worse, hinders development because children do not want to feel guilty as a consequence of their actions. Meyer, Moore and Viljoen (1997: 218) highlight this challenge as follows:

The danger of this stage is that the conscience will develop too strictly or in a moralistic way. The ideal resolution of this crisis lies in finding a balance between the child-like enthusiasm for doing and making things and the tendency to be strict in self-judgement.

The role that should be played by adults, especially parents, in respect of assisting children to achieve the balance mentioned above; is very cardinal. Hence, Corey (2009) argues that it is important for adults to afford children the freedom to select activities that are meaningful to them rather than prescribing for them all the time. In respect of the role of the teacher in the learning and teaching environment, Gordon and Browne (2011: 111) suggest that teachers should guide learners just a little and not to be too strict because “an overly restrictive adult may end up with a child who is easily discouraged and inhibited”. Therefore, as (Meyer, Moore and Viljoen 1997) assert, a balanced development is essential because “balanced development leads to the synthesis which Erikson calls purpose, which is characterised by the ability to strive for goals purposefully and confidently, without feeling guilty about it and without taking initiative that could be offensive to others” (Louw, Van Ede and Louw 1998: 53).

Undeniably, there are many other points that could still be raised in respect of Erikson’s preschool stage of development. However, for the purposes of this chapter, the above aspects should be adequate. The following discussion seeks to provide suggestions on how Erikson’s theory could be applied in the integration of EE in Grade R.

3.3.2.2 Applying Erikson’s Psychosocial Theory in the integration of Environmental Education in Grade R

Erikson’s psychosocial theory, just like Piaget’s cognitive development paradigm, could be used in the integration of environmental learning in all the subjects offered in Grade R. For example, according to the Grade R Life Skills CAPS document (DBE 2011c: 19), teachers are expected to engage learners through the topic of “water”. The policy document highlights the following areas or aspects as some of those that require attention: things that live in water, objects that float in water and saving water. Therefore, I shall try to provide some indications on how the topic of water, as a habitat, as well as the significance of saving water could be approached in an effort to factor in environmental education Grade R activities.

Erikson highlights a number of key issues that are significant in enabling learning and development to occur in the preschool stage. These issues include, among other things, learning through play, the provision of learners with a chance to take initiatives and allowing them to make their own choices (Gordon and Browne 2011; Woolfolk 2010). The significance of permitting children to make their own choices without fear of being punished is also highlighted by Kolar (2012: no page number) as follows:

Give children the opportunity to make choices and act upon those choices. Because the crisis of initiative versus guilt determines whether a child learns to plan activities on her own or comes to associate self-directed behaviour with punishment, she must have the opportunity to make decisions.

Therefore, if the teacher is to help the children in the preschool age to meaningfully negotiate the crises associated with this stage of development, then it is essential to allow them to take numerous unhindered decisions. The teacher should allow the learners to make mistakes without fear of being ridiculed, scolded or punished in one or the other way. For that reason, teaching should be learner-centred and should take into consideration their desire for self-directed development.

Lessons on water as habitat for various organisms and, the significance of water conservation can enable the integration of environmental learning and could be approached in various ways. For example, learners could be introduced to the concept of water as a habitat through a discussion (Kolar 2012) that allows them to work from the familiar to the unfamiliar. They may, for example, talk about different animals that they have at home and their habitats. In this way, learners would use organisms that form part of their everyday experiences as the basis for learning about habitats. The teacher would have to pay careful attention to the points made by learners and guide them towards the comprehension of what a habitat is and, more importantly, they should be guided to ultimately get an idea that certain things/organisms (including plants and animals) can live in water.

The discussion may be expanded to enable learners to get an idea that certain things can live in water (for example certain plants and animals), others can float in water or move in water (for example, ships, papers floating in water, etc) and eventually learners should be guided to discuss the need to conserve water. For example, they could talk about what would happen if a fish pond would dry out. More importantly, as far as possible, practical activities should take place in or outside the classroom.

In order to make the lesson more meaningful, the teacher may request learners to bring toys (for example, animal toys, ships, cars, etc) as well as magazines to school to further elucidate the concept of water – it would be even better if these are readily available at school. The teacher may also create an artificial water habitat (a river or an ocean) as well as an artificial terrestrial habitat (for example, a forest). The learners would have to be given a chance to work in pairs or in groups of threes through a process of classifying organisms according to those that live in water and those that live on land. Learners should be given a chance to actively participate in the classification of animals in terms of their habitats, namely, terrestrial or water habitat. There should be a buzz of activity in the classroom setting. The teacher could also enable the learners to test, by dropping or immersing various objects in water, which objects can or cannot float in water.

Furthermore, the teacher may provide the learners with a chance to cut out pictures of organisms that can live in water as well as the objects that float in water. Learners could then be given a chance to cut out pictures of objects that float in water and organisms that live in water from the magazines. These pictures may be used to create a bulletin board display of objects that float in water and the organisms that live in water.

In respect of water conservation, the teacher may brief the learners on a field activity that should be undertaken within the school yard. The purpose of the field activity would be to move around the school and examine various water sources as well as evaluate how water is used. The major aim would be to check whether water is wasted or not around the schools yard. In other words, issues such as whether the taps are closed after use, identification of water leakages (and sources thereof), and generally, how water is used within the school could be the areas of focus. Once this activity is done, the learners may, through the guidance of the teacher; engage in discussion about their impressions of how water is used and how it could be conserved. The most important issue here is that an attempt should be made to address Erikson's initiative versus doubt dichotomy. This should be done by enabling learners to come up with their own initiatives in a quest to provide ideas regarding water conservation within the school.

The last point that needs to be made is that, there are many other, probably more novel ways in which Erikson's theory could be applied in the presentation of the topic of water in order to meet the curricular requirements stipulated in the Grade R Life Skills CAPS document (DBE 211c: 19). Of significance, in my view, is that an attempt should be made to allow

learners to come up with initiatives and participate in the learning and teaching process without feeling guilty about their initiatives. The next discussion focuses on Lev Vygotsky's socio-cultural theory.

3.3.3 VYGOTSKY'S SOCIOCULTURAL PERSPECTIVE

The socio-cultural perspective by Lev Semenovich Vygotsky focuses on the child as a whole (Gordon and Browne 2011). Vygotsky "believed that many cognitive processes and skills are socially transferred from more knowledgeable members of society" (Berk 2009: 25) to the child. Accordingly, experienced members of the family, knowledgeable peers, teachers and other members of the society play an important role in the life of a developing child (Donald, Lazarus and Lolwana 2010; Woolfolk 2010). For this reason, Vygotsky's contention is that "human activities take place in cultural settings and cannot be understood apart from these settings" (Woolfolk 2010: 42).

There is a variety of reasons that necessitate the discussion of this theory in this study. For example, apart from the fact that it attaches significance to social interaction as a process that enables human development, this tenet also highlights a reciprocal relationship between language and thought. This relationship also assists the process of child development. Similarly, this theory apportions a huge role to the process of, actively, teaching the child so as to fast track the learning and development process. In essence, this perspective suggests that it is not enough to simply facilitate learning but teachers are expected to do the actual teaching to ease the learning process. The sociocultural theory uses concepts such as *scaffolding* and the "*zone of proximal development*", as shall be discussed later in this chapter, to reflect on the importance of teaching as a central process in human development.

The above points are just some of the key elements that underline the significance of this theory in the context of this study. The following is, therefore, an attempt to briefly reflect on what is entailed in Vygotsky's socio-cultural theory.

3.3.3.1 A Précis of Vygotsky Socio-cultural theory

According to Vygotsky "cognitive development is socially mediated and promoted through interaction with competent others" (Louw, Van Ede and Louw 1998: 89). A child develops due to an active and continuous interaction between the child and the proximal relations, the relationships formed with those closer to the child as well as distal relationships; that is, the relationships formed with those that are considered distant from the child (Donald, Lazarus

and Lolwana 2010). This interaction enables the child to learn values, skills, customs and beliefs of the broader cultural community that forms part of the child's daily life (Gordon and Browne 2011). However, the child does not passively accept all the information that is transmitted by the community, but rather "learning is active and constructed" (Gordon and Browne 2011: 123). In other words, the child constructs and assigns his or her own meaning to the information that emanates from social interaction. Hence "every function in the child's development appears twice: first on the social level and later on the individual level" (French 2007: 12). The active participation of the learner in the learning process leads to higher cognitive development. Vygotsky (1981: 163 in Mkhize 2004: 3) highlights the preceding point as follows:

Any function in the child's development appears twice, or on two planes. First, it appears on the social plane, and then on the psychological plane. First, it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition. We may consider this position as a law in the full sense of the word, but it goes without saying that internalisation transforms the process itself and changes its structure and functions. Social relations or relations among people genetically underlie all higher mental functions and their interrelationships.

It should be evident from the points made above that cognitive development, especially, in the development of higher cognitive functions, occurs as a result of cooperative dialogue and engagement between children and more knowledgeable members of society (Woolfolk 2010; Berk 2009). Internalisation is very significant in the development of higher cognitive functions in a person. It entails the process of assigning meaning to social rules, beliefs, values, etcetera before one adopts them as one's own (Woolfolk 2010; Berk 2009). According to Mkhize (2004), internalisation does not suggest that a person copies the external world as it is, but rather, a person actively assigns personal meaning to the information acquired through engagement with the social world before applying it to their daily lives. It must also be stated that higher cognitive functions develop gradually and involve various processes of learning. Thus Gordon and Browne (2011: 123) assert that culture is passed on in three ways, "the first is imitative learning, the second by instructed learning, and the third by collaborative learning (involving working together, such as in guided help or play)".

The learning process which culminates in the development of higher cognitive functions commences very early in life and it involves an ongoing interaction between the child and the environment. Berk (2009: 264 – 265) underscores this point as follows:

According to Vygotsky, infants are endowed with basic perceptual, attention and memory capacities that they share with other animals. These develop during the first two years thorough direct contact with the environment. Then rapid growth of language leads to a profound change in thinking. It broadens preschoolers' participation in social dialogue with more knowledgeable individuals, who encourage them to master culturally important tasks. Soon young children start to communicate with themselves much as they converse with others. As a result, basic mental capacities are transformed into unique human, higher cognitive processes.

Apart from the points mentioned thus far, it is appropriate to also indicate that Vygotsky's socio-cultural theory places a great deal of significance on language as a vehicle through which development occurs. Correspondingly, Vygotsky also conceptualised the "zone of proximal development (ZPD)" as momentous in respect of learning and development. It is thus essential, in the interest of this study, to also reflect on how Vygotsky views language and the ZPD. In discussing the two aspects already referred to, the role of children's play, from the socio-cultural perspective, shall also be reflected upon, albeit briefly, since in section 3.5 I provide a broader perspective of Vygotsky's view of play.

(i) Language within the Socio-cultural Perspective

Vygotsky regards language as one of the most vital socio-cultural tools (Woolfolk 2010) that facilitate cognitive development in both adults and children (Gordon and Browne 2011; Woolfolk 2010; Berk 2009). Hence there is "the fusion of thought and speech in adults as well as in children" (Vygotsky 1986: 89). It can be argued, therefore, that in this theory, language is portrayed as a very cardinal socio-cultural phenomenon that aids learning and development. Vygotsky (1978: 28 cited in Woolfolk 2010: 44) accentuates this point by stating that "language enables children to provide auxiliary tools in the solution to a problem prior to its execution and to master their own behaviour". It is also important to indicate that linguistic abilities, and by extension cognitive abilities, in children develop as a consequence of ongoing interactions between them and other members of their socio-cultural world. To highlight this point, Vygotsky (1986: 94) writes that:

Thought development is determined by language, i.e. by the linguistic tools of thought and by the socio-cultural experiences of the child. Essentially, the development of inner speech depends on outside factors; the development of logic in the child...is a direct function of socialised speech. The child's intellectual growth is contingent on his mastering of the social means of thought, that is, language.

It is evident from the points by Vygotsky (1986), above, that the interaction between the child and his or her social world facilitates the learning and development of the child. However, it is not only "socialised speech" that fast tracks cognitive development in children. Vygotsky (1986) also talks about the importance of what he calls "inner speech" as well as "external speech" both of which embody what is, generally, considered to be "private speech" in the process of learning and development.

Private speech plays a very crucial role in cognitive development (Donald, Lazarus and Lolwana 2010; Woolfolk 2010; Mkhize 2004). Among other roles, private speech helps people to regulate their thinking and behaviour by facilitating the process of thinking through language (Woolfolk 2010; Donald, Lazarus and Lolwana 2010). Accordingly, "Vygotsky saw it as the foundation of all higher cognitive processes including controlled attention, deliberate memorization and recall, categorization, planning, problem-solving, abstract reasoning and self-reflection"(Berk 2009: 265).

The link between language and cognitive development, and indeed, learning and development manifests in childhood and evolve as the child becomes older. However, it is necessary to stress that language, including private speech; plays an important role in terms of influencing cognition, practically, throughout a person's life. Hence, the following points by Gordon and Browne (2011: 123 – 124) are also worth noting in respect of language and cognition in children:

Vygotsky believed that language; even in its earliest forms was socially based. Rather than egocentric, or immature, children's speech and language development during the years 3 to 7 is merged and tied to what children are thinking. During these transactional years, the child talks aloud to herself; after a while, this self-talk becomes internalised so that the child can act without talking aloud. Vygotsky contended that children speak to themselves for self-guidance and self-direction and that this private speech helps children think about their

behaviour and plan of action. With age, private (inner) speech (once called “egocentric speech”), which goes from out loud to whispers to lip movement, is critical to a child’s self-regulation.

Various authors (Donald, Lazarus and Lolwana 2010; Woolfolk 2010; Berk 2009) concur with the above points by Gordon and Browne (2011). In fact, Woolfolk (2010) further elucidates the role of private speech in learning and cautions teachers not to inhibit private speech in the teaching and learning environment. Hence, to this end, Woolfolk (2010: 46) writes that:

The use of private speech peaks at around 9 years then decreases, although one study found that some students from 11 to 17 still spontaneously muttered to themselves during problem-solving...children and adults tend to use more private speech when they are confused, having difficulties or making mistakes (Duncan and Cheyney, 1999)...Because private speech helps to regulate thinking, it makes sense to allow, and even encourage, students to use private speech in schools. Teachers insisting on total silence when young students are working on difficult problems may make the work even harder for them.

It should be evident from the points made thus far that language is a very significant component of cognitive development. For this reason, it is necessary for teachers to help young children develop linguistically. It is therefore, essential for teachers to employ a variety of approaches to enable preschoolers to utilise language in their socio-cultural environments, particularly at school level, on a daily basis.

Donald, Lazarus and Lolwana (2010: 55) point out that “language includes spoken and written, as well as sign language, mathematical language, and other symbol systems”. Accordingly, it is vital to make an effort to develop all these forms of language within the socio-cultural context in which young children exist on a daily basis. Similarly, Vygotsky’s theory also allocates an important role to play, especially pretend play, as a significant element that facilitates language development. It is thus logical, in my view, for Gordon and Browne (2011: 124) to assert that “it is in play that the child can practice operating the symbols and tools of culture”. Additionally, since “pretend play is rich in private speech” (Berk 2009: 267); it supports children’s thinking and enables them to integrate their thoughts and actions. Accordingly, the role of play in the child’s language and, significantly, in learning and development cannot be sufficiently emphasized.

Undoubtedly, through his socio-cultural theory, Vygotsky assigns a lot of value to language as a key feature of learning and development. Therefore, an assertion that “language is not everything in education, but without language everything is nothing in education” (Donald, Lazarus and Lolwana 2010: 182) is very relevant since without language learning and teaching would be extremely difficult.

The socio-cultural theory also attaches a lot of significance to what Vygotsky calls *the Zone of Proximal Development*. The next point of discussion, therefore, seeks to elucidate that which is entailed by this phenomenon of cognition as postulated by Vygotsky.

(ii) The Zone of Proximal Development

In preceding paragraphs it was suggested that Vygotsky’s “socio-cultural theory dictates that learning is active and constructed” (Gordon and Browne 2011: 123), and that learners are able to assign meaning to the information acquired through interaction with people in their socio-cultural settings (Woolfolk 2010; Berk 2009). This implies that children are able to learn certain values, skills, etcetera on their own; without assistance from other people. However, there are instances where children require help and guidance in order to comprehend and attach meaning to new information. Therefore, in order to facilitate our comprehension of how this process occurs, Vygotsky made an effort to distinguish between the ability of learners to learn on their own without assistance, and learning through guided support. To this end, “Vygotsky developed concepts of cognitive learning zones” (Blake and Pope 2008: 60).

In discussing the cognitive learning zones; “Vygotsky drew a distinction between two levels of development, namely the ‘actual development level’ and the ‘potential’ or ‘zone of proximal development’ (ZPD)” (Mkhize 2004: 5). The ‘actual development’ also called the zone of actual development (Blake and Pope 2008), is the zone in which learners are able to do things independently without assistance and thus have nothing new to learn (Blake and Pope 2008; Mkhize 2004). On the other hand, the zone of proximal development can be regarded as the critical zone or space between what a child knows and that which could be understood or accomplished through assistance from those individuals who are more knowledgeable (Gordon and Browne 2011; Woolfolk 2010; Berk 2009). In respect of young children, the concept of ‘more knowledgeable people’ would refer to peers, who are more cognitively developed than them in as far as a task is concerned; their teachers, caregivers,

parents and other adults (Donald, Lazarus and Lolwana 2010). Hamachek (1995: 163) truncates the essence of what the ZPD entails and how it could be negotiated as follows:

What this zone refers to is the idea that at any given point in children's intellectual growth there are certain problems that they are close to being able to handle. At such times, children need to be encouraged, perhaps by clues, reminders, gentle prodding, more instructions, or whatever it takes to bring them to the edge of new knowledge.

The assistance and support such as encouragement, provision of clues, gentle prodding, etc given by more knowledgeable people to learners, as indicated by Hamachek (1995), above, amount to mediated learning (Donald, Lazarus and Lolwana 2010; Hean, Craddock and O'Halloran 2009). This process of mediated learning is also referred to as scaffolding. This process is made possible by the identification and deployment of socio-cultural resources, including human beings, available in the environment of the learner to assist the learner in the quest to negotiate the zone of proximal development (Woolfolk 2010; Hean, Craddock and O'Halloran 2009). Even though it is significant in supporting learning, scaffolding is not and should not be a permanent feature in the learning and teaching domain. Hean, Craddock and O'Halloran (2009: 78) attest to this point by stating that, scaffolding enables students "to build on their own existing knowledge and internalise new information. Scaffolds, by their nature are temporary support structures and will be slowly removed as students master the concepts in question and become independent learners".

Other than scaffolding and mediation, the process of learning; as entailed in the concept of the zone of proximal development, is also facilitated through play, particularly, make-believe play (Gordon and Browne 2011; Berk 2009). According to Berk (2009: 267), "Vygotsky (1933/1978) regarded make-believe play as a unique, broadly influential zone of proximal development in which children advance themselves as they try out a wide variety of challenging skills". Berk (2009) mentions the following as some of the skills that are learned by young children through make-believe play: to act in response to internal ideas and not just external stimuli, the ability to follow social rules and norms; and to change the usual meaning of an object, for example, using a broom-stick for a horse – a clear sign of creative thinking. Because of its central role in both cognitive development and the learning process, Vygotsky views children's play as a major component in the development of a preschool learner. Vygotsky (1978 as cited in Gordon and Browne 2011: 124) amplifies this point as follows:

Action in the imaginative sphere, in an imaginary situation, the creation of voluntary intentions, the formation of real-life plans and volitional motives – all appear in play and make it the highest level of preschool development. The child moves forward essentially through play activity. Only in this sense can play be considered a leading activity that determines the child's development.

The last point worth mentioning pertains to the pedagogical implications of the zone of proximal development. Vygotsky attaches a great deal of significance to the process of teaching and learning, particularly mediation and guided assistance (Donald, Lazarus and Lolwana 2010). Vygotsky amplifies the importance of planned teaching processes that facilitate learning. This notion is discernible in the assertion that, “to create the zone of proximal development, that is to engender a series of processes of internal development, we need the correctly constructed processes of school teaching” (Vygotsky 1978: 134 cited in Donald, Lazarus and Lolwana 2010: 56). This suggests that the ZPD effectively necessitates teaching to take place. Hence the notion of “constructed processes of school teaching” as pointed out by (Vygotsky 1978: 34 cited in Donald, Lazarus and Lolwana 2010: 56), above, implies that appropriate planning and delivery of learning and teaching programmes are vital pedagogical ingredients. It is thus not surprising that Donald, Lazarus and Lolwana (2010: 56 – 57) depict the significance of the zone of proximal development as follows in this regard:

This is a pedagogical breakthrough in that it implies that a teacher, or, at the very least, a culturally more advanced peer, is developmentally necessary in order to signpost the dialogical or interactive nature of learning (Tharp & Gallimore, 1988). Thus the concept of mediation helps us to understand the very essence of pedagogy as guided assistance: assistance where a teacher or more competent peer guides a student into establishing more advanced ways of knowing and being.

It is essential to state that mediation becomes effective only when all the parties involved in the process are actively engaged. Furthermore, Donald, Lazarus and Lolwana (2010) contend that for mediation to be meaningful, it also needs to be intentional and interactive. Hence, they write that:

Teaching and learning cannot be about teachers “giving” information to students. The process has to involve an intentional effort to challenge and help students to

organise and understand information in progressively more effective ways (Donald, Lazarus and Lolwana 2010: 57).

The above was an attempt to condense the essence of Vygotsky's theory with particular consideration for the aims of this study. Undeniably, there are many other points that could have been presented to elucidate the gist of this tenet. However, my view is that, as per the intents of this study, the issues raised in preceding paragraphs are adequate. In the next subsection, I make an effort to provide some suggestions on how Vygotsky's sociocultural theory could be applied in the integration of EE in the Grade R.

3.3.3.2 Applying Vygotsky's Sociocultural Theory in the Integration of Environmental Education in Grade R

Vygotsky's sociocultural theory can be used for the integration of environmental learning in any of the subjects offered in Grade R. In this instance, I shall make an attempt to reflect on how this integration could be realised during the presentation of an English Home Language lesson. For the purposes of this discussion, I refer to the theme or topic of "Listening and Speaking (oral)" (DBE 2011a: 43). The focus in this regard is on storytelling. The following are, as per the CAPS document (DBE 2011a), some of the aspects that require attention during the learning and teaching scenario: listening to stories and showing understanding by answering questions related to the story, tell stories and retell other children's stories in own words; the sequential use of pictures in a story (DBE 2011a).

The CAPS document (DBE 2011a) also encourages the use pictures in order to convey meaning about events, people, places and things as well as talk about all the aspects already mentioned. Similarly, children are also required to use pictures to talk about common experiences. In my view, all the aspects referred to in the CAPS document (DBE 2011a) can be used for the integration of EE through the application of Vygotsky's theory.

For example, one of the Grade R "Big Book" stories, accessible from the Thutong website (www.thutong.doe.gov.za), with the title "Our goat Godfrey – People who help us" as indicated in Figure 3.1, below, could be used for the teaching of storytelling.

Figure 3.1: A Story that could be used in application of Vygotsky's theory







The story is not just about Godfrey, the lost goat, but it also introduces the Grade R learner to a significant environmental concept, ‘the ecological niche’. The concept of ecological niche reflects on the significance of both living (biotic) and non–living (abiotic) factors on Planet Earth. This concept suggests that every organism around us has an important role to play. As Dekker (1994: 926) contends, “the organism’s ecological niche embraces its entire way of life, its ‘profession’ so to speak”. Viewed from Dekker’s (1994) perspective of an ecological niche, the story about Godfrey does not just deal with the issue of looking for Godfrey, the lost goat, but it also enables the Grade R learner to reflect on various professions that are pursued by certain people in various socio–cultural settings. This is an important environmental activity since it pricks learners to be aware of their own immediate settings.

There are various ways in which learners could be introduced to the story. For example, they could commence with the singing of the rhyme (or at least part of it), “*Mary had a little lamb*”, in table 3.4. The teacher may engage the learners in the rhyme in order to find out what their thoughts are about the relationship between Mary and her Little Lamb. From this discussion, the learners may briefly talk about their pets. Subsequent to this talk, the story about Godfrey, the lost goat; may then be referred to. Throughout the process, the teacher would have to strive for an interaction not only between him or her and the learners but learners must be given a chance to interact with one another. This is in line with Vygotsky’s view that social interaction is important in the learning environment (Newman and Holzman 2014).

Table 3.4: A rhyme that could be used to aid the use of Vygotsky’s theory in Grade R

<p style="text-align: center;">Mary Had a Little Lamb</p> <p style="text-align: center;">Written By: Sarah Joseph Hale (1830), Mary had a little lamb, Little lamb, little lamb, Mary had a little lamb, Its fleece was white as snow Everywhere that Mary went, Mary went, Mary went, Everywhere that Mary went The lamb was sure to go</p>
--

It followed her to school one day
School one day, school one day
It followed her to school one day
Which was against the rules.

It made the children laugh and play,
Laugh and play, laugh and play,
It made the children laugh and play
To see a lamb at school

And so the teacher turned it out,
Turned it out, turned it out,
And so the teacher turned it out,
But still it lingered near
And waited patiently about,
Patiently about, patiently about,
And waited patiently about
Till Mary did appear

"Why does the lamb love Mary so?"
Love Mary so? Love Mary so?

"Why does the lamb love Mary so?"

The eager children cry

"Why, Mary loves the lamb, you know."

Loves the lamb, you know, loves the lamb, you know

"Why, Mary loves the lamb, you know."

The teacher did reply

<http://www.kididdles.com/lyrics/m003.html>

Once the learners have had an opportunity to talk about their pets especially the value of the pets to them as well as their societal roles, then the teacher; together with the learners, may

go through the story about Godfrey. Two things could be highlighted as the teacher goes through the story, namely: the importance of Godfrey to the two young children who are looking for him and the societal roles played by each of the professionals met by the two children while on expedition to find Godfrey. Similarly, in reading the story the teacher would have to go through the pictures with the learners and grant them an opportunity to talk about the characters in the story. For example, how they are dressed, the artefacts they are carrying as well as how those objects are used. The teacher might, while going through the story, create “distinctive voice qualities and gestures” (www.storyarts.org) in order to, for example, highlight the mood of despair in the children as they are looking for their lost goat.

It must be pointed out that as the teacher enables the learners to talk about the different professionals depicted in the story; the learners who know very little or nothing about these professionals would get to learn more from the story. This action does not only facilitate the sharing of experience but, more importantly, it is in line with the concept of the ZPD as postulated by Vygotsky in that it promotes mediation, cooperative learning and scaffolding (Donald, Lazarus and Lolwana 2010; Blake and Pope 2008). Furthermore, Blake and Pope (2008: 63) amplify the value of language and shared experiences by asserting that “the use of language and shared experience is essential for successfully implementing scaffolding as a learning tool”.

At the end of the story, the teacher could encourage conversation about the story (French 2007) among the learners. This could be done by asking questions that provide the learners an opportunity to recall factual information based on the story. Such an action, too, amounts to scaffolding because it teaches learners the significance of listening for understanding and recall. The teacher may, in rounding the story reading process, permit the learners to share ideas on the morality of the story and, about the relevance of the story to them. More importantly, an emphasis on the value of various organisms that form part of the ecosystem and the need to care for (or preserve) them would have to be underlined.

As indicated earlier in this subsection, there are many ways in which the sociocultural theory could be applied in the integration of EE in Grade R. The preceding suggestions are, therefore, not cast in stone. The next point of discussion reflects on the bioecological theory postulated by Urie Bronfenbrenner.

3.3.4 BRONFENBRENNER'S BIOECOLOGICAL MODEL

The bioecological model by Urie Bronfenbrenner is premised along the lines of Vygotsky's sociocultural perspective in the sense that, just like Vygotsky's theory, it amplifies the notion that development is, partly, influenced "by forces outside the child" (Gordon and Browne 2011: 125). "The *bio* aspect of the model recognises that people bring their biological selves to the development process. The *ecological* part recognises that the social contexts in which we develop are ecosystems because they are in constant interaction and influence each other" (Woolfolk 2010: 19). According to this theory, four systems are in constant interaction. Equally, the role played by time or history in the evolution of these systems, both individually and collectively, is projected as significant as well. Donald, Lazarus and Lolwana (2010: 40) state, in respect of the interacting dimensions that, "for Bronfenbrenner (1977), child development happens within four nested systems – the microsystem, the mesosystem, the exosystem and the macrosystem – that all interact with the chronosystem".

There are various reasons that I deemed sufficiently significant enough to warrant a discussion of the bioecological tenet in this study. However, only one reason shall be highlighted and further elaborated because it seems to be overarching. According to Härkönen (2003: 3), "the importance of the theory of ecological development is seen in relation to different kinds and different levels of systems". As pointed out by Bronfenbrenner (1977), an array of contexts, for example, the home, school, parent's workplace, the community, etc have various effects on the developing person. According to (Woolfolk 2010: 66), "these contexts influence the development of behaviours, beliefs, and knowledge by providing resources, supports, incentives and punishments, expectations, teachers, models, tools – all the building blocks of learning and development". Similarly, an interaction between the systems referred to by Bronfenbrenner may, very often, present the young person with cut-throat challenges that might profoundly impact on his or her learning and development. Gordon and Browne (2011: 126) underline one such effect as follows:

The influence between and within these systems is crucial to acknowledge: Just as in nature, activity in one part will affect all the other parts. For example, a sudden income drop will affect the family in many ways: the parents may be preoccupied and unavailable to the child, who may then need more attention from the caregivers at school, who in turn may ask for more resources from the community for the family.

In essence, the bioecological perspective is significant, mainly, because it amplifies the perennial interplay that exists between the systems within the ecological system. Correspondingly, it recognises the notion that the child is not a passive entity within the whole process. This is discernible from the fact that the bioecological model projects the developing child as a key influence on the course of events within the bioecological terrain (Donald, Lazarus and Lolwana 2010). Therefore, the bioecological perspective is significant in the field of ECE (and, indeed the other levels of education) because it suggests that practitioners and teachers should be mindful of the effect of the various ecological systems on the young child, and vice versa. The interplay between the ecological system and the developing child has the potential to make or break the child; hence it behoves those entrusted with pedagogical responsibilities to be cognisant of the dynamics within the ambit of each child in their care. The following is, therefore, an overview of the bioecological theory by Bronfenbrenner.

3.3.4.1 An Outline of Bronfenbrenner's Bioecological Model

In preceding paragraphs a point was made to the effect that Bronfenbrenner's bioecological theory focuses on four systems, namely; the microsystem, mesosystem, macrosystem and exosystem. It was also mentioned that the role played by the chronosystem is equally important in the life of the developing child. Due to its close proximity to the developing child, the most important and the innermost of all the ecological systems; the microsystem, is the first one to be discussed.

Bronfenbrenner (1979: 22) defines a microsystem as “a pattern of activities, roles and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics”. According to Bronfenbrenner, “roles and interpersonal relations experienced by the developing person in a given face-to-face setting” (Härkönen 2003: 4) are valuable in terms of learning and development. Various proximal relationships in which children interact with familiar people on an ongoing basis (Donald, Lazarus and Lolwana 2010) form the foundation of a microsystem. Woolfolk (2010: 66) provides an example of a microsystem as “the person's immediate relationships and activities. For a child, it might be the immediate family, friends, or teachers and the activities of play and school. Relationships in the microsystem are reciprocal – they flow in both directions. The child affects the parents and the parents influence the child for example”.

It should be evident from the points made above that microsystems are centred on the interactions which exist between the child and the people who are part of his or her everyday life. According to Bronfenbrenner, proximal relationships (Bronfenbrenner and Evans 2000), the dyadic influences and reciprocal interactions (Bronfenbrenner 1979) found within the microsystem (and embedded within the other systems) in which the child exists are central in shaping learning and development. As far as Bronfenbrenner is concerned, the relationships within a microsystem are influenced by “the power of reciprocal influences in families, peer groups, classrooms, schools and local communities” (Donald, Lazarus and Lolwana 2010: 40). Changes in terms of child maturation as well as the changes in the socio–historical context or in respect of time factors also affect the development of the child. Bronfenbrenner (1979) also uses the concept *dyad* to describe the face–to–face relations that occur between the child and another person, culminating in developmental changes in the child and vice versa. Bronfenbrenner (1979: 5) highlights the importance of dyadic relationships as follows:

Beginning at the innermost level, the ecological schema, one of the basic units of analysis is the dyad, or two–person–systems ... from dyadic data it appears that if one member of the pair undergoes a process of development, the other does also.

Equally important, however, is to emphasise that dyadic relationships are not the only important relations that facilitate child development. It is for this reason that Bronfenbrenner (1979) talks about $N + 2$ systems – the systems in which more than two people interact. Bronfenbrenner (1979: 5) contends that, “in addition, a systems model of the immediate situation extends beyond the dyad and accords equal developmental importance to what are called $N + 2$ systems – triads, tetrads and larger interpersonal structures”. Evidently, the process of development in children is a consequence of various forms of interactions that are undertaken by the developing child. More importantly, “the interaction between the person and environment is viewed as two–directional, that is, it is characterised by reciprocity” Bronfenbrenner (1979: 21 – 22).

It needs to be pointed out that although Bronfenbrenner views all the interactions within the microsystem as valuable, he views the family of the child as “the principal context in which human development takes place” (Bronfenbrenner 1986: 723). However, this does not diminish the importance of other relationships within the microsystem of the child. Accordingly, Bronfenbrenner (1986: 723) argues that, “the processes operating in different settings are not independent of each other. To cite common examples, events at home can

affect the child's progress in school and vice versa". The settings referred to by Bronfenbrenner (1986) are an integral part of the mesosystem.

According to Bronfenbrenner (1979: 25) "a mesosystem comprises the interrelationships among two or more settings in which the developing person actively participates (such as, for a child, the relationships among home, school, and neighbourhood peer; for an adult, among family, work and social life)". In essence, mesosystems are formed by microsystems that are in continuous interactions (Donald, Lazarus and Lolwana 2010; Woolfolk 2010) and these interactions contribute towards the development of a child. The following is, according to Woolfolk (2010: 66 – 67), an example of reciprocal interactions that occur in a mesosystem:

The mesosystem is the set of interactions and relationships among all elements of the microsystem – the family members interacting with each other or with the teacher ... Again, all relationships are reciprocal – the teacher influences the parent and the parents affect the teacher, and these interactions affect the child.

Evidently, the importance of mesosystems in terms of influencing child development is unquestionable. Bronfenbrenner (1979: 25) accentuates the significance of this phenomenon which he calls "a system of microsystems" by asserting that a mesosystem "is formed or extended whenever the developing person moves into a new setting" (ibid.).

There are various settings in which a developing person is not directly involved but some people who form part of his or her proximal relationships are key components. Some changes in those settings may, in one way or the other, impact on a developing person even though the person is not directly involved with them. These settings are referred to by Bronfenbrenner as exosystems and include, among other contexts "a parent's work place, a brother's peer group or a teacher's involvement in a local community organisation" (Donald, Lazarus and Lolwana 2010: 49). Due to the broad nature of the exosystems and the profound effect they have on a developing person, it is essential to present the definition of an exosystem as conceptualised by Bronfenbrenner. Bronfenbrenner (1977: 515) defines an exosystem as follows:

An exosystem is an extension of the mesosystem embracing other specific social structures, both formal and informal, that do not themselves contain the developing person but impinge upon or encompass the immediate settings in which that person is found, and thereby influence, delimit, or even determine

what goes on there. These structures include the major institutions of the society, both deliberately structured and spontaneously evolving, as they operate at a concrete level. They encompass, among other structures, the world of work, the neighbourhood, the mass media, agencies of government, the distribution of goods and services, communication and transport facilities, and informal social networks.

The list of settings that form part of an exosystem is, undoubtedly, very long. However, my view is that the major significance of the exosystem is that it highlights those aspects which, despite their distance from the developing child, have an impact on the child. It is, therefore, essential for teachers to be aware of such settings as well as how they are likely to affect learning and development. Also significant is to note how these systems or settings evolve over time as well as the effect they have on the learner.

All the nested systems referred to thus far occur within or at the centre of the major and overarching system; the macrosystem. “The macrosystem is the larger society” (Woolfolk 2010: 67) which “involves dominant social and economic structures, as well as values, beliefs, and practices that influence all other social systems” (Donald, Lazarus and Lolwana 2010: 41). Bronfenbrenner (1979) argues that all the cultures, subcultures and underlying ideologies that are consistent with the micro-, meso- and the exosystems are entailed in the macrosystem. The magnitude of the macrosystem on learning and development is discernible from the assertion by Bronfenbrenner (1977: 515) that, “what place or priority children and those responsible for their care have in such macrosystems is of special importance in determining how a child and his or her caretakers are treated and interact with each other in different types of settings”. In essence, Bronfenbrenner (1977) contends that it is the set of beliefs or ideologies prevalent within the broader social system (as well as how these evolve overtime) that ultimately determine the direction of the child in respect of learning and development.

The final point that needs some consideration before an attempt is made to illustrate how Bronfenbrenner could be used to integrate environmental learning in Grade R settings; is the concept of chronosystems. Bronfenbrenner (1977, 1979 and 1986) consistently highlights the significance of evolution, overtime, in the settings within which a developing person exists. (Donald, Lazarus and Lolwana 2010: 41) underscore the importance of change over time by stating that “developmental time affects the interactions between these systems as well as

their influences on the individual development”. In other words, how learning and development occurs is contingent upon the changes that take place, over time, both within the developing person and in the environment in which the person exists. The significance of evolution, over time, is crystallized by Bronfenbrenner (1977) in his definition of “the ecology of human development”. He writes as follows in this regard:

The ecology of human development is the scientific study of the progressive, mutual accommodation, throughout the lifespan, between a growing human organism and the changing immediate environments in which it lives, as this process is affected by relations obtaining within and between these immediate settings, as well as the larger social contexts, both formal and informal, in which the settings are embedded (Bronfenbrenner 1977: 514).

One of the most important points highlighted by Bronfenbrenner (1986) in terms of the ecology of human development, is not only the changes that occur over time – both within the person and the milieu – but it is how those involved in guiding the developing person should conceptualise the changes. Bronfenbrenner (1986: 724) puts an emphasis on “analysing the dynamic relation between these two processes”, namely; the changes within the developing person and the environment. An analysis of these changes would be of great value in respect of enabling teachers to gain a better understanding of the family dynamics of the learners under their care. Swick and Williams (2006: 372 – 373) contend that “for example, the ‘history’ of relationships in families may explain more about parent child relations than is evident in existing dynamics”. Essentially, knowing more about the changes that impacted on each of their learners, over time, would put the teachers in good stead. Consequently, this would enable them to conjure up well-informed mechanisms to support their learners through the process of learning and development.

There are, irrefutably, many other points that could be mentioned about Bronfenbrenner’s bioecological theory. However, since the intention was not to exhaust Bronfenbrenner, the above points should suffice. The next point of discussion is an endeavour to provide some guidelines on how this theory could be applied in the integration of EE in Grade R.

3.3.4.2 Application of Bronfenbrenner's Model in the Integration of Environmental Education in Grade R

The bioecological model, just like all the theories discussed thus far in this study, can be applied in the integration of EE in the Reception Year. Likewise, an array of pedagogical approaches may be utilised towards this end. In concurrence with the point just made, Gordon and Browne (2011: 126), aptly, assert that “the usefulness of this theory is in its combining of many methods – multidisciplinary, multicultural, and multidirectional” in guiding the learner towards development. In this discussion an attempt shall be made to illustrate how the topic about “summer”, as referred to in Grade R Life Skills CAPS document (DBE 2011c: 16) could be dealt with in the learning and teaching situation.

In dealing with the topic on summer, the CAPS document (DBE 2011b) suggests that issues such as; “the weather in summer, how nature is affected, how animals are affected and how people are affected – e.g. what we eat, wear, do and games we play” (DBE 2011b: 16) should be addressed pedagogically. All these issues indicated under the topic “summer” provide an opportunity to enable the Grade R learner to engage in environmental learning. Through this topic, learners would be able to learn about the effect of summer on the broader ecological milieu as referred to by Bronfenbrenner's nested and interdependent systems. Learners would be able to interact, reciprocally, with peers, teachers, parents and other people in the microsystem as well as observe the impact of summer in other ecological systems. This is, therefore, an attempt to point out how some of the issues entailed in the topic of summer could be treated.

In preparation for the lesson, the teacher could request each learner to obtain and bring a magazine to class. The purpose of this exercise would be to cut out some pictures that are in line with issues related to summer. Similarly, the teacher should be committed to the process of enabling learners to interact with one another so that they are able to share ideas about their conceptualisation of the ecological systems as affected by summer. The teacher's commitment towards aligning the lesson to Bronfenbrenner's theory should also extend beyond the dyadic relationships as well as the triads, and tetrads prevalent within the classroom. In essence, people such as guardians and parents should in one way or the other participate in the process of developing the learners' conceptualisations of summer.

The teacher would have to, at all costs, involve learners in dealing with the topic. This could be done by establishing through probing questions, the level of knowledge the learners have

about summer. Various questions could be asked, for example: in which months does summer occur? What type of weather is associated with summer? This would give the teacher an idea on how to interact with learners in respect of the topic. Depending on the responses solicited from the learners, the teacher would have to emphasise the points that are relevant to the topic. The teacher should assist the learners and guide them through the conceptualisation of summer. To this end, an attempt should be made to address, as it were, the areas raised in the CAPS document (DBE 2011b: 16), namely: the weather associated with summer, the effects of summer on nature, animals and people. The teacher would have to, “try to elicit this information from the children rather than giving it all to them” (www.k6edu.com).

In keeping with Bronfenbrenner’s theory, it would also be appropriate to involve the parents in the activities about summer since they too form part of ecological setting of their children. For example, children could ask their parents to help them develop a detailed description of the types of activities that the members of their families (i.e. each learner’s household) engage themselves during summer. These could include, for instance, the food they eat at home, the types of clothes worn in summer, places visited by their households in the previous summer, and so on. Learners should, in the class setting, be encouraged to share their experiences. The types of activities detailed by learners could, as pointed out by Swick and Williams (2006), assist the teacher understand the historical dynamics that exist in the parent–child relationships and, indeed, the family dynamics of each learner.

An insight into the dynamics of a learner’s microsystem, including the dynamics of the household, is necessary for the teacher. This is due to the fact that knowing about each child’s settings could help the teacher intervene in cases where the dynamics threaten the learning and development of the child. Of course, care would have to be taken by the teacher to avoid being conceived as someone who is meddlesome in household affairs. Otherwise unintended consequences might cloud good intentions on the part of the teacher.

Apart from activities indicated above, in pursuance of the topic on summer, the learners could be given opportunities to select and cut out pictures that are relevant to summer from the magazines. The teacher would have to guide the learners through this process. The learners could then paste the pictures on “personalised” spaces meant for the “summer season” on the bulletin boards or, even better, on personal charts so as to share the information with their households.

The last activity based on the topic about summer could be a reflection on the games children like to play in summer. The teacher may ask the learners to mention the games they like to play in summer and out of these games a song could be created. The well known rhyme called “the wheels on the bus” could be modified (www.k6edu.com) to fit the games selected by the learners. For example, learner X might mention that she likes to play the “skipping game” in summer. The teacher may then modify the “the wheels on the bus” as I have attempted in Table 3.5 below.

Table 3.5: A rhyme that could be used to aid the use of Bronfenbrenner’s theory in Grade R

<p style="text-align: center;">What shall we do when we all go out</p> <p style="text-align: center;">What shall we do when we all go out, All go out, all go out</p> <p style="text-align: center;">What shall we do when we all go out, when we go to play</p> <p style="text-align: center;">We will play the skipping game, skipping game, skipping game, We will play the skipping game</p> <p style="text-align: center;">When we go to play</p>

The song, “the wheels on the bus”, could be modified appropriately in accordance with the games preferred by learners. These games may be played later once the class gets a chance to go out. It is important to mention that music plays an important role in a preschool learner’s life. For example, “the use of the song in this lesson helps to reinforce the lesson in a fun, creative way. The song allows for endless verses and is “catchy” enough that children are likely to sing it at home, making up new verses with their families” (www.k6edu.com).

Once learners are done playing “summer games” outside they could move around the yard of the ECD centre to explore the type of vegetation that is seen outside. In other words, the teacher would enable the class to explore the surroundings and even touch vegetation and talk about the effect of summer on vegetation.

In concluding this subsection, another significant point worth mentioning is that although the examples referred to in this discussion on the presentation on summer focussed on learning *about* the environment and thus do not contribute much towards the development of an environmental ethos, it is also possible to integrate learning *in* and/or *for* the environment in this topic. For example, a lot of people do visit the beach in summer and very often some beach goers do indulge in actions that amount to environmental spoliation. Littering is one of the unacceptable behaviours in which human beings indulge when they visit the beach. The Grade R teacher could enable the learners to explore this behaviour and how they feel it ought to be prevented. Likewise, in summer some people often ‘cool’ themselves off by splashing one another with water. Therefore, the teacher can also engage the Grade R class on the implications of this behaviour, especially, in view of water scarcity.

It should be clear from the position of this topic in the CAPS document (DBE 2011c) that the above topic would, preferably, have to be presented in summer. This would make it even more meaningful to the learners. More importantly, the above topic could be presented in many other ways, what is important is that it should be fun and should factor in some of the key elements of the theory by Bronfenbrenner. In the next section, an attempt is made to reflect on the behaviourist theory.

3.3.5 THE BEHAVIOURIST THEORY

The theory of behaviourism has, over the years, made a meaningful contribution to our understanding of learning and development. Therefore, in my view, an assertion by Gordon and Browne (2011: 112) that, “behaviourism is the most pragmatic and functional of the modern psychological ideologist” is very appropriate. Additionally, the two authors state that “behaviourist theories describe both development and learning” (ibid.). The latter point is one of the major reasons for the inclusion of the behaviourist theory among the perspectives discussed in this study.

The behaviourist perspective “rests on the assumption that most behaviour is learnt” (Louw, Van Ede and Louw 1998: 55). In essence, if we are to understand how learning leads to changes in behaviour then we need to study, directly, observable human behaviour (Berk 2009; Louw, Van Ede and Louw 1998). It must be mentioned, however, that the behaviourist theory has evolved throughout the years. One of the reasons for this evolution was to accommodate the notion that if we are to meaningfully explain how learning and

development occurs, then “unobservable” behaviour is also worth considering (Gordon and Browne 2011; Berk 2009).

Various theorists contributed to the expansion of behaviourism. These theorists include; Ivan Pavlov, John Watson, Edward Lee Thorndike, Burrus Frederic Skinner and Albert Bandura (Gordon and Browne 2011; Berk 2009; Meyer, Moore and Viljoen 1997). For example, Pavlov is credited for the conceptualisation of classical conditioning, Thorndike and Skinner discovered operant (or instrumental) conditioning; and Bandura made a mark in his postulations concerning the social learning theory which has observational learning as its basis for explaining human behaviour (Gordon and Browne 2011; Berk 2009; Meyer, Moore and Viljoen 1997). It is important to point out that Bandura, whose contribution has earned him accolades, has refined his social learning tenet on numerous occasions to accommodate the contribution made by cognition in the learning and development process (Woolfolk 2010; Meyer, Moore and Viljoen 1997). Accordingly, Gordon and Browne (2011: 113) assert that “Albert Bandura refined behaviourism beyond conditioning into a social learning theory”. Furthermore, Woolfolk (2010: 347 – 349) avows that Bandura expanded his social learning theory and renamed it social cognitive theory, and that “social cognitive theory moved beyond behaviourism to focus on humans as self-directed agents who make choices and marshal resources to reach goals...overtime, Bandura’s explanations of learning included more attention to cognitive factors such as expectations and beliefs in addition to the social influences of models”.

In the introductory paragraph of this section, it was mentioned that behaviourism is important in that it describes how learning occurs. It is essential to add just a few points to further illuminate the significance of behaviourism, especially in the context of this study. This theory acknowledges an interplay that exists between the developing person and the environment. Viewed through the lens of extreme behaviourists such as Watson, behaviourism asserts that, “the environment is the supreme force in development; and that adults can mould behaviour by controlling stimulus–response situations” (Berk 2009: 19). On the other hand, the social cognitive learning aspect of behaviourism, advocated by Bandura, acknowledges that the learner is an active participant in the learning process. In this regard the learner uses cognition, for example, thoughts and symbols to facilitate his or her learning and development when interacting with the environment (Meyer, Moore and Viljoen 1997). In essence, the developing person does not just adopt every piece of observed behaviour, nor does the person simply respond to environmental stimuli; but rather there is an active

interaction between the person and the environment. Accordingly, Louw, Van Ede and Louw (1998) contend that both the environment and the nature of the developing person influence the learning process.

In chapter two of this discussion, it was stated that ECE plays a significant role in respect of developing values and attitudes in young children. Behaviourism is singled out as one of the theories through which values, attitudes, social rules, and so on are acquired (Woolfolk 2010; Louw, Van Ede and Louw 1998). This point is further amplified by Baron and Byrne (2003: 121) who point out that, “one important source of attitudes is obvious: we acquire them from other persons through the process of social learning. In other words, many of our views are acquired in situations in which we interact with others or merely observe their behaviour”. Furthermore, social learning is used to teach learners about social rules and, through the use of reinforcement and punishment, adherence to social norms and rules is accomplished (Gordon and Browne 2011; Woolfolk 2010). Similarly, it is through behaviourism, especially, operant conditioning that *shaping* – the process of teaching a person new, complex behaviour through the use of guided, gradual and in graduated steps – is taught (Robbins, Odendaal and Roodt 2003; Meyer, Moore and Viljoen 1997). For these and other reasons, it is my contention that behaviourism could be important in helping young children to learn *about, in/through* and *for* the environment. Hence, behaviourism is worth discussing in this study. The following is, therefore, an overview of the behaviourist theory.

3.3.5.1 An Overview of the Behaviourist Theory

According to Gordon and Browne (2011: 114), “in the behaviourist’s eyes, three types of learning occur: classical conditioning, operant conditioning and observational learning or modelling”. Therefore, in this discussion I will make an attempt to briefly reflect on each of “three types of learning” that form part of behaviourism.

(i) Classical Conditioning

Classical conditioning sometimes called *s-conditioning* (Louw, Van Ede and Louw 1998) or learning based on association (Baron and Byrne 2003), is the kind of learning that occurs as a result of linking a response to a certain type of stimulus (Berk 2009). This type of conditioning can be noted in everyday behavioural examples. For instance, Gordon and Browne (2011: 114) state that “when the school bell rings in the afternoon, children begin to gather their papers into backpacks to go home. They have been conditioned to the sound of

the bell”. Likewise, motor–vehicle drivers are, generally, conditioned to respond by stopping when traffic lights emit a red signal and only drive off in response to the green light.

Classical conditioning owes its existence to the experiments conducted by Ivan Petrovich Pavlov. The purpose of his experiments was to measure the amount of saliva secreted by a dog (Woolfolk 2010; Louw, Van Ede and Louw 1998; Meyer, Moore and Viljoen 1997). In his experiment, Pavlov noticed that “when meat was presented to the dog, its mouth watered. When a bell rang, its mouth did not water. Pavlov then proceeded to link the meat and the ringing of the bell, always ringing the bell before presenting the meat to the dog. After some time, the dog would salivate as soon as the bell rang, even before being offered the meat. In effect, the dog had learned to respond by salivating to the bell” (Robbins, Odendaal and Roodt 2003: 50). In terms of Pavlov’s experiment, the meat was able to cause a dog to salivate and was thus referred to as an unconditioned stimulus (US), the salivation of the dog was unconditioned (it came ‘naturally’) hence it was an unconditioned response (UR), the bell which was initially neutral became a conditioned stimulus (CS) each time it was rung before the presentation of the meat, and the salivation of the dog due to the ringing became a conditioned response (CR) (Robbins, Odendaal and Roodt 2003; Meyer , Moore and Viljoen 1997).

The influence of classical conditioning on learning has been noted by various authors (Gordon and Browne 2011; Berk 2009) hence, just like operant conditioning and observational learning, it is categorised as social learning (Gordon and Browne 2011; Woolfolk 2010; Bandura 1965). According to Baron and Byrne (2003: 120) social learning “is the process through which we acquire new information, form of behaviour or attitudes from the other persons”. In addition to examples stated earlier, in respect of classical conditioning, two significant points need to be highlighted due to their specific relevance to early childhood education as well.

Berk (2009) contends that classical conditioning facilitates the process of learning. Similarly, Louw, Van Ede and Louw (1997: 58) assert that classical conditioning “is the model of a great deal of learning which takes place in childhood (e.g. learning the names of objects)”. One may, therefore, conclude that despite some arguments that it is a passive, reflexive type of learning that only explains connection between stimuli and response (Robbins, Odendaal and Roodt 2003; Louw, Van Ede and Louw 1998; Meyer, Moore and Viljoen 1997), classical conditioning makes a valuable contribution to learning and development in ECE. For this

reason, it is receiving some attention in this study. Similarly, due to its significance, operant conditioning is another type of learning that needs attention. Hence, it is discussed below.

(ii) Operant Conditioning

In contrast to classical conditioning in which behaviour is contingent upon a stimulus occurring before it, operant (also called instrumental) conditioning “focuses on the response rather than the stimulus” (Gordon and Browne 2011: 114). As far as operant conditioning is concerned, a person learns to behave or not to behave in a particular way due to the consequences emanating from certain behaviour (Berk 2009; Louw, Van Ede and Louw 1998). Baron and Byrne (2003: 122) state that instrumental conditioning occurs when “behaviours that are followed by positive outcomes are strengthened” and, therefore, “tend to be repeated” (ibid.). On the other hand, “behaviours that are followed by negative outcomes are weakened, or at least suppressed” (Baron and Byrne 2003: 122). Accordingly, Robbins, Odendaal and Roodt (2003: 50 – 51) contend, in respect of instrumental conditioning, that “it is assumed that behaviour is determined from without (learned) rather than from within (reflexive or unlearned)”.

In operant conditioning, the process of reinforcement and punishment play a major role in terms of determining behaviour. Gordon and Browne (2011: 114) argue that “in operant conditioning, the process that makes it more likely that a behaviour will recur is called reinforcement” and, “any environmental condition or stimulus which increases the probability that a behaviour will be repeated when that condition or stimulus follows the behaviour” (Meyer, Moore and Viljoen 1997: 285) is called a reinforce. Reinforcement can be either positive, for example, praising a child for moulding an object using clay or negative, for instance, giving a child some time out from a ring/circle activity for using foul language. Very often, punishment is confused with negative reinforcement. The two are not exactly the same. Gordon and Browne (2011: 114 – 115) distinguish the two concepts as follows:

A negative reinforcement is used to stop children from behaving in a particular way by arranging for them to end a mildly aversive situation immediately...Punishment is different from negative reinforcement. Punishment is an unpleasant event that makes the behaviour less likely to be repeated; that is, if Jimmy were spanked every time he shouted, then his shouting would be the punished behaviour and it is likely he would begin to shout less.

Reinforcement, especially positive reinforcement, is regarded as effective in terms of facilitating the learning of new behaviour in children (Woolfolk 2010; Louw, Van Ede and Louw 1998). This point is underlined by Baron and Byrne (2003: 122 – 123) who argue that, “by rewarding children with smiles, approval, or hugs for stating the “right” views – the ones parents themselves favour – parents (and other adults) play an active role in shaping youngsters’ attitudes”. Therefore, in support of this notion, one may argue that reinforcement can be used to reinforce a positive attitude towards the environment. This could be done by providing positive reinforcement to children who display acceptable environmental behaviour.

Various authors (Robbins, Odendaal and Roodt 2003; Louw, Van Ede and Louw 1998; Meyer, Moore and Viljoen 1997) contend that for reinforcement to be effective; it is necessary to vary the schedules and the nature of reinforcement provided for plausible behaviour. The schedule of reinforcement entails the regularity or “the program according to which reinforcers are offered” (Meyer, Moore and Viljoen 1997: 287). “These schedules may be divided into two broad types, namely continuous and intermittent reinforcement (sometimes also referred to as regular and partial reinforcement, respectively)” (ibid.). Skinner distinguishes between various types of reinforcement schedules that are catered for under both intermittent and continuous reinforcement schedules (Robbins, Odendaal and Roodt 2003; Meyer, Moore and Viljoen 1997). However, it must be mentioned that the discussion of reinforcement schedules is beyond the scope of his chapter. That notwithstanding, it should be mentioned that “it is generally found that behaviour is learnt most rapidly when a continuous reinforcement schedule is used, but that the behaviour learnt in this manner is also easier to extinguish than behaviour learnt by one of the intermittent reinforcement schedules” (Meyer, Moore and Viljoen 1997: 288).

Unquestionably, operant conditioning is invaluable in the context of early childhood education. This is particularly in view of the assertion that “a large portion of child’s behaviour is learnt through operant conditioning” (Louw, Van Ede, Louw 1998: 60). It must be noted, however, that the success of instrumental conditioning is dependent on appropriate use of reinforcement. For this reason, Gordon and Browne (2011) caution that since reinforcement, be it positive or negative, is a powerful tool; adults should be wary not to misuse it.

Apart from operant conditioning, behaviourists also highlight the importance of observational learning (or modelling) as a tool that contributes to learning and development. The next point of discussion, therefore, focuses on this type of learning.

(iii) Observational Learning

Observational learning (or modelling) is another form of conditioning that is referred to by behaviourists. It is based on the notion that human behaviour can be learned vicariously, that is, through observing others acting out some behaviour and experientially; by receiving reinforcement for acting out observed behaviour (Woolfolk 2010; Louw, Van Ede and Louw 1998). Essentially, a model has to perform a certain action while the learner observes and imitates the model. These actions can occur concurrently or the observer may carry out the observed action at a later stage. The behaviour that has been learned would be reinforced either by the learner, for example, through self-praise or some other form of self-reward (Meyer, Moore and Viljoen 1997); or by an external agent, for example, through praise or some other reward (Woolfolk 2010).

Observational learning is considered an invaluable and far-reaching form of social learning within the ambit of the behaviourist paradigm. According to Bandura (2002: 273) “modelling is a universalised human capacity but how it is used varies in different cultural milieus”. Bandura (1977: 22) further elucidates the significance of behaviourism in facilitating learning by writing that:

Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behaviour is learned observationally through modelling: from observing others, one forms an idea of how behaviours are formed, and on later occasions this coded information serves as a guide for action.

In the same breath, Gordon and Browne (2011) point out that observational learning, especially as a medium of social learning, is very prominent in early childhood education because young children work in groups and thus witness social behaviour constantly. Young children are very responsive to observed behaviour. It is also essential to mention that significant others such as parents, teachers, other elderly people and; fairly often, peers have a profound impact in respect of transmitting behaviour to young children. Because children have a tendency to imitate modelled behaviour by elderly significant others, particularly, their

parents (Baron and Byrne 2003), adults should be wary not to transmit, even tacitly, inappropriate behaviour to young children. Baron and Byrne (2003: 123) caution that “the behaviour is likely to be adopted by children. They often do as parents do, not as they say”.

It should be evident from the points mentioned above that observational learning has far reaching implications in the context of education. More importantly, the contribution made by Bandura’s “triarchic reciprocal causality system” (Woolfolk 2010: 349) which forms the core of the social cognitive theory, an expanded notation of social learning, should be underlined in this regard. Bandura attaches a lot of significance to the impact of cognitive processes, attitudes, values, emotions, and so on (Bandura 2002) in respect of both the model and the observer in the process of learning. Accordingly, Woolfolk (2010: 349 – 350) asserts that “personal factors (beliefs, expectations, attitudes and knowledge), the physical and the social environment (resources, consequences of actions, other people, models and teachers, and physical settings), and behaviour (individual actions, choices, and verbal statements) all influence and are influenced by each other”. Basically, the above factors, namely: personal factors, the physical and the social environment, and behaviour; all form part of the *triarchic reciprocal causality system* referred to by Woolfolk (2010). Accordingly, when it comes to the planning and implementation of learning programmes that employ observational learning in ECE, these factors need to be taken into account.

The above was an effort to put forward a synopsis of the theory of behaviourism. In the next subsection, I shall attempt to illustrate how the behaviourist theory could be applied in the integration of EE in Grade R.

3.3.5.2 Application of Behaviourism in the Integration of Environmental Education in Grade R

The behaviourist theory may be used to integrate environmental learning in any of the subjects catered for in Grade R. For purposes of this discussion, the topic “Healthy Environment” in the Grade R Life Skills CAPS document (DBE 2011c) has been identified in a quest to illustrate how EE could be integrated through the use of the behaviourist perspective. The issues that require attention under the topic of “Healthy Environment” include; “the importance of a clean environment, ways in which people pollute the environment and the importance of recycling” (DBE 2011c: 20).

Preferably, it would be more appropriate to present this topic on or around April 22; the date is celebrated as the World Earth Day. The presentation of this topic on World Earth Day would be ideal because “preschoolers love learning about their environment and what better time to teach them how to preserve it and take care of it” (www.preschoolplanner.com). However, according to the Grade R Life Skills CAPS document (DBE 2011c); the topic is earmarked for the third term of the school calendar which is way after the World Earth Day. Nevertheless, this would not be much of an issue because the state of our environment necessitates that everyday be declared an environmental day.

There are various ways in which the topic on “Healthy Environment” could be approached. In dealing with this topic, it is very cardinal to “include children as active participants, as well as adults (teachers, parents and others), thus helping to ensure the relevance of content to children’s everyday lives and their development as active citizens of sustainability” (Davis, Engdahl, Otieno, Pramling Samuelson, Siraj–Blatchford and Vallabh 2009: 116). An action–oriented and problem–solving approach; where learners are active participants, who are guided by elders such as teachers, should contribute towards shaping a sustained, lifelong, positive attitude towards the environment. It must be recalled that according to Baron and Byrne (2003), as pointed out in chapter two of this study, attitudes are learned; and “once attitudes are formed, they are often difficult to change”(Baron and Byrne 2003: 118).

Davis *et al.* (2009: 116) point out that, “Early Childhood Education settings and services need to be places where sustainability is practical”. Therefore, an action–oriented and problem–solving approach in which children are active participants whose roles are appreciated, has the potential to inculcate; in young minds, a positive attitude towards the environment. And, “when attitudes are uniformly positive or negative, they are even more difficult to change; indeed, they often remain unchanged for long periods of time” (Baron and Byrne 2003: 118 – 119). The following are therefore a few ideas on how the topic a “Healthy Environment” could be dealt with.

In preparation for the lesson, the teacher would have to obtain various containers in which waste would be deposited; and label each one for a specific form of “waste” material that is to be deposited in it. For example, containers could be obtained for the purpose of depositing papers, glass bottles, plastic containers, plastic bags, and so on. At the same time, with the help of a few elders, such as parents and teachers; the teacher would have to; surreptitiously, without letting the learners know about it, collect various types of “waste” material.

The teacher would have to make sure that when learners go home, at the end of the day prior to the lesson; the classroom is, as usual, clean. The cleaning of the classroom should, preferably, be a daily routine. The teacher would have to “create interest by scattering litter all over the classroom” (Chan, Choy and Lee 2009: 43) either in the afternoon preceding the day of the lesson or; very early in the morning – before any learner arrives, on the day of the lesson.

It is very likely that once the learners arrive in the morning, their attention would be drawn to the “waste” material scattered in the classroom. In terms of classical conditioning, the “waste” material would be a stimulus that elicits various responses from the learners. An array of questions would, almost inevitably, be raised by the learners (who should, in all likelihood, be perplexed) and the teacher (who should also appear as equally stunned). The teacher would have to observe the reaction of the learners very carefully for their reaction in this regard. Some of the questions that are likely to arise would include: who did this to our classroom? Why did they do it? What are we going to do with all this? And so on.

The teacher would have to encourage learners to share ideas on how to address the problem at hand. Each time a learner raises a “plausible” suggestion, the teacher should, in line with operant conditioning; appreciate the responses through, for example, praises or applause from the teacher and classmates. This would be aimed at encouraging more inputs from the class. Once the ideas have been exhausted, the teacher would have to guide the learners on how to sort the “waste” material and drop it in the appropriate containers. This should be done in a manner that enables the learners to observe and learn from both the teacher and other learners who would have grasped the idea of sorting and depositing the “waste” material into the suitable containers. The teacher would have to, continuously, show appreciation (reinforce) for the ‘good job’ done by the learners until the end of the activity.

This activity would be in line with helping the learners master all the processes of social learning. Robbins, Odendaal and Roodt (2003) state that the following steps are involved in social learning: attention processes (observing an action executed by the model); retention processes (remembering the action entailed in the action); motor production processes (be able to perform the action as observed from the model) and reinforcement processes (being rewarded for the activity). At the same time, the demonstration by the model (in this case the teacher) would also amount to shaping, a process which was highlighted earlier in this discussion; that entails learning a new skill on a step-by-step basis.

The teacher may go on to brainstorm with the learners on what should be done with the “waste” material that is inside the various containers. The purpose of this exercise would be to help learners get to grips with the process of waste management. To this end, concepts such as reduce, reuse and recycle could be explored. In order to encourage ongoing responsible waste management by the learners, the teacher could introduce a point or token system which is used to reinforce good waste management practise by the learners.

On a larger scale, the suggestion by Chan, Choy and Lee (2009) in which learners are asked, over a period of one week, to examine how much and what type of waste is created at home, could be undertaken. A wall chart, to demonstrate the amount and nature of waste generated in each child’s home, could be created. Each chart would have to be awarded some form of reinforcement for participating in the project.

Beyond the above-mentioned project, learners could also investigate the nature of waste and how it is managed within their own school. They could even come up with an action plan on how to assist the school to deal with waste management – or at least provide suggestions and present them to the school authorities. The same type of project could be extended to accommodate the municipality. For example, the class could undertake an investigation that seeks to observe, on a small scale, how waste is handled in the street within which their school is located. From this project the municipality could be engaged to address existing waste management problems, if these are in existence.

The above suggestions are just a few ideas that could be used to integrate EE though the use of the behaviourist theory. There are, without a doubt, many other ways in which behaviourism could be put to use in the integration of environmental education in Grade R classrooms. The last tenet worth considering, in line with the aims of this study, is the theory of Multiple Intelligences postulated by Howard Gardner.

3.3.6 HOWARD GARDNER’S MULTIPLE INTELLIGENCES THEORY

The notion that the phenomenon referred to as intelligence manifests in various forms and that human beings are endowed with an array of intelligences has been in existence for some time now. This point is amplified by Woolfolk (2010: 114) who argues that, “Plato discussed similar variations [**of intelligence**] over 2000 years ago. Most early theories about the nature of intelligence involve one or more of the following: the capacity to learn; the total knowledge a person has acquired and, the ability to adapt successfully to new situations and

to the environment in general” [**my emphasis**]. Postulations about the concept of intelligence have been kept alive by numerous authors (Woolfolk 2010; Berk 2009; Sternberg 2003). Howard Gardner is one of those theorists who have made a meaningful contribution through his postulation about the existence of multiple intelligences.

The theory of Multiple Intelligences (MI) came as a result of Gardner’s neuropsychological work aimed at trying to understand how human abilities are organised in the brain (Gardner 2011a). The following is a brief indication concerning the instances that sparked Gardner’s interests in human intelligence, culminating in the birth of the MI theory:

As my doctoral studies were drawing to a close, I first encountered the writings of Norman Gershwind, a notable behavioural neurologist. I was fascinated by Gershwind’s descriptions of what happens to once – normal or gifted individuals who have the misfortune of suffering from a stroke, tumour, wound, or some other form of traumatic brain damage. Often the symptoms run counter to intuition: for example, a patient who is alexic but not agraphic loses the ability to read words but can still decipher numbers, name objects, and write normally (Gardner 2011a: ix – x).

Inspired by the work of Norman Gershwind, as described above, and his own neuropsychological research; Gardner postulated that human beings possess a variety of intelligences. In 1983, when he first presented his theory of Multiple Intelligences, Howard Gardner hypothesised that there are seven intelligences, namely: linguistic, musical, logical–mathematical, spatial, bodily–kinaesthetic, intrapersonal, and interpersonal intelligence (Waterhouse 2006; Denis 2004). “In 1999, Gardner revised his model, combining intrapersonal and interpersonal into a single intelligence and, he added another intelligence, naturalistic intelligence, the empathy for, and categorisation of natural things. Gardner (1999) also proposed a possible additional intelligence, called existential intelligence” (Waterhouse 2006: 207 – 208).

It must be further mentioned that currently, Gardner (2011a) argues that he is sticking to his 8 and ½ intelligences, the eighth being the naturalistic intelligence and the ½ being the existential intelligence, he still maintains his “core” intelligences. Hence he writes that, “my seven core forms of intelligence are an effort to lay out seven intellectual regions in which most human beings have the potential for solid advancement” (Gardner 2011a). In fact, for some unstated reasons, Gardner (2011a) does not discuss the naturalist intelligence; his

discussion focuses on the “seven core forms of intelligence”. Nevertheless, the theory of Multiple Intelligences has proven to be very invaluable to the field of education. This is despite the fact that it was not specifically intended to address educational challenges (Gardner 2011a). Accordingly, this theory is deemed important in the context of this study.

The importance of the MI theory is, first and foremost, discernible from Gardner’s “unconventional” approach to the definition of intelligence. To amplify this point, Fierros (2004: 3) writes that, “Gardner took a unique approach. Rather than defining intelligence in terms of IQ scores, Gardner offered an alternative view”. Hence, according to Gardner, intelligence entails a “biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture” (Gardner and Moran 2006: 227 as cited in Woolfolk 2010: 116). It can, therefore, be argued that each of the eight intelligences referred to in this discussion has the potential to add value when applied in various cultural settings. Accordingly, our understanding of the MI theory is essential if we are to advance and assist the learning and development of young children in an educational context. It is thus not surprising that “it was educators, rather than psychologists, who found the theory of most interest” (Gardner 2003: 4).

There are, unquestionably, many other reasons why the MI theory is important, especially, in the field of education. The theory of Multiple Intelligences has, for various reasons, “been recommended for improving classroom learning” (Waterhouse 2006: 207). For example, it helps learners “realise that there are multiple ways to learn and that they themselves possess multiple types of intellectual strengths and life skills” (Fierros 2004: 2). This may instil, especially in learners, a sense of self-belief and excitement concerning learning. Consequently, an improvement in learners’ “academic achievement and change teachers’ perceptions of their students’ learning abilities” (ibid.) may occur.

Equally important is to mention that the MI theory has a significant role to play in a culturally diverse society such as the one of South Africa. This is due to the fact that, by catering for diverse learner needs, the use of MI theory makes it possible “to personalise students’ education” (Fierros 2004: 6). For this reason, Fierros (2004) argues that the MI theory has a very central role to play in respect of special education. Of course, this importance extends even to ECE because the Multiple Intelligences theory helps teachers to identify each learner’s abilities, potentials and interests at a very early stage. For that reason, through the use of this theory, teachers would be able to utilise those strengths, or “notable” intelligences,

to improve the areas of “weaker” intelligences in the learner. This would, in my view, help provide the learner with strong grounding for further learning and development. Consequently, the learner would be able to negotiate the challenges that are presented by the ever-changing environment with much ease. Perhaps, before reflecting on the eight intelligences that form part of Gardner’s theory, it is befitting to highlight one other pedagogical impact of the MI theory by quoting Fierros (2004) once more. To accentuate the “greatest impact” of Multiple Intelligences on education, Fierros (2004: 14) writes that:

The greatest impact of MI theory lies in the ability to identify students’ areas of intelligence and to organise their instruction accordingly. As a result, teachers can meet the needs of students from multicultural backgrounds. The use of MI promotes diversity and inclusiveness rather than the “one size fits all” approach to teaching.

Hence, in my view, the points by Fierros (2004), above, make it crucial to include the MI theory in pedagogical practise. The following is, therefore, an attempt to reflect on the eight intelligences referred to by Howard Gardner in his theory of Multiple Intelligences.

3.3.6.1. A Brief Reflection on the Multiple Intelligences Theory

Howard distinguishes between what he calls his “seven core intelligences”. In the discussion below, the intrapersonal and the interpersonal intelligences are, in line with Gardner’s (2011a) approach, clustered under “personal intelligences”. Similarly, despite its omission by Gardner (2011a), the naturalist intelligence is also discussed; and succinct reasons are provided for the discussion of this type of intelligence. The following is an attempt to reflect on Gardner’s intelligence theory.

(i) Linguistic Intelligence

Gordon and Browne (2011: 127) define linguistic intelligence as “the capacity to use language to express thoughts, ideas, and feelings; and the ability to understand other people and their words”. Gardner (2011a) highlights language as one of the cornerstones of human development whose roots can be traced to the babbling activities of the baby. Language is a universal gift that pervades all cultures of the world (Gordon and Browne 2011; Woolfolk 2010). Hence, Gardner (2011a) refers to language as one of “our *subject-free* forms of intelligence” (the other one is musical intelligence) through which a particular cultural language structure is depicted.

In essence, it is through linguistic intelligence that the richness and the flair of a language are projected in every culture. Gordon and Browne (2011: 338 – 339) point out that linguistic intelligence is discernible from “children who enjoy word games, understand jokes, puns and riddles, and enjoy the sounds and rhythms of language. They have a good vocabulary, spell easily, memorise readily, and are good story–tellers. Such children are likely to grow up and pursue careers such as journalism or pursue interests such as poetry.

In the context of this study, children who display language intelligence would possibly be able to use linguistic intelligence to describe the nature of their surroundings. In other words, they would be able, if guided appropriately by their teachers, to use language to talk about their environment. Teachers should, therefore, be observant and be able to spot those children who have linguistic intelligence thereby use it to help them develop their “weaker” intelligences.

Musical intelligence is another form of intelligence that is worth discussing. Hence, attention is now drawn to this type of intelligence.

(ii) Musical Intelligence

Musical intelligence entails the “abilities to produce and appreciate rhythm, pitch, and timbre, appreciation of the forms of musical expressiveness” (Woolfolk 2010: 116) as well as the ability to hear musical patterns, recognise, remember or reproduce them (Gordon and Browne 2011). According to Gordon and Browne (2011), music is depicted by Gardner as an important part of culture with a long history, worldwide; has been in existence and has had a meaningful role as early as during the Stone Age era. Woolfolk (2010) points out that, today musical intelligence has enabled some people to make a living, for example, as composers, violinists, guitarists, and so on.

In the discussion pertaining to other theories, I have endeavoured to project the role of rhymes in learning activities at early childhood level. This suggests, therefore, that even in the context of ECE, musical intelligence plays a significant role; and should thus be utilised to facilitate learning and teaching. The ability to identify children with musical intelligence would, therefore, serve teachers and practitioners very well. This is in view of the fact that, just like linguistic and other forms of intelligence referred to by Gardner, musical intelligence has the potential to assist the integration of environmental learning in various subjects catered for in Grade R.

Gordon and Browne (2011: 34) state that musical intelligence can be seen; in “children who like to sing, dance, hum, play instruments, and move their bodies when music is playing. They remember melodies, are able to keep and imitate a beat, make up their own songs, and notice background and environmental sounds. They enjoy listening and differentiating patterns in sounds and are sensitive to melody and tone”. Apart from musical intelligence, Howard Gardner also argues that there is what he terms logical–mathematical intelligence. This intelligence, too, is worth some attention.

(iii) Logical–mathematical Intelligence

Gardner (2011a: 138) contends that logical–mathematical intelligence manifests by the age of six or seven, and at that point “the child has reached the level of Piaget’s young mathematician–to–be”. According to Gordon and Browne (2011: 127), logical–mathematical intelligence is “the capacity to think in a logical, often linear, pattern and to understand principles of a system” as well as “handle long chains of reasoning” (Woolfolk 2010: 116). Children who have this form of intelligence do not only exhibit the ability to “recite the rote number series” (Gardner 2011a: 137) but also tend to manifest advanced logical–mathematical abilities. Such children “have a systematic approach to problem–solving and organise their thoughts well. They think conceptually and are able to move easily from the concrete to the abstract thought. They like puzzles and computers” (Gordon and Browne: 339).

Gardner (2011a) also argues that there is a link between various forms of intelligence that are referred to in the MI model. For example, the ability of people with logical–mathematical intelligence to organise thoughts as well as move from concrete to abstract thought, depends on and is also “a manifestation of linguistic intelligence” (Gardner 2011a: 137). In other words, the thinking process and subsequent actions involving logical–mathematical intelligence depend on linguistic intelligence.

Since logical–mathematical intelligence enables people to demonstrate a variety of skills, including problem solving, my contention is that logical–mathematical intelligence would be useful in terms of the integration of EE in ECE. Various authors (Chan, Choy and Lee 2009; Davis 2005) provide numerous examples in which logical–mathematical abilities are demonstrated by kindergarteners. Davis (2005), for example, states that kindergarteners are able to provide meaningful solutions to water related problems. They know, for instance, that a tap should not be left running, and the bathtub should not be filled beyond a particular level

if people are to save water. This form of intelligence is, indeed, invaluable in learning and development. Hence, in my view, it is vital that early childhood teachers should; as it should be the case with other types of intelligence, learn to identify the manifestation of logical–mathematical intelligence in young children.

Spatial intelligence is another form of intelligence referred to in the MI theory. Thus it receives some attention as well.

(iv) Spatial Intelligence

Spatial (or visual) intelligence is defined by Gordon and Browne (2011a: 127) as “the capacity to represent the world internally in spatial terms, as in problem navigation, in the use of maps, and in relying on drawings to build something”. In effect, this suggests the ability to perceive the visual world accurately (Woolfolk 2010) and to make adjustments as one goes through the process of analysing the world is an example of visual intelligence. Spatial intelligence is required in professions such as painting, sculpting, drawing, architecture and engineering (Woolfolk 2010; Gordon and Browne 2011) as well as in activities such as chess and visual arts (Gordon and Browne 2011).

Gardner (2011a), once more, underscores the link between the various forms of intelligence. In this regard, he insists that there is reciprocity between spatial intelligence and logical–mathematical intelligence. In affirmation of this interdependence, Gardner (2011a: 199 – 200) writes as follows that:

A keenly honed spatial intelligence proves an invaluable asset in our society. In some pursuits, this intelligence is of the essence – for example, for a sculptor or a mathematical topologist. Without a developed intelligence, progress in these domains is difficult to envisage: and there are many other pursuits where spatial intelligence alone might not suffice to produce competence.

It should be evident from the above points by Gardner (2011a), that there is an interrelationship between spatial intelligence and logical–mathematical intelligence. Similarly, Gordon and Browne (2011) also declare the existence of interplay between the two forms of intelligence. Gordon and Browne (2011: 339) characterise children with spatial intelligence as “children who like to draw, build, design, and create things. They enjoy patterns and geometry in mathematics as well as maps and charts. They think in three dimensional terms and enjoy colours. They love videos and photos”.

As it should be the case with other intelligences referred to in the MI theory, it is necessary for teachers to be able to recognise spatial intelligence in their learners. This would facilitate the development and strengthening of other intelligences as well as enable the integration of EE in early childhood programmes. The next point of discussion is the bodily–kinaesthetic intelligence.

(v) Bodily–kinaesthetic Intelligence

In a nutshell, the bodily–kinaesthetic intelligence entails the ability to use parts of or all of one’s body to solve problems for creativity and to handle objects skilfully (Gordon and Browne 2011; Woolfolk 2010). Activities such as participation in sports, dancing, acting or any other activity that is dependent on the proficient use of one’s body, or part of the body; would be categorised as an aspect of bodily–kinaesthetic intelligence. In respect of young children, the display of good motor–skills, which include running, touching things, agility as well as the capacity to coordinate various organs of the body (Gordon and Browne 2011) would amount to the bodily–kinaesthetic intelligence.

Gordon and Browne (2011) suggest that the ability of children to express their feelings towards music or an appreciation of music, through the use of their bodies, for example, by dancing; also highlights bodily–kinaesthetic intelligence. This indicates, in my view, that the bodily–kinaesthetic intelligence is also linked to musical intelligence. It is, therefore, necessary for people entrusted with the responsibility to nurture and develop young children in educational settings to learn to identify bodily–kinaesthetic intelligence in young children. This is due to the fact that this intelligence has the potential to help children expand their individual repertoires in terms of intelligences. Howard Gardner also refers to what he calls personal intelligences. These intelligences are discussed below.

(vi) Personal (interpersonal and intrapersonal) Intelligences

In his discussion of personal intelligences, Gardner (2011a) distinguishes between intrapersonal intelligence and interpersonal intelligence. Simply stated, intrapersonal intelligence refers to the ability to know and understand oneself, intrinsically, in terms of aspects such as personal strengths and weaknesses, emotional well–being of the self; and how one reacts to external stimuli (Gordon and Browne 2011; Woolfolk 2010). Gardner (2011a: 253) states, in respect of intrapersonal intelligence, that “on the one side, there is the development of the internal aspect of a person. The core capacity at work here is access to

one's own feeling life – one's range of affects or emotions: the capacity instantly to effect discriminations among these feelings and, eventually, to label them, to enmesh them in symbolic codes, to draw upon them as a means of understanding and guiding one's behaviour”.

The people who exude intrapersonal intelligence have the ability to distinguish between multiplicities of complex personal feelings (Gardner 2011a), and also tend to have the capacity to respond to those feelings. In respect of young children who possess intrapersonal intelligence, Gordon and Browne (2011) state that, they tend to pursue personal goals, they are able to label feelings; and “are insightful, sensitive, reflective, and intuitive” (Gordon and Browne 2011: 341). Such children; just like adults who have intrapersonal intelligence, know their strengths and weaknesses. These children are inclined to daydream and are comfortable to be alone (Gordon and Browne 2011).

On the other hand, Gardner (2011a: 253) states, in respect of interpersonal intelligence, that “the other personal intelligence turns outward, to other individuals. The core capacity here is the ability to notice and make distinctions among other individuals and, in particular, among their moods, temperaments, motivations, and intentions”. This also includes the ability to understand the causes of these “moods, temperaments, motivations and intentions” (Gordon and Browne 2011: 127); and to respond appropriately to each situation (Woolfolk 2010). According to (Gordon and Browne 2011) children with interpersonal intelligence display the following, among other characteristics; they have a lot of friends, are fond of talking, enjoy group-based and problem-solving activities, tend to mediate in conflict situations, like to listen to other people's views, and are always ready to volunteer their assistance when others require it.

In the context of ECE, where learners spend most of their time in group activities, interpersonal intelligence is, in my opinion, very vital. It would, therefore, be in the interest of teachers to be able to detect and distinguish learners who have intrapersonal intelligence from those with interpersonal intelligence. This is essential because the planning and delivery of learning programmes would have to cater for diverse personalities.

The last type of intelligence that forms part of the MI theory and is, for the purposes of this discussion, essential to reflect on, is the naturalist intelligence. The following discussion reflects, briefly, on this type of intelligence.

(vii) Naturalist Intelligence

Earlier in this discussion, I indicated that in his recent text, Gardner (2011a) asserts that there are seven “core” intelligences in the MI theory. This is despite his declaration that “so far I am sticking to my 8 ½ intelligences but I can readily foresee a time when the list could grow, or when the boundaries among the intelligences might be reconfigured” (Gardner 2011b: 9). I am making this point with the intent to justify the inclusion of the naturalist intelligence in this discussion, even though Gardner (2011a) opted, for some reason, not to reflect on it. My view is that this intelligence is significant in the context of EE, hence the need for a brief reflection on the naturalist intelligence. Besides, Howard Gardner himself argues that, “I have always conceded that, in the end, the decision about what counts as an intelligence is a judgment call---not an unambiguous determination following upon the rigorous application of an algorithm” (Gardner 2011b: 9). Accordingly, it is appropriate to reflect on the naturalist intelligence in this discussion.

Gordon and Browne (2011: 127) define the naturalist intelligence as “the capacity to discriminate among living things (plants, animals), as well as a sensitivity to other features of the world (clouds, rock configurations)” and “to define systems and define categories” (Woolfolk 2010: 116) of systems and organisms that are found in the natural world. It should be evident from this definition that the naturalist intelligence is very important in respect of facilitating environmental learning. This is in view of the fact that people with this type of intelligence are likely to be interested in matters affecting the environment. Woolfolk (2010) states that people who engage in activities such as hunting, farming, botany, zoology, and so on can be regarded as being in possession of naturalist intelligence.

It is, therefore, important for teachers to be able to identify learners with naturalist intelligence. The learners who exhibit naturalist intelligence should be able to contribute to the good course of EE, especially, in the long run. This can only happen if they are properly nurtured from a very young age. My view is that, since there is an interrelationship between the different forms of intelligences (Gardner 2011a); every learner can be helped to develop and exhibit naturalist intelligence.

According to Gordon and Browne (2011: 34), children who possess naturalist intelligence “enjoy all the features of the outdoor world. They recognise and classify plants, animals, rocks, clouds, and other natural formations, they garden and like to have animals at home and school to care for. They enjoy zoos, aquariums, and places where the natural world, is on

display and can be studied”. Such children are, indeed, fond of nature and should be sharpened to become stewards and pioneers for environmentalism very early in life.

There are, naturally, many points that could have been mentioned about the Multiple Intelligences theory. However, for the purpose of this study, the above points should be sufficient. The next point of discussion is an attempt to illustrate how the MI theory could be applied in the integration of EE in Grade R.

3.3.6.2 Application of Multiple Intelligences Theory in the Integration of Environmental Education in Grade R

I am of the view that the theory of Multiple Intelligences could be used in any of the subjects offered in Grade R to integrate environmental learning. However, for the purposes of this discussion, I have chosen the topic on “Wild Animals” as referred to in the Grade R Life Skills CAPS document (DBE 2011c: 21) to illustrate how EE could be integrated. The following are some of the points that require attention in terms of the chosen topic: the definition of a wild animal, identification of various types of wild animals, the areas/places in which wild animals could be found and how wild animals live.

There is a variety of approaches that could be used in order to try and accommodate a range of intelligences as postulated in the MI theory in an effort to aid the integration of EE in Grade R. However, before I discuss how the MI theory could be used in the integration of EE in Grade R, it is essential to underline that Gardner (2011a) argues that since there are various cultural and intellectual profiles, it might be overwhelming for the teacher to plan for a multiple intelligences approach. For this reason, he advises that it might be necessary for teachers who intend to use the Multiple Intelligences theory to observe each of their learners very carefully. The aim of this exercise would be to “gain a reasonably accurate picture of an individual’s intellectual profile” (Gardner 2011a: 406). The process of profiling each learner would enable planning that considers both the strengths and weaknesses of each learner in the classroom. In essence, the teacher has to come up with a general strategic decision (Gardner 2011a) on how to utilise the MI theory pedagogically. According to Gardner (2011a: 407) the teacher must, therefore, answer the question: “does one play from strength, does one bolster weakness, or does one attempt to work from both tracks at the same time?”. Gardner (2011a: 407) attempts to answer this question by stating that, “naturally this decision must be made in terms of the resources available, as well as of the overall goals of both society, and the individuals most directly”.

In my view, ideally, an effort should be made to develop each child holistically. This should be done so as to find ways of tapping into those quiescent intelligences, if any, waiting to be unearthed and actualised. The areas of strength could, in respect of each learner's intelligences, be used to reinforce weaker intelligences in the learner. Since early childhood education relies, to a large extent, on group learning (Gordon and Browne 2011); it would be possible for learners to assist each other in respect of developing the, otherwise, dormant intelligences. Hence, it is appropriate to argue that, "if we can develop ways to teach and learn by engaging all seven intelligences, we will increase the possibilities for students' success and to create the opportunity to weave a social fabric in which each human gift will find a fitting place" (www.context.org).

It must be mentioned, however, that teachers should not attempt to, at all costs, accommodate all eight intelligences in their learning and teaching activities. This is, invariably, impossible to accomplish. A measured and well thought out approach to implementing the MI theory is necessary. Hence the advice that, "most importantly start small ... no matter how grandly you are planning. Minor adjustments to your curriculum, could make a big difference in students' motivation and understanding" (www.thirteen.org). The following are, therefore, a few suggestions on how the topic on "Wild Animals" could be presented in a manner that seeks to accommodate some of the intelligence of the MI theory.

In preparation for the lesson the teacher could try and get hold of a device (or generate one), for example a cassette or CD, with recorded sounds of various animals. And two big attractive charts or posters depicting two different animals, one domestic (e.g. dog) and one wild (e.g. rhinoceros). The teacher would have to play a cassette or CD with the sounds of the animals and ask the learners to, by way of raising hands, guess what animals are emitting by the sounds made – this activity caters for the naturalist intelligence. Each time a correct answer is given, the teacher may ask who among the learners in the class had ever seen the animal. The teacher may then give the learners (those who claim to have seen the particular animal) a chance to relate a few things about the animal to the class. This would include issues such as its habitat, feeding habits, whether the learner likes the animal or not, etcetera. This type of activity caters for, among other intelligences, linguistic intelligence and personal intelligence. The teacher would have to, throughout the activities, try to accommodate the entire learner population in the class. This could be done by, for example, providing them a chance to say something about the animals whose sounds are on the voice device. In other

words, the teacher could help them if they are unable to recognise the voice of an animal by telling them what animal it is. They, in turn, would have to say something about the animal.

The teacher may then proceed by facilitating a class activity about the animals on the two different charts. Since the lesson is about wild animals, more focus should be on these types of animals. Therefore, in my earlier example, the rhinoceros would be the point of focus. The learners, through the guidance of the teacher, could talk about the following aspects, in respect of each animal: its size, body covering, various parts of the body (e.g. the rhino has a horn, four legs, two eyes, and etc), the sound made by the animal (learner may even imitate the sound), their own individual attitudes towards the animal, the other people's attitudes towards the animal, and so on. The teacher may, as far as possible, try to guide learners towards a discussion on the current and, surely, insidious practise currently prevalent in South Africa – the poaching and killing of rhinos. This should, in my view, enable them to reflect on one of the most important aspects that tend to often culminate in animal extinction. This is, in my view, an important aspect of environmental learning. It is also significant to point out that various intelligences are catered for through this exercise, for example; linguistic, personal, and logical–mathematical intelligence.

In rounding the lesson, the teacher may then give the learners an exercise. In this activity each learner could be asked to choose one wild animal and do some research on it. The parents/guardians would have to assist the learners through this exercise. The following aspects could be dealt with during the completion of the activity: paste a picture (better yet, draw a colourful picture) of the animal on a large A3 (or larger poster); prepare a small talk on the animal (cover areas such as food consumed, habitat, let the child ask people at home whether they like the animal or not and why, and so n); let each learner present a small talk in class. Various intelligences are also catered for through this exercise as well, for example; linguistic, personal, and logical–mathematical intelligence.

In concluding this discussion it is important to mention that the above suggestions can do with some refining so as to suit the level of learner development as well as a given socio–cultural context of both the teacher and the learners. This assertion is supported by Gordon and Browne (2011). Accordingly, Gordon and Browne (2011: 128) argue that “there is no right way to implement multiple intelligences. The theory is both culture and context specific so that, in a similar way to a constructivist classroom, “multiple intelligences classes” would have teachers developing their own strategies, developing curricula and assessment methods

based on their own and their children's culture and priorities on the individual children's intelligences".

3.4. PHILOSOPHICAL UNDERPINNINGS, EVOLUTION AND RELATIONALITY: A CRITICAL REFLECTION ON THEORIES DISCUSSED IN THIS STUDY

Palmer (1998) identifies three theoretical underpinnings according to which theorizing in respect of learning *about*, *in* and *for* the environment could be conceived, namely; positivist, interpretivist and critical perspectives, respectively. She goes on to reflect on aspects such as the theoretical views, educational purposes, the learning theories, and so on that can be placed under each of the three perspectives. For example, Palmer (1998) 'matches' the above-mentioned perspectives to the learning theories as follows: positivist (sometimes, behaviourist), interpretivist (constructivist) and critical (reconstructivist). Therefore, in my reflection on the theories discussed in this chapter, I shall use the preceding concepts, namely positivist, constructivist and critical perspectives by Palmer (1998) in terms of 'categorising' the tenets discussed in this chapter.

Some of the theories that have been discussed in this chapter have undergone evolution in one way or the other by, for example, becoming 'reoriented' to reflect 'new' discoveries and ('new' ways of) thinking by theorists. There are also those that have, due to some common features and orientation, merged and culminated in the emergence of new 'collective names'. Perhaps, in order to avoid some criticism on my approach, i.e. the disaggregation of theories that should have been aggregated, I need to hasten to indicate that I decided to adopt Palmer's (1998: 148) stance that although some paradigms are sometimes considered in isolation, no "paradigm or image can or should exist with total disregard for others". Apart from the fact that I am 'innately' reluctant to categorise people (*refer to section 1.2*), it seems sensible to me to consider each paradigm significant not only in the general process of learning and teaching, but my view is that each paradigm has its place in enabling humanity navigate through the multitudes environmental challenges besetting Planet Earth. Therefore, in my view, no paradigm should be considered 'inferior' or 'superior' to other paradigms, notwithstanding, the shortcomings of each paradigm.

In respect of theories that have been affected by 'reorientation', one can mention the behaviourist theory. For example, the classical and operant conditioning components of this theory have often been criticized for being autonomic (Gershman and Niv 2012). Likewise, as a result, the notion that learning associated with conditioning, for example, classical

conditioning, “involves the acquisition of elicited response” (Kirsch, Lynn, Vigorito and Miller 2004: 370) is not uncommon in terms of the criticism, often, levelled against the behaviourist tenet is concerned. Accordingly, as Wals and Dillon (2013: 257) argue, “behaviourist approaches have, to some extent, fallen out of favour because they can be perceived as oversimplifying human behaviour”.

However, it is worth noting that, in a number of ways, behaviourism has undergone evolution. For example, classical conditioning and operant conditioning have since been re-evaluated by numerous scholars (Gershman and Niv 2012; Kirsch, Lynn, Vigorito and Miller 2004). Consequently, new perspectives have emerged. For example, an acknowledgement of the role played by cognition in conditioning culminated in the emergence of theories such as the normative theory of classical conditioning (Gershman and Niv 2012; Kirsch, Lynn, Vigorito and Miller 2004). This theory underlines the role played by conditioning, past experiences, beliefs and conditions prevalent in the environment as some of the factors that inform decision making in animals. In light of this development, it is my considered view that this theory has a significant role to play both, generally, in education and learning, and specifically in environmental learning. Hence, I have reason to believe that this tenet could be considered more significant than just a vehicle for education about the environment.

Perhaps, since the normative theory suggests that cognition is central to behaviourism (Gershman and Niv 2012), as it is the case with constructivist theories, it might be appropriate to re-categorize the behaviourist theory and consider it; alongside the constructivist theories such as Piaget’s theory of cognitive development and Vygotsky’s socio cultural theory, an interpretivist perspective. Besides, Vygotsky’s theory was at some point considered, partly, a behaviourist (DeVries 2000). According to Robbins (2001), this point of view was ascribed to the confusion which emanated how Vygotsky, initially, wrote about the concept of ‘reflexes’. To amplify the notion that Vygotsky was, at some stage; considered a behaviourist, De Vries (2000: 4) cites Vygotsky (1930a/1981) as follows:

It would seem to us to be correct, given our present stage of knowledge, to take the point of view defended by the American psychologist Thorndike (p.173)..... (where) the intellectual response, as it turns out, is essentially reduced to nothing except a system of habits. . . Since the laws of stimulus–response connections are the basis of natural behavioural laws, it is impossible to control a response before controlling the stimulus. Consequently, the key to the child’s control of his/her

behaviour lies in mastering the system of stimuli.....But a system of stimuli is a social force provided externally to the child (pp. 175-176).

Of course, as I have already alluded to, according to Robbins (2001: 6), the above, and various other related examples, of Vygotsky's earlier writings led to him "assuming the label (neo) behaviourism". Vygotsky later changed this way of writing to conform to his theoretical stance associated with his sociocultural theory (Robbins 2001). Apart from the preceding issues related to behaviourism, the repositioning, if you will, of the social learning theory is also worth reflecting upon.

In reflecting on the Social Learning Theory as referred to within the ambit of the behaviourist perspective, it is essential to point out that my reference to this theory should not be confused with social learning as used in other scenarios or fields other than within the ambit of behaviourism. In this case, the emergent field whose focus is on Postnormal Environmental Education (Wals and Dillon 2013) comes to mind. In the interest of this discussion, it is essential to reflect briefly on how the concept social learning relates to this emergent field.

Wals and Dillon (2013: 257) point out that in response to "the nature of the sustainability crisis—characterized, among other things, by high levels of complexity, contestation, and uncertainty" new forms of learning (theories) have emerged. These forms of learning include: transdisciplinary learning, transformative learning, cross-boundary learning, anticipatory learning and social learning (ibid.). Although my reading of Wals and Dillon (2013) suggests that the concept of 'Postnormal Learning Theory' would, possibly, be an 'appropriate' collective or defining concept for all the forms of learning mentioned above, 'Social Learning' is the concept that seems to define the 'theory' of learning, if you will, that is aligned to the forms of learning referred to by these authors/scholars and those who share this perspective (cf. Swartling, Lundholm, Plummer and Armitage, 2011; Wals and Noorduyn 2010; Wals and Van Der Leij 2009).

These authors/scholars, rightfully argue, that the deterioration of the environment has gone beyond 'normal' levels, if you will, hence, "it is necessary to look beyond everyday normalities and to search for ethically acceptable options for responsible action" (Posch 1991: 12 cited in Wals and Dillon 2013: 256). Apparently, part of for this "responsible action" toward addressing current environmental challenges entails exploring the use of post normal environmental education and research (Wals and Dillon 2013). Therefore, these authors/scholars posit that Social Learning, which embodies, in part, the forms of learning

referred to in the preceding paragraph, should be pursued. Just like, the critical perspective (Palmer 1998), this view of Social Learning is inclined towards education *for* the environment.

The use of the concept social learning in this emergent field is certainly different from how it is used in behaviourism. For example, Wals and Noorduyn (2010: 73) define social learning by writing that:

“...a collaborative reflexive process involving multiple interest groups and stakeholders...is grounded in multitude of actions, experiences, interactions and social situations of everyday life...is an intentionally created purposeful learning process that hinges on the presence of the ‘other’, others, and otherness or difference.

Additionally, in order to further illustrate that social learning, as viewed from the ‘Postnormal Perspective’, is different to Bandura’s view of social learning, Wals and Dillon (2013: 257) write that, “the new forms of learning also show that the conventional categories of behaviourist and cognitivist theories of learning need to be complemented with so-called transformative theories of learning”. It should be recalled that, as per the discussion of the behaviourist perspective (refer to section 3.3.5.1), social learning is the process that enables; especially through observational learning, the acquisition of new information, behaviours and attitudes. In my view, the preceding point clearly indicates that there ‘Postnormal Proponents’ hold a more critical, broader, and inclusive; and indeed, a different view of social learning to the one associated with behaviourism. The different conceptions of social learning between Bandura and the ‘advocates’ of the ‘Postnormal Theory’ suggest that, indeed, this concept has multiple meanings. Parson and Clark (1995: 429 cited in Wals and van der Leij 2009: 18) amplify this point by writing that:

The term social learning conceals great diversity. That many researchers describe the phenomena they are examining as ‘social learning’ does not necessarily indicate a common theoretical perspective, disciplinary heritage, or even language. Rather, the contributions employ the language, concepts, and research methods of half-dozen major disciplines; they focus on individuals, groups, formal organizations, professional communities, or entire societies; they use different definitions of learning, of what it means for learning to be “social”, and of theory. The deepest difference is that for some, social learning means learning

by individuals that takes place in social settings and/or is socially conditioned; for others it means learning by social aggregates.

Before, I round off by reflecting on the theories of Multiple Intelligences, the psychosocial perspectives and the bioecological theory, it is essential to go back to the concept of constructivism since I only mentioned it in passing without elaboration. The concept of constructivism, in a nutshell, is based on the notion that the learning process is facilitated by the active participation of the learner, in the learning and teaching process, through the use of personal experience to enable learning of new information, skills, and so on. In this respect cognition enables the construction, hence the word, ‘constructivism’, of meaning through the use of experiences (White 2011; Blake and Pope 2008). According to White (2011: 90), “constructivism puts the individual at the centre of learning, forming meaning through experience” and it is based on the “belief that people can only understand what they have themselves constructed” (ibid). As already alluded to, constructivism is associated with the interpretivist philosophical point of view.

In respect of the psychosocial theory and the Multiple Intelligences theory, my view is that both of them are more in sync with the constructivist philosophical view – perhaps the MI theory could even require a ‘new’ space between the interpretivist (constructivist) and critical (reconstructivist) theories. The psychosocial theory, attaches a great deal of emphasis on the growth of the individual, *inter alia*, psychologically and physically; and societal demands, (Newman and Newman 2009). Hence, it can be argued that, just like the constructivist theories of development, the psychosocial theory considers cognition and social experiences to be the key determinants of persona growth. On the other hand, it might be a bit difficult for me to categorise the MI theory because, it seems to me, this theory addresses quite a diverse set of elements. This is in view of the fact that, in my opinion, the MI theory provides a teacher with a chance to consider, broadly, multitudes of elements that could be explored, individually and collectively, to enable development.

In rounding this discussion off, I contend that the Bioecological Tenet by Bronfenbrenner might just be one of the theories that could be considered as a ‘critical theory’ in terms of enabling, meaningful integration of EE in the ambit of ECE. I am persuaded by Krishnan’s (2010) attempt to design a model that focuses on the child and the various spheres which influence, directly or indirectly, his/her development. This is made possible by the fact that the theory acknowledges every aspect of the child’s lifeworld as having an influence on

growth and development. Likewise, the theory attaches a great deal of significance on the role played by the child in personal growth. To amplify this ‘overarching’ nature of this paradigm, Krishnan (2010: 2) writes that:

Despite the complexity of the ecological model, it offers a holistic approach to analyze multilevel and interactive influences of child development. More specifically, the model incorporates a broad range of factors, multiple pathways by which they interact, and a multilevel approach.

As a final word, before I reflect on the importance of Vygotsky’s Perspective in terms of enabling play-based learning in ECE, I need to emphasize that, as I tried to demonstrate in the discussion of the various theories in this chapter; it is my considered view that in order to enable meaningful learning and teaching, all paradigms, irrespective of their diversity should be conceived significant in pedagogy. More importantly, some of the theories discussed in this chapter have, historically, been considered significant in terms of facilitating environmental learning. For example, De Lange (2004) and Wals and Dillon (2013) point out that the behaviourist theories and the constructivist theories have, over the years, been used to facilitate environmental learning.

3.5. A PERSONAL DENOUEMENT: THE CASE FOR VYGOTSKY’S VIEW OF PLAY IN EARLY CHILDHOOD DEVELOPMENT

Play has a long history in the field of early childhood education. Accordingly, to amplify this point, Cutter–Mackenzie, Edwards, and Moore (2014: 11) write that “over many centuries, philosophers, theorists, educationalists and more recently, policy makers have worked hard to define the nature of childhood, play and the purposes of education”. The following are some of the notable theorists who have contributed to the ECE field in respect of play; Jean Jacques Rousseau, John Dewey, Jean Piaget, Friedrich Froëbel, Sigmund Freud and Lev Vygotsky (Cutter–Mackenzie *at al.* 2014; Bodrova, Germeroth and Leong 2013; Nicolopoulou 1993). It is this huge and, perpetually, burgeoning interest in play within ECE that led to the emergence of the now famous adage “children learn naturally through” (Cutter–Mackenzie *at al.* 2014: 12). I must admit that I also assign a lot of meaning to the role and value of play in ECE pedagogy. This could be ascribed to the fact that I subscribe to the notion, informed by both theory and, in part, observation, that children learn best when they are given opportunities to interact with their natural environment (Oltman 2002; Wilson, Kilmer and

Knauerhase 1996). In my view, this is, particularly; true when learning and teaching is oriented towards EE.

Accordingly, in this section, I attempt to reflect, *albeit* briefly, on the significance of play in ECE. In view of the fact that, as alluded to in the preceding paragraph, there seems to be a plethora of ideas put across by various theorists on what play entails in ECE; I argue that Lev Vygotsky's sociocultural theory provides what could be considered the best insight in respect of play in the context of ECE. Of course, owing to the shortcomings aptly articulated by numerous writers (Matusov and Hayes 2000; Nicolopoulou 1993), in respect of Vygotsky's views on play, I must hasten to indicate that I am not suggesting that Vygotsky's views of play in ECE amount to, for lack of a better phrase, 'a paragon of perfection'. Nevertheless, I need to highlight that many authors (Cutter–Mackenzie *at al.* 2014; Bodrova, Germeroth and Leong 2013; Nicolopoulou 1993) share the view that Vygotsky's thesis on the role of play in ECE is the best. Accordingly, to underline the impact of Vygotsky' theory on ECE; Cutter–Mackenzie *at al.* (2014: 18) write that:

Amongst the most significant of the post developmental perspectives has been the work of the Russian psychologist Lev Vygotsky (1896–1934). Vygotsky developed his theory during the early part of the twentieth Century through periods of great social upheaval and war. Nonetheless, his work has had far reaching implications for early childhood education and contemporary childhood studies in terms of his explanation of children's mastery of play, the development of imagination and the increasingly significant role of the teacher in children are learning.

It should be evident from the preceding point that Vygotsky's depiction of play has a long history and profound influence in the field of ECE. This influence can be attributed to numerous defining characteristics which, based on its 'endurance', make this theory preferred over many others. I now attempt to, briefly, reflect on some of those characteristics. Let me hasten to indicate that, in view of the fact that this study focuses on the preschool child, I shall attempt to focus my points at this level of ECE.

Vygotsky (1976: 537), argues that although play is not (and, in fact, should not be) the predominant activity "in the child of preschool age", it is "the leading source of development in preschool years" (*ibid.*). Its role in respect of child development is not narrowly confined to one dimension of human development but it permeates different areas and, thereby,

enables a holistic development. Likewise, play has a far reaching influence which is not limited to the stage of but transcends various levels in human development. In essence, the role and impact of play enables meaningful development, even years later when the child is older.

In an attempt to explain the link between holistic development and the role of play in the child's life, Vygotsky (1976: 538) writes that "at pre-school age special needs and incentives arise which are highly important to the whole of the child's development and which are spontaneously expressed in play". Accordingly, Vygotsky's acknowledges that holistic development in the preschool child is realised, mainly, due to the fact that through play as an active and developmentally essential process which enables a developing child to socialise; the child is able to appropriate his/her sociocultural world (Nicolopoulou 1993). This 'appropriation' of the social world contributes enormously to holistic development in the child. The appropriation of the child's sociocultural world entails the processes of learning the following aspects, among other things; language, rules, games, self regulation, various skills, and so on that are practiced in the child's sociocultural world (Cutter-Mackenzie *et al.* 2014; Nicolopoulou 1993; Vygotsky 1978; Vygotsky, 1976).

According to Vygotsky, through language, the preschool child is able to fulfil an array of functions and needs. As far as Vygotsky (1986: 275) is concerned, among other roles, "language can serve both autistic ends and logical thinking". Both roles are profoundly significant in enabling the need to navigate the child's lifeworld both the, often, imaginary world of play; and the real world. In the world of play, the world which contributes to learning in as far as the preschool child, language has an important role in enabling independent thinking and private speech (Vygotsky 1986). Likewise, language is a tool through which a child learns the rules of play because as far as Vygotsky (1978: 95) is concerned, in the world of play "whenever there is an imaginary situation in play, there are rules – not rules that are formulated in advance and change during the course of the game but ones that stem from an imaginary situation".

I would imagine, that these rules are significant in respect of helping the child to develop as an important role player in subsequent years in his/her sociocultural world. It should be recalled that according to Vygotsky, the child appropriates and represents the elements of his/her sociocultural world. Of course, I need to qualify this statement by stating that representation does not necessary mean 'reflection' because as Vygotsky (1978: 97) writes;

sometimes, “the child sees one thing but acts differently in relation to what he sees”. However, what is important to note is that in appropriating the life world, the child learns through interaction not only with her/his peers at play, but even adults form part of the child’s real as well as imaginary world of play. This is in view of the fact that “Vygotsky emphasizes that children do not develop in isolation but rather within a...set of social matrices” (Nicolopoulou 1993: 8). The adults and their world views also form part of these matrices. These adults include parent, teacher, and so on. Therefore, the child’s world of play and the world of learning would have adults either as characters in children’s world of play and/or in the world of learning. This is in view of the fact that, as Bodrova, Germeroth and Leong (2013: 118) write, “Vygotskian view play as an imminently cultural activity with adults assuming a critical role in engaging children in play and in supporting and scaffolding play as it develops”. Accordingly, adults, just like peer groups at play, communicate certain rules to children. For example, in play-based pedagogy, it is conceivable, that teacher-directed play would contain some rules. These rules would, to a certain extent, be carried through to the other parts of the sociocultural world of the learner.

The last point that is, in my view, worth mentioning in respect of play in Vygotsky’s views, relate to cognitive development as a product of play. According to Vygotsky, play has an important role in terms of enabling cognitive development. This has been alluded to, in a way, when reference was made to issues such as, for example, imaginary play and scaffolding in the sense that imaginary play involves a lot of cognition in the since the child’s imaginary play involves thinking and as Vygotsky (1978: 100) points out, “in thinking he(**the child**) acts. Internal and external actions are inseparable: imagination, interpretation, and will are the internal processes carried by external action” [**my emphasis**]. Likewise, scaffolding employs cognition processes. Hence, cognition enables cognitive development. However, there is another aspect of cognition that is also facilitated play. This aspect is the Zone of Proximal Development.

Bodrova, Germeroth and Leong (2013) provide an interesting example to illustrate how rules based play activity could be used to accommodate and negotiate the ZPD. In their example, they refer to how rules can be used, in a “car shop” play activity, not only to enable self-regulation in play mates through adherence to rules, but they also underline how rules could enable navigation from the actual zone of development to the ZPD. They write as follows in this regard:

For example, before starting to play “car shop,” children might talk about the kinds of cars that need repairs, the nature of the repair who will play the owner of the car, who will act as the receptionist, and who will play the mechanic; such play planning serves as the precursor to reflective thinking, another aspect of self-regulatory behaviour (Bodrova, Germeroth and Leong 2013: 114).

I have made an attempt to illustrate that, indeed, Vygotsky’s sociocultural theory suggest that play can has potential to enable a holistic development in children. Accordingly, in my view, this theory could be of help in terms of assisting teachers at preschool level in respect of achieving their pedagogical goals. In view of the fat that I have in the discussion of various theories demonstrated how play-based activities could be utilised to facilitate the learning and teaching processes, in the interest of this discussion, I do not provide an activity based illustration. However, in rounding off this discussion, I present a word of advice from Cutter–Mackenzie *et al.* (2014) in respect of environmental learning and how preschool teachers should enable the integration of environmental learning through play. They write that:

....content needs to be more explicitly engaged by teachers for the pedagogical potential of play to be realised as environmental learning...Importantly for early childhood environmental education, the context can and should consider the nature of children’s play-based interactions of the world so that these may be orientated towards learning ‘something’ about the environment (p19 – 20).

The above discussion does not (since it was not meant to) address all the aspects that could be developed through play in Vygotsky’s sociocultural theory. However, I trust that to some extent it has underlined the significance of Vygotsky’s view of play in child development.

3.6. CHAPTER SUMMARY

The aim of this chapter was to reflect on some of those learning and teaching theories that are considered relevant to the field of ECE. The key criteria used in the selection of each of the perspectives discussed in this chapter included: relevance to early childhood education, an emphasis placed on one or more aspects that contribute to the course of learning and development as well as applicability to the integration of EE in the teaching and learning of each of the subjects catered for, as per the education policy, in the Grade R class of South Africa.

Consequently, six paradigms were discussed, namely: the cognitive development theory, the psychosocial perspective; the socio-cultural paradigm, the bio-ecological tenet, the behaviourist theory, and the theory of multiple intelligences. The discussions suggested that each theory has an important role to play in ECE. This is attributed to the fact that each theory places an emphasis on one or more aspects that facilitate learning and development in the context early childhood education. For example, the cognitive development and psychosocial theories both distinguish between various stages of human development. This is important in that it necessitates that teachers should, in their planning, cater for various levels of development. Similarly, the socio-cultural theory and the bio-ecological tenets emphasise the influence of society on childhood development and learning. This therefore suggests that teachers should, at all times, be mindful of how negatively or positively the child's environment could impact on learning and development. On the other hand, the behaviourist theory points to the significant role played by, among other things, the observation of behaviour and how the learner, through innate factors, responds to external stimuli to affect personal learning and development. And, the theory of multiple intelligences highlighted the importance of accommodating each child's intelligence(s) in the learning and teaching setting.

Equally important, is the emphasis placed by various theories on the role of play in early childhood education (for example, the cognitive development, psychosocial perspective; and the socio-cultural paradigm). Play, especially make-believe play is depicted as crucial in respect of effecting learning and development in young children. Similarly the role of language and thought (the socio-cultural paradigm) and that of society in which a child exists; an aspect that is emphasised by virtually all the theories discussed here, were also projected as important in ECE.

More importantly, an attempt was made to illustrate the applicability of each tenet in the integration of EE in Grade R. It was demonstrated that each one of the theories is, indeed, significant in terms of aiding the process of integrating environmental education in all subjects catered for in the Grade R curriculum as outlined in the CAPS documents. It may be argued, therefore, that each of the theories discussed in this chapter could be used even beyond the context of South Africa for the purposes of integrating EE at preschool level.

In rounding off this chapter, I also reflected on the philosophical underpinnings, relationality and the evolution of (some of) the theories discussed in this chapter. Likewise, as a final point

of discussion, I argued that Vygotsky provides the best and plausible perspective on the role of play in ECE. Accordingly, in the next chapter, I shall make an attempt to explicate the empirical research methodology utilised in a quest to fulfil the aims of this study.

CHAPTER FOUR

METHODOLOGICAL FRAMEWORK

4.1. INTRODUCTION

In the previous chapter I reflected on various theoretical perspectives that could be used in ECE. The purpose of that exercise was to illustrate how each of the theoretical perspectives could be applied in the integration of EE in the teaching of Grade R. I made use of the CAPS documents which guide curriculum implementation in South Africa.

In this chapter I make an attempt to provide detailed information on how this study was conducted so as to respond to the research questions that propelled this inquiry as reflected in chapter one. It is essential to point out from the outset that throughout the discussion I shall try to focus only on the methodology applicable to this study. This is in line with Gray's (2009: 184) advice who writes that; "you should try to give some focus to the qualitative methodology you are actually using. For example, if using grounded theory, do not waste time telling the reader about the wonders of ethnomethodology or ethnography".

As far as possible, I shall try to justify the actions taken in every aspect highlighted in the discussion. Before concluding the chapter, I shall also underscore the attempts made to ensure the trustworthiness of this study. Likewise, I shall reflect on how the element of ethics was accounted for in the study. However, as a point of departure I reflect on the research methodology underpinning this study.

4.2. RESEARCH METHODOLOGY

The process of conducting empirical research poses an array of challenges for researchers. In my opinion, one of the challenges is the terminology or conceptual framework employed in planning, executing and reporting on a study. Although my view is that an inquirer should never be bogged down by terminology, I do, however, align myself with the notion that a "conceptual framework helps us to understand our own research work, to better understand research in more meaningful ways" (Le Grange 2001: 72). Hence, I deemed it necessary to briefly reflect on what is entailed by concepts such as paradigm, method, methodology and design since each one of them is used in this study.

The concept of ‘paradigm’ owes its origin to the Greek word ‘*paradeigma*’ which means pattern (Reber and Reber 2001). According to Le Grange (2001) the concept of ‘paradigm’ was introduced by T.S Kuhn (1970) in his seminal work with the title *The Structure of Scientific Revolutions*. The concept of ‘paradigm’ is defined in various, but related, ways by numerous scholars and writers whose focus is on modern research terminology. For example, Guba (1990: 17 cited in Creswell 2007: 19) writes that a paradigm, also known as a worldview, is “a basic set of beliefs that guides action”. A similar view is expressed by Delport, Fouché and Schurink (2011: 298) who project paradigms as “general ways of thinking about how the world works and how we gain knowledge about the world”.

However, the relevance of the concept of ‘paradigm’ in research is well captured by Creswell (2007: 19) who refers to paradigms as “philosophical assumptions, epistemologies, and ontologies, broadly conceived research methodologies, and alternative knowledge claims”. In order to crystallize Creswell’s (2007) notion of paradigms, it is appropriate, in my view, to also add that “paradigms are all-encompassing systems of interrelated practice and thinking that define for researchers the nature of their inquiry along three dimensions: ontology, epistemology and methodology” (Terre Blanche and Durrheim 2006: 6). In this regard paradigms are “frameworks that serve as maps or guides for scientific/research communities” (Le Grange 2001: 72) which help researchers to decide about the problems that need to be investigated as well as guide inquirers through the process of investigation. Paradigms, therefore, assist scholars to determine which approaches are more “appropriate” to address problems and issues identified by the research communities.

In this study, I deemed it appropriate to use the interpretivist qualitative research paradigm. At the same time, I regarded the case study design to be the suitable research method to enable me to answer the research questions raised in this study. However, before I attempt to justify the methodology thus outlined, my view is that it is essential to distinguish between the concepts of ‘method’ and ‘methodology’ since they might be easily confused.

According to Harding (1987: 2 cited in Le Grange 2007: 422) the concept of ‘method’, as used in research tradition, refers to the “technique for gathering empirical evidence (the way of proceeding)”. The techniques used in generating empirical data are flexible and, therefore, undergo constant change as determined by the circumstances in the field in which an inquiry is undertaken. For this reason, Law (2004: 143 cited in Le Grange 2007: 423) argues that

“method is also creative, that is, it re-works, re-bundles and re-crafts realities and creates new versions of the world”.

The concept of ‘method’, as underlined above, does not differ markedly from the concept of ‘design’ as used in the field of qualitative research. Fouché and Schurink (2011: 307) write that the word ‘design’ refers to “all the decisions a researcher makes in planning the study”. Similarly, in line with the assertions by Law (2004: 143 quoted in Le Grange 2007: 423) who maintains that “method is also creative”; Fouché and Schurink (2011: 308) point out that “qualitative researchers almost always develop their own design as they go along, using one or more of the available strategies or tools as an aid or guideline”. Due to the apparent thin line between “method” and “design”, I prefer to use these concepts interchangeably.

Apart from the concept of “method”, Le Grange (2007) also underscores the significance of the concept of “methodology”. Harding (1987: 2 cited in Le Grange 2007: 422), states that methodology “is the theory of knowledge and the interpretative framework guiding a particular project”. The essence of this assertion is that methodology entails the philosophical framework or the theories that guide a research inquiry (Le Grange 2007). Flowing from the preceding points, I would argue that the qualitative research methodology, which is underpinned by an interpretive perspective, guided this inquiry.

In rounding off this subsection, it is essential in my view to underline the fact that, generally, it is important to ventilate the conceptual framework that drives a particular study. However, this task is often fairly difficult to accomplish. In support of this statement, Le Grange (2007: 422) writes that “the distinction between method and methodology may be important for analytical /theoretical purposes. However, in practice method and methodology are closely interwoven”. Hence, it is not surprising that, quite often scholars, researchers and writers sometimes use an assortment of concepts interchangeably (Fouché and Schurink 2011). In the next subsection I reflect on the research paradigm and the research method used in this study.

4.2.1. Research Paradigm: A Qualitative Interpretive Research Approach

In this subsection, I focus on the interpretive qualitative perspective as the methodology that guided this research inquiry. I commence by reflecting on what is entailed by qualitative research. This is followed by the discussion of the concept of interpretivism. This approach is, in my view, essential in that it helps to clarify the appropriateness of the paradigm chosen for this study.

The qualitative research perspective is a dynamic and multifaceted field used for empirical inquiry. This point is patently underlined by Denzin and Lincoln (2000: 1048 cited in Fouché and Schurink 2011: 310 – 312) who write that:

Qualitative research is an inter–disciplinary, trans–disciplinary, and sometimes counter–disciplinary field. It crosscuts the humanities, the social sciences and the physical sciences. Qualitative research is many things at the same time. It is multi–paradigmatic in focus. Its practitioners are sensitive to the value of the multi–methodological approach. They are committed to the naturalistic perspectives and the interpretive understanding of human experiences. At the same time, the field is inherently political and shaped by multi-political and ethical allegiances.

It should be evident from the points made by Denzin and Lincoln (2000: 1048 cited in Fouché and Schurink 2011: 310 – 312), above, that by its very nature qualitative research is pervasive. Hence, there is an array of assumptions and features entailed in the qualitative approach which, in my view, justify its appropriateness for this study. One of the features of qualitative research has to do with ontology or the manner in which reality ought to be conceived. For example, McMillan and Schumacher (1997: 16) write that “qualitative research is based on natural phenomenology”. Phenomenology is a philosophy which is based on the assumption that there is no single reality about an issue or phenomenon but a multiplicity of realities that are constructed in natural settings (ibid). Hence, for an inquirer to be able to respond adequately to any research question then the natural setting should be used as the source of data (Tuckman and Harper 2012). In order to access ‘reality’, the researcher would, therefore, have “to study phenomena as they unfold in the real world situation, without manipulation” (Durrheim 2006: 47).

The fact that an inquirer has to study phenomena and people in their natural setting suggests that the researcher has both an active and vital role to play in the research process. Accordingly, the inquirer in qualitative research plays a major role of acting as an instrument for data generation rather than relying on some instrument such as a questionnaire. This point is made by McMillan and Schumacher (1997: 16) who stress that, “qualitative researchers become immersed in the situation, present or past, and the phenomena being studied”. This “immersion” in the natural setting emanates from an acknowledgement by qualitative researchers that “human actions are strongly influenced in the settings in which they occur” (ibid.). Thus, for the qualitative researcher to obtain a better “understanding (*verstehen*)”

(Fouché and Schurink 2011: 308) of phenomena and issues under investigation, an *emic* or insider's perspective is required. An insider's perspective can only be obtained if the researcher becomes part of the daily lives of the 'actors' who form part of the phenomena or issues under investigation (Tuckman and Harper 2012; Fouché and Schurink 2011; Durrheim 2006). Essentially, an insider's view involves not just observing, interviewing, analysing and interpreting but it also suggests that the inquirer must listen closely for the meaning attached by the respondents to their personal life world.

The active participation of the investigator in the daily lives of those being studied, in my view, serves as an acknowledgement that, epistemologically, the phenomena and issues which are the sources of interest to the inquirer cannot be substituted by anything. They are both data sources and 'knowledge bearers' that should enable the inquirer to respond meaningfully to the research questions. For that reason, the process of striving for an 'insider' perspective in qualitative research has implications for processes such as data generation, the ideal manner of perceiving issues on the part of the researcher concerning those under investigation, and data interpretation, to list just a few aspects. For example, a "phenomenological emphasis" (Tuckman and Harper 2012: 388) is required in respect of data generation. This implies that the investigation of phenomena and issues in the natural settings should be done "through the eyes of those experiencing them, rather than through the eyes of outside observers. While the study's observers record what people say and do, they attempt to do so through the perspective of the participants they observe" (Tuckman and Harper 2012: 388 – 389).

Apart from the points made by (Tuckman and Harper 2012: 388 – 389), above; qualitative researchers use language, both written and spoken, for data generation, analysis and interpretation (Durrheim 2006). In the same vein, their research study design is emergent, flexible and conforms to the dynamics of the process of inquiry (Fouché and Schurink 2011; Durrheim 2006; McMillan and Schumacher 1997). The flexibility of qualitative research is alluded to by Tuckman and Harper (2012: 389) who write that, qualitative research "allows for the adaptation of inquiry, as situations transform and phenomena become more understandable; prevents the researcher from becoming trapped with a predetermined and unresponsive design".

It is also essential to state that qualitative research posits that in order for the inquirer to gain in-depth knowledge about the issues or phenomena under investigation, then a holistic view

is vital. This point is made by (Durrheim 2006: 47) who writes that in qualitative research phenomena have to be studied “as interrelated wholes rather than split up into discreet, predetermined variables”. This approach helps the inquirer to see the whole phenomenon under study as a complex system that is more than the sum of its part (Koul 2009). Consequently, by adopting a holistic perspective towards the process of inquiry, the inquirer would gain a better understanding of the issues and phenomena under investigation.

The last point worth mentioning regarding the nature of qualitative research, before I turn my attention to notion of interpretivism, has to do with subjectivism. In as much as qualitative research recognizes the value of the active role played by the inquirer as an instrument of data generation, analysis and interpretation; the nature of human subjectivity is also recognised and valued within the field of inquiry. Accordingly, McMillan and Schumacher (1997: 16) write that “qualitative research seeks to take subjectivity into account in data analysis and interpretation”. Qualitative research, therefore, appreciates that “absolute objectivity is impossible” (Tuckman and Harper (2012: 389). Be that as it may, qualitative inquirers are encouraged to make an effort not to allow personal agendas or theories to cloud their judgement when it comes to data generation, analysis and interpretation. A non-judgemental attitude is, thus, required from the side of the researcher. It is within this context that McMillan and Schumacher (1997: 17) argue that “qualitative research is marked by ‘disciplined subjectivity’, self-examination, criticism of quality of the data obtained, and problems encountered”. Having provided a brief account on the nature of qualitative research, it is prudent, in my view, to reflect, albeit briefly; on the concept of ‘interpretivism’.

Neuman (2011: 87) writes that, “Interpretive Social Science (ISS) can be traced to German sociologist Max Weber (1864 – 1920)”. Max Weber embraced the significance and need to ‘*verstehen* (understand)’ by learning “the personal reasons or motives that shape a person’s internal feelings and guide decisions to act in a particular way” (ibid.). Hence, an inquirer who subscribes to an interpretive perspective is expected to develop a research methodology that should assist him or her “to reach an interpretive understanding or *verstehen* and explanation that will enable the social researcher to appreciate the subjective meaning of social action” (Fouché and Schurink 2011: 310). In other words, “interpretive inquiry is concerned with understanding daily occurrences as well as the meanings people give to phenomena” (Le Grange 2001: 74). The meanings attached to phenomena and social actions by actors in the real world are not only dependent on settings and human interaction but they are also “multiple, holistic and divergent” (ibid.). It is, therefore, within reason that Creswell

(2007: 24) contends that “interpretive positions provide a pervasive lens or perspective on all aspects of a qualitative research project”.

The “pervasive lens” referred to by Creswell (2007), above, is attainable through a well thought out, careful and meticulous investigation of phenomena and issues identified for investigation purposes by an inquirer. According to Neuman (2011), an interpretive investigator who seeks to gain a meaningful understanding of the phenomena under investigation, investigates the phenomena holistically as if examining a text. Neuman (2011: 88) enunciates this point as follows:

It (**interpretive social science**) emphasizes a detailed reading or examination of a text which could refer to a conversation, written words, or pictures. A researcher conducts “a reading” to discover meaning embedded within text. Each reader brings his or her subjective experience to a text. When studying the text, the researcher/reader tries to absorb or get inside the view point it represents as a whole, and then develop a deep understanding of how its parts are related to the whole. In other words, true meaning is rarely obvious on the surface; one reaches it only through a detailed study of the text, contemplating its many messages, and seeking the connections among its parts” [**my emphasis**].

It should be evident from the assertion by Neuman (2011), above, that interpretive inquiry and qualitative research are interwoven. Hence, a number of points that were raised concerning qualitative research earlier in this subsection emerge once more in this discussion on interpretive inquiry. For instance, the following aspects which were highlighted earlier about the nature of qualitative research are also underscored by Neuman (2011) in respect of interpretive inquiry: the process of studying people and phenomena in their natural setting, the importance of the researcher’s immersion in the situation under investigation, the subjectivity of the inquirer, the need to study phenomena and issues holistically as well as the importance of using a variety of strategies for data generation. For this reason, the assertion that “an interpretive approach...is often called a qualitative method of research” (Neuman 2011: 88) is neither misplaced nor unfounded. Accordingly, I deemed it appropriate to use an interpretive qualitative paradigm in an attempt to respond to the questions raised in chapter one of this study.

Therefore, in this study I opted to use the qualitative interpretive research approach to investigate the extent to which EE is integrated in the Grade R teaching and learning

activities at the selected ECD centres in the North West Province of South Africa. In respect of the research method, I decided on the case study design to guide the research process. As I shall try to elucidate later in this chapter, this decision was based on the view that the nature of this study necessitated the use of the case study design.

The case study design is one of the “five traditions of qualitative inquiry” (Fouché and Schurink 2011: 312) which “represent different disciplines, have detailed procedures, and most importantly, have proved to be popular and frequently used” (ibid.). The other four are narrative research, phenomenology, grounded research and ethnography (Fouché and Schurink 2011; Creswell 2007). In the following subsection I provide a brief discussion on what is entailed in and by the case study design.

4.2.2. Research Method: A Case Study Design

The case study approach has been in use for some time in the field of qualitative research. Accordingly, Le Grange (2001) asserts that the value of case study research within the field of education was first noticed in the late 1960’s and early 1970’s. However, there is little agreement regarding the meaning of the concept of case study (Dube 2012; Le Grange 2001). For example, (Fouché and Schurink 2011: 320) contend that; “in contrast to other methodological frameworks, case study design is more of a choice of what to study than a methodological one”. On the other hand, Berg (2004: 215) asserts that “the case study is not actually a data gathering technique but a methodological approach that incorporates a number of data gathering measures”. My view of what is entailed by a case study is more in line with the one presented by Creswell (2007: 73) who writes that:

Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) overtime, through detailed, in–depth data collection involving multiple sources of information (e.g. observations, interviews, audiovisual material, and documents and reports), and reports a case description and case–bounded themes. For example, several programs (a multi–site study) or a single program (a within–site study) may be selected for study.

The points raised by Creswell (2007), above, are very relevant in the context of this study. Similarly, other writers have also underscored views of pertinent value worth noting in the interest of this study. For example, just like Creswell (2007), Yin (2003: 13 cited in Gray

2009) makes a meaningful contribution concerning the definition of the case study method. As far as Yin (2003: 13 in Gray 2009: 249) is concerned, a case study is “...an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are clearly evident”. Cohen, Manion and Morrison (2007: 254) elaborate on the notion of the “real–life context” of a phenomenon and also underline numerous other points concerning case studies as follows:

Case studies strive to portray ‘what it is like’ to be in a particular situation, to catch the close up reality and ‘thick description’ (Geertz 1973) of participants’ lived experiences of, thoughts about and feelings of or a situation. They involve looking at a case or phenomenon in its real–life context, usually employing many types of data (Robson, 2002: 178). They are descriptive and detailed with a narrow focus, combining subject and object.

One of the most important aspects of the case study method is the need to define the “case” in the case study design. Accordingly, Yin (2006: 112) argues that “to begin understanding the case study method, for each topic you should ask: what is the “case” (unit of analysis), and what related subtopics need to be covered as part of the related case study?” This suggests that the researcher must be certain of what she or he regards as a case or cases in the study. In the same breath, an inquirer who uses the case study method should be able to determine whether there are embedded or nested cases in the case study. Unfortunately, it would appear that the ability to identify a case is “one of the challenges inherent in qualitative study development” (Creswell 2007: 75). However, Bornman, Clarke, Costner and Lee (2006: 123) provide part of the “solution” to this challenge by suggesting that “in educational research, the case as an object of study can be defined in a number of ways – as a person, a program, a group, a movement, an organization, an event, a concept, or a project”.

In my view, this study accommodates all the elements referred to in Creswell’s (2007: 73) definition of a case study as highlighted in preceding paragraphs. At the same time, some of the points underlined by various authors (Yin 2003: 13 in Gray 2009; Cohen, Manion and Morrison 2007; Yin 2006; Bornman *et al.* 2006), also referred to in this discussion, were taken into account in designing this case study. For example, the four ECD centres selected for investigation in this study are in line with Creswell’s (2007: 73) notion of “multiple–bounded systems (cases)”. Similarly, as detailed later in this discussion, this study was conducted, as per Creswell’s (2007) view of a case study; that is, I made an effort to generate

data “overtime” and through the use “multiple sources of information” such as participant observations, semi-structured interviews and document and artefact inspection and analysis.

In respect of the points made by the other authors mentioned in the preceding paragraph, my empirical investigation focused on “a contemporary phenomenon within its real-life context” (Yin 2003: 13 referred to in Gray 2009: 247). This is due to the fact that I had a chance to, for example, observe the research participants in their daily routines which included the processes of learning and teaching in their learning-teaching institutions. Thus, through participant observations and semi-structured interviews, I was able to “catch the close up reality” (Cohen, Manion and Morrison 2007: 254) and I also managed to gain some perspectives “of participants’ lived experiences of, thoughts and about feelings” (ibid.) regarding their daily situations.

Likewise, during the course of my empirical investigation, I noted that, as alluded to by Bornman *et al.* (2006: 123); that “the case as an object of study can be defined in a number of ways”. For that reason, and as pointed out in chapter one of this study, the four ECD centres selected for investigation purposes in this study could be regarded as the main cases. On the other hand, the teachers who participated in the study, the Grade R classes that were studied and the learning site managers (principals) could be viewed as embedded cases. Therefore, the cases utilized for investigation in this study could be classified as multiple-embedded cases (Yin 2006).

Apart from the “multiple-embedded cases” referred to in the preceding paragraph, various authors point to the existence of other case study types in qualitative research. For example, Creswell (2007: 74) writes that “types of cases are distinguished by the size of the bounded case, such as whether the case involves one individual, several individuals, a group, an entire program, or an activity”. On the other hand, Gray (2009: 256 – 258 projects Yin 2003) as one of those authors who distinguish case studies in terms of “the size of the bounded case”. Hence, Gray (2009: 256 – 258) writes that “Yin (2003) proposes four main types of case study design”. These case study designs are: single-holistic case, single-embedded case, multiple-holistic case and, the type chosen for this study, the multiple-embedded case study design.

There are numerous advantages associated with the multiple-embedded case study designs (Gray 2009). These include the fact that the multiple-embedded case designs provide multiple units of analysis and these units make it easier to provide responses to various

research questions. The subunits embedded within the case study can also be analysed. At the same time, a wide range of issues within the study can be explained with ease. The other advantage worth mentioning about the multiple–embedded case study design is that this design provides for the replication of the procedures used in a case study so as to enable the generalization of the findings (Gray 2009; Creswell 2007). However, it is important to underscore the axiomatic caution (Creswell 2007) in respect of generalization in qualitative research. Creswell (2007) writes that, “as general rule, qualitative researchers are reluctant to generalize from one case to another because the contexts of cases differ. To best generalize, however, the inquirer needs to select representative cases for inclusion in the qualitative study”.

Apart from differentiating cases in terms of sizes or units of analysis, various authors (Fouché and Schurink 2011; Gray 2009; Creswell 2007; Bornman *et al.* 2006; Yin 2006; Berg 2004) also distinguish cases “in terms of the intent of the case analysis”(Creswell 2007: 74). “Three variations exist in terms of intent: the single instrumental case study, the collective or multiple–case study, and the intrinsic case study” (ibid.). According to Creswell (2007: 74) “in a single instrumental case study (Stake, 1995), the researcher focuses on an issue or concern and then selects one bounded case to illustrate this issue”. For example, if in this case study I had decided to employ the use of an instrumental case study design, I would have selected a single ECD centre (one bounded case) in order to investigate the integration of EE in Grade R (an issue or concern) in that centre. Fouché and Schurink (2011: 322) state that an instrumental case study is “useful for producing new knowledge, which may inform policy development”. At the same time an instrumental case study “serves the purpose of facilitating the researcher’s gaining of knowledge about the specific social issues” (ibid.). On the other hand, a multiple–case study “is an instrumental case study extended to a number of cases” (Fouché and Schurink 2011: 322). Creswell (2007: 74) illuminates the nature of a collective case study design by writing that:

The issue or concern (**identified in the instrumental case study**) is again selected, but the inquirer selects multiple case studies to illustrate the issue. The researcher might select, for study, several programs from several research sites or multiple programs from within a single site” [**my emphasis**].

In this study, four different Grade R-offering ECD centres (multiple cases) were selected in order to investigate the integration (of the same concern or issue), namely; the integration of EE in the learning and teaching activities in Grade R. This was done in order “to show different perspectives of the issue” (Creswell 2007: 74). In my view, the decision to choose the multiple-case study design for this study is in line with the purpose of collective study designs. Berg (2004: 256) accentuates this purpose by stating that, “the selection of the cases is intended to allow better understanding or perhaps enhance the ability to theorise about a broader context”.

Contrary to both the instrumental and collective study designs, “the purpose (**of the intrinsic case study design**) is not to understand a broad social issue, but merely to describe the case being studied” (Fouché and Schurink 2011: 321) [**my emphasis**]. In the intrinsic case study design “the focus is on the case itself” (Creswell 2007: 74). This design is chosen in instances where a unique or ordinary case is identified and deemed interesting enough to be studied (Berg). In rounding off this discussion, it is essential to highlight a few points that prompted the choice of the case study design in this study.

There are various reasons that persuade inquirers to select the case study method in qualitative research. In chapter one I pointed to the lack of evidence that indicates any attempt to investigate the integration of EE in Grade R. According to Eisenhardt (1989: 548 cited in Rowley 2002: 16), case study designs are “particularly well suited to new research areas or research areas for which existing theory is inadequate”. Likewise, due to the fact that case studies enable the researcher to use various triangulation strategies such as observations, interviews and document examinations to generate detailed and in-depth data (Berg 2004; Yin 2006), case studies are, indeed, invaluable in qualitative research inquiry. Furthermore, the utilization of multiple data generation techniques assists the researcher “to capture various nuances, patterns and more latent elements that other research approaches might overlook” (Berg 2004: 251). In other words, through case study design, the inquirer is able to obtain a holistic perspective on issues and phenomena under investigation.

The other vital characteristic of case study designs is that since the inquirer studies people in their natural settings, firsthand experience is obtained regarding their real world. Yin (2006: 112) contends that this helps the investigator “to illuminate a particular situation” better than a second hand account concerning the setting of research participants. Similarly, (Cohen, Manion and Morrison 2007) argue that case studies also provide for interpretive analysis of

generated data. Additionally, data analysis, in case study designs; accommodates holistic, description and explanation of impressions (Berg 2004) made in respect of phenomena and issues under investigation. The last point of significance worth highlighting, before I reflect on the research design used in this study, is that case studies open avenues for future investigations. This point is underscored by Berg (2004: 258) who writes that; “the scientific benefit of the case study method lies in its ability to open the way for discoveries. It can easily serve as the breeding ground for insights and even hypotheses that may be pursued in subsequent studies”.

4.3. RESEARCH DESIGN

In this subsection I provide a detailed account in respect of the research design of this study. I focus on issues such as how sampling was conducted, the strategies used for data generation and data analysis.

4.3.1. Population, Sampling and Case Selection

There are various considerations which are important in enabling the inquirer who employs the case study design to carry out the process of investigation in qualitative research. One such consideration is sampling. Durrheim (2006: 49) states that “sampling is the selection of research participants from an entire population, and involves decisions about which people, settings, events, behaviours, and/or social processes to observe. Exactly who or what will be sampled in a particular study is influenced by the unit of analysis”.

In view of the fact that in this study the unit of analysis is a “case” (Yin 2006), it is essential to also underscore the points made by Creswell (2007). Creswell (2007: 122) points out that, “for a case study, the researcher needs to select a site or sites to study, such as programs, events, processes, activities, individuals, or several individuals”. Furthermore, Creswell (2007) adds, that the objective of sampling is to access an “appropriate case” (ibid.). The “appropriate case” to which Creswell (2007) is referring is entailed in the assertion that “a hallmark of all good qualitative research is the report of multiple perspectives that range over the entire spectrum of perspectives” (Creswell 2013: 151). Therefore, an “appropriate case” should enable the researcher to provide a report containing “multiple perspectives” concerning investigated phenomena and issues.

In order to provide “multiple perspectives” regarding the extent to which EE is integrated in the Grade R classes of institutions in the selected geographical area of the North West

Province, I had to select ‘diverse’ cases. I did this with a view to accommodate the elusive “representativeness” (Durrheim 2006: 49) of samples. Durrheim (2006: 49) contends that sampling should strive to “be representative of the population about which the research aims to draw conclusions”. Accordingly, it was significant for me, informed by purposive sampling requirements, to use my “special knowledge” (Berg 2004: 36) of the demographics of the North West Province and “think critically about the parameters of the population” (Strydom and Delpont 2011: 392) of the selected area (Maquassie Hills in the Dr Kenneth Kaunda District). Subsequently, I selected the cases that could “best” represent various Grade R classes in the targeted area, and possibly a larger geographical terrain of the North West Province. Therefore, I used the purposive sampling strategy with a greater tilt toward maximum variation.

Purposeful sampling, also called judgemental sampling (Neuman 2011; Berg 2004), is used in qualitative research in order to obtain “insights into particular practices that exist within a specific location, context and time” (Gray 2009: 180). For example, inquirers use purposive sampling in exploratory studies to identify information-rich cases to help them gain insight into a specific issue (McMillan and Schumacher 1997). As Creswell (2007: 125) puts it, “this means that the inquirer selects individuals and sites for study because they can purposefully inform an understanding of the research problem and central phenomenon in the study”. For this reason, prior to the selection of cases, the inquirer embarks on a “clear identification and formulation of pre-selected criteria for the selection of respondents” (Strydom and Delpont 2011: 392) or cases. McMillan and Schumacher (1997: 397) point out that “purposeful sampling requires that information be obtained about variations among the subunits before the sample is chosen”. Hence in purposive sampling, the role played by the investigator is very cardinal. For that reason, Berg (2004: 36) asserts that “researchers use their special knowledge or expertise about some group of subjects” to help them select cases “that contain the most characteristics, representative or typical attributes that serve the purpose of the study best” (Strydom and Delpont 2011: 392).

According to McMillan and Schumacher (1997), there are various sampling strategies that fall within the purposive sampling category. These “types of purposeful sampling include site selection, comprehensive sampling, maximum variation sampling, network sampling, and sampling by case type” (McMillan and Schumacher 1997: 397). In this study, I used the type of sampling strategy called “maximum variation”. Creswell (2007: 126) avers that maximum variation “is a popular approach in qualitative studies”. The use of this sampling strategy is

meant to help the inquirer access a wide range of variations, patterns and perspectives of information on the subject under investigation. Therefore, in applying maximum variation, the inquirer has to decide on the criteria that should be embodied in the various cases before embarking on case selection. At the same time, the investigator has to try and ascertain that within those criteria there are variations that distinguish one case from the other. Maximum variation, therefore, increases the likelihood of the emergence of the findings that yield multiple perspectives on the topic under investigation. Creswell (2007: 126) crystallizes the preceding points as follows:

This approach consists of determining in advance some criteria that differentiate the sites or participants, and then selecting sites or participants that are quite different on the criteria. This approach is often selected because when a researcher maximises differences at the beginning of the study, it increases the likelihood that the findings will reflect differences or different perspectives – an ideal in qualitative research.

In this study, the criteria that would distinguish each case from the other were developed in advance. These criteria took into account the demographics of the North West Province, more importantly, those of the area within which the study was conducted. My intention was to accommodate the following variations, among the ECD centres catering for the Grade R class: a home-based ECD centre located in a predominantly black/African location or township; a school-based ECD centre located in a black/African location or township; an ECD centre that is located on private property; that is, a farm-based ECD centre; and an ECD centre that is based in an urban area.

It is important to point out that at face-value my criteria for selecting the cases were based purely on the aspect of geographical location of ECD centres. On the contrary, this was not the only consideration. I based my decision on my knowledge regarding the distribution of schools in the selected area as well as the trends of learner enrolment. I also took into account the historical factors that inform the distribution of population in South Africa. In the context of South African education, historical factors cannot be divorced from factors such as geographical location, socio-economic and socio-political considerations of various population groups (Booyse, Le Roux, Seroto and Wolhuter 2011). The preceding factors, and many more, have always had a bearing on which schools are attended by which population groups. At the same time, I also took into account the population distribution and behavioural

trends that came into effect due to the advent of democracy in 1994. Hence, I did expect to find some diversity of population groups in certain ECD centres. An elaboration on the settings in chapter five of this study (*refer to 5.3*) reflects on the ‘nature’ of each case in terms of demographics and other relevant factors.

I followed numerous processes, all of which are discussed later in this chapter and at the beginning of the next chapter (*refer to 5.2*), which enabled me to access the cases which had varying criteria. Eventually, the study was conducted in four different sites which met the following criteria: one school-based ECD centre located in a predominantly black/African township which used Setswana language as medium of instruction; one urban-based, multi-racial, formerly ‘whites’ only ECD centre which used Afrikaans as medium of instruction; an urban-based, non-government funded(private) multi-racial ECD centre which used English as medium of instruction, and a farm-based ECD which used Setswana as medium of instruction.

Informed by the characteristics associated with the purposive sampling strategy, I deemed the variations provided by the four ECD centres selected for this study sufficiently diverse to enable me to generate “typical and divergent data” (Strydom and Delpont 2011: 392). At the same time, I believed that these centres would make it possible for me “to make inferences about some larger population” (Berg 2004: 34) of ECD centres catering for Grade R in the selected study area. Likewise, since “there are no rules for sample size in qualitative inquiry” (Strydom and Delpont 2011: 391), I considered the four cases adequate to enable me to respond to the research questions raised in this study. The conclusion that the four cases were adequate was based on numerous factors. For example, since this study was not intended to generalize the findings but to obtain in-depth information on the integration of EE in Grade R, I took Creswell’s (2007) advice in respect of the number of sites that may be selected for case studies into cognisance. Creswell (2007: 126) writes as follows in this respect:

One general guideline in qualitative research is not to study a few sites or individuals but also to collect extensive detail about each site or individual studied. The intent in qualitative research is not to generalize the information (except in some forms of case study research), but to elucidate the particular, the specific.

Furthermore, Creswell (2007) makes yet another valid point which I took into account in deciding about the number of cases selected for this study. Since I also sought to conduct

some cross–case analysis in this study, there was a need not to select ‘too many cases’. Accordingly, the following point by Creswell (2007: 128) was deemed appropriate to consider:

For case study research, I would not include more than 4 or 5 case studies in a single case study. This number should provide ample opportunity to identify themes of the case as well as conduct cross–case theme analysis.

The last two aspects that had an impact on case selection and are, therefore, essential to underscore have to do with the reluctance of some potential participants to participate in the study as well as financial considerations. I shall only deal with the latter point at this stage and reserve the former for two subsequent chapters. Since the cases which conform to the criteria identified for this study were not found in close proximity to one another, it became inevitable for me to travel from one institution to another. Accordingly, I had to take the resources available at my disposal, in respect of travelling, into consideration. This is in line with the assertion by Kelly (2006: 290) who writes that, “decisions about the number of cases are also determined by constraints imposed on the researcher by budgets and deadlines”.

In concluding this subsection it is apt, in my view, to underscore the point made by Strydom and Delpont (2011: 391) who write that “sample size depends on what we want to know, the purpose of the inquiry, what is at stake, what will be useful, what will have credibility and what can be done with the available time and resources”. In the next point of discussion I focus on the data generation strategies and data analysis procedures used in this study.

4.3.2. Data Generation and Analysis

In this section I reflect on the strategies used for data generation. Afterwards, I shall reflect on the procedures I deemed appropriate for data analysis in this study. However, it is my view that it is in the interest of this discussion for me to raise a few points in an attempt to elucidate the motive behind the decision to use the concept of “data generation” which is, rather, contrary to the conventional notion of “data collection”.

I concur with Le Grange’s (2001) and Kunkwenzu’s (2007) view that in a research study data cannot be collected “as if it is out there”(Le Grange 2001: 79) waiting and ready as if it were a parcel to be collected by the researcher. However, as Gough (1999: 264 in Le Grange 2001: 79) writes, data “are always already fashioned by human purpose and action”. Therefore, human beings act out of their own volition, in a particular way, in order to produce or

generate data. Perhaps, it might be appropriate in the interest of this study to elucidate this stand point by referring to the three strategies of inquiry used in this study; namely; participant observation, semi–structured interviews and document analysis.

In respect of participant observation, Strydom (2011: 329) writes that “the mere presence of the researcher (in the research field) will in itself alter the situation, meaning that it is no longer the original and natural set up under observation”. The point made by Strydom (2011), in my view, suggests very clearly that the ‘mere presence’ of the researcher in the field alters the makeup of the field. Likewise, data emanating from the research field would already have been fashioned by human will and influence. Accordingly, such data could be said to have been generated or produced rather than collected.

In respect of semi–structured interviews, data generation is an outcome of an interaction between two people who interact within a dynamic context. The exchange that occurs between the interviewer and the interviewee is neither static nor predictable as suggested by the notion of “data collection”. Hence, I would argue that it would be inappropriate to conceive any data emanating from an interview as collected rather than generated or produced data.

Similarly, the data generated from the inspection and analysis of documents should not be conceived as “collected data”. Such data are a product of an intellectual activity in which a human being wilfully interacts with documents and artefacts in order to produce meaning rather than “collecting” the meaning from the documents and artefacts. For this reason, it is conceivable that two different researchers would scrutinize the same set of documents and/or artefacts and yet come up with different meanings. This is due to the fact that qualitative researchers do not collect data but shape data through their actions and interactions with respondents and the research settings.

Therefore in this study, I used three strategies; namely, participant observations, semi–structured interviews, and document as well as artefact inspection and analysis for data generation. These strategies are portrayed in figure 4.1, below. In the following discussion I reflect on how each of the three strategies was used in this study. Thereafter, I shall discuss how data analysis was carried out in this study.

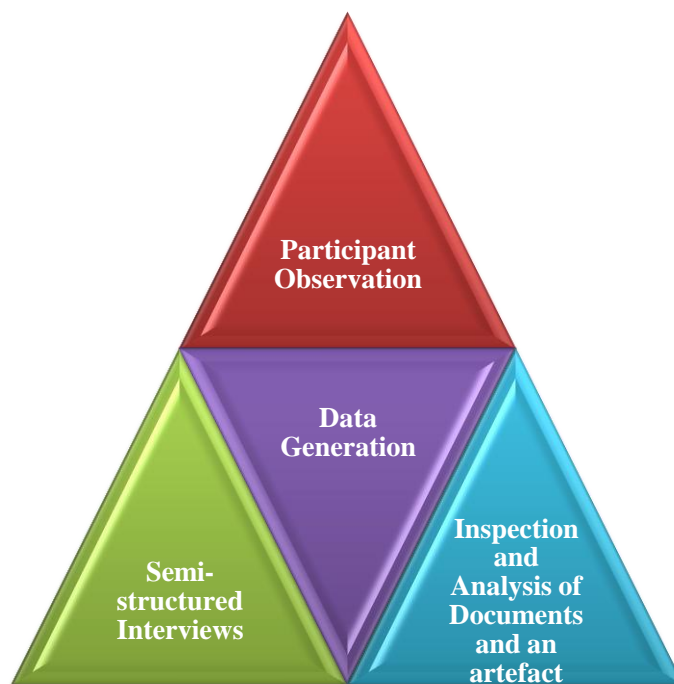


Figure 4.1: Data Generation Strategies

4.3.2.1 Participant Observations

Qualitative research has field residence, which entails the researcher being “present in the field or site for an extensive period” McMillan and Schumacher (1997: 440), as its major requirement. For that reason, I deemed it essential to select participant observation as the main data generation strategy for this study (*refer to Addendum C: 1 for a specimen*). I need to point out from the outset that since literature distinguishes among various forms of observation ranging from “complete participant” to “complete observer” (Merriam 2009), just like Strydom (2011), I use the concept of “participant observation” in this study. This decision is premised on the notion that “all forms of observation depend to a greater or lesser extent on participation” (Strydom 2011). Besides, Kelly (2006: 308) writes that “the interpretive approach emphasizes studying phenomena in a naturalistic way; observation most often takes the form of participant observation”.

In view of the fact that I needed to get first hand and in–depth information to enable me to make an informed judgement as regards the integration of environmental learning in Grade R, it was essential to observe the research participants in their natural settings. Since observation studies enable inquirers “to discern ongoing behaviour as it occurs” (Cohen, Manion and

Morrison 2007: 26), participant observation “is applied as widely as possible in order to collect the richest possible data” (Strydom and Delport 2011: 392). Gray (2009: 185) writes that, by its very nature “observational data is primarily descriptive of setting/people, events and the meanings that participants ascribe to them”. Accordingly, the participant observer is required to “focus on the everyday and natural experiences of the respondents” (Strydom 2011: 330). Furthermore, “the researcher should strive at all times to gain the feelings and impressions, experiences, the circumstances of the real world of participants by living alongside them, and by interpreting and sharing their activities” (ibid.).

The idea of “living alongside” the participants “and sharing their activities” suggests that for the inquirer to get in-depth information it is imperative for her or him to, as Strydom (2011: 329) puts it, “become part of the situation and submerge themselves” in the natural setting of the participant. However, Neuman (2011: 387) cautions against “over involvement” of the investigator in the events, phenomena or with the people under investigation because this would culminate in the “loss of a researcher’s perspective” (ibid.). Therefore, I was also mindful of the importance of gaining rapport by participating as and when I felt it was essential to do so in the activities undertaken by the respondents. On the other hand, I tried not to get overly involved since I did not want to lose sight of the reasons that brought me into the research field.

Another important aspect that the researcher has to take into cognisance relates to the need to decide on the role she or he needs to play as well the approaches to follow in the research field. This implies that “the researcher will have to decide beforehand on the role he or she intends to take in the inquiry, since this decision will affect the entire process of participant observation” (Strydom 2011: 328). The researcher is, therefore, required to have a clear idea of what to do on arrival at the site. For example, the inquirer would have to “identify who or what to observe, when and for how long” (Creswell 2007: 134). However, the preceding assertion by Creswell (2007) does not nullify the fact that qualitative research is flexible and responsive to the circumstances that emerge in the field. Therefore, although the researcher has to have a clear idea of what to do in the field, the inquirer still needs to be aware of the fact that circumstances might necessitate some adjustments to the initial plans concerning the role and approaches to be pursued in the field.

In line with the points raised in the preceding paragraph, I also had some ideas with reference to my role as participant observer prior to visiting each site selected for this study. Since my

investigation focused on the field of education, my role is, somewhat, captured in the points made by Tuckman and Harper (2012: 403) who write that:

The target of observation is the event or phenomenon in action. In qualitative education research, the process often means sitting in classrooms in the most unobtrusive manner possible and watching teachers deliver instructional programs to students. Such an observer does not ask questions as part of this role, because that is interviewing. (Questions can be asked either before or later). An observer just watches. But watching need not totally lack structure. She or he watches for something....”

Tuckman and Harper (2012), above, raise a number of pertinent points in respect of participant observation. For example, they underline the importance of identifying a “target of observation” which they contend should be an “event or phenomenon in action”. At the same time, they propose that the observation should “not lack structure”. I took all of these fundamentals into account in terms of conducting participant observation. However, before I elaborate on these elements and, indeed, numerous other actions entailed in my participant observation; a few other points of significance are worth highlighting.

According to Dube (2012: 126) “there is no prescribed amount of time that should be spent in collecting data through observation nor is the pattern specified. The observation periods may be long or they may be short depending on what suits the researcher”. In addition to the latter point by Dube (2012), sometimes the dynamics of the field, for example, institutional regulations and other forms of gate-keeping may impose some restrictions on the amount of time spent by the researcher in the field. In the same vein, there is a significant point called ‘saturation’ which informs the inquirer when to call it a day and withdraw from the research field. Kelly (2006: 372) writes as follows in respect of saturation:

Saturation refers to the condition of an interpretive account where the account is richly fed by material that has been collected, at least to the point where the researcher can intuitively say: ‘I have thoroughly explored the data and have acquired a satisfactory sense of what is going on’.

The other aspect worth mentioning has to do with the process of note-taking as a data recording activity in participant observation. Gray (2009: 185) writes that “field notes remain one of the mainstays of qualitative data collection through observations”. Accordingly,

Creswell (2007: 134) emphasizes the importance of “designing an observational protocol as a method for recording notes in the field”. In addition, Strydom (2011: 336) suggests that “field notes should ideally contain a comprehensive account of the respondents themselves, the events taking place, the actual discussions, and communications and the observer’s attitudes, perceptions and feelings”. Furthermore, Silverman (2000: 140 – 142 cited in Strydom 2011: 335) advises that as participant observers we should “record what we see as well as what we hear, and expand notes beyond immediate observations”. The last point of note, before I provide an account of my participant observation activities, comes from Gray (2009). According to Gray (2009: 185), one of the shortcomings of field notes is that “accurate, detailed and extensive field notes are difficult to write, especially when the researcher is busy observing in the field”. Hence, “it is important that field notes are written up on the same day as the observation and not after this point” (ibid.). Similarly, Cohen, Manion and Morrison (2007: 260) propose that “typing field notes is vastly preferable to handwriting because it is faster and easier to read”.

In accordance with Tuckman and Harper’s (2012) suggestions, my observations had tangible targets. My observations in each of the four Grade R–offering learning sites were, as per Creswell’s (2007) advice, guided by an observation schedule, I was able to observe identify, note and record instances and ways in which environmental learning was integrated in the learning and teaching activities. In order to be able to write extensively, and also to reflect on my “aside” thoughts and feelings, I had an observation note–pad of about 100 A4 size pages for each of the ECD centres.

In view, of the fact that I subscribe to the notion espoused by the interactional view of teaching practice, the instructional triangle (Delaney 2013; Ball and Forzani 2009; Grossman, Stodolosky and Knapp 2004), which underlines the significance of a reciprocal interaction among the teacher, the learner and the learning content; I deemed all three elements equally valuable in my participant observation. Accordingly, I focused on the role of the teacher, the role of the learner, the nature of the learner–teacher interaction and the use of resources in the incorporation of EE in the learning–teaching situation. Similarly, I was mindful of the three broad approaches to environmental education, “education *about*, *in/through* and *for* the environment” (Le Grange 2002: 83). In chapter one (*refer to 1.7.4*), I provided an extensive discussion of the three approaches to EE, and, evidently these approaches necessitate teaching and learning to take place both inside and outside of the ‘four walls’ of the classroom. For that reason, since learning and teaching *about*, *in/through* and *for* the

environment cannot take place just in the classroom, my observation activities did not confine me to “sitting in classrooms in the most unobtrusive manner” (Tuckman and Harper 2012: 403).

Therefore, my limited participant observation approach necessitated movement outside of the boundaries of the classroom. This was as a consequence of some learning–teaching as well as social activities taking place outside of the classroom. It was, especially, during these movements to and from the classroom that I found myself inevitably participating in certain activities. For example, I had to help in the process of guiding learners on our way to and from the school garden at Learning Site C since the teacher seemed to be overwhelmed by the number of learners; some of them became excited and decided to take their own routes. Similarly, I also spent time watching, just like all the other teachers, the learners in the playground at Sites A, C and D (*refer to 5.3 for further discussion on the sites*).

There are also other instances where I found myself participating in activities such as singing and hand–clapping, especially during the Morning Prayer sessions at Site C. This made me feel comfortable and more accepted by the participants. In my view, I felt that it would be inappropriate to act like a stranger, for that reason I needed to, if you like, get a sense of belonging. Similarly, as a neophyte when it comes to the Grade R set up, I was, at first; not clued up on what amounted to (in)appropriate behaviour. I had to ‘do as the Romans did’. Hence, I observed first hand, that, indeed, as Graziano and Raulin (2000: 131 cited in Strydom 2011: 329) write that, “as participant observer, the researcher becomes part of the situation being observed and even contributes to it”.

Similarly, I also participated, though reluctant at first, in tea–drinking activities with the all–female teaching staff at Site B. I suspect that my reluctance emanated from the fact that I was the only male person in the staffroom that was predominantly “white” and entirely female. Probably I was, more than anything else, subliminally trapped in the fastidious Nguni notion in which a man who spends more time with women is labelled “*induna yabafazi* (a foreman of women)”. However, truth be told, I felt very welcome and I even participated in the “long walk” of about two kilometres to and from the site of their new school building with the entire staff and learners while I was at Site B. Therefore, I can safely state that, indeed, as Strydom (2011: 329) writes, in participant observation “researchers become part of the situation and submerge themselves in order to become part of the group”. It also became evident to me that, certainly, “participant observation depends on the relationship between the

observer, the respondents and the community at large” (Strydom 2011: 33). The latter point was particularly evident at Site B since I was even introduced to the entire school community on my first day of participant observation. My involvement with the institution was not just limited to the Grade R population; as already illustrated, I even participated in some of the school activities, beyond the target population of the study. Nevertheless, I need to emphasise that throughout all my participant observation activities in all the selected sites, I remained alert and vigilant. Hence, I avoided any waning in focus which would culminate in me becoming absorbed in the events.

Throughout the observation processes in each of the four learning sites, I recorded as much as I could. I did not want to take anything for granted. For this reason, I noted everything I saw and heard, especially, the actions I deemed significant in terms of environmental learning. For example, apart from recording everything regarding the interaction between the learners and the teachers, including their respective roles, I also noted the resources used and, in some instance, even the classroom layout. Similarly, I also noted my own attitudes, frustrations, misgivings and impressions regarding the “appropriateness” of certain actions including pedagogical strategies used by the teachers. Therefore, I contend that, as Strydom (2011) recommends, my field notes contained a great deal of what I saw and heard. I made it a point to type the handwritten notes, immediately, on returning from the field.

I had hoped to spend no less than two weeks in each of the learning sites. My view was that I needed ‘enough’ time to get an idea of how EE is integrated in Grade R classes of the selected learning sites. However, subsequent to field dynamics as well as some shortcomings on my part, I spent less than two weeks in each of the learning sites. For example, sometimes institutional programs (e.g. in Sites A and C) necessitated that meetings be held during school hours, this therefore impacted on my observation programme. Similarly, personal reasons (e.g. at Site B) led to the absence of the practitioner from the learning institution, hence my schedule would be compromised. On the other hand, for financial reasons, I had to reconsider my initial decision since two of the four institutions required me to travel more than my budget could allow on a daily basis. Nevertheless, it is my contention that the amount of data generated from each of the four sites provided me with a good picture in respect of the extent to which EE is accommodated in each of the learning sites selected for this study.

The period of time spent in participant observation and the amount of data generated could be summed up as follows. I spent a total of four school days which amounted to seventeen hours

and fifty minutes at Site A. At site B, I managed to spend three school days, a period which translated to thirteen hours and forty-five minutes. On the other hand, I spent five school days which added up to a total of twenty-two hours and thirty minutes at Site C. Finally, at Site D, I observed for a period of four school days. This amounted to eighteen hours and ten minutes. Therefore, I spent a total of 16 school days, which amounted to seventy two hours and fifteen minutes, conducting participant observations in the four learning sites selected for data generation.

Apart from participant observations, I conducted data generation through the use of semi-structured interviews. Therefore, in the following subsection I discuss the processes that unfolded during the use of semi-structured interviews in this study.

4.3.2.2 Semi-structured Interviews

The interview is an invaluable data generation tool used in qualitative research. One of the values of the interview is that it enables the inquirer to produce the data that could not be generated either through participant observations or the other techniques since such data “ostensibly reside within participants” (Greeff 2011: 342). Greeff (2011: 342) defines the interview processes as “attempts to understand the world from the participant’s point of view; to unfold the meaning of people’s experiences”. Similarly, Kelly (2006: 297) notes that the interview strategy fits well within the interpretive perspective because “it gives us an opportunity to get to know people quite intimately, so that we can really understand how they think and feel”. For that reason, an interviewer who seeks to investigate and analyse issues and phenomena from an interpretivist point of view “will therefore try to create an environment of openness and trust within which the interviewee is able to express herself or himself authentically” (ibid.).

There is an array of interview strategies from which inquirers could choose (Greeff 2011; Gray 2009; Creswell 2007). However, for the purposes of this study, I chose the semi-structured interview strategy. Greeff (2011: 348) writes that semi-structured interviews are those interviews that “are organized around areas of particular interest, while still allowing considerable flexibility in scope and depth”. The choice of semi-structure interviews was informed, in the main, by the need to obtain in-depth information and also to allow the respondents to elaborate on their feelings, experiences and attitudes with regard to the issues entailed in the research questions posed in this study. At the same time, in choosing the semi-structured interviews for this study, I took into consideration the advantages associated with

the types of questions aligned to these interviews. In respect of the preceding point, McMillan and Schumacher (1997: 264 – 265) write that “semi structured interviews have no choice from which the respondent selects an answer. Rather, the question is phrased to allow for individual responses. It is an open-ended question but is fairly specific in its intent”. Because of their open-endedness, semi-structured interviews make it possible for both the inquirer and the respondent to talk at length (Kelly 2006). Similarly, semi-structured interviews are useful in terms of generating “large amounts of data quickly and are an especially effective way of obtaining depth in data” (Greeff 2011: 360). It is also significant to point out that, from an interpretivist standpoint, semi-structured interviews make it possible for the investigator to obtain different perspectives from respondents since these types of interviews permit the respondents to articulate their views with ease. This impression is underscored by Tuckman and Harper (2012: 395) who point out that:

Each person’s answers will reflect his or her perception and interests. Because different people experience situations from different perspectives, a reasonably representative picture of the occurrence and absence of a phenomenon may emerge and provide a basis for interpreting it.

In order for semi-structured interviews, or any other types of interviews for that matter, to be effective, some preparations are required from the side of the inquirer. An interview schedule or an interview protocol (Creswell 2007; Kelly 2006) has to be prepared in advance. The interview schedule is a tool that guides the researcher during the one-on-one interview with the respondent. This schedule contains a number of open-ended questions which “are a narrowing down of the central question and sub-questions in the research study” (Creswell 2007: 133).

There are numerous advantages associated with the development of an interview schedule. One of the advantages associated with an interview schedule is that it guides the interviewer about the types of questions that should be posed during an interview process. However, one major importance of the interview protocol is that it permits the researcher to compare and contrast the responses provided by the individual interviewees in respect of the same questions (Greeff 2011). It is significant to emphasize that; the interviewer has the latitude to pose other questions, over and above the ones written on the interview schedule, to the respondent. This decision is, in the main, predicated on preceding responses provided by the respondent.

Apart from preparing an interview guide, inquirers are advised to also organize a voice recording tool (Kelly 2006). Other inquirers might even prefer to use an audio–visual instrument. However, my view is that, as Dube (2012) points out, an audio recorder is obtrusive and might make the respondents feel uncomfortable. Be that as it may, data recording is important because it eases the post interview analyses of data. Accordingly, Creswell (2007: 133) counsels research inquirers to “use adequate recording procedure when conducting one–on–one or focus group interviews”.

In this study, I conducted one–on–one interviews (*refer to Addendum C: 2 for a specimen*) with each of the four Grade R teachers as well as with their four principals. In fact, one of the respondents doubled as a Grade R teacher and a school principal. In essence, seven rather than eight respondents were interviewed. I thought I would be able to interview each teacher during the last day of the observations so as to avoid unending visits to the ECD centres as well as to curb transport expenses. However, due to either institutional dynamics or individual respondents’ commitments I had to conduct the interviews on the dates suitable to each respondent.

It was, comparatively, easier to arrange interviews with all the teachers than with some of the principals. I was able to successfully negotiate a suitable date with each of the teachers, immediately, on completion of the participant observations in each learning site. I interviewed each of the teachers at their institutions at the time agreed upon with them. However, owing to the, apparently, tight schedules of the principals; it was a bit difficult to secure interviews with three of them. We would, for example, agree on a specific date only for me to be turned back at the reception because “the principal had to attend a principals’ meeting called by the department” or the principal would, if present, say that “I am working on some documents that are urgently needed by the area office” and so on. However, I was able to, eventually, conduct the one–on–one interviews with all the principals. I interviewed three of them at their learning–teaching sites while the fourth was interviewed in his house.

In preparation for the interviews, I developed two interview schedules; one interview schedule for the teachers and another one for principals. At the same time, I purchased a digital audio recorder which, due to its quality recording abilities (Dube 2012), became my main interview recording tool. I used a laptop for backup recording purposes. At the same time, I made sure that I had the necessary writing material to enable me to write some notes during the interview processes (Greeff 2011). I felt that it would be easier to use an exam pad

than separate or loose A4 papers. Therefore, I had four examination pads, one for each learning site, for the purposes of note taking while conducting the interviews. This approach proved to be very helpful in the sense that I was able to, where necessary, use some of the responses provided by the teachers to corroborate or challenge, as the case may be, some of the issues raised by the principals.

All the interviews were conducted in quiet venues with no one to disturb the processes. Likewise, each of the seven respondents agreed to be audio-recorded. Of the eight interviews, five were conducted, entirely, in English. On the other hand, two interviews were conducted in Afrikaans. I translated both the teachers' and principals' interview schedules from English to Afrikaans prior to interviewing the Afrikaans speaking respondent. Similarly, as regards one other teacher, I noted during the interview that it was, fairly, difficult for her to comprehend the question which required her to express her understanding of the concept of environmental education when phrased in English. Subsequently, I rephrased the question and posed it in Setswana. This enabled her to respond with the confidence she had earlier displayed in respect of all other questions. The use of Afrikaans and Setswana, as already explained, was in my view, appropriate because I noted that, indeed, "the interviewees felt more comfortable when using the languages of their choice and not necessarily the language of the researcher (Le Grange 2000; Bryman and Bell 2007)" (Hebe 2009: 47).

As already indicated earlier in this discussion, participant observations, semi-structured interviews and document and artefact inspection and analysis were all used for data generation in this study. Therefore, in the next subsection I focus on the latter strategy.

4.3.2.3 Inspection and Analysis of documents and an artefact

In order to gain in-depth understanding with reference to the integration of environmental learning in each of the cases selected for this study, I deemed it essential to also use documents and artefact analysis as the third strategy for data generation. McMillan and Schumacher (1997: 40) write that "the analysis of documents and artefacts is a non-interactive way to obtain information". Similarly, Ritchie and Lewis (2003: 35 quoted in Strydom and Delpont 2011: 377) point out that "document analysis involves the study of existing documents either to understand their substantive content or to illuminate deeper meanings which may be revealed by their style or coverage". Although documents and artefacts were not necessarily meant for inspection and analysis as part of any research inquiry, they are nevertheless, invaluable in terms of shedding light on issues that could not

be clarified by participant observation and semi-structured interviews. At the same time, the strategy of inspecting and analyzing documents and artefacts serves a great purpose in terms of confirming the findings made through the use of observations and interviews.

There are various types and categories of documents and artefacts. Merriam (2002: 13) writes that “these can be written, oral, visual (such as photographs), or cultural artefacts. Public records, personal documents, and physical material are types of documents available to the researcher for analysis”. According to Strydom and Delpont (2011: 377), “documents such as letters to friends or family, diaries, confessions, suicide notes and autobiographies” are some of the personal documents”. Furthermore, they point out that “minutes, agendas, newsletters and internal office memos” (ibid.) are ‘non-personal documents’. On the other hand, McMillan and Schumacher (1997: 40 – 41) state that “artefacts include objects such as plaques, posters, awards, logos and other symbols”.

In respect of document categories, Neuman (2011) distinguishes between primary and secondary sources. The former contain information documented by people who had firsthand experiences of events while the latter contain information about events or settings documented by those people “who did not directly participate in the events or settings” (Neuman 2011: 432). There are numerous advantages associated with the use of documents and artefacts for data generation. For example, Merriam (2002: 13) writes that:

The strength of documents as a data source lies with the fact that they already exist in the situation; they do not intrude upon or alter the setting in ways that the presence of the investigator might. Nor are they dependent upon the whims of human beings whose cooperation is essential for collecting data through interviews and observations.

Apart from the points made by Merriam (2002), above, the inquirer does not necessarily need the respondents to be present during the analysis of documents and artefacts collected as part of the study. Similarly, Kelly (2006: 316) contends that “using documentary sources is in some way easier than doing interviews or participant observation. This is because one does not have to ‘think on one’s feet’ as in an interview, nor engage in the tedious process of transcribing everything”.

Despite the range of advantages associated with the use of documents and artefacts for data generation, as noted above and elsewhere, there are several disadvantages as well. For

example, Kelly (2006: 316) points out that “documentary material is by no means always easy to come by”. I experienced this disadvantage first hand. For instance, two of my respondents were very reluctant to provide me with certain documents, for example, learner activity sheets and lesson plans. However, after some negotiation I managed to secure the documents even though I was not allowed to take them out of the school in order to make copies for my analysis activity. Instead, I used my cellular phone camera to make copies. Another respondent opted not to give me the lesson plans based on the previous lessons, which were not part of my observation, but instead she handed me some copies of the same lessons I had observed.

The other disadvantage worth noting in respect of using documents for data generation, in my view, is that some documents might not project what they purport to project. For example, it is difficult to determine whether a lesson plan really reflects what really transpired in the classroom as entailed in its (lesson plan) contents. Therefore, an inquirer might, based on the contents of a lesson plan, conclude that EE is integrated in a specific Grade R classroom when that is, probably, not even the case. Nevertheless, despite all their disadvantages, documents and artefacts are essential for and do provide useful data in interpretive qualitative research.

In this study, I managed to secure numerous documents and an artefact (*refer to 5.4.10 and Addendum C: 3 for document specimen*) from all four teachers who participated in the study. For example, I managed to obtain documents such as lesson plans, learner activity sheets, lesson pacers, photographs and one artefact (a poster). The documents were, in some instances, photocopied by the generous respondents and handed to me. Some were given to me so that I could make myself some copies elsewhere and return them to their owners. Of course, as indicated earlier, on a number of occasions I had to use my cellular phone camera to take shots of the documents as well as the only artefact that formed part of my inspection and analysis.

I analysed almost all the documents and the artefact away from the learning sites, in the absence of the respondents. In one occasion I was able to, while still on site, pose a few questions regarding some of the documents sourced from one respondent. Otherwise, in all other occasions it was difficult for me to get a chance to ask the respondents about any of their documents since they were very busy. At any rate, there was no profound need for me to sit them down and interview them about the documents or the artefact secured from them.

Data generation is, naturally, accompanied by data analysis in qualitative research. In the next subsection I reflect on how data analysis was handled in this study.

4.3.2.4 Data Analysis

Data analysis is one of the most vital activities undertaken in qualitative inquiry. Hence, there are various ways in which the process of data analysis is conceived and defined in literature (Schurink, Fouché and De Vos 2011; Creswell 2007; Bornman *et al.* 2006; Berg 2004). However, in the interest of this study, I highlight only two definitions since they are both in line with my conceptualisation of what is entailed by the concept of data analysis. Hatch (2002: 148 cited in Leech and Onwuegbuzie 2007: 564) writes that:

Data analysis is a systematic search for meaning. It is a way of processing qualitative data so that what has been learned can be communicated to others. Analysis means organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanations, make interpretations, mount critiques, or generate theories. It often involves synthesis, evaluation, interpretation, categorization, hypothesizing, comparison and pattern finding. It always involves “mindwork”...Researchers always engage their own intellectual capacities to make sense of qualitative data.

It should be evident from the above definition that at the centre of data analysis is the quest for meaning. In order to make sense of data, the qualitative researcher has a mammoth task of engaging an array of intellectual processes from the time data generation commences up to the point where data presentation occurs. This does not only help the investigator to respond meaningfully to the main research question but it also aids in communicating the findings to the reader. The points made by Hatch (2002: 148 quoted in Leech and Onwuegbuzie 2007: 156), above, are further illuminated by Bogdan and Biklens (2007: 159) who assert that:

By data analysis, we mean the process of systematically searching and arranging the interview scripts, field notes and other materials that you accumulate to enable you to come up with findings. Data interpretation refers to developing ideas about your findings and relating them to the literature and to broader concerns and concepts. Analysis involves working with data organizing them, breaking them into manageable units, coding them, synthesizing them and searching for patterns. Interpretation involves explaining and other scholarship,

and action, as well as showing why your findings are important and making them understandable.

Bogdan and Biklens (2007), above, do not only expand on the definition provided earlier in this discussion with regard to data analysis, but they also explain concepts such as “analysis” and “interpretation” to facilitate the comprehension of the process of data analysis. It is also important to point out, though, that in light of the above-mentioned definitions, data analysis is, irrefutably, “the most difficult aspect of any qualitative research project” (Berg 2004: 114). However, since “there is no one way to do interpretive inquiry” (Schurink, Fouché and De Vos 2011: 398), there is also no “specific rigid guide” (Berg 2004: 114) on how data organization and analysis should be carried out.

Accordingly, Berg (2004: 114) writes that “the analysis of data is primarily determined by the nature of the project and various contingencies built in during the design stage”. This view is shared by Cohen, Manion and Morrison (2007: 461) who avow that “there is no one single or correct way to analysis and present qualitative data; how one does it should abide by the issue of fitness for purpose”. Hence, Berg (2004: 114) asserts that “qualitative research cannot be undertaken quickly, neatly or lightly” but instead the inquirer should factor in the elements of flexibility and creativity into the process of data analysis.

Therefore, in the process of conducting data analysis, I took into account the points raised in the preceding paragraphs, above, and also consulted other literature sources. As a tyro when it comes to interpretive qualitative inquiry I had to do what other qualitative researcher do, that is, to “learn by doing data analysis” (Creswell 2007: 150). Similarly, in the quest to find a strategy that would work best for me, I realised that, indeed, “qualitative analysis may be broadly conceptualised as ranging from informal to formal strategies” (Schurink, Fouché and De Vos 2011: 401). For this reason, I accommodated both formal and informal strategies through the process of data analysis. The following is, therefore, a brief reflection on how I tried to make sense of all data generated in this study.

The overarching data analysis strategy employed in this study is tilted towards, and may therefore be conceived as, the constant comparison approach to data analysis. Apart from the fact that constant comparison, as noted by Leech and Onwuegbuzie (2007), is habitually used in qualitative data analysis; I noted that this approach made it possible for me to accommodate, virtually, all data generated through the three data generation strategies utilised in this study. Before I discuss the procedures used in data analysis, my take is that, it

is essential to provide a few points to underscore the significance and nature of constant comparison analysis. Leech and Onwuegbuzie (2007: 565) write as follows in respect of this strategy:

Constant comparison analysis likely is the most commonly used type of analysis for qualitative data. Some authors use the term “coding” when referring to this type of analysis (Miles and Huberman 1994)...when a researcher is interested in utilizing an entire dataset to identify underlying themes presented through the data, a constant comparison analysis can be useful. Constant comparison can be undertaken deductively (e.g. codes are identified prior to analysis and then looked for in the data), inductively (e.g. codes emerge from the data or abductively (i.e. codes emerge iteratively)).

In this study, constant comparison was applied in the analysis of all interview-generated data as well as some of the data generated through, both, participant observations and document and artefact inspection and analysis. I shall elaborate later in this discussion regarding the analysis of the data that could not be analysed through constant comparison. Nevertheless, **figure 4.2** provides a summary of the procedures entailed in data analysis and presentation in this study. Now, let me briefly reflect on how the constant comparison strategy was applied.

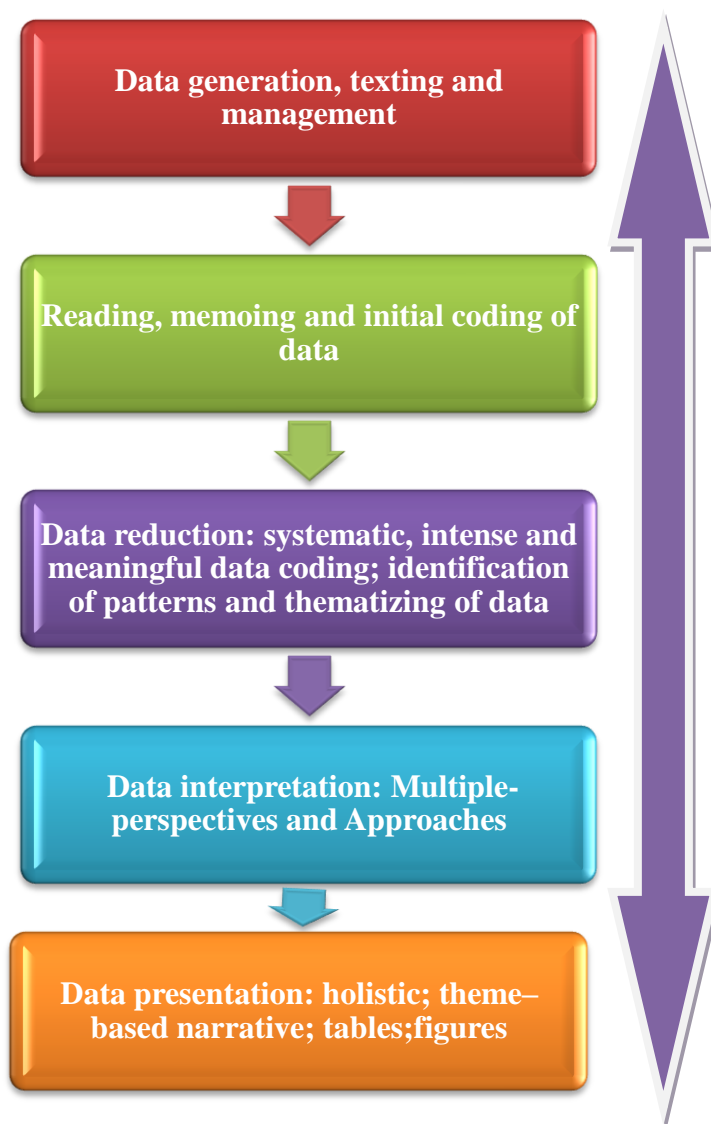


Figure 4.2: Data Analysis and Presentation

The **first stage of data analysis** encompassed the processes of **data generation, texting and management**. As discussed under data generation strategies in preceding subsections, I used participant observation, semi-structured interviews as well as the inspection and analysis of documents and an artefact for data generation. In respect of data texting, I converted all data into texts (words) through various processes, for example, by writing field notes, transcriptions (Berg2004) of audio-recorded interviews and by producing written accounts stemming from inspection and analysis of documents and an artefact. As regards data management, I created Microsoft (MS) word computer files and folders (Schurink, Fouché and De Vos 2011) for each respondent and each learning site. This was necessary so as to ease access to and interrogation of data. I also need to point out that after numerous readings of the interview transcripts; I decided to modify the transcripts for easy reading as well as

ethical considerations (Dube 2012; Oliver, Serovich and Mason 2005). In the interest of this study, it is essential to spell out the motives behind the decision to modify the interview transcripts. In view of the fact that, there seems to be a dearth of literature that deals with the juxtaposition of naturalized transcription against denaturalized transcription of interviews, both aspects being central to the issue at hand, at this point; I shall therefore refer mainly to Oliver, Serovich and Mason (2005).

Oliver, Serovich and Mason (2005: 1273) write that “transcription is practiced in multiple ways, often using naturalism, in which every utterance is captured in as much detail as possible, and/or denaturalism, in which grammar is corrected, interview noise (e.g. stutters, pauses, etc) is removed and non-standard accents (i.e. non-majority) are standardized”. According to Oliver, Serovich and Mason (2005) it is essential for inquirers to decide, in respect of the interview transcripts, whether to naturalize, denaturalize or denaturalize to a limited extent. This decision should, in the main, be informed by the purpose behind the analysis of the transcripts. Similarly, as far as Oliver, Serovich and Mason (2005) are concerned, it is advisable to, for various reasons; maintain a balance between naturalizing and denaturalizing the interview transcripts.

According to Oliver, Serovich and Mason (2005), transcript denaturalization is essential in order to ease the reading and comprehension of the transcripts. Hence, Oliver, Serovich and mason (2005: 1284) write that “as with other forms of noise, non-verbal interactions can add context and explanation or create misunderstandings for analysts”. It should be evident from the preceding point that transcript denaturalization is valuable in dealing with shortcomings such as “noise” in interviews. However, there are instances in which transcript naturalization might be preferable in order to “add context and explanation”. Hence, the importance of striking a balance between transcript naturalization and transcript denaturalization.

Transcript denaturalization might be necessary in instances where the text is surfeit with grammatical errors. This point is underscored by Oliver, Serovich and Mason (2005: 1284) who write that “during the interview, it is likely that both interviewer and participant will make grammatical errors”. These “grammatical errors” can, just like some noise, non verbal interactions and tokens (Oliver, Serovich and Mason 2005); “be distracting and make reading and following conversation threads more difficult” (Oliver, Serovich and Mason 2005: 1284). Accordingly, in instances where grammatical errors are noted, it is in the interest of the

investigator and, indeed, the readers of the transcript to denaturalize the transcript by correcting the grammatical errors.

Apart from the intent to ease reading and comprehension, as already stated, transcript denaturalization is done for ethical reasons. To underline this point, Dube (2012: 1242 – 125) writes that:

The removal of some conversational features is considered to be quite acceptable for ethical reasons because “the publication of incoherent transcripts may involve an unethical stigmatization of specific persons or groups of people” (Kvale and Brinkman 2009: 187).

Just like Dube (2012); Oliver, Serovich and Mason (2005) advocate the need to be respectful and sensitive towards the respondents who are, essentially, key components of the research inquiry. Hence by removing, from the transcripts, those elements that would portray the respondents in a negative light, the researcher would not only be aiding the coherence of data but, more importantly, this action would be demonstrative of sensitivity and respect to the respondents. Oliver, Serovich and Mason (2005: 1285) amplify these points by writing as follows:

Sensitivity to participants and the nature of their involvement with the research is also important to consider...it is important that researchers make decisions in a manner that shows respect for participants’ words and intentions (Tilley 1998). For participants engaging in member checking; naturalized transcription could be seen as disrespectful if the participant would have written the words differently or perceived the grammar more accurately than portrayed in naturalized text.

Therefore, after numerous readings of the interview transcripts, and with due consideration to the necessity to maintain the essence of the transcript contents; I denaturalized the transcripts in areas where I realised that there was a need to do so. In conducting transcript denaturalization, I applied my mind carefully and decided that certain “idiosyncratic elements of speech (e.g. stutters, pauses, non-verbals, involuntary verbalisation” (Oliver, Serovich and Mason 2005: 1273) needed to be removed. However, I was mindful of the fact that, as stated earlier in this discussion, other forms of noise and nonverbal interaction can add meaning to context (Oliver, Serovich and Mason 2005). Therefore, I removed all the unnecessary noises and verbal interactions such as “verbaltics, like ‘er’ and ‘um’, the repetitions for example

‘what I mean....I mean...’” (Arksey and Knight 1999: 146 cited in Dube 2012: 124) and retained those I felt added more meaning to the data. Similarly, since I was more interested in capturing “the telos (essence) of an account” (Schurink, Fouché and De Vos 2011: 114) by each interviewee, rather than the “intricacies of spoken language” (Oliver, Serovich and Mason 2005: 1275), I re-ordered some of the transcript statements and corrected the grammatical errors.

The **second stage of data analysis** used in this study consisted of **reading, memoing and initial coding of data** (Schurink Fouché and De Vos 2011; Bogdan and Biklens 2007; Cohen, Manion and Morrison 2007; Berg 2004). Cohen, Manion and Morrison (2007: 183 – 184) point out that “typically, in qualitative research data analysis commences during the data collection process”. Hence, in this study the reading, memoing and initial coding of data started during the process of data generation. For example, in the course of participant observation, I did not just record all the things I saw and heard in the field but I also factored in my own impressions in respect of the observations. Likewise, I used different pen colours to highlight anything I considered significant in respect of answering the main research question raised in this study. For example, I noted occurrences and approaches in which environmental learning was infused in the teaching and learning processes.

In the same breath, I made some notes concerning the Learning and Teaching Support Material (LTSM) used to facilitate teaching and learning processes and I also reflected on how, in my view, the LTSM assisted the integration of EE. I also glanced at other resources available in class such as pictures, wall-charts, flipcharts, etcetera and pondered on their possible use in the teaching and learning activities; especially, in respect of infusing environmental learning. More importantly, I wrote reflection notes, religiously, at the end of each observation detailing how, as per my observation, the teacher infused EE in her pedagogical practice. This reflection activity proved beneficial since it was also a key element in the commencement of data analysis. The significance of commencing data analysis and interpretation in the field is encouraged in literature. For example, with regard to recording field notes, Bogdan and Biklens (2007: 163) write that “...record important insights that come during data collection before you lose them...where something occurs that reminds you of incidents in other settings, record these mental connections”. The preceding points by Bogdan and Biklens (2007) are, indeed, appropriate and applicable to my observations. For example, I recall, as shall be explicated in the next chapter, comparing and

contrasting salient distinctions in pedagogical practices applied in two different learning sites. Such notes, later, proved very useful when comprehensive data analysis was conducted.

The note writing activity called memoing is also recommended in the analysis of interview transcriptions and in respect of documents used for data generation. The significance of memoing is, for example, underscored by Schurink, Fouché and De Vos (2011: 409) who assert that “writing memos in the margins of field notes or transcripts under photographs helps this initial process of exploring a database. These memos are short phrases, ideas or key concepts that researchers write to themselves about the coding process called ‘analytical memos’”. These memos should reflect “the interesting events and processes, statements and proceedings related to both data collection and data analysis” (ibid.). Additionally, Schurink, Fouché and De Vos (2011) recommend that qualitative inquirers should write memos throughout the research process so as to capture the various actions that occur in the research field. Hence, as I have already stated, memoing was part of data analysis in this study.

The **third stage of data analysis** used in this study is referred to as **data reduction** and it includes analytical activities such as **systematic, intense and meaningful data coding; identification of patterns and thematizing of data** (Schurink, Fouché and De Vos 2011; Creswell 2007; Berg 2004). This phase of data analysis occurs, “away from the field after data gathering” (Schurink, Fouché and De Vos 2011: 405). In an effort to capture this stage of data analysis, Leech and Onwuegbuzie (2007: 565) write that:

To perform a constant comparison analysis, the researcher first reads through the entire set of data (this could be a subset of the data). After doing so, the researcher chunks the data into smaller meaningful parts. Then the researcher labels each chunk with a descriptive title or a “code”. The researcher takes pains to compare each new chunk with previous codes, so similar chunks will be labelled with the same code. After all the data have been coded, the codes are grouped by similarity, and a theme is identified and documented based on each grouping.

In this study, I followed the process described by Leech and Onwuegbuzie (2007), above, in respect of all data generated through interviews as well as part of data generated through participant observation; and the inspection and analysis of documents and artefact, respectively. In order to focus the data reduction process, I referred to the main research question and the research sub-questions from time to time. The decision to use the research

questions to guide the data reduction procedure was informed by Cohen, Manion and Morrison (2007: 468) who write that:

A fourth method of organising the analysis is by research question. This is a very useful way of organizing data as it draws together all the relevant data for the exact issue of concern to the researcher, and preserves the coherence of the material....In this approach all relevant data from various streams (interview, observations, questionnaires, etc) are collated to provide a collective answer to a research question.

This approach to data analysis is also recommended by Yin (2006), particularly, when it comes to the analysis of data generated in case studies. Accordingly, I also took Yin's (2006: 121) advice that:

You might start with questions (e.g. the questions in your case study protocol) rather than with the data. Start with a small question first; then identify your evidence that addresses the question. Draw a tentative conclusion based on the weight of the evidence, also asking how you would display the evidence so that your readers can check your assessment. Continue to a larger question and repeat the procedure. Keep going until you think you have addressed your research question(s).

I took heed of the advice and recommendations made by the above-mentioned authors (Leech and Onwuegbuzie 2007; Cohen, Manion and Morrison 2007; Yin 2006) in the process of data reduction. The procedure was painstaking and it involved a lot of toing and froing among the research questions and data sources. Similarly, I also undertook a refinement of codes and themes on numerous occasions as data reduction proceeded until I was satisfied with the outcome.

In a nutshell, I commenced by designing a table with six columns in the computer using MS word (*refer to Addendum C: 4*). I inserted the following tentative headings in the columns, respectively: analysis element, apparent meaning, underlying meaning, research question(s), data source, and respondent. Subsequently, I read and re-read the data case-by-case; commencing with interview data in each instance. The reading of data was always preceded by the thorough reading of the research questions as well as the corresponding question(s) on the interview schedules designed for the two categories of respondents, namely; the teachers

and principals. For example, I would read the questions and then the responses provided by the teachers to the question. As I was reading the responses, I would also highlight those parts of the responses I perceived to be relevant in terms of answering the research questions, as per the interview schedule. I would then copy and paste the highlighted responses and complete the relevant columns in the table so as not to lose the sources of the responses. I followed this procedure with regard to both categories of respondents until I covered all the interview-generated data.

In respect of data generated through participant observation, I worked on a case-by-case basis. I read and re-read through the entire typed data. As I was reading, I had the research questions in hand so as to be able to highlight; copy and paste the data that seemed to answer a particular research question. Similarly, as I did with interview data, I completed the relevant columns so as to keep track of the data, the sources and research questions answered by the data. I followed the same procedure with regard to data generated through the inspection and analysis of documents and the artefact. However, I need to reiterate that some of the data contained in both the participant observation reports as well data generated through document and artefact inspection and analysis could not be analysed in the same way as the interview data. Hence, a brief reflection on the analysis of that data is appropriate at this point.

As with the semi-structured interviews, I used participant observations and document inspection and analysis for the purposes of generating data that would, in the main, depict the extent to which environmental learning was factored into the teaching and learning activities in each of the four sites. In order to do this, I had to identify from generated data any form of evidence which constituted environmental education. Hence, I had to, as it were; sift from the data and separate chaff from the wheat, in order to identify the aspects that could be regarded as environmental education. After carefully considering various data analysis strategies, I concluded that domain analysis would be best suited for this purpose.

According to Neuman (2011: 470) “domain analysis is an innovative and comprehensive approach for analyzing qualitative data”. This data analysis technique “utilizes semantic relationships to help uncover domains. Domains are created from (a) cover terms (concepts; Y), (b) included terms (referents; X); and (c) a semantic relationship between the cover term (Y) and the included term (X)” (Leech and Onwuegbuzie 2007: 570). Neuman (2011) distinguishes among three types of domains, namely; folk domains, mixed domains and analytical domains. In view of the fact that only analytical domains are relevant to this study,

it is appropriate, in my view; to provide the definition of this concept. Neuman (2011: 471) writes that:

Analytical domains contain terms from the researcher and social theory. They are most helpful when the meanings in a setting are tacit, implicit or unrecognized by participants. The researcher infers meaningful categories and identifies patterns from observations and artefacts, and then assigns terms to them.

Additionally, Neuman (2011: 471) provides an explanation on how domains are constituted by stating that, “domains are constructed from data notes. You read your notes, look for common semantic relationships in order to find them. You proceed to identify a list of cover terms”.

In this study, I read and looked for actions and concepts that contained what I regarded as examples of environmental issues from both the participant observation and document inspection and analysis notes, respectively. I read through the notes, carefully, chunked and highlighted all concepts (phrases, sentences, and so forth) that contained elements of environmental issues. I relied on my personal experience and literature to assist me in identifying environmental issues. I then read and re-read the highlighted chunks while deciding on appropriate cover terms and semantic relationships. Ultimately, I came up with an array of what I believe to be meaningful categories or domains. For example, in a lesson plan where a respondent indicated that she would teach the learners about the wrongfulness of scattering papers in the classroom, I would highlight such as statement of intent, and subsequently, use it for domain analysis. Viewed from definition of domain analysis provided by Leech and Onwuegbuzie (2007), in preceding paragraphs, **the scattering of papers** would be analysed as follows:

- (a) The **cover term** (Y) would be “*pollution*”,
- (b) The **included term** (X) would be “*scattering of papers*, and
- (c) The **semantic relationship** between the **included term** (X) and the **cover term** (Y) would be “*an example of*”. Hence, the *scattering of papers is an example of pollution* is the ‘outcome’ of the domain analysis illustrated in this example.

In order to be able to, somewhat, ‘ease’ the process of domain analysis, I designed a table (*refer to addendum C: 5*) with the overarching heading “Domain Analysis”. The table had four columns in which the following headings were inserted: included term/statement, data

source, semantic relationships and Environmental Education theme (cover term). I worked on a case-by-case basis through the process of domain analysis. I inserted all the ‘chunks’ deemed relevant for analysis into the appropriate column. These ‘chunks’ had, ultimately, been reduced to words, phrases or single sentences in order to form the “included terms/statements”. Immediately on inserting a ‘chunk’ or an “included term/statement” into the appropriate column, I would complete all the other columns, namely; “data source, “semantic relationship” and “Environmental Education (cover theme)” columns, respectively. My intention was to ascertain that the ‘origin’ of each include term/statement remained traceable.

Before I round off this discussion on data reduction, it is in the interest of this study for me to briefly reflect on the notes that emanated from the inspection and analysis of the documents and the artefact sourced for data generation. In other words, my focus is turned to how document and artefact inspection and analysis were carried out.

According to Strydom and Delpont (2011), there are various ways in which documents are analysed, and the decision on which to utilise is predicated on the goal of document analysis. However, Mogalakwe (2006: 227) argues that “the ultimate purpose of examining documents is to arrive at an understanding of the meaning and significance of what the document contains”. Mogalakwe (2006) further amplifies the importance of striving for an interpretive understanding of the document beyond the face-value meaning contained in the document. On the other hand, McMillan and Schumacher (1997) provide a number of pointers on how document analysis should be carried out. For example, they suggest that document analysis should be focused on the “history of its use and owners” (McMillan and Schumacher 1997: 457 – 458). In addition, an effort has to be made to answer the questions about the user(s) of the document, the places in which it is used as well how it is used (ibid.). Similarly, an attempt must be made “to identify the meanings of the document” (McMillan and Schumacher 1997: 458).

Therefore, in this study, my approach to document inspection and analysis took all the preceding points into account. But, more importantly, I used the following techniques outlined by Jupp (2006: 80 cited in Strydom and Delpont 2011: 381), especially, to help me assign meaning to the scrutinized documents:

- Textual analysis – this technique is usually thought of as being part of the qualitative and interpretivist tradition. Here, the emphasis is on interpreting the meaning the document might have.
- Semiology – the study of words and images in an attempt uncover the complex meaning contained in them.
- Linguistic analysis – exploring the use and meaning of phrases in a document.

At the end of the process of data reduction two **overarching themes** (*refer to Addendum C: 6 for themes emerging from data analysis*) emerged, namely:

- Factors enabling the integration of Environmental Education, and
- Factors hindering the infusion of Environmental Education.

Similarly, nine **primary themes** were generated through coding during the data reduction process. These themes are:

- Accessibility of Grade R
- Collegiality and collaboration among the teachers
- Institutional power relations and support for Grade R teachers
- The role of education officials
- Pedagogical Practices of Grade R Teachers
- Enabling curriculum frameworks
- Infusion of EE: Evidence generated from the study
- Funding, LTSM and other resources
- Definition of EE: Participants' Perspectives

I need to indicate that, as illustrated in the next chapter, the nine themes do not fall, unvaryingly, under the two overarching themes. This is due to the fact that each of the Learning Sites selected for investigation in this study is unique in its own way.

The **fourth stage of data analysis** considered important in this study is **data interpretation** (Berg 2004; Bogdan and Biklens 2007; Schurink, Fouché and De Vos 2011). According to Schurink, Fouché and De Vos (2011: 416) “interpretation involves making sense of the data, the ‘lessons learned’. Several forms exist such as interpretation based on hunches, insights and intuition; interpretation within social science construct or idea; or a combination of personal views and social science construct or idea”. Creswell (2007) asserts that

interpretation in case study research uses either direct interpretation or naturalistic generalization. In this study, as illustrated in the discussion on data reduction, data interpretation became noticeable when the ‘underlying meaning’ was assigned to each of the ‘analysis elements’ in the research data. Similarly, as illustrated in the presentation and discussion of the findings in the next chapter, data interpretation in this study accommodates an array of perspectives including but not limited to; hunches, intuition and insight, direct interpretation and scholarly views relevant to social science ideation.

In rounding off this discussion on data analysis, it is significant to point out that Creswell (2007) and Schurink, Fouché and De Vos (2011) underscore the importance of reflecting on **data presentation** in research. In other words, the researcher needs to consider, carefully, how data should be communicated to the reader since “writing about qualitative data cannot be separated from the analytical process” (Schurink, Fouché and De Vos 2011: 419). In this study, I use, mainly, a **holistic, theme-based narrative** presentation of qualitative data. Similarly, where appropriate and essential, I present **tables** and **figures**. In the next section, I discuss the procedures followed in an attempt to assure the quality of this study.

4.4. TRUSTWORTHINESS OF THE FINDINGS

Very often, inquirers undertake research activities with intent to make valuable contribution to the scholarly realm. Krefting (1991: 214) writes that “the work of any research endeavour, regardless of the approach is evaluated by peers, grant reviewers, and readers”. Qualitative researchers, therefore, have a responsibility to pay particular attention to rigour so as “to ensure the quality of the findings” (Krefting 1991: 214). The significance of rigour is amplified by Morse, Barrett, Mayan, Olson and Spiers (2002: 14) who contend that “without rigour, research is worthless, becomes fiction, and loses its utility. Hence, a great deal of attention is applied to reliability and validity in all research method”. It should be evident from the preceding assertion that reliability and validity are the cornerstones of rigour. However, let me hasten to point out that in the scholarly world, the concepts of reliability and validity have since been deemed more appropriate for quantitative research terminology rather than qualitative research¹⁶. For this reason, I shall; henceforth, cease to refer to these concepts in this discussion. However, in the interest of this discussion, a few words on their

¹⁶Scholars such as Lather (1986, 2014) have reconceptualised validity for qualitative research. Lather, P. 1986. Issues of Validity in Openly Ideological Research: Between a Rock and a Soft Place, *Interchange*, 17(4): 63 – 84. Lather, P. 2014. Fertile Obsession: Validity after Poststructuralism. In: Gitlin, A. (Ed.). *Power and Method: Political Activism and Educational Research*. New York: Routledge.

replacement in qualitative inquiry are appropriate. Morse *et al.* (2002: 14) clarify the emergence of conceptual replacements of reliability and validity in qualitative research as follows:

In seminal work in the 1980s, Guba and Lincoln substituted reliability and validity with the parallel concept of “trustworthiness”, containing four aspects: credibility, transferability, dependability and confirmability. Within these were specific methodological strategies for demonstrating qualitative rigour, such as the audit trail, member checks when coding, categorizing, or confirming results with participants, negative case analysis, structural corroboration, and referential material adequacy.

In an attempt to underscore their applicability to qualitative research, numerous authors (Tuckman and Harper 2012; Daymon and Holloway 2011; Hussein 2009; Bornman *et al.* 2006; Shenton 2004; Anfara, Brown and Mangione 2002; Krefting 1991) provide insightful discussions on the four aspects of trustworthiness conceived by Guba and Lincoln’s seminal work of the 1980s. Similarly, in addition to the “methodological strategies for demonstrating qualitative rigour” highlighted by Morse *et al.* (2002), above, literature provides a variety of examples that should assist inquirers in their quest to inject quality into their studies. Accordingly, it is essential in the interest of this discussion to reflect on these elements of trustworthiness and, more importantly, to indicate how they were addressed in this study.

4.4.1. Credibility

In preceding sections of this chapter, I argued that qualitative inquirers study actions and phenomena in their natural settings. This implies, therefore, that qualitative research findings should, as far as possible, depict the life world of the respondents. Such a depiction would render the study credible. Therefore, viewed from this angle, credibility refers to an accurate representation, descriptive or interpretive, of the respondents’ life world to an extent that the people who share that life world would, if they were to interact with the findings of the study, find such a representation plausible (Daymon and Holloway 2011; Krefting 1991).

In this study, I used strategies such as triangulation (also *refer to Addenda C: 7 and C: 8 for triangulation tables*), peer debriefing; member checking (Daymon and Holloway; Anfara, Brown and Mangione 2002; Krefting 1991) and, to an extent, engagement with the setting (Daymon and Holloway 2011; Lietz, Langer and Furman 2006; Oktay 2002) in an attempt to

enhance the credibility of the findings. There are various ways in which triangulation is defined. However, for the purposes of this study, the following definition by Creswell (2002: 280 cited in Anfara, Brown and Mangione 2002: 33) should suffice:

Triangulation is the process of corroborating evidence from different individuals, types of data or methods of data collection...This ensures that the study will be accurate because the information is not drawn from a single source, individual or process of data collection. In this way, it encourages the researcher to develop a report that is both accurate and credible.

It should be evident from the points mentioned by Creswell (2002: 280 in Anfara, Brown and Mangione 2002: 33), above, that various types of triangulation exist. Daymon and Holloway (2011: 92) distinguish among the following types of triangulation: data triangulation, investigator triangulation and theoretical triangulation. Data triangulation is the type of triangulation in which various sources of data are used, for example, the generation of data from different groups, settings or at different times. On the other hand, investigator triangulation refers to the involvement and participation of more than one researcher in a given study. While, theoretical triangulation refers to the type of triangulation in which various theoretical groundings are used for the interpretation of data. The fourth type and the “most common” (Krefting 1991: 219) type of triangulation is methodological triangulation.

In methodological triangulation, more than one data generation strategy is used in the same study. For example, observations, interviews and document analysis may be used in one research inquiry. Accordingly, and as pointed out earlier in this chapter, I used data triangulation as well as methodological triangulation in this inquiry. In respect of the former type of triangulation, I selected four different cases which provided variety in terms of respondents and settings. Whilst, concerning the latter type I used three data generation strategies, namely; participant observations; semi-structured interviews and document and artefact inspection and analysis.

Peer debriefing is another strategy used with a view to enhance credibility in qualitative research. According to Shenton (2004), peer debriefing involves activities in which the researcher allows peers, colleagues or academics to scrutinize his or her research project. Lietz, Langer and Furman (2006: 451) suggest that the people who engage the qualitative researcher in scrutinizing his or her project should “have experience with the topic, population or methods being used”. Peer debriefing has an array of advantages. For example,

Daymon and Holloway (2011) state that peer debriefing helps the researcher to become aware of personal bias and inappropriate subjectivity. At the same time, peers might also be able to provide alternative explanations to those of the inquirer in respect of the findings, and that they might also be able to alert the investigator to interpretations that are not substantiated by data. In this project, the study supervisors fulfilled the role of scrutinizing the processes and strategies employed in conducting the process of inquiry. And, they also engaged me on how they believed aspects such as data generation, data analysis and interpretation as well the presentation of the findings should be handled. Similarly, a study partner who is in pursuance of her postgraduate research degree continuously engaged me on my handling of various aspects of the project, particularly, data generation and analysis. She is also a subject expert when it comes to early childhood education matters.

Member checking is yet another strategy deemed valuable in the process of promoting credibility in qualitative research. It refers to the process in which the researcher makes an effort to establish his or her understanding and accuracy of data by consulting with the people under investigation (Daymon and Holloway 2011; Shenton 2004). There are various purposes served by member checking. For example, the researcher seeks to determine whether the life world of the participants is represented “in a way that is credible to them” (Daymon and Holloway 2011: 89). Member checking also serves to correct the errors that might have been made by the respondents, to assess the accuracy of data interpretation and may also enable the inquirer to generate more data (Daymon and Holloway 2011).

There are various ways of conducting member checking (Daymon and Holloway 2011). However, in this study I used Creswell and Miller’s (2000: 127) suggestion that “researchers may have participants view the raw data (e.g. transcriptions or observational notes) and comment on their accuracy”. Accordingly, I asked individual respondents “to read the transcripts of dialogues in which they have participated” (Shenton 2004: 68) and comment in “order to confirm or challenge the accuracy of the work” (Lietz, Langer and Furman 2006: 453) done in recording and transcribing the interviews. The only two respondents who commented on their transcripts were satisfied with the work done on the content. Unfortunately, three respondents were always ‘too busy’ with their school work to go through the transcripts while the other two respondents who had already gone on retirement were untraceable.

As mentioned in preceding paragraphs, in an effort to make the study credible, and although to a limited extent, I also used the approach called ‘prolonged engagement’ in the field. However, it is imperative to point out that since “there is no clear standard for the meaning” (Oktay 2002: 782) attached to the notion of ‘prolonged engagement’ in the field, “in practice, prolonged engagement in the field has no set duration” (Creswell and Miller 2000: 128). As Krefting (1991: 218) asserts; this can be ascribed to the fact that “there are no rules regulating the length of time one should be involved in data collection”. Nevertheless, according to Daymon and Holloway (2011: 88) “participant observation in particular needs long immersion in the research setting, ‘prolonged engagement’ and ‘persistent observation’ means that you are exposed over a long period to the culture and setting in which the research takes place”.

The rule of thumb, it would appear, for ‘prolonged engagement’ is that “the researcher must be involved in data gathering and analysis long enough to get past the superficial impressions, to be able to test out his or her hypotheses, and revise them and test new hypotheses” (Oktay 2002: 782). However, for some authors (Daymon and Holloway 2011; Polit and Beck 2008; Lietz, Langer and Furman 2006; Krefting 1991) ‘prolonged engagement’ in the field would be said to have occurred if the inquirer has spent ‘enough’ time to establish rapport that is strong enough with the respondents for them to be able to open up and “volunteer different and often more sensitive information” (Krefting 1991: 218). The other measure of ‘prolonged engagement’ is in the ability of the inquirer to develop a good understanding of the field setting so as to be able “to present a convincing account of participants’ perspectives” (Daymon and Holloway 2011: 14).

In respect of this study, I would argue that data saturation, at least in respect of “important categories”¹⁷ (Polit and Beck 2008: 542) was for me the signal that there was ‘prolonged engagement’ in the field. At the same time, I was convinced, through formal and informal interaction; that some level of trusts existed between the respondents and me. Hence, I assert that, indeed, the kind of ‘prolonged engagement’ I had with the field was, to some extent, able to offset both the possibility of the withholding of information by the respondents as well as the presentation of deceptive details (Rubin and Babbie 2010).

¹⁷In this case study, the “important categories” would mean that as the investigator I was satisfied that I was able to note whether EE was integrated in the learning–teaching activities in the ECD centres selected for this study.

In concluding this discussion on credibility, it is also important to point out that ‘prolonged engagement’ has its shortcomings (Rubin and Babbie 2010; Krefting 1991). Due to these shortcomings, it is in the interest of the researcher to avoid, for lack of a better word, over-immersion in the field. Therefore, it was necessary for me to avoid the possibility of losing my identity which could also have culminated in diminished objectivity as a result of ‘over-immersion’ in the field. Rubin and Babbie (2010: 232) caution qualitative researchers about the shortcomings of prolonged engagement by writing that; “prolonged engagement can also have a drawback. A lengthy engagement can lead to bias if the researchers over-identify with the respondent and lose their objectivity, analytical stance, and their own sense of identity”.

Transferability is another strategy that is deemed significant in enhancing trustworthiness in qualitative research. For that reason, the next point of this discussion focuses on the concept of transferability.

4.4.2. Transferability

Transferability refers to “the extent to which one study can be applied to other situations” (Shenton 2004: 69). The importance of transferability, particularly, in studies where little or no research exists, cannot be overemphasised. This is in view of the fact that “the specific knowledge gained from the research findings” (Daymon and Holloway 2011: 85) might be applicable, and therefore useful, to other similar settings. Accordingly, Shenton (2004: 69 – 70) asserts that “it is the responsibility of the investigator to ensure that sufficient contextual information about the fieldwork sites is provided to enable the reader to make such a transfer”. There are various ways in which transferability could be accomplished. However, in this study I used ‘thick description’ (Daymon and Holloway 2011; Shenton 2004; Krefting 1991) and purposive sampling (Anfara, Brown and Mangione 2002) to enable transferability.

As highlighted in the section on data generation, I used purposive sampling in the selection of cases in this study. This was necessary in order to gain in-depth understanding (Neuman 2011) in relation to the extent to which different ‘types’ of ECD centres integrate EE in Grade R in the selected geographical area of investigation. The use of purposive sampling in this study increases the likelihood that the findings of this study could be transferable to other ECD centres that share certain similarities with those selected in this research inquiry.

Similarly, in chapters one and five, I make an attempt to provide “a detailed (thick description) of the research situation and context” (Smaling 1992: 318 cited in Kelly 2006:

381). The purpose of this action is to enhance the transferability of the findings. The use of ‘thick description’ is in line with the belief that in order to enable those people who would like to transfer the findings from one context to another, it is incumbent upon the original researcher to present sufficient data to allow comparison between different contexts (Krefting 1991). Thus, Daymon and Holloway (2011: 85) accentuate the importance of ‘thick description’ by writing that:

One way to do this (**i.e. enhance transferability**) is to provide a narration that is sufficiently descriptive (thick description) to enable readers to make their own informed judgement about how your story might link with their experience – and therefore draw their own conclusions [**my own emphasis**].

Dependability is another strategy used in qualitative inquiry to enhance the trustworthiness of the findings. Hence, my focus is now turned to dependability.

4.4.3. Dependability

According to Van der Riet and Durrheim (2006: 93) “dependability refers to the degree to which the reader can be convinced that the findings did indeed occur as the researcher says they did”. This implies that if the readers would like to track the procedures followed by the inquirer when he or she conducted the inquiry, they should be able to do so. Therefore, Daymon and Holloway (2011: 93) state that “one way of achieving dependability is by demonstrating an audit trail”. In essence, the “processes within the study should be reported in detail, thereby, enabling a future researcher to repeat the work, if not necessarily to gain the same results” (Shenton 2004: 73). It is within this context that Krefting (1991: 216) writes that “dependability implies trackable variability, that is, variability that can be ascribed to identified sources”. In other words, the researchers who intend to repeat a study, albeit with variation, should be able to access the details, hence Krefting (1991) talks of “identified resources” in reference to the processes followed in the original study.

Accordingly, in this inquiry, I followed the suggestion made by Daymon and Holloway (2011: 93) who assert that “all research should have an audit trail by which others are able, to some extent at least, to follow the process of the research so that they can evaluate it”. As far as possible, I kept “the documentation, such as raw data, field notes, data collection and analytical procedures” (Daymon and Holloway 2011: 93). This was done with a view to assist any individual who would like to track the procedures followed in this inquiry.

Shenton (2004: 72) writes that “Lincoln and Guba stress the close ties between credibility and dependability”. These “close ties” suggest that in practice, if an inquirer is able to demonstrate how an attempt was made to accomplish credibility in the study, then; to an extent, dependability is also covered through credibility in that study. Hence, for the purposes of this discussion, the aspects that were dealt with in reference to credibility, for example triangulation and peer debriefing, should suffice.

Confirmability is another significant element that requires attention in terms of ensuring the trustworthiness of a qualitative study. Therefore, my next point of discussion focuses on confirmability.

4.4.4. Confirmability

Lietz and Zayas (2011: 197) write that “confirmability refers to the ability of others to confirm or corroborate the findings”. According to Daymon and Holloway (2011: 85), this suggests that, for a study to be considered confirmable, the investigator should be able “to show how the data are linked to their sources so that a reader can establish that the conclusions and interpretations arise directly from them”. Therefore, the researcher is required to demonstrate that the findings are the product of “the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher” (Shenton 2004: 72). Subsequently, Tuckman and Harper (2012: 392) write that, if the other researchers were to repeat the same study by “using essentially the same procedures to examine the same phenomena in the same setting they would likely arrive at similar conclusions”.

Confirmability can be achieved through the use of techniques such as audit trails (Daymon Holloway 2011; Shenton 2004), triangulation (Morse *et al.* 2002; Krefting 1991) and reflexivity (Daymon and Holloway 2011). I have already made reference to ‘audit trails’ as well as triangulation elsewhere in this discussion on the trustworthiness of the findings. Therefore, in rounding off this discussion on trustworthiness of the findings, I provide a very brief reflection on the concept of “reflexivity”

4.4.5 Reflexivity

In the realm of interpretive qualitative research, the inquirer, a human being, is the main research instrument. Similarly, the setting in which the inquiry takes place, the world of respondents; is a world of human beings. Therefore, since “the researcher and the researched are of the same order, that is, both living, experiencing human beings, it is necessary for us as

researchers to reflect on how that might impact the research scenario when gathering data and when, afterwards, analysing it” (Shaw 2010: 233). Hence, in chapter one I presented a statement of positionality which focused on my personal background. To some extent, I indicated that my personal background could be viewed as central to my role as a researcher in this inquiry. I highlighted the following as some of the factors that, possibly, impacted on my role as a researcher in this inquiry: my background as a school teacher and deputy principal, my teacher–unionist background and my experience as supervisor of student–teachers. Likewise, I also pointed out that positionality and reflexivity are interrelated.

Accordingly, in this section I focus on the “explicit evaluation of the self” (Shaw 2010: 235) which is often referred to as reflexivity. In the interest of this discussion I provide a brief definition of this process. According to Daymon and Holloway (2011: 94) reflexivity can be considered as:

The process of critically reflecting on your own role and assumptions is one that is ongoing through all the stages of data collection, analysis and writing up your research report. It is where you as writer come together with the text, and where you ‘turn back’ on yourself. Because you are the main tool of qualitative research, you need to reflect on the actions, feelings and conflict that you experience during the research. Reflexivity also requires you to take stock of your relationship with participants and examine your reactions to their accounts and actions.

There is an array of reasons why it is both essential and significant for qualitative researchers to undertake reflexivity in their inquiries. For instance, Watt (2007: 82) writes that “learning to reflect on your behaviour and thoughts, as well as on phenomenon under scrutiny, creates a means for continuously becoming a better researcher. Becoming a better researcher captures the dynamic nature of the process”. Additionally, reflexivity is a vehicle through which qualitative inquirers come to acknowledge the uniqueness, subjectivity and diverse yet dynamic personality traits they bring into the research realm. It is via these elements that inquirers are able to make sense of the respondents and their world of experience. Accordingly, Shaw (2010: 236) writes that “we have our own presumptions, beliefs, predilections and these make up our own horizon (or sphere) of understanding”. It is, thus, cardinal for qualitative researchers to, in order to gain a better understanding of the respondents and their world of experience, view, and; indeed, treat reflexivity as an intrinsic

component of the process of inquiry. The last and, probably, the most important point is that, at least in part, because of reflexivity “the study will become more reliable” (Daymon and Holloway 2011: 94).

Numerous approaches can be used in order to factor the process of reflexivity into qualitative studies. However, Day (2012: 61) states that “there is no right or wrong way to do reflexivity”. For example, some inquirers (Daymon and Holloway 2011; Johnson 2009; Watt 2007; Le Grange 2001) prefer the use of a research journal or research diary. Hence, Johnson (2009: 40) asserts, in respect of reflexivity, that “the most effective way for me to undertake this process was through keeping a research journal”. On the other hand (Daymon and Holloway 2011: 94) writes that “many researchers add a reflective or reflexivity chapter to their study as their own critical stance is of such major importance”.

However, since I had to handle a separate pad for field notes in respect of each selected site, over and above the interview pads per site, my view was that adding a personal journal to the mix would be, somewhat, cumbersome. Therefore, I decided that rather than adding another writing resource called a personal journal, I should create space among the pads that were meant for participant observations and interviews. This made life a bit easier for me because I was able to insert my reflection entries in terms of their relevance to issues appropriate to each specific research site rather than use one journal for all selected sites.

For example, after my interview with the principal of Site C, I took note of the contradictions between the claims made by the principal in respect of the remuneration paid to the Grade R practitioners at Site C and the behaviour I had observed during one of my participant observation sessions at the school. On 23 July 2013, I made an observation while undertaking my participant observation activities at Site C which suggested that all three Grade R practitioners were, rather, reluctant to go back to their respective classes at the end of “free–play”. My host teacher was the only person who was, apparently, ready and willing to go to her class. During its occurrence, this apparent hesitance made me reflect and, eventually, conclude privately that; “this is how these teachers behave in my absence....at the end of free–play, schooling comes to an end”. In essence, I was of the view that even the apparent “readiness” to go to class, displayed by my host teacher was, actually, a facade; a facade stemming from my presence. However, after my interaction with the school principal, my perspective of the behaviour displayed by the three practitioners on 23 July 2013 changed. From my subjective view point, the three practitioners had the ‘right’ to drag their feet since

they were grossly underpaid. Hence, I made the following entry under the “Reflexivity Section” of the interview pad used solely for Site C:

Amazing! Amazing claim, indeed! This fella says that the practitioners are happy with the money? Who in their right mind would be happy with R1500 – 00? If they are happy, then why were they reluctant to go to class just the other day when I conducted my observations? Who would be happy with peanuts? (2013 November 26).

Probably, to some readers, it would not be self-evident from the above entry that when I wrote the above statement; I was not just astonished but I was also confused, and I had a tinge of annoyance too. Indeed, as far as I was concerned the revelation by the school principal on Grade R practitioner remuneration at Site C threw a new light on why the three practitioners, possibly, behaved the way they did on 23 July 2013. To me, looking through the lens of a “teacher-unionist” (cf. *section 1.2*), the remuneration which the school principals claimed made the Grade R practitioners “happy” was, in fact, “peanuts”. Hence, I felt it was with good reason that the Grade R practitioners behaved the way they did. In other words, I felt that the practitioners had the right to drag their feet at end of “free-play”.

Thus, it was not surprising that the “peanuts” paid to the practitioners at Site C, as referred to earlier, for example, evoked a tinge of exasperation in me. My union background was, indeed, at play at that point.

Similarly, the frustrations ventilated by the principal of Site A during our interview resonated with me. His disillusionment derived from his view that the education officials were not supportive of Grade R. My experience as deputy principal helped me understand his frustrations and I, somewhat, sympathised with him. This “identification” with the principal of Site A was in line with the assertion by Johnson (2009: 27 – 28) who writes that, “arguably, researchers who do not draw upon and/or discuss their own personal experiences and emotions, at least to some extent, within the telling of the research story are in some ways being dishonest”. It is through these personal experiences and, more importantly, the acknowledgement of their existence rather than harbouring “our unelucidated prejudices” (Shaw 2010: 237) that enables us to make sense of the meaning conveyed by the respondents.

My previous experience as school deputy principal and, conceivably, a subliminal and subjective view of my being a “good teacher” could also have impacted on my stance on

pedagogical practices observed at Site A. Similarly, it is also likely that my exposure to varied and, often, high quality teaching presentations during the fulfilment of my teaching practice supervision duties could have, somewhat, evoked my ephemeral “judgemental attitude” while trying to make sense of Respondent W during my field observations at Site A.

On first observing Respondent W (Site A), my impression was that her teaching approach was “not up to standard”. However, my reflexive actions made me realise that my skewed and subjective outlook toward the respondent’s way of teaching were, somewhat, off the mark. Upon reviewing the evidence at my disposal, I was able to locate the causes of the respondent’s apparent shortcomings as a teacher. In fact, the use of evidence in my reflexive activities helped me throughout the study. For example, in respect of Respondent W’s teaching, I reflected on her levels of teaching qualifications and experience. On the basis of these, I decided to overlook her shortcomings. As indicated in chapter five, Respondent W was; in comparison to the other teachers in this study, a novice and less qualified academically.

Similarly, the use of evidence was of great assistance in data analysis. For example, I made reference to my “identification” with the frustrations of the principal at Site A. In dealing with his expressed frustrations, and more importantly, in avoiding my own subjectivity from clouding my judgement in data interpretation, I relied on evidence available to me. I had to look for evidence that supported or disputed, as the case may be, his expressions about the shortcomings of the NWDE toward the Grade R. Therefore, available evidence helped in dealing with issues arising from reflexivity. Reflexivity, therefore, assisted in shaping data interpretation in this study.

The last point worth mentioning regarding the significance of reflexivity in this study has to do with the acknowledgement of personal shortcomings and the utilization of the “self-questioning” mode in the inquiry. Accordingly, it is important for me to also state that in instances where my subjectivity manifested as I observed the teachers in action, the acknowledgement of my being a tyro in matters related to ECE assisted a great deal to, somewhat, offset my bias. Similarly, I would always embark on the “self-questioning” mode. For example, I would ask myself; what is the real purpose of this study? Am I here to evaluate the teaching styles or to examine the extent of EE integration? This “self-questioning” mode helped me from losing focus. The journal entry, made during my

observations at Site B, below expresses this notion of “self-questioning” mode and how it made me refocus and reprioritise my being in the field.

This woman’s presentation has too many grammatical errors yet this is an English-medium school. This kind of English is not good for such young kids; they just might adopt it as correct. Well, anyway what is it to me; I am only here to observe the integration of Environmental Education not to scrutinize grammar? (Journal Entry, 12 November 2013).

In concluding this discussion on reflexivity, it is essential to mention that in my view, reflexivity proved to be a beneficial exercise which contributed in numerous ways to this study. For example, it helped me realise that my personal subjectivity and personal experiences did not have to be viewed as liabilities (Shaw 2010). It is through personal subjectivity and personal experiences that I realised the importance of using different lenses in order to gain multiple-perspectives on issues; thereby minimizing the possibility of drawing conclusions based on, for example, one skewed view. Similarly, reflexivity helped me focus and maintain vigilance so as to avoid losing sight of the purpose of the inquiry. More importantly, it was through reflexivity that I was able to gain a better understanding of the points of view and behaviours of respondents. Evidence also became crucial in helping me in the interpretation of the findings.

In my view, the use of reflexivity contributed meaningfully towards enhancing the trustworthiness of the findings of this study. I shall now turn my attention to the discussion of measures taken in an attempt to adhere to ethical requirements relevant to this study.

4.5. ETHICAL CONSIDERATIONS

Adherence to ethical principles is, virtually, an inherent and a prerequisite element of every research undertaking. Accordingly, Wassenaar (2006: 66) writes that “it is difficult to think of a study that does not have ethical implications”. Although Orb, Eisenhauer and Wynaden (2001: 93) claim that “ethical issues are present in any kind of research”, apparently, there are studies, albeit very limited, where researchers are not obliged or required to adhere to ethical principles in research inquiry. These are “studies that do not involve human participants and/or based on information that is already in the public domain” (Wassenaar 2006: 66).

Given the importance of ethical considerations in research, it is not surprising that inquirers in the field of education have, over the years, strived to ascertain that ethical principles are

factored into their research designs and practice. In fact, various institutions and organizations, for instance in academia; urge researchers to adhere to ethical principles in a variety of ways. This point is underlined by Banister (2007: 1) who writes that:

Those engaged in the enterprise of educational research have been concerned with the ethical implications of their work. Research organizations publish Codes of Ethics documents and institutional review boards vigilantly review the research practices of their scholars. All researchers, both qualitative and quantitative, should strive to conduct their inquiries with the utmost regard in this arena....

There are various ethical aspects that need to be taken into consideration by inquirers in the field of qualitative research. However, Wassenaar (2006: 67) spells out the following as the “four basic ethical principles applicable to research”: autonomy and respect for the dignity of persons, nonmaleficence, beneficence and justice. There are several ways in which these ethical principles could be assured in research. For example, in order to ensure that the autonomy and dignity of the research participants are safeguarded, the researcher has to obtain informed consent from the respondents as well as provide them with assurance in respect of upholding their anonymity and confidentiality (Howe and Moses 1999). As far as nonmaleficence is concerned, the researcher has to commit herself or himself “to doing good and avoiding harm” (Orb, Eisenhauer and Wynaden 2001: 93) to the respondents.

On the other hand, Wassenaar (2006: 67) writes, in terms of beneficence, that “this philosophical principle obliges the researcher to attempt to maximise the benefits that the research will afford to the participant in the study”. Therefore, the researcher has to, at least, outline some of the ways in which a study would benefit the respondents and society at large. And, if they are to maintain the principle of justice in research, Wassenaar (2006: 68) writes that “researchers have some responsibility to provide care and support for participants who may become distressed or harmed by a study”.

In an attempt to adhere to ethical principles associated with qualitative research in this study, I requested and was granted permission, to conduct this inquiry, by the North West Department of Education (NWDE). Subsequently, I furnished the Research Ethics Committee of Stellenbosch University with the permission letters from the NWDE. They, in turn, processed my clearance to enable me to proceed with data generation. On receiving the clearance letter, I was able to recruit potential research participants of selected institutions as per the sampling strategy discussed in this study.

In the process of recruiting potential participants, I had to go through the gatekeepers, the principals, who were, themselves, potential participants. I apprised them on the objectives and processes of this study; and I also tried to recruit them. Consequently, depending on their amenability, I was able to interact with the practitioners/teachers and I attempted to recruit them as well. The documentation detailing my adherence to ethical requirements is attached as part of the appendices of this study (*refer to Addendum A*).

4.6. CHAPTER SUMMARY

In this chapter I had intended to explicate the methodological framework that guided this study. To that end, I commenced the chapter by reflecting on the, overarching, concept of research methodology. Within this exposition, I defined concepts such as paradigm, method, methodology and design. This was meant to minimise ambiguity as well as locate the relevance of each concept in this study. Subsequently, I focussed on the discussion of the qualitative interpretive approach as the paradigm underpinning this inquiry. This enabled me to locate the relevance and applicability of the case study design in this empirical inquiry.

The discussion of the case study design was followed by a, somewhat, comprehensive reflection on the research design pursued in this inquiry. In this regard, I paid attention to aspects such as population, sampling and case selection; data generation; and data analysis. In rounding off the chapter, I reflected on the measures taken in an attempt to ensure the trustworthiness of the findings and highlighted the approaches followed in respect of adherence to research ethical requirements. In the next chapter, I shall make an attempt to present and discuss the findings emanating from this empirical inquiry.

CHAPTER FIVE

PRESENTATION AND DISCUSSION OF THE FINDINGS

5.1. INTRODUCTION

In the previous chapter I provided a detailed thesis of the methodological framework underpinning this study. More importantly, I highlighted the processes followed in respect of data generation, data analysis and data presentation in order to respond to the questions that have been raised in chapter one of this discussion. The purpose of the current chapter is to present and discuss the findings emanating from the empirical investigation as explicated in the previous chapter. However, before presenting and discussing the findings, I reflect on some of the challenges encountered while negotiating entry into the research field. The discussion on field entry is followed by a brief reflection on the profiles of the sites visited for data generation as well as the profiles of the respondents who participated in this study, respectively.

However, since my investigation was in Grade R, my discussion of profiles will focus on aspects related to this class. I shall refer occasionally to other aspects and/or members of the participating institutions only when I deem it essential to do so. It is also significant for me to indicate that since the focus of the investigation was on the Grade R teachers rather than the principals, therefore, the profiles that matter to this study are those of the teachers and not the principals. Accordingly, I provide details related to the principals only when I deem it essential to this study.

5.2. NEGOTIATING ENTRY INTO THE FIELD

The activity of conducting an empirical investigation in qualitative research presents an array of challenges. One of them is the process of gaining entry into the research field. Daymon and Holloway (2011: 60) underscore some of challenges associated with the course of negotiating entry into the field by writing that:

Gaining access to informants, settings and materials for research is one of the first steps in the research process and ethically can be most problematic in qualitative research...people can be vulnerable, they have rights that must be protected, settings may be dangerous or difficult to access and material can be confidential.

It should be evident from the above-mentioned points that the process of gaining access to the research field has many intricacies, especially, in respect of ethical considerations. However, despite its apparent importance “very minimal has been written on issues and problems of gaining access” (Johl and Renganathan 2010: 42) into the field when conducting research. For that reason, I deemed it essential to reflect on some of the issues that presented themselves as challenges during my attempts to gain entry into the field. In my view, this is necessary in order to assist other researchers, especially novice researchers, to be *au fait* of some challenges that might be encountered in the process of negotiating entry into the field of empirical investigation.

Before I highlight some of the challenges I encountered while negotiating entry into the field, it is appropriate for me to provide a synopsis of what is entailed by ‘gaining access into the research field’ so as to locate this process within the context of this study. Due to its precision, I considered the definition by Daymon and Holloway (2011) to be appropriate within the context of this study. According to Daymon and Holloway (2011: 60) “gaining access means gaining permission to enter the setting, set up and obtain samples, interview, observe participants, and read formal documents relevant to the research”.

Furthermore, Johl and Renganathan (2010: 42) write that “in conducting research, it is important for the researcher to think about how to go about gaining access. Gaining access involves convincing people that the researcher has decided on who should be the informants that would provide information in conducting research”. Therefore, viewed from the perspectives of Daymon and Holloway (2011) and Johl and Renganathan (2010), as indicated in preceding points, the process of negotiating entry into the field compels the researcher to interact with various people and organisations before commencing with empirical investigation. The purpose of this interaction is, primarily, to make them aware of the need to conduct a particular inquiry. More importantly, this is meant to convince relevant people about the importance of granting permission to the researcher and/or participate in the process of inquiry. This process invariably necessitates an interaction with gatekeepers prior to interacting with participants. Gatekeepers are invaluable in qualitative research hence Broadhead and Rist (2010: 326) assert that gatekeepers “circumscribe the researcher’s options in gaining entry to the data”.

Gatekeepers and the process of gate keeping present themselves in various ways. Johl and Renganathan (2010: 42) point out that “gatekeepers may be individuals but often are

organizations”. On the other hand, Daymon and Holloway (2011: 62) highlight the ubiquitous nature of gatekeepers by asserting that “gatekeepers may hold official positions, such as the corporate...gatekeepers may be found in any hierarchical level of an organization”. More importantly, Broadhead and Rist (2010: 325) underscore the roles played by gatekeepers in research by writing that:

Gatekeeping influences the research endeavours in a number of ways: by limiting conditions of entry, by defining the problem area of the study, by limiting access to data and respondents, by restricting the scope of analysis, and by retaining prerogatives with respect to publications.

In this study, various entities and individuals played a role in terms of gate keeping, thereby, impacting on my endeavours to gain entry into the research field. For example, the North West Department of Education, Stellenbosch University, school principals, School Governing Bodies (SGBs) and individual (potential) respondents all contributed to the process of gate keeping in this study. Therefore, in this discussion I refer briefly to the effect of each of the already-mentioned individuals and groups on my actions aimed at enabling me to gain entry into the research field.

Before commencing with my empirical investigation I needed clearance from the Research Ethics Committee of Stellenbosch University, also referred to as the REC hereafter. However, this clearance could only be issued once I had gained permission from the authorities in charge of the schools within the area demarcated for this inquiry. Hence, I had to; first, obtain consent from the North West Department of Education (NWDE), the custodian of education in the North West Province. For this reason, as indicated in *subsection 4.5* of the preceding chapter, I followed the necessary procedures to obtain permission from the NWDE. Subsequent to obtaining permission from the NWDE I was able to satisfy the requirements of the Research Ethics Committee of Stellenbosch University. Therefore, ethical clearance was granted and it is included in the appendix (*refer to Addendum A: 3*).

Once I obtained ethical clearance from the REC, I was able to enter the research field and complete the empirical investigation, analyse data and, eventually, write the report on the processes of inquiry before the research clearance letter lapsed. However, the fact that I obtained permission from the NWDE and the clearance letter from the REC did not lead to smooth sailing into the research field. I still had to deal with numerous challenges of gatekeeping. Therefore, I had to think of ways in which I could gain access into the research

sites, establish a good rapport with potential respondents, and recruit them for participation in the study.

Johl and Renganathan (2010: 42) argue that “it is important to establish relationships with gatekeepers to gain access to multiple informants”. Furthermore, they point out that gaining entry into the field requires that the researcher should have “personal access” (Johl and Renganathan (2010: 45) to the field. The approval from the NWDE enabled me to access the schools, the main sites of my inquiry. However, prior to accessing the schools, I used my “personal access” to some of the officials based in Maquassie Hills Area Offices of the North West Department of Education to obtain a database of the institutions which offered Grade R in the area as well as the contact details of those institutions. On obtaining the database, I began to study the profile of each institution. In instances of uncertainty, I used the internet and the information generated from my interaction with the officials of the Maquassie Hills Area Offices of the North West Department of Education to help me compile a ‘shortlist’ of institutions that would help the interests of this investigation.

Once I was done with the compilation of a ‘shortlist’ of institutions, I contacted the principals of selected institutions telephonically and requested individual appointments with each one of them. Since I wanted to underscore the significance and need for the investigation, I reckoned that a face-to-face interaction with the institutional managers was vital. Accordingly, I felt that “personal access” in the form of one-on-one interaction with principals would help me encourage them and their Grade R teachers to participate in the study. The strategy of “personal access” was, in my view, appropriate.

I visited five different principals at their learning institutions and had some discussions with each one of them. Although one of them, Respondent J, the principal of Site A; was willing to participate and was therefore able to grant me permission to observe the Grade R teacher, he was rather reluctant at first. However, he consented to the request eventually. In fact, his reluctance came as a surprise to me. I was of the opinion that since the NWDE provincial office had granted me permission to go on with my investigation and had also informed the district about my project, it would be easier to access all the institutions under the control of the NWDE. This was, unfortunately, not the case with this particular principal. The reluctant principal told me that he had to, first, talk to his circuit manager and ask for permission to grant me a go ahead to conduct my inquiry at the site.

The gatekeeping role played by Respondent J confirms the point highlighted by Daymon and Holloway (2011), earlier in this discussion. This point is, in my view, worth reiterating. Daymon and Holloway (2011: 62) assert that “gatekeepers may be found in any hierarchical level of an organization”. This assertion is relevant here because I had not only obtained permission from the provincial office but the district office was also informed of my investigation. Similarly, I had interacted with the area manager under whom the circuit manager who had to be consulted by Respondent J served and he mentioned that the district office had informed him about my project. For that reason, I felt there was no need for Respondent J to contact his circuit manager.

Although Respondent J eventually agreed, after consulting with his circuit manager, to let me use his institution for the investigation; I realized that it is essential for the researcher not to assume that the permission granted by the senior authority in an organization should be conceived as binding to everyone in the organization. Therefore, in my opinion, although it might be both time-consuming and cumbersome, it is essential to consult with and gain permission from, virtually, all respondents before proceeding with an inquiry in qualitative research. This fundamental requirement was crystallized during my interaction with another potential respondent while I was recruiting her to participate in this study.

I had “personal access” to the school principal of the school of the potential respondent. For convenience, I shall call this school Site E. The principal of Site E agreed in principle that I could use her institution for the purposes of inquiry. She even signed a consent form to that effect. After concluding my interaction with the principal of Site E, I had a one-on-one with the Grade R teacher of the same institution. The aim of this interaction was to also recruit her to participate in this study. Unfortunately, our interaction did not yield desired outcomes. Throughout our interaction, the teacher in question appeared and sounded hesitant to participate in the study. On the one hand she would sound positive and pronounce that, “I will participate in your investigation because I like to help other people”. Barely a minute thereafter she would ask with some sense of scepticism, “Are you going to sit in my class and watch me teach?” As soon as I had responded in the positive, she would go on to express her reservations, “Hey, to be watched while I teach...I don’t know”.

Subsequently, after a lengthy attempt to convince her and assure her that no harm would emanate from the process, etcetera, I realised that it was in her interest and that of this study to not enlist her into the investigation. I took heed of Daymon and Holloway’s (2011: 63)

advice that “access should be negotiated with a great deal of diplomacy, honesty and tact”. Hence, in dealing with the issue of the reluctant Grade R teacher of Site E, I had to behave both diplomatically and tactfully. I thanked her and requested her to take some time to apply her mind carefully to my request. Similarly, I informed her principal that I would come back and finalize my interaction with the Grade R teacher before commencing with my investigation at Site E once I was done with another school. Fortunately, the institution had numerous other challenges to deal with, including revamping the school infrastructure. For that reason it was easy for me to leave the school out of this research inquiry.

The process of gaining access into Sites B, C and D was not that difficult. In fact, the principals of Sites B and D, respectively, appeared very excited to have their institutions participate in this study. As far as the principal of Site B was concerned, the participation of her school would, in a way, enable people to know more about the school. This view confirmed the notion that some respondents would be willing to participate in a study if they believe that there are some personal or institutional benefits emanating from the study (Beck 2005; Dickert and Grady 1999). Similarly, the expressions made by the principal of Site B seemed to echo the point made by Daymon and Holloway (2011: 42) who write that:

It is important to bear in mind that in order to be granted access, the study has to be in line with the gatekeepers’ hidden agendas, ideologies and cultures which may require the researcher to change how the research is talked about to conform to the gatekeepers’ attitude about what is being researched.

Of course, in my case I did not have “to change how the research is talked about” because the manager of Site B did not hesitate to grant me access to her institution. The only issue she had to deal with before I could commence with my investigation at Site B was to obtain consent from the school board. As I did in respect of Site E, I also had one-on-one interactions with the Grade R teachers at Sites A, B and C. This approach meant that recruiting and obtaining consent from these Grade R teachers was not only ethical but it was also in line with Daymon and Holloway’s (2011: 62) counsel that when dealing with gatekeeping in research “it is wise to ask not only the person directly in charge but also others who are likely to hold power to start or stop your research”.

The last point worth mentioning in terms of negotiating access to the research field comes from Kothari (2004: 104) who writes that, “in certain situations, schedules may be handed over to respondents... **(and the investigator may)** explain the aims and objectives of the

investigation and also remove the difficulties which any respondent may feel in understanding the implications of a particular question” **[my emphasis]**. The first principal I interacted with while negotiating entry into the field insisted on obtaining more details in respect of the nature of questions that would be posed to her during the interviews that formed part of the investigation. For that reason, I found it both essential and inevitable to go through the applicable interview guide with each of the potential, and ultimate, respondents while recruiting them for participation in the study. Similarly, I also took into account the significance of using each respondent’s “mother tongue language” (Johl and Renganathan 2010: 46) in order to communicate effectively with each respondent in respect of this research inquiry.

It should be evident from the points raised in this section that the process of negotiating entry into the field is both challenging and delicate. Hence, it might have unforeseen effects on the researcher. For example, in my situation I had to re–design my timeline on more than one occasion. Naturally, this is not desirable for any investigator since this causes inconvenience, anguish and frustration. It might also have financial implications as well. Therefore, I concur with Koopman’s (2013) advice that future researchers and novice researchers need to be aware that the process of negotiating entry into the field poses a set of challenges. Accordingly, it is essential to construct tentative rather than rigid timelines and to be, subliminally, prepared to handle unforeseen challenges associated with the process of negotiating entry into the research field.

5.3. THE RESEARCH SITES AND THE RESPONDENTS: BRIEF PROFILES

This study was conducted in four institutions offering Grade R within the area explicated in chapter one of this discussion. These institutions had varying characteristics. Hence, in the interest of this study a brief reflection on the nature of each learning centre is essential. In my view, this exercise is significant since it is in line with the aspect of transferability of the findings as discussed in chapter four of this study. The following are, therefore, some of the characteristics¹⁸ of each of the institutions that participated in this study.

¹⁸In an effort to conceal the identity of each participating institution I avoid including aspects that could enable the identification of each school, for example, names of towns, farms or townships in which the institutions are located.

5.3.1 The Research Sites

5.3.1.1 Site A

This school is located on a farm hence it caters, mainly, for farm-based learners all of whom are Black Africans. Although there is a handful of houses situated next to the school, houses made out of brick and mortar, throughout the week the majority of learners are ferried between the school and their homes which are located elsewhere. Two transport modes, a privately owned kombi taxi and a school bus funded by the North West Provincial Government are used for this purpose.

Site A caters for Grades R through 7 and it follows a multi-grade system in which some classes are combined and taught by one teacher while the other classes stand alone. For example, the Foundation Phase of Site A, just like numerous other farm schools in the North West Province, is structured as follows: Grade R stands alone, Grades one and two are combined and Grade three stands alone. At the time this study was conducted, Site A had a total of approximately 130 learners and eight staff members comprising a general worker, a clerk, a principal and five teachers including the Grade R practitioner.

The school has a brick and mortar structure comprising of four classrooms and a principal's office. The four classes cater for Grade 1 to 7. One of these four classes is further divided into two with one side fulfilling the functions of a kitchen. The kitchen operates a government-funded feeding scheme and it caters for all learners. On the other hand, the Grade R class operates from a 'mobile' classroom which is detached from the brick and mortar structure. This Grade R classroom is about 7 metres X 6 metres in size and is made out of corrugated iron. It is well ventilated with four windows on each of the two longer sides.

The school has flush toilets which appeared to be newly-built. Similarly, just like the surrounding houses, the school has access to tap water, even though there is only one tap in the entire school. Apart from tap water, there is also a huge water tank which, I suspect, is meant for emergency purposes to provide the school with water in the event piped water is not available. The school is, partially, depicted in *figure 5.1* below.



Figure 5.1: The external view of Site A

Despite the availability of water, the practice at Site A is that all Grade R learners would wash their hands in a single water basin (*refer to figure 5.2*) supplied by the NWDE each time they had used their hands. For example, after eating, playing or visiting the bathroom they would wash their hands. Grade R is the only class that has access to this basin which is located just next to the mobile classroom. The rest of the school uses tap water. However, the Grade R learners, just like all the other learners, were not restricted from using the school water tap. Of great concern though, is that during my observation at the school, the basin water was never changed.

In terms of resources, especially those relevant to the Grade R class, the school seems to be plagued by challenges. This could be attributed to fact that the school caters for very poor people and it relies entirely on government funding. The school is, in terms of the quintile¹⁹ system used by the DBE, classified as a quintile 1 (poorest) school. The challenges were discernible both inside and outside the Grade R classroom. For example, despite it being spacious, the Grade R classroom is under-resourced. Besides the few boxes that contain some toys and the few educational charts on the bulletin board, the Grade R classroom has no teaching and learning resources (*refer to figure 5.3*). However, the class also has access to the school DVD which is kept in the principal's office.

¹⁹A system used in South Africa to inform the process of distributing resources to various schools under the control of the Department of Basic Education. I will further explicate the concept in the discussion of findings later in this chapter.



Figure 5.2: Water basin used at Site A



Figure 5.3: Inside the Grade R Classroom of Site A

On the plus side, though, the Grade R classroom has a mat on which the learners sit for play and learning purposes, there are more than fifteen chairs and four tables for the learners, there is a table and a chair for the Grade R practitioner as well the chalkboard for writing purposes. However, in my view, the resources were not sufficient for the classroom to be considered ideal for the learners at Grade R level (Gordon and Browne 2011; Hille 2011; Fassler 2003; Dudek 2000). Moreover, the fact that the classroom door required some fixing since it was unhinged on one end made it likely for the scanty resources to, one day, disappear due to possible burglary.

The challenge of resources at Site A went beyond the level of the classroom; it manifested even on the playgrounds. The institution lacks not only an ideal playground for Grade R learners but even the resources that were supplied by the NWDE for Grade R needs had been ‘taken over’ by older learners. These resources were, virtually, inaccessible for the Grade R learners since the entire school learner population competed for these limited playground resources. Due to explicit competition for play equipment, the younger learners were overpowered and often denied access to what was supposedly their own play equipment (refer to figure 5.4).



Figure 5.4: The playground of Site A

5.3.1.2 Site B

Site B is an urban-based multiracial school. It uses English as the Language of Learning and Teaching (LoLT). However, at the time of this investigation, all ten Grade R learners enrolled at the institution were Black Africans. The other population groups, particularly white people, were found in other classes and among the teaching staff. The school caters for Grades RR to 7, and according to the principal, there are plans to expand and accommodate learners up to and beyond Grade 12 in the near future. Approximately fifteen metres from Site B there is an Afrikaans-medium ECD centre which caters for Grade R and lower levels.

Site B is a private and independent institution. Therefore, it receives no funding from government. It relies on funding from parents whose children attend the school and on fundraising projects. At the time of conducting this study, the school was sheltered in a leased

building until the completion of the first phase of their new building. The entire school population of around 105 learners and everybody else in the school were due to relocate to the new building at the beginning of the 2014 academic year.

Although the learners throughout the school were housed in a solid structure made of brick and mortar (*refer to figure 5.5*), they were crammed into very small spaces. For example, the Grade R learners were squeezed into a small room of about 3, 5 metres X 4 metres. Even though the room had two windows, it was not well ventilated since it was too packed. Ten tables and chairs for the learners, the teacher's table and chair, a cabinet for LTSM and another rack for learners' bags; add me and my chair to the equation, then you have an overburdened classroom. Accordingly, it was understandably difficult for the teacher to move around during teaching and learning. Despite these constraints there was evidence that work was being done in the Grade R classroom of Site B. For example, on entering the classroom at Site B, one is greeted by four walls full of learner-produced activities and resource material that aids the learning and teaching processes (*refer to figure 5.6*).



Figure 5.5: Part of the external view of Site B



Figure 5.6: Some of the work done by Grade R learners at Site B

The institution, just like the other three institutions that formed part of this study, has access to running tap water. For this reason, even their ablution facilities are water operated. On the other hand, unlike at Sites A and C, respectively, where Grade R learners use a basin with stagnant dirty water for cleaning their hands the whole day, the learners at Site B use tap water and soap in the restroom. The restroom is within the same building as the Grade R classroom and the school administration offices. The downside, however, is that the Grade R learners use the same restrooms and ablution facilities as the older learners. Thus, it is not surprising that on one or two occasions during my observations at the school, some Grade R boys would return from the restroom crying because another older boy had ill-treated them. Nevertheless, with the advent of the new school building that is all likely to change.

5.3.1.3 Site C

Site C is situated in a township²⁰ (refer to figures 5.7 and 5.8) which has more than three primary schools. Due to the size of this township, the school caters for a huge population of more than 1 300 learners. Just like Site A; Site C uses Setswana as the Language of Learning and Teaching at Foundation Phase. However, unlike Site A which has just one block of classes and a separate mobile classroom for Grade R, the learner population of Site C is spread over various blocks of classes ranging from Grades R to 7. Similarly, although the school is also funded by the NWDE, it is placed at quintile 3 and not quintile 1 as it is the

²⁰A place of residence, usually in an urban area, in South Africa; which came into being as a result of racial segregation and was until the “demise” of apartheid reserved for non-whites.

case with Site A by the provincial department of education. In essence, Site C is categorized as, economically, better off than Site A.



Figure 5.7: One view of Site C



Figure 5.8: Another view of Site C

Site C has numerous blocks of classrooms all of which are solid brick and mortar structures. Among these classes, there is a new block of classes with bathroom facilities which were constructed to house Grade R learners. Unfortunately, there are only two classes in this “Grade R block”. Subsequent to the increase in the number of Grade R learners, two other

Grade R classes are located in the same block as the school administration offices and personnel room. At the time this study was conducted, each of the four Grade R classes had learners ranging from 42 to 46 in number.

The entire Grade R learner population uses the same playground and the other learners, namely, Grades 1 through 7; are prohibited from using the playground and the facilities in the area demarcated for the Grade R learners (*refer to figure 5.9*). It is important, in the interest of this study, to mention that prior to my arrival for empirical investigation purposes at the school; there was no playground equipment in the Grade R play area. Play material was located elsewhere beyond the reach of the learners (*refer to figures 5.10 and 5.11*).



Figure 5.9: Part of the playground for Grade R learners at Site C



Figure 5.10: The location of playground material prior to my arrival at Site C



Figure 5.11: The location of playground material prior to my arrival at Site C

As far as personnel is concerned, the school has various categories of workers including, teachers, the principal and his deputies, heads of department, catering staff, janitor, general worker, etcetera. Hence, it would be difficult to state exactly how many members of staff form part of the entire Site C. For that reason, in the interest of this discussion, it suffices to mention that unlike Site A, Site C does not use the multi-grade system and that each grade has more than one class. None of the grades catered for at Site C has less than four classrooms per grade. In the same breath, it is essential to mention that in respect of Grade R, each of the classes has a teacher. However, only one of these teachers was, at the time of this investigation, qualified to teach at foundation phase while the other three Grade R teachers were in pursuance of their teaching qualifications.

Site C, just like all the three other sites that form part of this empirical inquiry, has access to piped tap water. Therefore, there are water taps in various corners of the institution. Consequently, even their bathroom facilities use a water flushing system. Similarly, as it is the case with Site A, Site C has a water tank for emergency water shortages. However, despite the availability of water at the institution, as it was the case at Site A, the Grade R learners of Site C were subjected to health hazards. The learners used a single water basin whose water was never changed throughout the day during my observation period at the school. Next to each Grade R class there was a steel basin similar to the one used at Site A (*refer to figure 5.2*). The basin is filled with water in the morning and the learners use it in much the same way as the learners at Site A.

The last point worth mentioning is in respect of the characteristics of my Grade R host class at Site C. Although I was introduced to all the Grade R teachers at Site C and had a glimpse

of each of the Grade R classes, I only focused on my host class since I was able to spend more time and I can, therefore, account for what it looked like. The class was approximately 7 metres X 6 metres and had windows on two sides; four big windows on one side and four smaller windows on the other side. On the ‘door side’ of the classroom there was a chalkboard, firmly attached to the wall. The back side of the classroom had a bulletin board which was, entirely, covered with pictures and charts²¹ that were, apparently, used for learning and teaching purposes.

Approximately, one quarter of the classroom was occupied by storage equipment and some *Montessori* tables and chairs. The storage equipment was a pigeon-holed cabinet which was used to keep each of the forty six learners’ school bags as well as some resource material used by the teacher for learning and teaching activities. The other quarter of the classroom was filled by two tables often used by the adults in the classroom. One of the tables was used by the host teacher for her administrative and planning activities while the other one was used, mainly, to dish out food for the learners at meal intervals. This situation left the teacher and the learners with only one half of the classroom available for learning and teaching activities.

Hence, when the teacher gave out pen and paper activities that necessitated the use of tables and chairs, the greater part of the carpet used for play-based activities as well as other learning and teaching activities would be virtually covered by the tables and chairs. For that reason, it was difficult for both the teacher and her learners to work freely in the cramped classroom. The classroom was, therefore, not ideal for the Grade R learners or any other group of learners for that matter. This assertion is supported by Simonsen, Fairbanks, Briesch, Myers and Sugai (2008: 358) who write that “research indicates that the classroom should be designed to minimize crowding and distraction. Crowding at home and school can have negative impact on behaviour (Maxwell 1996). The simplest way to minimize crowding is to increase the amount of space in a classroom”. Similarly, Bucholz and Sheffler (2009) argue that a classroom should have sufficient space to enable learners to move freely around the classroom. However, based on my observation, I contend that the Grade R classroom at Site C was too overcrowded; constraining and allowed little room for free movement and optimal functioning for the learners and their teacher.

²¹The only two pictures in my possession that depict the bulletin wall in its entirety also reflect identifiable faces of learners hence for ethical reasons I decided not to insert these pictures. However, some of the pictures taken from the bulletin board, for purposes of document analysis, appear elsewhere in this chapter.

Apart from the lack of space, the classroom was under-resourced. For example, the tables and chairs were insufficient for the forty six learners. Similarly, there was a dire shortage of writing and drawing material, that is, papers, pencil, crayons, etcetera. In view of the fact that later in this chapter I reflect more on the shortage of resources at Sites A and C, respectively, I shall go no further on this issue in this subsection. Accordingly, I proceed to provide a brief description of Site D.

5.3.1.4 Site D

Site D is an urban-based multi-racial ECD centre (*refer to figure 5.12*) which caters for children in the 0 – 5/6 years-old age group. Therefore, Grade R is the senior class at this institution. Although this ECD centre shares its premises²² with the local primary school, it is independent from the primary school. Similarly, except for the salary of one of the two Grade R teachers who also serves as the principal of the ECD centre, the institution receives no funding from government. The centre relies on funding from parents as well as fundraising projects. Nevertheless, in contrast to some government funded institutions such as Sites A and C, the institution is, in many respects, better off.



Figure 5.12: One side of Site D depicting the playgrounds

The institution has various classrooms that are made of solid brick and mortar. Each age group catered for at the centre has its own single classroom, and in some instances, two classrooms. The classrooms are spacious, well aerated and resourced. Similarly, Site D also has access to running tap water to meet the various water needs of the centre. The institution has resourced playgrounds (*refer to figure 5.12*) that cater for the needs of the various age

²²A fence separates the ECD centre from the primary school.

groups of children. There is no competition for play material at play time, children are able to share and exchange play equipment at will, since they have enough to go around. A few points are also worth noting in respect of my Grade R host classroom.

In contrast to the Grade R classes of Sites A, B and C, respectively, the Grade R class of Site D is more learner and teacher friendly. For example, it is spacious to enable both the teacher and the learners to move around and to do their work freely and with ease (*refer to figure 5.13*). There are two different areas which are usually the hives of activity in the classroom, each one of which has a huge carpet. One of the two areas is used for learner–teacher interaction during the learning and teaching activities. The other area is used for independent play–based activities. This latter area is where a lot of creativity and fantasy play takes place.



Figure 5.13: Part of the inside view of my host class at Site D

Additionally, there are numerous ‘corners’ with cabinets. For example, there is a book cabinet in which various learners’ reading books are stored. There is also a toy cabinet in which a variety of toys are kept. The learning and teaching resources are located in yet another cabinet. Similarly, the learners have a cupboard with individualised pigeon holes where each learner keeps personal items such as school bags, lunch boxes and so forth. Apart from numerous ‘corners’ with cabinets, there are learner–sized tables and chairs at the centre of the classroom. This is where writing and drawing activities take place. The tables and chairs are sufficient to enable each of the twenty six learners to do their work with ease. The

tables are also used for play-based activities such as dominoes and puzzles, the games in which the Grade R teacher often got involved.

The last point worth noting has to do with water and the cleaning of hands by the Grade R learners. Unlike in institutions such as Sites A and C where Grade R learners use one water basin to wash their hands without changing the water throughout the day, the learners at Site D use running tap water and soap. Just outside the Grade R classroom at Site D, there is a basin in which tap water runs through to enable the learners to wash their hands. They are encouraged to use soap and water to wash their hands before and after completing various types of activities such as eating, painting and so forth.

The intention of this discussion was not to exhaust all the characteristics of each of the four learning institutions that participated in this study. Therefore, it is my view that the above-mentioned points should, for the purposes of this study, suffice. In the next subsection, I provide a brief profile of each of the teachers who participated in this study.

5.3.2. THE RESPONDENTS

The following discussion focuses on the profiles of the teachers who participated in this study. Each one of them completed a profile form (*refer to addendum B1*) prior to participating in this empirical investigation. As pointed out in the introduction of this chapter, the principals were not the focal point of this investigation hence they did not have to provide anything in respect of their profiles. Nevertheless, some information based on the interaction with them during the course of the investigation is included.

5.3.2.1 Respondent W

According to the terminology, generally used in South Africa, Respondent W is classified as a practitioner since she is not yet qualified to teach Grade R (Naicker 2010), or any other Grade for that matter. At the time of this investigation she was still pursuing her ECD Level Four qualification through a Technical and Vocational Education and Training (TVET) college. She had been at Site A for four years. This institution is her maiden teaching institution. When she started teaching at Site A, she was given the responsibility to teach Grades R and 1 and was relieved of Grade 1 at the beginning of 2013 when another teacher took over the class. Her highest qualification at the time of the investigation was Grade 12. According to the profile form provided for the purposes of this study, Respondent W is younger than thirty years of age.

The other participant from Site A in this study is Respondent J, the school principal. He joined the institution in 2012 from another school where he was a teacher for over ten years. According to Respondent J, when he arrived at the school, Grade R had already been introduced.

5.3.2.2 Respondent X

Respondent X, just like Respondent W, is categorized as a practitioner. However, unlike Respondent W, at the time of this investigation, she had completed her ECD Level 4 course and was pursuing her ECD Level 5 through a TVET college. She falls into the age range of 41 – 50 years old. She has completed a total of two years in the teaching of Grade R; this teaching experience was acquired at Site B. Respondent X did not have any other teaching experience prior to joining Site B.

The principal of Site X is Respondent K. She is the founding principal of the institution which at the time of this investigation, according to her, had been in operation for approximately 13 to 14 years. According to Respondent K, Grade R was introduced on the inception of the institution.

5.3.2.3 Respondent Y

Respondent Y is a veteran of 36 years in the teaching field. Hence, at the time of this investigation she was serving her final year as a teacher and was about to retire. She has three qualifications which enabled her to teach in Foundation Phase, the level she had been teaching for her entire teaching career. These qualifications are: Primary Teachers' Certificate obtained from a teachers college of education, Secondary Education Diploma and a Higher Education Diploma; the latter two qualifications were obtained through two different universities. Respondent Y falls within the category of 51 – 60 years old age group. At the time of this investigation she had been teaching Grade R for just over a year.

On the other hand, Site C is run by Respondent L. He has been at the institution for over fifteen years. However, at the time of this investigation he had been the principal of Site C for about ten years. According to Respondent L, the institution introduced Grade R just six years prior to this investigation.

5.3.2.4 Respondent M

Just like Respondent Y, Respondent M is a veteran of about 36 years in the teaching field. She also falls into the category of 51 – 60 years of age. At the time of this investigation, she was preparing to serve her notice and go on pension with effect from 2014. She obtained her Pre–primary Teachers Diploma and her Higher Diploma in Education through a university. She started teaching Grade R since the introduction of the class in 2001. Apart from being one of the two Grade R teachers at Site D, Respondent M is also the principal of the institution. She has been at the helm of Site D for over fifteen years. The following table provides a summary of the preceding information about the respondents of this study:

Table 5.1: Respondent Profiles

Participant	ECD Centre	Teaching Qualifications	Age	Grade R and other teaching experience
Respondent W	Site A	Grade 12	< 30yrs	4 years
Respondent X	Site B	ECD Level 4	41– 50yrs	2 years
Respondent Y	Site C	PTC; SED; HED	51– 60yrs	36 years
Respondent M	Site D	PTD and HDE	51– 60yrs	36 years
Respondent J	Site A	N/A	N/A	N/A
Respondent K	Site B	N/A	N/A	N/A
Respondent L	Site C	N/A	N/A	N/A

In the next section, I present and discuss the findings made through this investigation. I use the themes presented in the previous chapter as the basis for this discussion.

5.4. PRESENTATION AND DISCUSSION OF THE FINDINGS

In this section I present and discuss the findings of this study thematically. These findings form the basis of the syntheses/conclusions highlighted in section 5.5. in respect of the questions of this study as indicated in chapter one. I present the ‘general’ findings, thematically, from 5.4.1 to 5.4.8 and in 5.4.9 I reflect on the findings based on document analysis. The following are, therefore, the finding of this study.

5.4.1 Accessibility of Grade R

In chapter two of this discussion I argued that in the school context, the implementation of EE occurs, principally, through the integration of environmental topics into existing subjects. This suggests that for a child who is old enough to enrol in Grade R to stand a chance of gaining exposure to environmental learning; that child must, first, have access to Grade R. In respect of the four learning sites that participated in this empirical investigation, variations existed in terms of Grade R accessibility as reflected by the levels of enrolment in each institution.

The variation in terms of enrolments was discernible from both the participant observations and the semi-structured interviews. For example, evidence generated through participant observations at Site A indicates that, at the time of the investigation, the institution had a very low enrolment compared to Sites C and D, respectively. Only Site B had fewer learners than Site A. Throughout the four days of my observations at Site A, thirteen Grade R learners attended regularly. However, the Site A school principal stated that twenty seven Grade R learners were enrolled at the beginning of the 2013 academic year. According to him the onset of the winter season could have led to the decline in the Grade R learner enrolment at Site A. At the same time, Respondent J also seemed to suggest that the mode of transport used to ferry the learners to and from Site A might also have contributed to the decline in Grade R learner numbers. The following is Respondent J's argument in respect of the preceding points:

Er...2013 was a very, very good year for our school because for the first term we had about twenty seven learners. But unfortunately after the reopening for our second term learners started dwindling. Er...to an extent that one ends up saying that it was because of the winter season. This is because most of the learners, about 98% of them, are travelling by buses and taxis. So, currently we have only sixteen learners.

Perhaps, as far as Respondent J is concerned, the “dwindling” of Grade R enrolment at his institution is a consequence of all the factors he highlighted above. However, my contention is that evidence from this study as well as from literature does not seem to support his assertions. For example, if learners had left due to the onset of winter then they would have returned at the end of that season. My argument is based on the fact that when I visited Site A for empirical investigation, winter had long gone. It was already spring season and the

temperatures had long started soaring. Therefore, there could be other reasons that might have led to the “*dwindling*” of Grade R enrolment at Site A.

The fact that the Grade R practitioner was, at the time of this investigation, not sufficiently qualified to teach Grade R could be one of the reasons why the Grade R learner enrolment declined at Site A. Similarly, the scarcity of resources, a point explicated elsewhere in this discussion, could be one other factor that impacted negatively on learner enrolment at Site A. Equally significant is the impact of freely available government transport which enables learner mobility. Therefore, it is also likely that due to the availability of ‘free’ transport, the learners might have been withdrawn by the parents from the underprivileged Site A to, comparatively, privileged institutions in the nearby township. On the other hand, literature also points to an array of reasons behind the declining learner enrolment in rural areas such as the one in which Site A is located. For example, Maponya (2010: 1 – 4) writes, in respect of learner enrolment in farms, that:

Enrolment of farm school learners appears to be declining in most farms. Farm school educators face challenges such as migration of learners to urban area schools because of inadequate sport facilities and lack of educational resources...the parents in the farms do not take the education of their children very seriously...parents with little or no education often do not perceive the value of sending children to school, and even if such children begin school, they tend to dropout after a year.

On the basis of the above-mentioned points, it could be argued that there are, possibly, numerous factors which conspire, if you will, to deprive the farm-based child access to Grade R. Consequently, a decline in Grade R enrolment in any rural or farm school, as it was the case in Site A, implies that those children who could be in Grade R but are, for one or the other reason, unable to access this class; are deprived the opportunity to learn. By extension, a learner who is deprived access to learning is, possibly, denied exposure to environmental learning or, at the very least, his/her exposure to environmental learning is reduced.

On the other hand, at the time of this investigation, the Grade R enrolment at Site B stood at only ten learners. The school principal did not at any stage suggest that the Grade R enrolment had declined as it was the case with Site A. At the same time, it is essential to mention that, since it was not the intention of this study; I did not raise any question

regarding the ‘low’ number of Grade R learners at Site B. However, there are various factors that, probably, justify the ‘low’ Grade R enrolment at the institution.

As indicated earlier in this chapter, unlike Sites A and C, Site B is a private institution. Hence, at the time of this investigation, this institution had no government funding. Site B was in a situation similar to that of Site D in terms of funding, except that in the latter institution one of the Grade R teachers was paid by the NWDE. Therefore, Site B relied entirely on parents and donations for school funding. This could, possibly, explain the ‘low’ Grade R learner enrolment at Site B.

The other reason for the ‘low’ Grade R enrolment at Site B could be the fact that the school is, for lack of a better phrase, an ‘extremely’ religion–inclined institution. Hence, Site B could be said to attract parents not only on the basis of their ability to pay for their children’s education but religious orientation also determines which learner enrolls at the institution. It is, therefore, important to emphasize that these and other reasons including promise for better education, smaller class sizes and so on, could be the motive behind the ‘low’ Grade R class size at Site B. Hence, I argue that access to Grade R at Site B is predicated on ‘school choices’, a factor that is influenced, mainly, by the decisions of parents.

Accordingly, Bosetti (2004: 389) writes, in respect of school choice decisions by parents, that “rational choice theory²³ suggests that parents are utility maximizers who make decisions from clear value preferences, that they are able to demand effective action from local schools and teachers, and that they can be relied upon to pursue the best interests of their children”. The other ways in which parents demonstrate their being “utility maximizers” who demand the best for their children’s education is highlighted by Goldring and Rowley (2006: 4) who assert that:

Literature indicates that parents choose schools for their academic curriculum emphasis, discipline and safety...other parents often choose for religious values...as family income and parent’s level of education rise, so does the propensity to chose a private school. There is some evidence that lower public school test scores in elementary schools increase the likelihood of private school choice.

²³ Rational Choice Theory – a theory, originating from the USA, based on the notion that all human actions are fundamentally ‘rational’ and that people’s decisions are informed by the costs and benefits that could result from a chosen action. Hence, before an individual decides on a particular course of action, the first thing they do is to weigh the costs vis–a–vis the benefits associated with that action.

It should be evident that due to a variety of factors, for example, financial factors and religious perspectives, Site B attracts a small pool of Grade R learners. In my opinion, these factors have a negative impact on the majority of children whose parents would, ordinarily, want to enrol them in the Grade R class of Site B. Consequently, it is likely that some children would find it difficult to access Grade R. My contention is based on the fact that evidence, anecdotal and empirical, suggests that township schools; as epitomised by Site C in this study; tend to have huge Grade R enrolments. Some children are even turned away due limited space. And, Site B is located less than five kilometres from a township. Accordingly, some of the children who are supposed to be in Grade R are, in the case of Site B, tacitly, excluded from this class through factors such as finances and religious inclinations. This situation has negative implications for access to education and, by extension, environmental education.

In respect of Site D, access to Grade R seemed to be predicated on the regulations laid down by the North West Department of Education as well as the affordability of school fees to parents. Apparently, at the time of conducting this study, the NWDE had prescribed that the teacher–learner ratio should be 1:30 in Grade R. This teacher–learner aspect is discernible from the statement by Respondent M, in reference to the number of learners enrolled in Grade R at Site D, who pointed out that, *“every year we take in sixty; sixty preschoolers. Now, like I told you the other day, some of our people withdraw their children from the school. However, we try to keep the number at sixty”*.

The logic behind the enrolment of *“sixty preschoolers”* at Site D is that, when this study was conducted, the institution had two Grade R teachers. Therefore, each of the two teachers was responsible for thirty learners – at least, at the beginning of the 2013 academic year. It is also important to underscore one of the challenges raised by Respondent M in respect of learner enrolment at Site D, that is, the withdrawal of Grade R learners. The issue of Grade R learner withdrawal at Site D was referred to by Respondent M in an unsolicited statement as reflected in the following entry:

But before we all moved out, the teacher came to my corner and had a brief chat with me. She informed me that she had thirty learners at the beginning of the year. However, since some parents withdrew their children, especially the Setswana–speaking children, and sent them to a school in town X (name of the town withheld for ethical reasons), she was left with twenty four learners in her

class. She also informed me that there were two Grade R classes in the school, Site D. After the brief information session between the teacher and me; we all went out to check on the shadow of the stick. (Participant Observation Entry 2013 October 30)

Evidently, the challenge experienced by Site A in terms of “*dwindling*” learners seems to be experienced at Site D as well. However, unlike Site A which is a “no fee school”, Site D is a fee paying school. Therefore, the two institutions could ascribe the decline of Grade R enrolment to dissimilar reasons. Nevertheless, for the sake of this discussion, it is appropriate to mention that, based on my observations; the withdrawal of learners from Site D deprived them of an opportunity to gain exposure to environmental learning. Based on my observation of Respondent M in action, I contend that the learners who withdrew from Site D missed out on programmes that infused environmental learning.

Of the four learning sites that formed part of this study, Site C seemed to have the greatest challenge in terms of Grade R accessibility. This challenge is underscored in the following assertion by Respondent L, the principal of Site C, during our interaction:

The only challenge that we have now is that many parents want their children to be enrolled at this school. So, this year, 2013 alone, we didn't have any waiting list. But the most common challenge is that we do not have accommodation. Therefore we had to turn back more than four hundred learners.

The apparent high demand for Grade R places at Sites C, as suggested by Respondents L, is in sync with some of the points raised in chapter two (*refer to 2.3.1*). As highlighted in chapter two, literature (Feza 2015; van der Berg *et al.* 2013; Biersteker 2010) suggests that from the year 2001 there has been a great demand for Grade R places in many South African institutions. Subsequently, challenges such as overcrowding, as experienced at Site C, often result from the high demand for Grade R places in some institutions (SAIDE 2010).

The points made by the principal of Site C, above, indicate very clearly that due to lack of accommodation, deserving children do not have access to Grade R, especially, in the area where the institution is located. In fact, the need for accommodation in Grade R at Site C was evident from overcrowding, as observed during my empirical investigation. Overcrowding leads to multitudes of other challenges. Some of the challenges emanating from overcrowding at Site C are underscored by Respondent Y as follows:

The other problem is overcrowding in classrooms. We have a lot of kids here. On top of that we cannot attend to them as we would like or as we would wish; or as they say from above that we 'must see to it that each and every learner gets your attention'. And, we have a shortage of furniture which also disturbs when one has to give some work. You can't even group your kids according to your liking or according to the standards that you must work on...yes.

Similarly, the issue of overcrowding is the first concern I noted on the very first day of my observations at Site C. Hence, I made the following entry into my field notes:

The major challenge for the Grade R class was, I observed, overcrowding. Apparently, each of the four Grade R classes had to accommodate more than forty learners. I could count about forty two learners entering one of the classrooms as the learners marched from assembly at the beginning of the first day of my observation. This challenge was conspicuous both during my class observation and at the playground. "I certainly do not wish to be one of these poor teachers", I ended up saying this to myself. (Participant Observation Entry 2013 July 22).

Evidently, the need to access Grade R presented itself as a major factor at Site C. Accordingly, as pointed out by the school principal; the institution could not adhere to the teacher–learner ratio of 1: 30 as prescribed by the NWDE. It might be a good thing to accommodate as many Grade R learners as possible, which is what seemed to be the case at Site C. This ensures that many learners are exposed to formal learning and teaching at an early age. Indeed, an introduction of young children to formal learning and teaching enhances the chances of their exposure to EE. However, in view of challenges such as overcrowding as experienced at Site C, and the subsequent effects of those challenges on learning and teaching as expressed in the frustrations registered by Respondent Y during our interaction, it would be in the interest of everyone concerned not to accommodate more learners than the teachers could handle. Otherwise, the quality of learning and teaching would be compromised. Subsequently, my considered view is that, due to challenges imposed by overcrowding as experienced at Site C, the infusion of EE would also be impacted negatively, that is, it might be difficult to infuse EE even if the teachers would have wanted to do so.

5.4.2 Collegiality and Collaboration

In order to be both effective and efficient in their professional duties, teachers require support (Kelchtermans 2006). This support could be obtained from people within the institution where a teacher works or from outside the institution. Since it is one of the vital sources of teacher empowerment, cooperation among the teachers who are either from within the same institution or in different institutions has, in recent years, gained prominence (Shah 2012; Atkinson, Springate, Johnson and Halsey 2007; Kelchtermans 2006). The concepts of collegiality and collaboration have been often used in reference to the working together of teachers. However, in view of the fact that “teacher collaboration is often mentioned in the same breath together with (or even subsumed in) collegiality” (Kelchtermans 2006: 220), and that the exact meaning of the term collegiality “remains conceptually vague in literature” (Shah 2012: 131), I shall use the concepts collegiality “interchangeably with ‘collaboration’” (ibid.).

According to Brownell, Adams, Sindelar, Waldron and Vanhover (2006: 169), “collaboration is viewed as essential to promoting teacher learning”. In the same vein, Briscoe and Peters (1997: 52) assert that “collaboration increases teachers’ ability to analyze and improve classroom practice and is a factor in increased job satisfaction”. On the other hand, Shah (2012: 130) contends that collegiality is “an important factor for school improvement and success”. Hence, he argues that “schools cannot improve without people working together” (ibid.).

The importance and benefit of “people working together” was also noted by Lotz (1996) in an educational project involving teachers. Through her research project, the *We Care Primary Project*, in which foundation phase teachers cooperated in the development of environmental education resource materials for junior primary education; Lotz (1996) experienced firsthand the value and the empowering nature of collaboration among teachers. She noted that “diverse, rich interactions and discussions...occurred as a result of teachers working together around a concern for better quality educational materials” (Lotz 1996: 182). Accordingly, based on this and other observations, she concluded that “situations which enable teachers to identify their own problems and select their own topics or issues for discussion and reflection with others on their own classroom practice (and the use of the materials), are more likely to be situations in which authentic participation may occur” (Lotz 1996: 183). Consequently, authentic participation and closer interaction among teachers may lead “to the development

of teacher voice” (Lotz 1996: 183) because in meaningful interactions “participants are given the ‘freedom’ to ‘make’ and to ‘take’ from the activities that which is meaningful to them” (Lotz–Sisitka and O’ Donoghue 2008: 119). Hence, in my opinion, teacher collaboration is vital if the integration of EE in ECE is to be accomplished.

There are various forms of “collaborative activities” (Atkinson, Springate, Johnson and Halsey 2007: vii) that take place in learning and teaching settings. These include “peer coaching, collaborative consultation, co-teaching, collaborative problem-solving and teacher mentoring all (of which) assume that teachers can learn when given an opportunity to work together” (Brownell *et al.* 2006: 169 – 170). In this study, collegiality manifested itself in numerous ways. For example, when I asked Respondent Y to mention some of the challenges she encountered in her Grade R class she stated that, “*I am not sure of what I am doing presently*”. In essence, the preceding statement by Respond Y suggests that she was not sure whether she was teaching the Grade R learners in the ‘correct way’. However, when I asked her how she dealt with this uncertainty, she responded by stating that, “*I am just copying from other people...within the institution...they help me*”.

Furthermore, Respondent Y indicated that these “*other people*” were her Grade R colleagues at the Site C. According to her, she together with her Grade R colleagues held meetings in which they shared their frustrations and experiences in the teaching of Grade R; and these meetings were helpful. The following is what Respondent Y also said about her colleagues in respect of their interactions:

....they are still training. So, they are not yet qualified. But at least they have some knowledge. And, we do sit and discuss whatever we have. If we don’t get any solution we go to the HOD.

In my view, all the preceding points in respect of how Respondent Y negotiated some of the challenges emanating from her uncertainty about her teaching of Grade R suggest that collaboration with her colleagues did, to an extent, assist her. Furthermore, I would argue that, based on my observation of Respondent Y’s classroom practice, she might also have made meaningful contributions that might have assisted her colleagues during their interactions. Her contributions could also have empowered them in respect of integration of environmental learning since, as I indicate later in this discussion, her pedagogical approach demonstrated that she was able to infuse environmental learning in her pedagogical activities.

In describing collegiality, Shah (2012: 131) cites Jarzabkowski (2002) who asserts that collegiality also refers to “teachers’ involvement with their peers on any level, be it intellectual, oral, social and/or emotional”. Furthermore, Shah (2012: 132) writes that:

Teachers in collegial schools have personal as well as professional relationships with each other...They converse with one another, preferred to have lunch in groups, came to school together, and even visit each other’s homes. They helped each other in school-related work and solved both administrative and instructional problems jointly.

Although I would not like to claim that Site C could be classified as a “collegial school” since my study did not cover the entire school, however, I do contend that my observations at Site C did demonstrate a few aspects highlighted by Shah (2012), above. For example, I made the following entry in my field notes while conducting observations at Site C:

...the three practitioners from the other three Grade R classes gradually made their way towards my host teacher’s classroom. They were later to sit together, just outside my host-class, for a lengthy conversation, interspersed with munching and sipping; that lasted the entire duration of “free-play” (Participant Observation Entry 2013 July 22)

Evidently, as Shah (2012) asserts, collegiality also involves personal as well as professional relationships among colleagues. I also made another entry in respect of collaboration at Site C as follows:

From around 09H20 another Grade R practitioner came into my host class. She together with my host teacher sat around the table and worked until around 09H45. Apparently, from their discussion and constant scrutiny of documents, they were developing some learner activities (Participant Observation Entry, 2013 July 26).

On the basis of the preceding entry, I would like to reiterate that the collaboration, as illustrated above, between the two teachers and, indeed, many other collaborations at Site C; could be used to benefit and improve the teaching practice of Grade R teachers in the institution. This could, in turn, assist in enabling the integration of environmental learning since Respondent Y demonstrated the ability to integrate environmental topics in her teaching and learning activities. Collaboration manifested itself even at Site D.

In response to the question concerning the kind of support she provides to her Grade R colleague at Site D in order to assure her effectiveness and efficiency, Respondent M demonstrated that there is collegiality between the two of them. This was evident from the following response during our one-on-one interview:

We do our planning together. It helps a lot because our work is exactly the same. When there are problems in terms of specific children or groups, we discuss them and find solutions together.

The point made by Respondent M, above, does not only illustrate that she is supportive of her colleague's professional growth and development but it also suggests that the two of them have a quality relationship. The kind of relationship portrayed by the Respondent M implies that she and her Grade R colleague are interdependent and have mutual respect. This is despite the fact that Respondent M is also the principal of Site D, and as such one would expect a different relationship from the one suggested by the above-mentioned response by Respondent M. This relationship is in line with the notion of collaboration expressed by Kelchtermans' (2006: 121) concept of "meaningful interaction" in which colleagues work interdependently with the view to improve teaching and learning to the ultimate benefit of learners (Shah 2012; Kelchtermans 2006).

It is also significant for me to mention that, based on my observation of Respondent M during her classroom practice, her assertion that "*we do our planning together ...our work is exactly the same*" has positive implications for the integration of environmental learning at Site D. My contention is based on the fact that Respondent M demonstrated during her classroom activities that she is able to integrate EE. At the same time, during our one-on-one interview, as I shall demonstrate later in this chapter, Respondent M made it clear that at Site D they do make an attempt to integrate EE in various ways.

The notion of collegiality was also detected during my interaction with Respondent W. Although she perceived herself as being inadequately qualified to teach Grade R, Respondent W highlighted that her training, which was in process when this study was conducted, was equipping her to become a competent practitioner. This claim is discernible from her assertion regarding the nature of interaction she has with her classmates. For example, during our interview she stated that, "*when we attend classes we share information and advise one another on how to deal with various problems. So, we are helping each other*".

The point made by Respondent W, above, also highlights the significance of collegiality as a strategy, if you will, that empowers teachers to become more competent in their duties. More importantly, in respect of Respondent W, the sharing of information and advice did not end at classroom level. According to our one-on-one interview, each time Respondent W experienced challenges in her duties as a Grade R practitioner; she would visit a Grade R colleague in a different school. This emerged from her response to the question concerning the ways in which she deals with challenges experienced in her duties. She responded by stating that, “*I get help from somebody else in the township.... I am getting it from another teacher who is teaching at School X (name withheld for confidentiality purposes)*”.

Based on her response, in instances where her seniors at Site A could not provide her with assistance in respect of her duties as Grade R practitioner, Respondent W deemed it essential to approach her colleagues in another institution. The process of soliciting help and obtaining it from another colleague falls into the category of activities referred to by Atkinson *et al.* (2007: vii) as “collaborative activities”. Additionally, these authors also include among the collaborations that form part of collegiality, the notion of “working relationships between schools” (Atkinson *et al.* 2007: vii). This type of collegiality mirrors the view of collaboration espoused by Little (1990: 508 cited in Kelchtermans 2006: 224) which entails “teacher providing aid and assistance to colleagues who ask for advice”.

In the interest of this study, I need to point out that although Respondent W seemed to have made an effort to learn from her colleagues in other schools, there was hardly any evidence, both from interviews and participant observation; to suggest that collegiality assisted her in the integration of EE. Evidently, collaboration among teachers does not necessarily benefit every person equally or as much as it would be expected. This point is underscored by Brownell *et al.* (2006: 170) who write that “previous research on staff development and collaboration suggests that individual teachers do not profit equally even when the conditions are positive. Certain teachers are likely to learn a lot and others are likely not to learn much at all”.

In concluding this discussion on collegiality, it is important, in my view, to mention that collaboration among teachers should be viewed “as the solution for problems in the schools and as a powerful tool and perspective for school improvement” (Kelchtermans 2006: 222). This is due to the fact that “educators perform better when working together professionally” (Shah 2012: 131). And, as Brownell *et al.* (2006: 170) assert, “moreover, researchers have

demonstrated that teachers (and ultimately students) benefit from opportunities to work and learn together”. By working together, teachers are empowered and, as Carl (2009: 8) writes “once empowered, the teacher can empower his or her learners, by no longer being transmission-oriented as the mere transferor or transmitter of knowledge but by being, rather, the facilitator of teaching”.

Therefore, as I tried to illustrate in this discussion, collegiality seems to be beneficial to some of the respondents who participated in this study when it comes to aspects such as planning for and execution of learning and teaching activities. For example, there was evidence of both collegiality and the integration of environmental learning in educational activities at Sites C and D, respectively. Hence, I would argue that collaboration and collegiality among teachers has positive implications for the integration of EE in all Grade R classes at both Sites C and D. In essence, one would expect that, in a way, the individuals who interacted collaboratively with Respondents Y (at Site C) and M (at Site D) could have benefited from the competence demonstrated by these respondents pedagogically, and more importantly; in terms of their integration of EE in teaching and learning activities.

5.4.3 Institutional Power Relations: Monitoring and Support of Grade R

Generally, power plays an important role in organisations. The nature of power, the ‘bearer’ of power and how that power is utilized all play a cardinal role in the functioning of organisations (Greenberg and Baron 2003; Robbins, Odendaal and Roodt 2003). Learning institutions, just like various other types of organisations, are not immune to the influence of power. In the school context, the principal has the legitimate power to oversee and ascertain the overall functioning of the school (Sister 2004; Bhengu 2002). By legitimate power I am referring to the power that is derived from being in the position of authority (Ye 2012; Greenberg and Baron 2003).

In the South African context, one of the core responsibilities of the school principal is “to guide, supervise and offer professional advice on the work and performance of all staff in the school” (Christie 2010: 704). However, school principals do not necessarily have to bear this monitoring and support role all by themselves. In most cases they are assisted by deputy principals and/or departmental heads (Khambule 2007; Khuluse 2004). Hence, Sister (2004: 13) writes that “principals and heads of department constitute what is referred to as the school management team”. All of them have legitimate power in the South African school context because as (Christie 2010: 703) asserts, “regulations state that the principal and school

management team are responsible for organising all activities to support teaching and learning”.

Notwithstanding the authority that comes with legitimate power, some writers are of the view that school management teams should strive for the participation of other stakeholders, including teachers, in the running of the school (Khuluse 2004; Sister 2004). This should be done, they argue, in order to make schools effective and efficient. Hence, Sister (2004: 19) asserts that “in improving the quality of teaching and learning, education management must be more supportive than directive”, and that school managers must build a shared vision in collaboration with other stakeholders. A collaborative approach is thus described by Khambule (2007: 12) who writes that:

A collaborative approach means that people work together for the benefit of all members. It involves each individual’s contribution. The aim is to accomplish shared outcomes...In this approach the school management team is expected to work hand in hand with the educators at school level.

The notion of collaboration is also entailed in what Ye (2012) refers to as “soft power”. According to Ye (2012) “soft power” differs from “hard power” which emphasises the “superior–subordinate” relations in that “soft power” emphasises collaboration and promotes integrative power relations in which those who are in authority consider “power with” to be more significant than “power over” other people. Ye (2012: 12) views “soft power” to be integrative in nature, hence the assertion that “integrative power relations are considered to be based on love, persuasion, integration, cooperation and communication” (ibid.).

In this study, some forms of institutional power relations were noted in each of the four learning sites. These relations and interactions impacted on the learning and teaching activities. Accordingly, I contend that the impact of those institutional relations has implications for the integration of environmental learning in the Grade R classes of each of the four learning sites. For that reason, a reflection on the signs of institutional power relations as well as the provision of support to Grade R teachers that seemed to prevail in each of the institutions which participated in this study; is essential.

Evidence generated from this study suggests that the Grade R teachers at Sites D and B, respectively, obtain tangible support from their school principals and/or their school management teams than those at Sites C and A, respectively. For example, when asked about

the nature of support she provides to the (other) Grade R teacher at Site D, in order to enable her to be both effective and efficient, Respondent M stated that:

We do our planning together. It helps a lot because our work is exactly the same. When there are problems in terms of specific children or groups, we discuss them and find solutions together. At the same time, I conduct a lot of class visits in order to determine whether or not she is doing the right thing.

It should be evident from the preceding points that Respondent M fulfils her responsibilities as school principal in terms of providing support to her colleague. For example Respondent M and her colleague “*plan together*”; “*discuss problems*” encountered and generate “*solutions*” to the problems collectively. Hence, the kind of power illustrated in the relationship between Respondent M and her (junior) colleague is “soft power” based on mutual respect and collaboration.

The other point worth noting in respect of the above response by Respondent M is that the “*planning together*” implies that since Respondent M demonstrated her ability to integrate environmental learning in her teaching; her Grade R colleague is, in all probability, also able to integrate EE in her teaching. This is, possibly, ascertained through “*a lot of class visits*” conducted by Respondent M in her capacity as school principal. On the basis of the preceding points, it should be clear that Respondent M provided professional support to her junior colleague and also monitored that “*she is doing the right thing*”. It is also significant to indicate, based on her account; that Respondent M provided an on-going support to her partner. This emerged in her response to the question: How often do you visit her in class? In her response, Respondent M stated that:

*It is every now and again...I do not specify when I am coming. Sometimes I do it **kammakas'tig** (ostentatiously), that is, I go with a paper or something; pretending to be monitoring her so as to see how she reacts to my presence. We conduct class visits throughout the year and, so we know whether the teacher does her work or not.*

The above statement suggests that the school principal of Site D provides an on-going monitoring and support to the other Grade R teacher. In my opinion, this should auger well for learning and teaching in the sense that the Grade R teacher would always be on her toes, if you will. More importantly, if her teaching and learning activities are conducted in the

same way as Respondent M or in accordance with the joint planning conducted by both Grade R teachers at Site D, then the integration of EE is likely to take place “*throughout the year*”.

In respect of Site B, evidence generated from the interaction with both Respondent X and Respondent K suggests that Respondent X, the Grade R practitioner at Site B, obtains the necessary support to enable her to do her job very well. Similarly, evidence also indicates that apart from the principal, there are other relevant stakeholders who provide Respondent X with support to assist her to perform her Grade R teaching job efficaciously. This emerged when I posed the following question to Respondent X: What support, if any, is provided to you by your seniors at school to enable you to become a better teacher? Her response was; *sometimes we go to workshops, we attend workshops and when we come back, we teach the children what we have learned. We implement what we have learned from the workshop.*

According to the principal, Respondent K, these workshops are organised by the Accelerated Christian Education (ACE), that is, “*the curriculum provider for the curriculum we are using*”. Therefore, the principal consults with ACE and ascertains that the Grade R practitioner attends these workshops. At the same time, the principal indicated that Respondent X also obtains support from individuals such as, “*...the (Foundation) Phase Manager; the remedial teacher....the remedial teacher has got qualification (to assist) as well*” [my emphasis]. Additionally, the principal indicated that she too “*as the principal; I also go into the classroom regularly and I support her with whatever she needs.*”

The assertions made by Respondent K in respect of the support provided to the Grade R practitioner by the school-based officials at Site B were corroborated by Respondent X, herself, during our one-on-one interaction. According to Respondent X, her seniors do provide her with requisite assistance each time she needs it. This is in contrast to the experiences by Respondent Y and Respondent W, respectively.

For example, I asked Respondent Y about the kinds of challenges that confronted her in her teaching of Grade R. She indicated the following problems, among other things: overcrowding, lack of furniture in her classroom, and her own perceived inability to teach the Grade R class. Subsequently, I posed the following question to her: What support, if any, do you get from your School Management Team in terms of enabling you to become a better teacher despite all the challenges you have mentioned? Respondent Y’s reply was a despondent, “*None so far. No support*”.

Furthermore, Respondent Y pointed out that when she and her three Grade R colleagues approach their departmental head, she is not always helpful in respect of the challenges facing Grade R. This emerged in her response to the question: Is the HOD helpful? Her response was, “*Yes, at times she is helpful but not always because she is also on the learning track of this Grade R class*”.

The point highlighted by Respondent Y in respect of her HOD not being always helpful, partly, reaffirms the findings made by previous research (SAIDE 2010; Umalusi, CEPD and Wits 2010) on the lack of capacity among the School Management Teams in terms of managing Grade R. This lack of capacity by the SMTs was highlighted in chapter two of this discussion. However, for the sake of emphasis it is essential, in my view; to reassert it by means of literature. Accordingly, Umalusi, CEPD and Wits (2010: 8) underscore the shortcomings of the SMTs by writing that:

As our research (WoSE, 2009) has shown, many Grade R practitioners in Gauteng are unqualified, lack status and have insufficient support from school management teams, school principals and HoDs. The lack of support comes, we found, from a general limited understanding of the unique requirements of Grade R.

Apart from the inadequate support provided by the HOD to the Grade R teachers at Site C, as suggested by Respondent Y, it appears that there is lack of cohesion within the School Management Team at Site C. This could be deduced from the answer provided by Respondent Y to the question on the challenge of learner overcrowding. The question was: What does the HOD say when you complain to say ‘look, we have a huge problem of overcrowding’? According to Respondent Y, “*the HOD is also not happy with the situation. But now there is nothing she can do because she only receives the admitted learners. So there is nothing that she can do*”.

In my view the response by Respondent Y highlights an existence of, for lack of a better word or phrase, skewed power. Apparently, the admission of Grade R learners is not a matter that is decided upon collectively by those who are affected by it. The statement “*she only receives the admitted learners*” by Respondent Y, above, contradicts the point she made concerning overcrowding. At some point during our interview, Respondent Y stated; in respect of learner overcrowding in her class, that; *the management is aware of this*

overcrowding because they are the ones who are admitting the learners at the office there. I am sure they know everything about this.

Evidently, the preceding statement contradicts an earlier assertion by Respondent Y in which she indicated that “*the HOD is also not happy with the situation*” of learner overcrowding. Hence, I would argue that these contradictions suggest that when Respondent Y refers to “*the management*”, she might not necessarily be referring to the entire SMT but rather the school principal; the person with the ultimate authority in the school context. Apparently, the principal has the final say on learner enrolment.

Accordingly, I would argue that there seems to be authoritative power which seems to rest solely in the hands of the school principal at Site C. And, due to skewed power relations emanating from authoritative power at Site C, there is overcrowding of Grade R classrooms. Consequently, as Respondent Y pointed out, because of learner overcrowding, “*we cannot attend to them (learners) as we would like*”. Hence, I would argue that, to some extent, learner overcrowding, the lack of adequate support from SMT and an array of challenges referred to by Respondent Y seemed to hinder learning and teaching in Grade R at Site C. In my view, the challenges that impact on pedagogy have the potential to constrict the integration of EE in Grade R at Site C.

Another point worth noting in terms of Site C is that, unlike Respondent Y, the school principal presented a different set of responses concerning the support provided by the SMT to Grade R teachers. For example, in response to the question: What kind of support do you provide to Grade R practitioners to enable them to become effective in their duties? Respondent L stated that:

In our school we have what we call staff development activities. Our Grade R practitioners attend Professional Support Forums²⁴ (PSFs), they attend workshops and they also receive handouts from educational materials.

Since I was not content with the above response by Respondent L in that it did not address the support role played by the SMT at Site C, I requested him to explain further. Consequently, he pointed out that:

²⁴ Professional Support Forums (PSFs) are gatherings usually planned by office-based Senior Education Specialists. Their main purpose is to engage teachers on issues related to curriculum, teaching and learning at school level.

We have our subject meetings. They attend foundation phase subject meetings under the mentorship of HODs and qualified educators. On a monthly basis...we interview them on monthly basis and we write reports.

As already highlighted in previous paragraphs, according to Respondent Y, the HOD of Site C “*is also on the learning track of this Grade R class*”. Therefore, I was not quite convinced by the statement that she together with “*qualified educators*” could provide mentorship to Grade R teachers on Grade R issues. Likewise, I contend that the assertion that, “*we interview them on monthly basis and we write reports*” does not say much about the support given to the Grade R teachers to enable them to do their work competently. As regards the statement that “*our Grade R practitioners attend Professional Support Forums (PSFs)*”; the value of the *PSFs* for Grade R teachers was, as I shall indicate later in this discussion, disputed by Respondent Y.

On the basis of the above-mentioned points, I argue that there seems to be no convincing evidence to suggest that the SMT of Site C is sufficiently empowered to provide the necessary support to the Grade R teachers to enable them to adequately fulfil their Grade R responsibilities. Hence, it was; perhaps, within reason that the HOD implored me during one of our informal interactions, to provide her with details that should assist her once I was done with my empirical investigation at the school.

In respect of Site A, evidence suggests that the Grade R practitioner, Respondent W, does not receive the kind of support that she would have liked to enable her to fulfil her duties with requisite competence. In my view, her situation is also compounded by the fact that she is inadequately qualified, academically, to teach Grade R. This became apparent during our one-on-one interview. For example, flowing from her indication that she had challenges such as the inability to control the classroom, I asked her the following question: What support, if any, do you get from your seniors at school to enable you to deal with those challenges? She responded both briefly and hesitantly as follows:

To be honest, I don't get support. It's once in a while, meneer will.... (Respondent does not complete the statement. She spreads her arms as if to say ‘I don't know’).

I made an attempt to, gently, and with some degree of difficulty; obtain more clarity from her regarding her response. After some struggle in which I posed questions while the respondent

used only non-verbal signs, she eventually indicated that rather than “*disturb*” my seniors, “*I get help from somebody else in the township*”. It is also essential to note that although the principal expressed contentment with the “*support*” he provided to Respondent W, he was also aware that she obtained assistance from somewhere else, and that he was happy with that help. However, what he might not have been aware of, I suspect, is that Respondent W had to acquire support from elsewhere because she was not obtaining it from her seniors at Site A. For example, during our interview I asked the principal, Respondent J; the following question: What kind of support, if any, do you provide her (the Grade R practitioner)? His answer was:

There is support that I am providing. Whenever she has a problem of some kind, we involve the Senior Education Specialists (SES's). They would come to class...And, on a monthly basis we have subject meetings where we sit down and each educator would indicate the types of problems they encounter in the classroom. I think that, that is the support that one is providing to her.

My interaction with Respondent J suggested to me that as far as he was concerned, he provided the Grade R practitioner with adequate support. In fact, I was particularly concerned that, to my knowledge, Respond J had no experience of Foundation Phase teaching yet he doubled as school principal and an HOD to the Grade R practitioner. Accordingly, I asked him whether, in his view, he was able to provide Respondent W with essential support. His response to that inquiry was:

I think I am competent enough in the sense that the moderation tools that the SES's are using for the school....I don't see any problem coming out of there. The results thereof are always positive.

It is also significant to state that the principal informed me that there were regular engagements between him and the Grade R practitioner. This assertion is contrary to the statements made by the Grade R practitioner, namely; that she does not raise her classroom challenges with the principal. The assertion about regular engagements between the principal and the practitioner emerged when I asked the principal whether he was able to cope with his dual role as school principal and HOD to Respondent W. Accordingly, I asked him: Is that not an enormous load for you? Are you able to cope with it? His response was:

Here and there it is difficult in the sense that I am not at school hundred percent. I have to attend meetings. I have to do this and that. But what I like about the practitioner is that she engages me. Whenever she encounters a problem she engages me. Sometimes even when I have forgotten about a meeting that I had to have with her, she would always remind me.

Evidently, the response by the principal contradicts the one provided by the practitioner in terms of the support, or lack thereof, from the school principal. However, what I found to be of interest is the principal's admission, once I probed the matter further with him; that he was aware of the support obtained by the practitioner from elsewhere. At the same time, he expressed contentment with the support obtained by Respondent W from another school. My greatest concern, though, was that the lack of support from within the school was discernible in Respondent W's handling of her classroom. More importantly, as I demonstrate elsewhere in this discussion, the shortcomings displayed by respondent W during her pedagogical output made it difficult for her to infuse EE in her class activities.

In my view, the shortcomings displayed by Respondent W, pedagogically speaking, could also be attributed to the fact that she seemed to be 'isolated' from the rest of the school. I noted this 'isolation' when I conducted the observations at Site A. For example, on the first day of my observation period, I noted that the Grade R class commenced earlier (07H30) than the rest of the school (08H00). Likewise, the Grade R class did not assemble and pray with the rest of the school, they prayed in their own classroom. Additionally, there seemed to be 'isolation', accidental or deliberate, of the Grade R practitioner from other staff activities. The following entry from my field notes reflects on this apparent 'isolation':

I must say that I found the arrangement in which the Grade R class seemed to operate in isolation from the rest of the school to be a bit odd. In fact, I had noted on the previous Friday while making arrangements with both the school principal and the Grade R practitioner for my class observations that the school seemed to have 'more than one world'. Before the principal accompanied me to the Grade R classroom for a brief interaction with the Grade R practitioner on that Friday, he informed me that there was a staff briefing. I told him that I did not mind waiting for the staff briefing to end and thereafter have a brief tête-à-tête with the Grade R practitioner. However, the principal insisted that the Grade R practitioner should stay in her class and could also have a talk with me in her classroom. He

asserted that there was no need for her to be in the staff briefing. I found this to be very odd, indeed (Participant Observation Entry 2013 October 07).

My view is that, the apparent ‘isolation’ of the Grade R practitioner did little to empower her. As part of the institution, Site C, Respondent W needed to feel that she is part of the school. In this way her abilities as a teacher would be honed. Consequently, her general teaching practice would improve, thereby; enable her to improve in various pedagogical aspects. Accordingly, the likelihood of her teaching *about/in/for* the environment would even be realised because, in my view, it would be easier for her to request pedagogical guidance from her colleagues at Site A. Therefore, I contend that the power relations prevalent at Site A have a negative bearing on the professional development of Respondent W. Subsequently, this situation hinders the likelihood of the integration of EE in Grade R at the institution.

5.4.4. The Role of Education Officials

In the first two chapters of this report I highlighted the role of the national Department of Basic Education in enabling the learners at the level of Grade R access to education. For the purposes of this subsection, it is important to underscore the fact that, through the provincial departments of education and other relevant structures, the same department also has a cardinal role to play to ascertain that the kind of education provided to Grade R and; indeed, other levels of education is of acceptable international standards. This point is amplified by Pretorius (2010: 127) who writes that “the department must *inter alia* ensure that all levels of the system adhere to the policies and laws, mechanisms are in place to monitor and enhance quality in the system and the system is on par with international developments”.

The assertion by Pretorius (2010), above, is also stressed by the DBE in its *Policy on the Organisation, Roles and Responsibilities of Education Districts* which was promulgated in 2013. This policy emphasizes that “the roles and functions of a district have one overriding purpose, which is to help all education institutions to deliver education of high quality” (DBE 2013: 18). One major way in which the district offices of the various PEDs would achieve the ideal of delivering quality education is by working collaboratively with circuit offices. This collaboration should help both the PED offices and circuit offices to fulfil an array of roles and responsibilities that should enable them to provide the much needed support to schools. Some of those roles and responsibilities are outlined by the DBE (2013: 11), which asserts that “subject to provincial plans, their task is to work collaboratively with principals and

educators to improve educational access and retention, give management and professional support, and help schools achieve excellence in learning and teaching”.

It should be apparent from the preceding points that the department of education, through circuit offices at local level, has an important role to play in terms of promoting the provision of quality education at school level, including in Grade R. In my view, the provision of quality education should entail, among other things, the “appropriate” implementation of the curriculum. Therefore, since the curriculum contained in CAPS documents (DBE 2011a; DBE 2011b; DBE 2011c), as discussed in this study (for example, *refer to sections 2.3.6 and 5.4.6*), enables the integration of EE in Grade R; the provision of quality education should facilitate the integration of environmental topics in Grade R. For this reason, I contend that if the officials of the department of education could fulfil their roles and responsibilities as required by the DBE, then the chances of EE integration would be enhanced.

In this study, evidence suggests that there are certain functions that are fulfilled by officials of the NWDE thereby enhancing the likelihood of an increased education quality in Grade R. However, it is essential to stress that there is also some evidence which points to the contrary. For example, according to the policy on the organisation, roles and responsibilities of education district offices, the district offices have an obligation to establish District Curriculum Support Teams (DCSTs). These teams have, among their responsibilities, roles such as “informing schools about national and provincial policies and assisting schools to implement them appropriately” (DBE 2013: 21) and “managing curriculum support including consultation with and advice to teachers” (*ibid.*).

Evidence generated from Site A, in this study, shows that the Senior Education Specialists (SES’s) who, according to my experience with the NWDE, are the core of the District Curriculum Support Teams, do provide support to the Grade R class at this school. For example, there was congruence between Respondent W, the Grade R practitioner; and Respondent J, her principal at Site A, that the practitioner did obtain support from the Senior Education Specialists. This emerged when I posed the following question to Respondent W: Are you getting any support from the officials outside the school, I mean those who are in offices, your subject advisors and so on? Her response was an emphatic “Yes”. Additionally, when I probed the matter further and asked: Do you feel that your subject advisers, or your specialists, are able to provide you with the support that you believe you need to be able to handle Grade R? Once more her response was, “Yes”. Likewise, during our interaction,

Respondent J echoed Respondent W's sentiments that; indeed, there was support provided by the NWDE in respect of Grade R issues at Site A.

Based on the assertion by both respondents from Site A; that there is support provided to the school by the NWDE officials, one would ordinarily expect Respondent W to demonstrate some level of competence in her interaction with her Grade R learners. At the same time, one would also expect to see some integration of EE in the teaching and learning activities in the same class. However, this was not the case. As highlighted in section 5.4.5 there were notable shortcomings in respect of Respondent W's classroom presentations. Similarly, as pointed out in section 5.4.7 there was also no evidence of EE integration at Site A. Therefore, in my view, it is appropriate to conclude that apart from intangible support by the School Management Team, as indicated in section 5.4.3, the fact that Respondent W is not qualified to teach Grade R could be the central causes of her shortcomings.

In the interest of this discussion, I need to point out, before presenting evidence from the other three sites; that I did not set out to solicit any views from the principals who participated in this study in respect of their perspectives on the support provided to the Grade R teachers by the office-based NWDE officials. My intention was to obtain only the views of the Grade R teachers concerning the support obtained from the office-based officials of the NWDE as well as the views of the latter regarding their support towards the former. This approach was premised on the notion that, generally, when it comes to issues concerning curriculum monitoring and support, the Senior Education Specialists work closely with teachers rather than the school principals. Consequently, I did not pose any questions to the principals in respect of their views regarding the support given to the Grade R teachers by the office-based officials of the NWDE. Nevertheless, some of the principals did provide unsolicited responses in respect of the support given to the Grade R teachers by the office-based officials.

Apart from the respondents at Site A, the only respondent from Site D who, unfortunately, served as both the principal and Grade R teacher, also indicated that there was support provided by the office-based curriculum specialists to her school. I refer to this situation as "unfortunate" because I could not obtain another perspective from Site D due to the dual role played by Respondent M. Nonetheless, it is essential to mention that I posed the following question to Respondent M regarding support from the NWDE officials: Do you get any

support from the department; for example, from the officials to help you to continuously improve your teaching? Her response was as follows:

Er...yes. We attend workshops and they visit us throughout the year. They look at our work and tell us where we went wrong. So, this helps us a lot and we appreciate the fact that they do come to help us when we do not know certain things. We are also able to phone them if we get stuck on something. They are always willing to help.

On the basis of the above response, it should be evident that the NWDE officials do provide monitoring and support to the Grade R teachers at Site D. At the same time Respondent M is content with the support and assistance provided by these officials. And, evidence generated at Site D also lends credence to the assertion by Respondent M that there seems to be some support provided to the respondent. Her classroom activities demonstrated that she is competent when it comes to the execution of her duties as a teacher. Likewise, Respondent M also demonstrated competence in terms of infusing environmental learning in her classroom activities. Evidence in respect of EE integration is provided in section 5.4.7 of this discussion.

Contrary to the positive responses presented by the respondents from Sites A and D, respectively, in terms of the support provided by the office-based officials of the NWDE, conflicting perspectives were presented by the two respondents from Site C. In essence, there was no congruence between the perspective of the Grade R teacher and the standpoint of the principal in respect of the support role played by the NWDE officials. For example, when I asked Respondent Y whether there was any support provided by office-based NWDE officials to the Grade R class; her response was an emphatic “*No...We don't have any support*”. Furthermore, she pointed out that, “*we normally attend the Professional Support Forums (PSFs) and there nothing is said about the Grade Rs.*” I tried to establish from Respondent Y the nature of support she would have liked to obtain from the office-based NWDE officials. Her response was, “*well, support in helping me on how to conduct a lesson. It is better if you can see a qualified person demonstrating in class, doing everything while you are watching. From there, you would know what to do*”.

The statements made by Respondent Y demonstrate patently that she was not satisfied with the role played by the NWDE officials in respect of the provision of support to the Grade R teachers. The stand point of Respondent Y is in clear contrast to the response provided by her principal. Respondent L suggested that the Grade R teachers did obtain support from the

office-based officials of the NWDE. Part of his response to the question on the support provided by the SMT to the Grade R teachers at Site C addressed the role of the NWDE officials. Respondent L stated that the Grade R teachers were exposed to what he called “*staff development activities*”. According to him these activities entailed, among other things; that “*our Grade R practitioners attend Professional Support Forums (PSFs), they attend workshops and they also receive handouts from educational materials.*”

An interesting point that should, in my opinion, be underlined is that Respondent Y and her principal, Respondent L, concur that; indeed, PSFs are attended by the Grade R practitioners from Site C. However, what Respondent L does not know, or at least fails to acknowledge, is the assertion made by Respondent Y, the person who attends the PSFs, that “*nothing is said about the Grade Rs*” in the “developmental” PSFs and workshops. In my view, these contradictions imply that there is possibly no interaction between the school principal and/or the SMT and the Grade R teachers concerning the significance of the PSFs and workshops organised by the NWDE officials for the Grade R teachers. If this is the case, then the assertions made by the school principal, Respondent L, regarding the support provided by the SMT to the Grade R teachers during our interaction need to be called to question.

During our interview, Respondent L stated, in respect of the support given by the SMT to the Grade R teachers, that “*we have our subject meetings... we interview them on monthly basis and we write reports.*” On the basis of the preceding points, the question that arises, in my opinion, is: During these, apparent, interactions between the SMT and the Grade R teachers, is the value of the PSFs and workshops organised by the NWDE officials for the Grade R teachers ever discussed? Of course, owing to ethical considerations, I could not, after analysing the response from both respondents from Site C, return to the school to pose this question. I could not do this because it would, probably, have lead to me having to point out the apparent opposing perspectives provided by Respondent Y and her school principal in respect of the PSFs and workshops.

In rounding off this discussion on the role of the NWDE officials in respect of supporting the Grade R teachers, I need to point out that I posed the following question to Respondent X: Do you ever get visits from departmental officials, for instance, those that are responsible for Grade R in the North West Department of Education; to check what it is that you are doing? Her response was: “*No. There is no one who came for such purposes from the department of education*”.

My reaction to Respondent X's reply was that of surprise. This is due to the fact that I thought that the NWDE would monitor and assure quality at Site B, even though the institution is classified as an 'independent school'. My astonishment stemmed from the point made by Pretorius (2010: 131) who writes that "the Head of Department will register an independent school only if he or she has the assurance that the standards maintained by such a school are not inferior to the standards in comparable public schools". Hence, in my considered view, one of the questions that requires an answer is, if the NWDE officials do not visit Site B for the purposes of, at least, assuring quality; then how does the Provincial Head of the NWDE ensure "that the standards maintained by such a school are not inferior" (ibid.) to those of an array of public schools? Besides, the *Policy on the Organisation, Roles and Responsibilities of Education Districts* (DBE 2013) does not say, or even slightly suggest that, in their roles and functions aimed at enhancing the quality of education, the district offices of the PEDs should focus only on public schools and exclude independent private schools.

In concluding this subsection, I need to reiterate that, based on the points raised in this discussion, the North West Department of Education, just like all the other Provincial Departments of Education in South Africa; has a constitutional imperative to ensure that quality education is provided in all levels of education, this includes Grade R. Similarly, in my opinion, if this mandate is carried out, then the chances of the integration of EE in Grade R are likely to be enhanced. However, on the basis of the evidence provided in this discussion, it appears that there is some work that still needs to be done in terms of ensuring quality in and the provision of support by the office-based officials of the department of education to (some) Grade R institutions.

5.4.5. Pedagogical Practices of Grade R Teachers

I have argued, repeatedly, in this discussion that the implementation of EE in Grade R, just like at any other levels of formal education, is predicated on the infusion of environmental topics in teaching and learning activities of existing subjects. Therefore, in my view, the pedagogical decisions made by a Grade R teacher do not only impact on the teaching objectives but have implications for the integration of EE as well. There are numerous instructional strategies that should facilitate the interaction between the teacher and the learner thereby promote the learning process at the level of Grade R (McMonagle 2012; Dockett, Perry, Campbell, Hard, Kearney and Taffee 2007; Oltman 2002). This point is

amplified by Dockett, Perry, Campbell, Hard, Kearney and Taffee (2007: 20) who write that, there is “a wide range of pedagogical approaches used in prior-to-school settings”. Therefore, this suggests that there is a variety of teaching approaches from which teachers could choose in an effort to facilitate the learning and teaching process. However, it is significant to point out that there is no particular teaching approach that could be deemed to be the best and therefore preferable over the others. This point is underlined by McMonagle (2012: 32) who argues that:

All children deserve excellent teaching. Teaching in early childhood is a highly skilled process where there is no single correct way to respond to children in order to optimise learning. It is the teaching skills and practices of the early childhood educator that make interactions educational. Skilful educators draw on a wide repertoire of pedagogical techniques and strategies during their interactions with children.

In this study, a number of pedagogical techniques and strategies that enable the integration of environmental learning were employed by three of the four Grade R teachers. For example, in section 5.4.7 I provide an illustration of how storytelling was utilized to aid the integration of EE in this study. However, in the interest of this discussion I need to also highlight that, as literature suggests (McMonagle 2012; Dockett *et al.* 2007; Oltman 2002), storytelling is one of the invaluable approaches that can be used in facilitating environmental learning at ECE level. In section 2.3.6.3, the use of stories as one of the vehicles that could be used in the teaching of education *about* the environment in Grade R is highlighted.

Apart from using stories in the integration of EE, Respondent X, Y and M also used ‘questioning’ as the basis for pedagogy. McMonagle (2012) emphasises questioning as one of the teaching approaches used in ECE. Furthermore, McMonagle (2012: 39) reflects on how this strategy is usually applied by writing that:

From an early age, children use questioning as a means of communicating with each other and with adults. Therefore, questioning is an effective pedagogical technique to promote learning and development with all children...Early Childhood Educators use open-ended questions as a pedagogical technique as this form of questioning assumes that there is no right or wrong answer...Open questions encourage children to endlessly hypothesize about how the world works, or to predict outcomes of a particular activity or event.

It should be evident from the points by McMonagle (2012), above, that questioning as an approach to teaching, especially, in the context of ECE has the potential to help learners discover certain things and this assists them to understand the world better. Hence, I contend that questioning as a pedagogical strategy cannot be divorced from discovery learning or inquiry-based learning. In highlighting the nature of inquiry-based learning Oltman (2002: 30) writes that:

Inquiry-based learning is focusing on children making discoveries independently or as members of a group. Children are encouraged to ask questions, experiment, use trial and error, discuss and evaluate. Inquiry is the point of this activity, not a way of getting children to the right answer.

In the interest of this discussion, I deemed it essential to raise the assertion by Oltman (2002), above, since evidence from this study indicates that at times, in the midst of learning and teaching activities, Grade R learners also have their own questions to ask. It is not only the teacher who poses questions but learners do too. Similarly, it is essential to mention that, just like McMonagle (2012); Oltman (2002: 30) also suggests that “to facilitate inquiry, **(the teacher should)** ask open ended questions wherever possible” **[my emphasis]**. Hence, my contention that questioning as a teaching strategy is intertwined with inquiry-based learning.

In this study, there are numerous examples which illustrate how questioning as a pedagogical strategy was used to infuse EE in learning and teaching activities. For example, as illustrated in section 5.4.7; Respondent X, Y and M used questioning to deal with matters concerning weather conditions. However, in my view, it is essential for the sake of emphasis to highlight a few other instances in which questioning was used to aid the integration of environmental learning in this study. For example, in a workbook-based lesson on various animals, Respondent X used questioning not only to encourage learner participation but to also infuse EE in her teaching and learning activities. The following participant observation entry underscores this point:

“What animals do you see on page four?” the practitioners asked. “A beetle”, the learners responded in unison. “What colour is the beetle”? The practitioner asked. “Black and pink”, the learners responded. “No, black and brownish”, the practitioner corrected them. She then went on to ask the learners about the other animals on page four and each time they provided a correct response the practitioner appreciated. In instances where incorrect answers were provided,

the practitioner assisted them with a correct answer. (Participant Observation Entry 2013 November 12)

It should be evident from the above excerpt, which demonstrates the process of education *about* the environment as described by Lucas (1972), that through the use of questioning, Respondent X was able to get learners involved in the lesson. Similarly, they were able to observe the pictures, respond to the inquiries by the teacher and ultimately interpret what they were seeing on the pictures. More importantly, as the question and answer interaction between the teacher and the learners unfolded, the teacher was able to integrate environmental learning into the lesson. For instance, in the above example, the learners had a chance to learn about some of the organisms that they were likely to encounter in their everyday lives. Therefore, in my view, this questioning activity contributed towards facilitating the development of environmental awareness among the learners. Additionally, viewed from the analysis of the CAPS curriculum in section 2.3.6.3, the topic on animals could be deemed relevant to the Grade R learners.

In her handling of the activity on seasons, in one of her lessons, Respondent Y also used questioning as a strategy. The following is a reflection based on my observation on how Respondent Y attempted to help her Grade R learners distinguish among the seasons of the year. In this instance she used the changes that occur in a tree over the different seasons:

“Setlhare se se na le eng? (What does this tree have?)”, asked the teacher. “Se na le diapole tse hibidu (It has red apples)”replied the learners. “Se sone? (What about this one?)”, the teacher continued pointing at another tree. “Ke sono ka sona ga se na matlhare (It is a shame with that one, it does not have leaves)”, responded the class. “Se sone? (What about this one?)”, the teacher asked pointing at the next tree. “Se se ntle (It is beautiful)”, answered the learners... The teacher went through this process until the learners were able to match each of the trees to the relevant season. (Participant Observation Entry 2013 July 23)

The above example drawn from Site C illustrates how Respondent Y, patiently, took her learners through the process of examining the same tree as it underwent changes over the four seasons of the year. This question-based activity enabled the learners to express themselves. At the same time, the teacher drew the learners' attention to an environmental phenomenon of seasonal changes and the impact each season has on vegetation. Furthermore, it is important to point out that the topic on seasons is highlighted in section 2.3.6.3 as one of the

topics that could be used to integrate environmental learning in Grade R. Likewise, viewed from Lucas's (1972) theoretical position reflected in section 1.7.4, the preceding excerpt, which is based on the infusion of the topic on seasons; illustrates the process of education *about* the environment.

Respondent M, just like Respondents X and Y, respectively; also used questioning in her lessons throughout my participant observation period. The following is one of the examples base on my participant observation notes:

“As dit baie donker is; wat se ons? (What do we say in reference to extreme darkness?)”, the teacher asked. “Pik–donker (Pitch–black)”, replied the class in unison. The teacher went on to tell the learners about the stars. She informed them that stars can be seen when it is extremely dark outside. However, during the day they cannot be seen. She also informed them that the stars stay “in die lug (in the sky)” all the time but they cannot be seen during the day “want die son is te helder (because the sun is too bright)”. “Die maan (the moon)”, one learner interjected while the teacher was still speaking; “kan ’n mens in die maan leef? (Can a human being live in the moon?)”, he asked. “Ons kan nie in die maan leef (we cannot live in the moon)”, juffrou responded. She then continued with her lesson without further engagement with the question concerning the possibility of living in the moon.

The teacher went on to ask, “Wat is daar in ons dorp wat ons lig gee? (What gives us light in our town)?” “Ligte (lights)”, the class replied. The teacher then explained that the street lights are switched on in the evening and off in the morning. (Participant Observation Entry 2013 October 30).

It should be evident from the preceding examples that questioning as a pedagogical technique was used in learning and teaching activities in which environmental topics were infused in the Grade R classes of Sites B, C and D, respectively. Another significant point worth highlighting is that Oltman's (2002) notion of inquiry–based learning was also apparent in some of the activities. For instance, during the lesson on “light” and “dark” at Site D, as illustrated above, the learners also raised their own questions. This ‘question–centred’ participation by learners helped to evoke their thinking and also enabled them to gain a better perspective on various issues that are significant in the field of EE. For example, they were able to gain an understanding of the sources of light during the day and at night. At the same

time, they obtained some clarity on certain issues related to certain organisms and their habitats, for example, the issue on whether human beings can stay on the moon. Hence, I assert that ‘questioning’ as a pedagogical strategy was used meaningfully to integrate issues of environmental concern in three of the centres which participated in this inquiry.

Apart from questioning as a pedagogical technique, there is some evidence to suggest that modelling was also used in this study. Modelling is a phenomenon associated with behaviourism, one of the tenets referred to in chapter three of this study. McMonagle (2012) depicts modelling as one of the most important pedagogical approaches in ECE. Furthermore, she argues that modelling is “a process by which children learn how to behave by copying the behaviour of others. Educators play a crucial role in acting as models for children” (McMonagle 2012: 38).

In this inquiry, I did not observe any behaviour that could be classified as depicting ‘modelling’ displayed by any of the four respondents in respect of the integration of EE in Grade R. However, during our interview, Respondent M provided a response which, partly, suggested that she sometimes employs modelling as a pedagogical strategy in her teaching and learning activities. This was detectable from her response to the question: Do you integrate Environmental Education in your teaching? Her response was as follows:

Yes. There are various themes....we also encourage them to work on the school grounds. All of us clean the surroundings by removing papers. We do this so that the learners should know that dirt should not be thrown around. We teach them to use dustbins for rubbish dumping purposes.

The sentence; “*all of us clean the surroundings by removing papers*” in the above statement suggests that, in line with the behaviourist model which advocates for, among other things, learning through observation; Respondent M and her colleagues at Site D model the kind of behaviour they would like to see emulated by their learners. Therefore, it would appear that all teachers at the centre work collectively, as models for the learners, and with the learners, in taking care of the school surroundings. The collective approach to modelling good and environment-friendly behaviour, if you will, displayed by the teachers of Site D is implied in the constant use of the collective pronoun “*we*”. Hence, I contend that, apparently, modelling is sometimes used not only by Respondent M at Site D but other teachers use it as well.

In the same response to the already stated question, Respondent M also touched on experiment-based teaching as one of the approaches used in her Grade R class. It should be recalled that earlier in this section I cited Oltman's (2002) reference to the importance of inquiry-based learning in the learning and teaching context. Oltman (2002) argues that to facilitate learner responses to inquiry-based questions in an EE inclined lesson, teachers should use experiments. It appears that, Respondent M is well aware of the significance of experiments in the teaching and learning context. This is illustrated in the following part of her response to the question referred to above:

We also show them what happens to plants if they do not get water. We plant small sacks, so this is more of an experiment. We plant sacks in two different bowls...we water the seeds in one bowl and we do not water the other bowl. We let the learners observe the two plant bowls over time.

The above response suggests that Respondent M perceives the introduction of Grade R learners to the world of experiments to be of great significance. Experimenting, is highlighted as one of the aspects of learning that are considered significant in developing "scientific process skills" (DBE 2011c: 8) in Life Skills. Accordingly, the experiment referred to by Respondent M is, in my view, significant in that it introduces the Grade R learners into a scientific process of experimenting with water within the realm of EE. Through such an experiment learners do not only develop an inquiring mind but they also get to understand the role of water in plant growth.

Before rounding off this discussion, it is; in my considered view, necessary to reflect on a few points concerning the role of play-based pedagogy in this study. This is in view of the fact that, as highlighted in chapter three (*refer to 3.5*) of this study, play is cardinal to the holistic development of the child. Subsequently, it is essential for teachers in the field of ECE to strive for the utilization of play-based activities in their pedagogical practices. This point is underlined by McMonagle (2012: 10) who writes that:

Play physically strengthens children's bodies, expands their minds and influences many dimensions of development and is a powerful tool for learning. For young children, play is a way of strengthening meaningful relationships and cooperation with others and supports the development and use of language. An enriched play environment, indoors and outdoors, will stimulate children's imagination, extend their sense of wonder, enable them to experience success and develop a positive

attitude towards learning. To achieve this, children need appropriate periods of time for learning through sustained involvement in play.

In line with the assertion by McMonagle (2012), above, two of the four Grade R teachers in this study made an effort to use play-based activities to integrate environmental topics in their pedagogical activities. However, before I present some examples on how this was done, it is necessary to point out that in order to avert ambiguity I consider both teacher-initiated and learner-initiated play activities to be significant in pedagogy. This view is premised on the observation that the two types of play-based activities are inseparable. In expressing this observation, Breathnach (2013: 15) writes that:

The teacher's role in guiding learning in play or "teaching through play" (Hedges, 2000, p20) may be considered alongside the notion of "learning through play" (O'Gorman & Ailwood, 2012; Rogers 2012). The concept of "learning through play", while an established concept in educational context, may be more difficult to translate into practice, particularly, where competing pedagogies (Aubrey, 2004) exist between free or child-led play and formal teacher-led activities. Contemporary approaches to play pedagogy suggest a more integrated approach (Sylva *et al*, 2004; Wood, 2009) to facilitate a continuum from free play to structured play (Rogers 2012).

In this study, Respondents M and Y, respectively, were the only two Grade R teachers that used various forms of play-based activities to infuse environmental topics in their class activities. For example, in one of her lessons, Respondent M engaged her class in an activity whose aim was, apparently, to teach her learners about various animals and their behavioural tendencies. Some of those animals could be found in the learners' immediate environment. In this activity, the teacher divided the class into two groups; boys on one side and girls on the other side. Subsequently, she instructed the boys to "*spring soos die padda (jump like frogs)*". She explained how this had to be done. Once the boys were done, the girls were instructed to "*vlieg soos die muskiete (fly like mosquitoes)*". Likewise, just like she did with the boys, the teacher guided the girls on how to execute the activity.

On the other hand, in one of her lessons, Respondent Y provided her learners an opportunity to engage in manipulative play. In this activity, the Grade R learners used various plastic toys to create various other objects of their choice. Once they were done, she asked them, individually, to tell her about their 'designs'. Various responses were presented by the

learners. For example, answers such as “*koloi (a car)*”, “*sethunya (a gun)*” and “*pitse (a horse)*” were provided by some of the learners. In my opinion, this activity enabled the learners to use their cognitive skills to, independently, “explore; experiment and create” (Breathnach 2013: 14), by using plastic toys at their disposal, what they believed depicted objects that could be found in their immediate environment. Therefore, I would argue that this activity was significant in enabling learning *about* the environment. Additionally, this activity is part of the topic highlighted in the Life Skills documents, namely; “the shapes that make up different objects” (DBE 2011c: 16) in the immediate environment of the learners.

In terms of the theories discussed in chapter three, it could be argued that this activity accommodated a number of theories referred to in this study. For example, the manipulation of plastic toys to form objects like “a car”, “a gun” and so forth involved the cognition process such as thinking as entailed in Piaget’s theory. Likewise, as posited in Vygotsky’s theory, during play, children are able to assign new meaning to familiar objects (Vygotsky 1978), hence the plastic toys were manipulated and assigned ‘new names’; the names of other things found in the environment of the learners, thereby accommodating Vygotsky’s theory. In the same vein, Erikson’s theory suggests that at Preschool age, children should be allowed to take initiative without feeling guilty about their decisions (Corey 2009). Therefore, in my view, by allowing the learners to use their initiatives to make objects without feeling guilty, Respondent Y accommodated the psychosocial theory. And, Howard Garden’s theory of Multiple Intelligences was also accommodated, at least at two levels, namely; spatial intelligence and linguistic intelligence. According to Gardner’s (2011a) theory, spatial intelligence can be developed, in part, by allowing children to design objects while the process of enabling children to talk about their thoughts, ideas, feelings, etc (Gordon and Browne 2011), enables the development of their linguistic abilities. Hence, it could be argued that both spatial intelligence and linguistic intelligence were accommodated in the object manipulation activity, referred to above.

In rounding off this discussion, it is important to note that although the learners played regularly, daily, at Site A; these play activities had nothing to do with pedagogy. On the other hand, the learners at Site B had no opportunity to learn through play. In fact, during my observation sessions at Site B, I did not observe even a single instance in which play-based learning (or for that matter; ordinary play activities) in the Grade R classroom context at Site B took place. The learners were, in my view, treated more like adults in the sense that their learning was, if you will, too formal and didactic in nature. The practice in which learners are

deprived an opportunity to play suggests that some preschool teachers do not seem to share the view that “play is...the leading source of development in pre-school” (Vygotsky1976: 537). The following entry based on my observation illustrates my concerns about the approach used at Site B:

As the learners completed their activity, I could not help but acknowledge, aside, the extent of my tiredness. I began to wonder how tired those Grade R learners were. The reason for my concern about the learners emanated from the realisation that, as far as I was concerned, they were bombarded with too much academic work with virtually no breathing space. Hence I said to myself, “I am so tired. What about these kids? There is so much learning in here!” (Participant Observation Entry, 2013 November 13).

Nonetheless, it is appropriate to conclude this section by pointing out that various pedagogical strategies, as illustrated in this section, were used by some respondents in learning and teaching activities in this study. More importantly, they were used meaningfully, in some instances, to aid the integration of environmental learning. The next point of discussion reflects on the extent to which curricula pursued in the learning institutions that form part of this study enable the integration of EE in Grade R.

5.4.6. Enabling Curriculum Framework

In chapter two, I made an attempt to, extensively, highlight that the NCS as entailed in the CAPS documents (DBE 2011a; DBE 2011b; DBE 2011c) suggests that environmental learning is catered for in the Grade R curriculum in South African public schools. Likewise, in chapter three I used six different theories together with Grade R CAPS documents to illustrate how EE could be infused in Grade R learning and teaching activities. Accordingly, it is my considered view that the points highlighted in chapters two and three, respectively, adequately illustrate that the NCS enables the integration of EE in Grade R.

For the reasons indicated above, in this section I present only a few points based on the findings of this inquiry to underline the fact that, indeed, the curricula pursued in the schools which took part in this study do make provision for environmental learning in Grade R. I shall do this by presenting the assertions from some of the respondents who took part in this study which suggest that, certainly, the curriculum policy currently followed in the South African public schools makes it possible to integrate EE in Grade R. Similarly, I also assert

that the Accelerated Christian Education (ACE) curriculum followed at Site B also enables the integration of EE in Grade R.

Therefore, it is important in the interest of this study to point out that some of the respondents who took part in this study argued that the curricula pursued in their respective institutions do enable the integration of environmental learning in Grade R. For example, one of the respondents who were based in one of the government schools which participated in this inquiry was able to note that, indeed, CAPS documents do enable the integration of EE in Grade R. In response to the question: Do you encourage the integration of environmental education in Grade R? Respondent J, the principal of Site A, first tried to define environmental education, a point I shall refer to later in this chapter, and then stated that:

So, if I have it correct...if this is correct, therefore it means it is already in the subjects that are being delivered to the Grade R class. In the sense that we have Life Skills; Life Skills is about...everything about the child; everything that surrounds the child...So, we are dealing with it. Yes, it is being integrated in CAPS.

Evidently, the principal of Site A seemed to be aware that CAPS does accommodate the integration of EE. He even claimed that “*we are dealing with it*”, that is, they are integrating EE in Grade R. However, as I shall indicate later in this chapter, in the context of Site A evidence suggests that the integration of EE is, virtually, non-existent in Grade R. Apart from Respondent J, I also posed the same question, as regards the integration of EE in Grade R, to the principals of Site C and D; both of whom manage ‘CAPS-oriented’ schools, if you will. They provided varying responses and, neither of them pointed out that CAPS does accommodate environmental learning.

In the interest of this discussion, it is important to mention that in his response to the question on the integration of EE in Grade R, Respondent L stated that he had not encouraged the integration of EE in Grade R. When I probed the matter further; with the view to obtaining some reasons why he did not encourage the integration of EE in Grade R, he stated that; “*the reason can be one. I did not have qualified educators...I only use educators who are from high school*”.

However, Respondent L indicated that he would retain the same ‘unqualified educators’ who only have high school education in Grade R. On the other hand, he expressed an intention to

encourage the teachers to integrate environmental learning in Grade R; “in 2014”, as he put it. In fact, he even made the following statement which he backed up with tangible evidence, that; *this year, 2013, we bought reference books on environmental education and we want to integrate it in Grade R.*

The school manager of Site C did show and allowed me to peruse two of the *reference books on environmental education* bought by the school. It is essential, in my opinion, to emphasize that even though Respondent L might not have encouraged the integration of EE at his school, as I shall indicate later in this chapter, evidence generated from Site C shows that there is an infusion of environmental topics in Grade R at that institution. In respect of Site D, respondent M pointed out, in response to the question on her role, as the principal, in terms of encouraging the integration of EE in Grade R ; that: “*yes, because they are doing the same themes as we do but at a lower level. So they do integrate it here and there*”.

It is clear from her response, as indicated above, that Respondent M was not referring to Grade R since it is inconceivable that Grade R, the most senior class at that ECD centre, would integrate EE at a lower level than any other class at Site D. Hence, “*a lower level*” suggests an integration of environmental topics in classes below Grade R. Nevertheless, it is important to mention that, as I shall demonstrate by way of evidence, there is some infusion of EE in the Grade R class of Site D.

The final points concerning the notion of an enabling curriculum framework have to do with Site B. In response to the question: Do you encourage the integration of Environmental Education in Grade R? The learning site manager, Respondent K, stated that:

I think a lot of that is worked in, into our programme, through the stories and through the activities the children do... there is some emphasis on Environmental Education. We do try to, in between, in terms of field trips and, maybe, outreaches or do something at school to emphasise the importance of the environment and how it works and how to use it.

The assertions made by the principal of Site B are not farfetched. As I shall illustrate by way of evidence generated at that school, environmental learning seems to have been worked into the programmes presented at Site B. It is also important to point out that the website of “ACE Ministries”, the Ministries responsible for the curriculum pursued at Site B states that:

The ACE programme covers the critical outcomes and minimum standards of the National Curriculum Statements (NCS) as prescribed by the Department of Education in South Africa (<http://aceministries.co.za/Default.asp>).

The preceding points suggest that the programmes entailed in the Accelerated Christian Education curriculum are structured in a manner that seeks to conform to the NCS, of the DBE. If that is the case then it can be argued that the ACE curriculum, just like the NCS as entailed in CAPS documents, makes provision for the integration of EE in Grade R. Apart from the evidence generated from participant observation and the documents sourced from Site B, I could not obtain any other evidence, written or otherwise, which clearly states that the curriculum pursued at Site B accommodates, or at least seeks to do so, the infusion of EE. Of course, I have already highlighted that EE is integrated in Grade R at Site B. In the next section I provide some evidence to indicate that some of the sites which took part of this study do infuse EE in the learning and teaching programmes followed in Grade R.

5.4.7. Infusion of EE: Evidence Generated from the Study

Based on evidence from this study, three of the four sites which participated in this study, namely; Sites B, C and D, respectively, made an effort to integrate EE in their Grade R activities. On the contrary, the same cannot be said about Site A. However, I need to highlight that, when it occurred in each of the three centres, the infusion of environmental learning, mostly; took the form of “education *about* the environment” (Rosenberg 2009: 4) with little or nothing in respect of “education *in*” and “education *for* the environment” (ibid.).

Evidence generated through participant observation suggests that Respondents X, Y and M infused learning “*about* the environments, how it works; its marvels and problems” (Rosenberg 2009: 4) in learning and teaching activities. For example, each of the three respondents integrated learning about cycles of change (DBE 2004). In this regard, in their lesson presentations, each of these respondents accommodated issues related to weather while Respondents X and Y also dealt with the seasons of the year and the changes they bring in the environment. In terms of the analysis of the CAPS documents in chapter two (*refer to section 2.3.6.3*), both cycles of change are considered as topics through which environmental learning could be realised. Accordingly, in my field notes I made the following observation in respect of one of the presentations made by Respondent X:

The lesson commenced at about 08H10 with some reflection on the “Weather chart”. The practitioner did most of the talking during this reflection. One of the things she mentioned is that, “it is summer outside because it is hot...we are wearing short trousers...clothes with short sleeves. Perhaps, you would wear clothes that are warmer only if you are feeling unwell”. The practitioner even talked about the things “that happen in spring and autumn”. For example, she told the learners that, “during spring the trees are green, your flowers outside are colourful and in autumn...the leaves are falling”. After listening to her I could not help but conclude that she focused too much on general things that have to do with spring and autumn when she could have spent her energy on the weather as it was outside.

The learners also made some contribution during the reflection on the weather chart. For example, one of them pointed out that, “There was rain yesterday”. Some of the learners even digressed and referred to things that had little or nothing to do with the weather chart (Participant Observation Entry, 2013 November 13).

Although Respondent X presented the weather chart only once during my observation sessions in her class, it is probable that she might have dealt with weather related issues prior to my observations in her class. This can be deduced from *figure 5.14* which depicts “the weather”. This picture was not used during my observation sessions but it was pasted against the classroom wall alongside numerous other pictures.



Figure 5.14: The Weather Chart at Site B

On the other hand, Respondent Y dealt with the weather chart in each of the five days of my observations at Site C. Likewise, as much as possible, she made an effort to involve her learners in her presentations on the *Weather Chart*. The following entry reflects my observations in respect of Respondent Y’s presentation of the weather chart:

On completion of this activity, the teacher told the learners that, “Jaanong re tla bua ka karata ya maemo a bosa (now we are going to talk about the weather chart)”. A few questions were posed by the teacher to the learners regarding their impression of the day’s weather. The following is a brief indication of some of the aspects talked about during this interaction:

“Go jang gompieno? (How is the weather today?)”, asked the teacher. “A re utlwe Dikeledi (Let us hear Dikeledi)” proceeded the teacher. “Go letsatsi (It is sunny)” responded Dikeledi. “Go tsididi gotsa go waram? (Is it cold or warm?)”, asked the teacher. “Go tsiditsana” replied the class in a unison. “Re a pere eng go re reseke ra sitwa? (What are we wearing so that we do not feel cold?)”, asked the teacher. “Di jeresi, le di jasi (Jerseys and jackets.)”, replied the learners enthusiastically.

“Go phiswana gotsa ga e yo? (Is there any wind or not?)”, continued the teacher. “Go phiswana e bile go tsididi (There is some wind and it is cold)”, responded the learners.

“A matlhare a di tlhare a tsekenyega? (Are the tree branches shaking?)”, asked the teacher. “Ga re itse (We do not know)” responded some learners half-heartedly while the rest kept quiet and appeared confused. (The learners could not tell since they were inside the classroom and the teacher did not ask them to look outside before responding to her question).” (Participant Observation Entry, 2013 July 22).

It should be evident from the above entry that Respondent Y made an effort to involve the learners in the discussion on the weather of the day in question. More importantly, she tried to draw their attention to the impact of the weather on their (learners) lives as well as their immediate environment. Hence, I contend that the interaction between Respondent Y and her learners was appropriate in terms of creating awareness on how various phenomena, including weather conditions, affect people and their surroundings. Based on my observation of Respondent Y’s presentation, my view is that the “weather chart” is relevant to environmental learning at the level of Grade R. Moreover, in subsection 2.3.6.3 the topic on ‘weather’ is highlighted as one of the topics that could be use to infuse EE in Grade R.

Before I reflect on Respondent M’s presentation of the weather chart, it is essential, for the purposes of this discussion, to indicate that, just like both Respondent M and X; Respondent Y, also dealt with seasons and their effect on the environment. Since I have already provided an example on how Respondent Y presented a lesson on seasons (*refer to 5.4.5*), I shall not present another detail in this regard. However, it suffices to say that unlike Respondent M and X, Respondent Y did not embed, if you will, the topic on seasons into the weather chart. Respondent Y dealt with the topic on seasons regularly and, very often, aside from the weather chart.

Just like Respondent X and Y, respectively; Respondent M also engaged her learners during her presentations on the weather chart. However, in contrast to Respondent Y, she was not as elaborate in her presentation. The following is my reflection on one of the interactions between Respondent M and her class regarding the lesson on the weather chart:

At about 08H10, the carpet was cleared. The learners then moved to the northern corner of the classroom next to their teacher. They sat on the carpet just in front of the teacher. Subsequently, the teacher commenced with a lesson on “Die weerkaart (The weather chart)”.

“Sê vir my, hoe lyk die weer? (Tell me, how is the weather?).” The teacher asked the learners. *“Daar is wolke en die son (There are clouds and the sun.)”*, responded a learner. *“Hoekom het ek die venster toe gemaak? (Why have I closed the window?)”*, the teacher proceeded with another question. *“Daar is wind (There is wind)”*, responded another learner. Afterwards, the teacher together with the class went on to talk about the day’s date (Participant Observation Entry, 2013 October 28).

In the interests of this discussion, it is essential to mention that although Respondent M did not deal with the topic on the seasons of the year during my observation sessions, the picture depicting the “Weerkaart (Weather Chart)”; refer to figure 5.15²⁵, suggests that she does treat the topic on season in her Grade R class. This is evident from the statement *“Die seisoen is..... (The season is.....a picture is used to complete the sentence)”* at the bottom end of figure 5.15. Hence, it is appropriate in my view to state that all three respondents, namely; X, Y and M did address the cycles of change entailed in the weather and seasons of the year in their respective teaching and learning activities. Additionally, it is important to note that in subsection 2.3.6.3 the topic on ‘seasons of the year’ is also highlighted as one of the themes that can be used to infuse EE in Grade R.

²⁵Figure 5.15 depicts a weather chart which I consider to be ideal for the classroom such as Grade R in that it can be modified regularly to conform to aspects such as the date and weather conditions of a specific day.



Figure 5.15: The modifiable Weather Chart used at Site D

Apart from reflecting on the conditions of the atmosphere as entailed in the concept of weather, Respondent M also afforded her learners an opportunity to learn *in* the environment, outside the four walls of the classroom. The activity outside of the classroom walls enabled the learners to observe and talk about the things that could be seen in the “*lug* (sky)” in their immediate environment. The following excerpt indicates my observation in respect of the lesson outside the classroom at Site D:

At about 08H20, we all went outside. The learners sat in a semi-circular pattern on the grass. The teacher together with the learners observed the sky and talked about what they (especially, the learners) were seeing (or observing), both, in terms of the weather and various other phenomena (objects/organisms) in the sky.

The teacher allowed the learners to observe and then respond to her questions. “Wat sien hulle in die lug? (What do you see in the sky?)”; the teacher asked the learner. “Wolke (clouds)”, the learners responded in unison. The teacher talked about the notion of rain formation as a culmination of the clouds coming closer

to each other. The learners were then asked to mention various other things they observed in the sky at that time. The learners mentioned things such as “Voeltjies (Birds)”, “Vliegtuig (an aeroplane)”, and etcetera.

Once the learners were done talking about the things they had seen in the sky at that time, the teacher went on to talk about the things that could be seen at night, that is, when it is dark at night. In essence, the teacher contrasted day and night (Participant Observation Entry, 2013 October 28).

In my view, the above activity which took place outside the four walls of the classroom contributed towards helping the learners develop an awareness about the phenomena that share the same space with them. Likewise, this was one of those rare instances, during my observation sessions, where learners had a chance to learn *in* the environment. Through this lesson, the learners also had a chance, as the teacher developed the lesson further on returning from outside as well as throughout that week, to distinguish between day and night. They even completed an activity on day and night. This lesson was designed in such a way that learners could relate to the activities. Hence, the issues raised in the lesson formed part of the learners’ environment. I have included an activity on “day and night” as part of the documents analysed as part of this study in section 5.4.9. The following are some of the pictures that reflect on the lesson about the “lug (sky)” presented by Respondent M:



Figure 5.16: The things that can be seen in the sky

The above picture, *figure 5.16*, with the heading; “*Ek sien in die lug die (In the sky I see the...)*”, highlights some of the things that could be found or seen in the immediate environment of the learners at Site D as well as those that cannot be seen in their immediate environment. For example, “*wolke (clouds)*”, “*reënboog (rainbow)*”, “*rook (smoke)*” and “*vliegtuig (aeroplane)*” are some of the things that could be seen in the immediate environment of the learners while the “*torings (towers)*” portray an example of the things that cannot be seen or found in the immediate environment of the learners at Site D. On the other hand, the picture below, *figure 5.17*, with the title “*Nagdiere (Night Animals)*” depicts some of the nocturnal animals that could be found in the environment of the learners. These include animals such as an “*uil (owl)*”, a “*kat (cat)*”, a “*vlermuis (bat)*” and a “*jakkals (jackal)*”. The picture also portrays those animals that are found far away from the environment of the learner such as the “*ystervark (porcupine)*” and the “*leeu (lion)*”.



Figure 5.17: Nocturnal Animals

Therefore, in my view, the lesson on the “*lug (sky)*” is both appropriate and level-relevant for learners in Grade R and that it is in line with the curriculum (cf. *subsection 2.3.6.3* and DBE 2011c: 21). Such a lesson, possibly, made a contribution towards creating awareness on various organisms found in the immediate environment of the Grade R learner. Likewise, it is also probable that this lesson evoked curiosity and the desire in the learners to want to see those organisms and phenomena that are found in the immediate environment of the learner.

Just like Respondent M, Respondent Y made an effort to enable her learners at Site C to learn *in* the environment. This occurred when she took them to the school garden. The following participant observation entry reflects on this visit to the garden:

At about 08H25 the whole class went to the school garden. In the garden, the following vegetables were seen: spinach, carrots and maize. The teacher did not only show and tell the learners about each of the vegetables found in the garden but she also told them how the garden should be cared for. Among the things she told the learners is that “mofero (weeds)” should be removed from the garden and that plants should be watered regularly (Participant Observation Entry, 2013 July 23).

In the above activity, the learners at Site C had an opportunity to observe their immediate environment while also learning a bit about it. Among the things they learned *about* is that some plants, for example, vegetables are good and therefore essential for consumption. And, that other plants such as weeds are bad hence they should be removed from the garden. Similarly, the learners got a chance to learn *about* the use of water in the garden, namely; watering of plants. This is one use which, I noted during the interaction between the teacher and the learners, was unknown to the learners. Therefore, it could be argued that the learning that occurred in the school garden, somewhat, contributed to cognitive development, as entailed in Piaget’s cognitive development theory; in some of the learners. For example, new cognitive schemes were possibly formed in order to accommodate ‘new’ concepts such as ‘weeds’ in some of the learners.

The visit to the school garden was, in my opinion, important in terms of environmental learning since it provided the learners with ‘new’ knowledge in respect of an entity, the school garden, which they might not have deemed significant, prior to the visit to the garden, in their environment. Likewise, the topic on the visit to the school garden is catered for in the Grade R curriculum (*refer to table 2.3*). Additionally, I found it interesting to note that, apparently, the visit by my Grade R host class to the school garden led to the school authorities deciding to ‘revamp’ it, if you will. The following pictures portray the garden at Site C:



Figure 5.18: The School Garden of Site C prior to the Visit by the Grade R Class



Figure 5.19: Some attention being given to the Garden after the Visit by Grade R Class

Apart from the activities already referred to in this discussion, safety is, in my view, another theme that should be infused, as the Grade R curriculum seeks to do (*refer to 2.3.6.3*); as part of EE in Grade R activities. This assertion derives from the fact that young children are naturally inquisitive and, consequently, they tend to be exploratory (Mayesky 2012; Lindon, Lindon and Negrini 1994). Likewise, “children are being raised in a great variety of social arrangements, facing different challenges in their daily lives” (Kolucki and Lemish 2011: 3) some of which, sometimes, expose them to dangerous circumstances. Accordingly, I contend that through the topics that deal with matters of environmental safety; Grade R children could

gain awareness about the phenomena, substances, behaviours, situations, etcetera that could expose them to danger. Similarly, it is through such topics that they could learn about the behaviours that would help them avert dangers as well as about ‘appropriate’ behaviours that should be adopted in the face of danger.

In this study, two respondents made an effort to integrate aspects of safety in their learning and teaching activities. For example, in one of her pedagogical activities, Respondent X used a story reading activity to deal with matters concerning safety in the environment. The following entry reflects the way in which she did this:

The activity concerning the identification on animals on page four of the “Word Building” workbook was followed by the story–reading activity based on pages 4 – 5 of the same book. The story was, briefly, about various animals/insects such as a beetle, a ladybug, ants, and a spider which were running away from a crop field. This was as a result of the farmer having sprayed poison into the field. As these animals were running away, they came across Try, Try Butterfly. He asked them why they were running away and they provided an explanation. He in return offered to help these animals to get rid of the poison from the crop field. All the animals worked together to clean the poison from the field. They used water to wash the poison away...

The practitioner also made an attempt to make the story more relevant to the everyday lives of the learners. “Can you name the poisons you can see or touch at home”? The teacher asked. She then provided “Jik” as an example and asked the learners to provide other examples. The learners provided examples such as “Stay soft” and “Handy Andy” as well as “oil” as being poisons. The practitioner went on to explain why all the mentioned items are deemed to be poisons. She emphasized that the learners should not consume those substances as well as liquids such as paraffin. However, the learners seemed not to know what paraffin looks like. The practitioner then advised them to request their parents to show them what paraffin looks like (Participant Observation Entry, 2013 November 12).

The above–mentioned story touches not only on issues of environmental safety but it also reflects on aspects concerning land pollution and the importance of cooperation in addressing environmental pollution. All the issues raised in the story are, in my opinion, cardinal in

contributing towards developing, in a Grade R learner, responsible citizenry emanating from efforts such as working collectively in addressing common environmental problems (Booth 2012; Fahlquist 2008; Moss and Dahlberg 2008). More importantly, Respondent X made the lesson both relevant and meaningful to the learners by drawing their attention to some of the ‘poisons’ that could be found in their immediate environment. Additionally, it is essential to also state that topics concerning safety and pollution are relevant in terms of the integration of EE in Grade R (cf. *subsection 2.3.6.3*).

Just like Respondent X, in one of her classroom activities, Respondent Y dealt with issues of environmental safety. The following entry highlights those activities:

Once the learners were done with the singing of “Takalani Sesame”, they got into a lesson on “Walking on the road”. The teacher used a variety of LTSM such as, a robot artefact, a real stop sign, and car toys. She demonstrated to the learners how the robots and stop sign operate as well as how the learners should behave on the road. For example, she showed them a “Stop” sign and asked, “Ke eng se? (What is this?)”. “Ke stopo morutabana (It is the stop teacher.)”, the learners responded. “Se ra go re eng? (What does it say?)”, she asked. “Se ra go re ema (It says you must stop.)”, the learners responded.

The teacher went on to engage the learners who were very excited, and therefore participated fully in the activity, on how the robots and stop signs function on the road. Role-play was put into good use throughout the lesson. Some learners had to act as pedestrians who had to cross either the robots or a stop sign. There are those who had to “drive cars” and behave appropriately when they came across either a stop sign or the robots. The teacher was also able to indicate to the learners that in their own town there were no things such as robots but in bigger towns there are robots. “Motoropong ya rona ga re na diroboto. Mme fa o ya di toropong tse di ngwe go na le diroboto (There are no robots in our town. However, when you go to certain towns, there are robots)”, the teacher told the learners. She also urged them to observe the rules of the robots when crossing the roads, in towns where these are found (Participant Observation Entry, 2013 July 24).

In discussing the incorporation of environmental safety at Site B, I referred to the use of a story-based activity. Generally, stories play an important role in facilitating learning and

teaching in ECE, hence CAPS also provides for the use of stories in the integration of environmental learning (*refer to table 2.2*). Isbell, Sobol, Lindauer and Lowrance (2004) argue that storybook reading has a profound impact, especially, in terms of language and literacy acquisition in young children. Likewise, Ryokai, Vaucelle and Cassell (2003) state that apart from listening to adults reading or telling them stories, children also require opportunities where they, too, tell stories while their peers and adults are listening. However, in my view, the point that is more relevant to this study is raised by O'Brien and Stoner (1987: 15) who write that:

Using children's literature is one of the best ways to incorporate environmental education into the classroom. Children tend to respond better than to expository texts, and consequently they are more apt to read stories than textbooks...children's literature can help provide clear explanations of important concepts, often in a narrative form.

I have already illustrated through an example drawn from Site B that in this study, story-based incorporation of environmental learning did occur. Hence, it is appropriate in my opinion to point out that, likewise, Respondent Y and M; respectively, also used stories in the integration of environmental learning in some of their class activities. For example, in one of her "*Nako ya dikgang (News Time/Story Telling Time)*" lessons, Respondent Y afforded her learners an opportunity to reflect, through storytelling, on some of the events that take place in their immediate environment and beyond. In order to do this, she led by example and related some of the things she 'did' on the previous Saturday to the class. Apart from the things she 'did', she also related a news story about what she called "*the most horrific thing she ever saw*" on television. This story was about "*children who got burned inside a shack*". Likewise, the teacher gave the learners a chance to talk about the things they did over that previous weekend. In my opinion, this activity gave the learners a chance to reflect on self-awareness, that is, the notion of '*who am I*', as well as the awareness of others and their surroundings; and beyond. Furthermore, it is important to mention that the topic on "*Me*" (*refer to table 2.3.*) caters for the theme on '*who am I*' and is thus considered relevant in terms of the infusion of EE in Grade R.

Apart from storytelling, Respondent Y also read a story which also assisted in the incorporation of EE. Even during the course of storytelling, as she did in story reading,

Respondent Y gave the learners several opportunities to talk about the contents of the story, especially, the pictures on the storybook. The following is a reflection on the activity:

For the next activity, the teachers issued some books that were shared by pairs and groups of threes or fours since these resources were, evidently, insufficient for each learner to have his/her copy. The teachers asked the learners to tell her what was on the cover of the book. She moved around to check whether or not the learners were examining the picture on the cover page of the book. “Ke mmidi (Its maize)”, Naledi and her group told the teacher what they saw on the cover page of the book. The rest of the class seemed confused at first but they also noted that it was, indeed, maize. “O mo kae? (Where is it?)”, asked the teacher. “O mo masemong (It is in the field)”, replied the learners. Undeniably, maize in the maize farm was portrayed on the picture. Evidently, the learners recalled the talk that took place earlier about “mmidi le masemo (maize and the maize fields)”. The learners did not only note the maize on the cover page but they were also able to correct the teacher when she erroneously stated that the wagon on the cover page was pulled by an ox. “Ke tonki ga se kgomo (It is a donkey not a cow.)”, they told the teacher. This was, to me, an indication that the learners must have seen a donkey previously. It formed part of their pre-knowledge...Essentially, the story had to do with maize farming, i.e. planting, harvesting transportation and consumption of the product (Participant Observation Entry, 2013 July 22).

On the other hand, in one of her story reading activities, Respondent M used the story with the title “*Hoe die haan die dag gered het (How the cock saved the day)*”. The story highlights the purported intelligence of a hen which manipulated a “*jakkals (jackal)*” to do its work of crowing. This is suggested by the statement, “*Jy het vir my part gekraai en die son laat opkom*” *sê die haan (“You have crowed on my behalf until sunrise” says the cock.)*”. At the same time, the story touches on various other animals that could be found in the immediate environment of the learners at Site D – the theme on ‘*animals*’ is highlighted as one of those themes that are relevant in the integration of EE in Grade R (cf. *subsection 2.3.6.3*). In the story, the discussion on some animals that could be found in the immediate environment of the learner is done by reflecting on the sounds made by a selection of animals. For example, reference is made to the sounds produced by animals such as a duck, a dog and a cock. It is also essential to point out that in her presentation, Respondent M made an effort to enable

learner participation in the story reading activity. For example, the learners had a chance to crow like a cock and respond to an array of questions posed by the teacher. In my opinion, the story has a great deal of relevance to environmental learning in the sense that it enabled the learners to learn more *about* the animals, both in the immediate environment and beyond. Likewise, it also enabled them to learn *about* some of the behaviours associated with certain animals.

In concluding this section, it is important to highlight a few aspects concerning other evidence which demonstrates that, indeed, EE was integrated by some of the participants in this study. Apart from the evidence presented in this section, there is also some evidence in the form of documents which illustrate that there is, indeed, feasibility of integrating EE in the ECD centres selected for this study. This evidence is presented in section 5.4.9 as part of the documents that were sourced, from the respondents, and analysed. Furthermore, in the addendum (*refer to Addendum C: 5*) I also attach evidence emanating from domain analysis. In this evidence I highlight a number of environmental learning themes that were covered by the respondents from Sites B, C and D.

It should be evident from the evidence presented in this discussion that three (Respondents M, X and Y) of the four Grade R teachers in this study made an effort to infuse environmental themes in their activities, *albeit*, to a limited extent. Additionally, viewed from Kopelke's (2012) perspective, the integration of environmental learning in this study was, largely, in the form of environmental studies with limited infusion of environmental education. Kopelke (2012: 29) argues that the educational activities that can be regarded as environmental studies "emphasise knowledge *about* the environment but do not necessarily emphasise an environmental ethos". And, as far as Kopelke (2012) is concerned, all activities *about* the environment amount to environmental studies. On the other hand, and as pointed out elsewhere in this discussion (*for example refer to 1.5.3 and 4.3.2.1*), environmental education takes the form of learning *about*, *in/through* and *for* the environment (Kopelke 2012; Rosenberg 2009; Le Grange 2002; Loubser 1997; Lucas 1972).

Therefore, in this study, the Grade R learners who were exposed to environmental learning were mostly engaged in activities on learning *about* the nature of the environment. Unfortunately, they were exposed to little or no activities that take place *in* and *for* the environment. Thus, these learners had, virtually, no engagement with activities that enabled them to learn *in* the environment, outdoors and experience the environment as well as

participate in activities meant *for* addressing problems and challenges facing the environment. For example, some Grade R learners in this study were engaged by their teachers in activities whose focus was on phenomena and processes such as weather conditions, seasonal change, animal diversity and animal behaviour. However, in learning about issues such as seasonal changes the learners were not exposed to challenges such as excessive burning of fossil fuels such as coal by many households in winter, culminating in enhanced air pollution levels. In this respect these Grade R learners could not explore the effects of air pollution and how this phenomenon could be addressed. Likewise, the learners who were engaged in activities on animal diversity were, unfortunately, not exposed to the phenomenon of hunting, an occurrence which leads to the extinction of animals. Similarly, there was no attempt to integrate ideas on how animal safety and diversity could be promoted. Hence, I contend that, generally, the approaches followed in the integration of environmental themes in this study amounted to Environmental Studies rather than Environmental Education. In the next subsection I focus on the effect of funding, Learning and Teaching Support Material (LTSM) and other resources on the integration of EE in the Grade R classes of the selected sites.

5.4.8. Funding, LTSM and other Resources

Pretorius (2010: 129) writes that the “funding of education in South Africa is based on a partnership between the government, provincial governments and local communities. The constitution gives the national government and the nine provinces joint responsibility for the provision of education. For school funding, the national government sets the norms and standards that provinces are required to follow. Provinces fund education from their equitable share allocations from the national fiscus.” In respect of Grade R, the Department of Basic Education gazetted the *National Norms and Standards for Grade R Funding* in 2008 to guide the Provincial Departments of Education in terms of funding this class. Since these norms and standards also accommodate aspects such as personnel funding and the provision of resources, I decided to also accommodate these issues in this section.

In this study, the evidence generated in respect of aspects such as funding, the provision of LTSM and other resources to Grade R classes varies from one learning institution to the other. For example, the data generated from Site A suggests that this institution has a huge challenge concerning both Grade R funding and the provision of resources to this class. The challenge of funding was raised by Respondent J in response to the following question: How

is Grade R funded in your institution? His very detailed response was preceded by an account on the funding of Grade R in 2013. He pointed out that:

Sometimes the department of education allocates us five or ten percent. But this year we got zero. We got zero for this year, that is, 2013...Sometimes when a person asks a question, an unclear response is provided. Nobody is able to provide a reason why an allocation was not provided for 2013.

In addition, Respondent J stated that in an effort to alleviate the financial plight of Grade R, he and the School Governing Body (SGB) solicited the assistance from parents. Hence, he pointed out that:

So in most cases we rely on parental involvement; and our parents donate some money. But not all of them donate. Sometimes only five of the fifteen/sixteen Grade R parents pay on a monthly basis. As a result we have to draw, again, from the Section 21 funds in order to give some money to our practitioner.

In view of the fact that Respondent J referred to Site A being “sometimes” allocated “five or ten percent”, I deemed it essential for him to elaborate. Accordingly, I posed the following question: You said that your funding is five to ten percent; five to ten percent of which amount? In turn, he replied by stating that:

I cannot say exactly which amount. In the sense that when Grade R was introduced the target for Grade R was 25 learners, so I assume that because we don't usually reach the twenty five learners that are required, then it would be five percent. If I say 5% of R10 000 – 00 then I would be lying. But whenever they allocate money to us, a letter which explains how that money should be used would be sent to us.

Usually, that money includes the money for the equipments that the learners have to use in class. At the same time, if the classroom needs some renovation, that money would be used for that purpose as well. But no salary payment should come from that money. So, I don't want to commit myself and say it is 10% of R1000 – 00 or it is 10% of R2000 – 00.

From the above and, indeed, preceding statements articulated by the principal of Site A, a number of significant points emerged. Therefore, in the interest of this study, a few of them

need some attention since they have implications for teaching and learning activities and, by extension, the infusion of EE in the Grade R class of Site A. However, my view is that it is necessary to commence by highlighting some discrepancies stemming from certain issues raised by Respondent J. According to Respondent J, Site A is “*sometimes*” allocated “*five or ten percent*” for Grade R funding. However, he could not explain the basis of the “*five or ten percent*”. Of significance to me, though, is the fact that when I probed him further I could not establish the instances, as implied by “*sometimes*” in his statement, in which the school was allotted “*five or ten percent*”. From his assertions, Respondent J only arrived in 2012 at Site A and could, therefore, account for the allocation made in 2012 by the NWDE as well as the non-allocation of 2013.

Hence, it was apparent to me that the claim made by Respondent J that “*sometimes five or ten percent*” is distributed to the school for the funding of Grade R at Site A has no foundation (it needs to be noted that no financial records were made available to back this claim by the respondent). However, be that as it may, the assertion by Respondent J that nothing was allocated for Grade R funding in 2013 at Site A is of grave concern. This is in view of the fact that such an action is in contrast to the national norms and standards for Grade R funding. According to these norms and standards, the approach followed by the state in Grade R funding “favours the most disadvantaged in society” (DBE 2008: 6). Likewise, the “level of Grade R funding must be higher in schools serving poorer communities” (DBE 2008: 10). It is therefore worrying to learn that during the 2013 academic year, the NWDE could not allocate any money for Grade R funding to a poor farm school such as Site A. One cannot help but wonder how the School Management Team had to cope in terms of running the Grade R class, primarily, in view of the fact that the departmental allocation is supposed to also cater for personnel and non-personnel costs.

As suggested in the preceding statement, the document on the norms and standards for Grade R funding stipulates that “schools must earmark a proportion of their Grade R allocation towards personnel costs, and a proportion towards non-personnel costs” (DBE 2008: 14). This implies that, depending on the model chosen by an ECD centre between the two options provided by the DBE; part of the funds may be used for paying the salary of the Grade R practitioner. Therefore, in the case of Site A, a school which; according to Respondent J, is classified as quintile 1, qualifies to use part of their Grade R allocation for personnel costs. This point is underscored by the DBE (2008: 14) which writes that “in case of schools in quintile 1, 2 and 3 that do not receive establishment posts the proportion of personnel costs

must be between 65% and 85% of the total Grade R allocation”. Perhaps, before I reflect on the circumstances of the Grade R practitioner of Site A, in light of the preceding point, it is essential to make a point or two about the concept of quintiles and the allocation of funds since the quintiles system affects Grade R funding.

In *subsection 5.3.1.1* I pointed out that the DBE uses the quintile system for guidance in respect of funding and distribution of resources to public schools in South Africa. In the process of classifying schools into quintiles, various factors are taken into account, for example, school infrastructure, income levels and employment rate of parents whose children attend a school being classified, and so on. The quintiles range from 1 to 5, with the poorest schools being classified as quintile 1 while the richest are placed at quintile 5. Some of these points are also made by Boateng (2014: 9) who highlights the nature of the quintile system by writing that:

Quintiles, in South Africa, are categories in which public schools are classified based on rates of unemployment, income and illiteracy within a school catchment area. Therefore, schools that are ranked within a lower quintile (between 1 and 3) would receive more subsidies as opposed to schools that are ranked in the fourth or fifth quintile, which are seen as privileged.

In addition to the points made by Boateng (2014), above, the Western Cape Education Department (2013: 1) states that “schools in quintile 1, 2 and 3 have been declared no-fee schools, while schools in quintiles 4 and 5 are fee-paying schools”. Therefore, in terms of the preceding point, an institution such as Site A is classified as both a quintile 1 and a no-fee school. It is also important, in the interest of this study, to indicate that the national government of South Africa recommended that schools in quintiles 1 to 3, the category within which Sites A and C fall, should have received an allocation of R1010 – 00 per learner during the 2013 academic year (WCED 2013). The latter statement is significant to note because during my interaction with the school principals who participated in this study, the issue concerning the allocation of funds to the Grade R class came up from time to time.

Even though the norms and standards for Grade R funding make provision for the Grade R practitioner of Site A to be paid through the fund that should, ordinarily, be allocated to the school, evidence indicates that this is not happening. According to Respondent J, the Grade R practitioner is not paid and has never been paid from the Grade R allocation of funds. Consequently, the Grade R practitioner receives an unstable stipend from the School

Governing Body (SGB). This point emerged when Respondent J underscored the challenge posed by the lack of resources as a consequence of the non-allocation of Grade R funds from NWDE during the 2013 academic year. According to Respondent J the stipend paid to the Grade R practitioner comprises of the SGB donation, “*the Section 21 money*” and money from a fundraising project initiated by the school principal. However, Respondent J indicated that, the money given to the Grade R practitioner can be as little as R500 – 00 per month.

In respect of LTSM and other resources that are required for the Grade R class, the verbal account by the school principal as well as my personal observations at Site A suggest that the institution is faced with huge challenges. Respondent J stated that, in terms of Grade R resources, Site A receives a trunk from the NWDE on a two year-cycle. According to him, “*that trunk has all the equipment for Grade R*”. The resources supplied are mostly stationeries and some toys. He also emphasised that “*the educator in charge of Grade R has to be vigilant when it comes to that trunk. She has to make sure that the learners do not lose the resources in the trunk since they have to last for two years*”.

It was clear from my interaction with the school principal that owing to the; apparent, lack of funding, the Grade R class of Site A is faced with an array of challenges. The non-allocation of funds for 2013, the struggle to raise funds for the monthly stipend for the practitioner and the, ostensibly, insufficient LTSM provided in the “*trunk*” supplied by the NWDE are all challenges that have serious implications for learning and teaching in the Grade R centre at Site A. For, example, I would imagine that the lack of resources would impact negatively on the pedagogical approaches of any Grade R teacher, let alone an unqualified teacher such as Respondent W. Hence, it is likely that due to these and other challenges, the teacher would find it difficult to teach learners about certain things even if she had wished to do so. The challenge concerning the lack of resources is highlighted by Respondent J who states that:

I think it is not well resourced. The Grade R class is not well resourced...the basic thing that I think our learners are missing is, if you talk about a train; they have to vividly see a train. On certain days, the Grade R practitioner would use a television in class. She would use a DVD player. So, we do not always have the relevant DVDs for the relevant content that she has to portray to the learners. So, that is why I am saying that we are not well resourced when it comes to Grade R.

It is essential to indicate that the complaint by Respondent J associated with the lack of DVDs with “*relevant content*” that the Grade R practitioner “*has to portray to the learners*”

is not unfounded. This is in view of the fact that it is through such resources, the DVDs; that the learners would be able to get exposure to environmentally significant phenomena that might not be accessible to them. In essence, the lack of resources could, in my view, constrain the integration of EE in the Grade R class of Site A.

In the same vein, as per the claims made by her principals during our interaction, the fact that the Grade R practitioner does not receive a “stable” monthly salary might impact negatively on her morale. The point on the morale of some workers is underlined by literature (Rehman and Ali 2013; Tella, Ayeni and Popoola 2007; Robbins, Odendaal and Roodt 2003) which suggests that motivation in the workplace is often derived from the incentives associated with the work that a person does. Very often, remuneration is one of the incentives that tend to motivate people to do their work with diligence and excitement. It stands to reason, therefore, that the Grade R practitioner of Site A could, in all probability, be demotivated by the ‘lack’ of financial incentives in her job. Subsequently, her teaching and learning duties and, by extension the infusion of EE, would be negatively affected.

Site C is another institution that has had its own fair share of challenges in respect of funding and availability of resources in Grade R. For example, when I asked Respondent L, the school principal, about the source of Grade R funding at his institution, he told me that the school obtained funding from the NWDE. Subsequently, I asked him the following question: As far as you are concerned, is the funding from the department sufficient to meet the Grade R needs? In response Respondent L stated that, *“it is not sufficient...very, very little; because we augment it with three hundred rand contributions from each Grade R parent.”*

In contrast to the Grade R parents of Site A who were projected, by Respondent J, as rather reluctant to provide financial support to Grade R funding; the Grade R parents of Site C were portrayed by Respondent L as *“prepared”* to finance, albeit partly, the Grade R class. This emerged when Respondent L replied to the following question: How do parents feel about it? Do they feel that they are capable of financing? In response to the question, he stated that, *“I can tell you that though they are not financially strong, the parents show commitment. They are prepared to pay this three hundred rand the year before (commencement of the academic year)”*.

However, it is important to mention that, possibly, one major reason why the Grade R parents of Site A could have been ‘reluctant’ to finance the Grade R class might have been their *low financial status* compared to the Grade R parents of Site C. Generally, parents in rural areas

tend to be poorer than their counterparts in urban areas (Sule, Alinno and Ikwegbe 2013; Webber 2012; Gardiner 2008). Hence, according to the school principal, through R300 – 00 contributions, the Grade R parents of Site C are able to meet some of the Grade R needs and also contribute to the monthly salaries of the three Grade R practitioners. The fourth member of the Grade R staff, Respondent Y, obtains her salary from the NWDE. Similarly, there is also a fund raising project which assists in fulfilling some of the Grade R needs at Site C. The fundraising issue is highlighted in the following explanation provided by Respondent L in respect of remuneration given to the Grade R practitioners of Site C:

Fifty percent is from the R300 – 00 per parent. But in this case we have a fundraising project whereby we expect each and every learner from our school to pay R4 – 00 per month. So, with that money, taking the enrolment into consideration, we are able to make up to R60 000 – 00 per year.

Furthermore, Respondent L acknowledged that the three Grade R practitioners are not paid the same salary as the Grade R teacher who is remunerated by the state (NWDE). This is how he explained the situation:

Yes. Truly speaking they are not the same. But what the SGB decided...the SGB decided to pay them an amount of R1500 – 00 each and they really appreciate it because they said that there is nothing they can do. Half a loaf is better than nothing.

According to Respondent L, the Grade R practitioners at Site C, do not only “really appreciate” the remuneration received from the SGB, but he also claimed that, “they are 100% satisfied because at the end of the year we give them bonuses. So, they are happy”. However, one cannot be certain whether the Grade R practitioners at Site C are, indeed, as “happy” as the school principal claims they are since their remuneration is certainly lower than that of their colleague who is paid by the NWDE. Hence, I contend that it is likely that the disparities in terms of income received from the SGB vis-à-vis the income from the NWDE might have a negative impact on the practitioners’ attitudes towards their work. Consequently, this might have negative implications in respect of the execution of teaching and learning activities and, by extension, the integration of EE in Grade R at Site C.

Apart from the issue concerning the funding of Grade R and the salary disparities between the Grade R practitioners and the Grade R teacher at Site C, evidence generated from this

study points to the existence of challenges in respect of LTSM and other resources in the Grade R class of that institution. For example, I have already referred to the shortage of story reading books (*refer to section 5.4.7*). Similarly, Respondent Y pointed to the unavailability of the textbooks, particularly, the main workbook, *Bukatiro Mophato R*, which is supposed to be supplied by the NWDE in a series of four books, one book per term, for each Grade R learner. This challenge emerged when Respondent Y responded to the following question: Do you have LTSM resources such as books, perhaps, that you need to use which are not made available to you, maybe, by the school or the department of education? Her reply was:

Presently we don't have books. We only got the books for the first term. Here at school we haven't received any books for the second and third term from the department. And, I also reported to the HOD that we did not receive any books for the learners.

At the end of the interview, Respondent Y did show me the copy of the books that were made available by the department as referred to in her response, above. In the context of this study, it is important for me to mention that, as I demonstrate in section 5.4.10, the workbook referred to in this discussion is invaluable in terms of enabling the integration of environmental learning in Grade R. Hence, I contend that the failure to supply such an invaluable resource is not only contrary to the *Policy on the Organisation, Roles and Responsibilities of Education Districts* (2013) but it also holds negative implications for the infusion of EE in Grade R. According to the already-mentioned policy, the District Curriculum Support Team has, among its “core functions”, the task of “providing correct and timely Learner and Teacher Support Material” (DBE 2013: 21). The fact that by the commencement of the third academic term, the Grade R class of Site C had only received the *Bukatiro Mophato R* workbook that had to be used in the first term is indicative of ‘failure’ by the district office of the NWDE to carry its mandate. In my considered view, this failure to supply, timely, the relevant LTSM impacts negatively on learning and teaching activities. Subsequently, the integration of EE is also compromised.

Empirical evidence generated from this study also indicates that Site C has a huge challenge in respect of resources such as learner chairs and tables. This is in direct contravention of the requirements, as per the national norms and standards for Grade R funding, that must be met prior to the establishment of Grade R in each public institution. According to these norms and standards, the PEDs and schools must “take into account seating, workspace and recreational

space” (DBE 2008: 7) as regards the operation of Grade R classes. The challenge concerning the lack of resources such as tables and chairs and its effect on pedagogy at Site C is underlined by Respondent Y as follows:

We have a shortage of furniture which also disturbs when I have to give some work. You can't even group your kids according to your liking or according to the standards that you set for yourself.

During one of my observation sessions, I also noted the challenge highlighted by Respondent Y in terms of the “*shortage of furniture*”. The following entry reflects on this challenge and how it affected teaching and learning in Respondent Y’s class:

The teacher took the few “Montessori tables and chairs” available in class from the back of the classroom and placed them in front, closer to the chalkboard. She arranged the learners in such a way that six to eight learners could be accommodated around each of the only four learner tables in the classroom. Since the tables could not accommodate all the learners, the other learners sat on the mat and kept themselves busy through free-play activities.

The teacher worked with the learners on the four tables through the process of building various geometric shapes using wooden building blocks. The teacher observed and guided the learners as they worked in groups. They built shapes such as “kgutlo nne (rectangle)”, “kgutlo tharo (triangle)” and “sediko (circle)”. The teacher constantly moved from one table to the next. During this time, the class was buzzing. The buzz did not only come from the learners who were building geometric shapes around the tables but a great deal emanated from the learners who were left unattended on the carpet. They did not only play but were also noisy and engaged in some quarrels. I could not, under the circumstance, help but wonder how the teacher managed to negotiate such a hectic situation – not just on that day but rather throughout the year! As she moved between tables, it became crystal clear that the situation was overwhelming. The teacher, to her credit, was able to remain calm and did not lose her nerve! (Participant Observation Entry, 2013 July 22).

It should be evident from the above entry that the assertion by Respondent Y that the shortage of furniture “*also disturbs when I have to give some work*” is valid. In my view, the situation

described in the participant observation entry above does not only make it difficult for the teacher to do what she had planned for her class but it also has negative connotations for the integration of EE. My considered view is that such a situation has the potential to make a teacher lose focus and, as a result, fall short, if you will, of her initial pedagogical plans. If, for example, the initial plan included expanding a given lesson to accommodate issues of environmental concern, then this might, at times, not happen since the teacher has to work under challenging circumstances.

Before, I reflect on the situation at Sites B and D in terms of issues underlined in preceding paragraphs, it is important to mention that the challenges noted, at Sites A and C, in respect of funding challenges, lack of resources and so on in this study echo some of the point that were highlighted in chapter two. For example, the literature (e.g. Feza 2015; van der Berg 2013) cited in chapter two suggests that there are many Grade R classes, across South Africa, that are faced with challenges such as lack of resources, poor infrastructure, underfunding and lack of teacher/learner support material. Likewise, Feza (2015) asserts that, generally, there are disparities in respect of salaries received by Grade R teachers throughout South Africa.

Contrary to the state of affairs at Sites A and C, Sites B and D did not seem to experience challenges in relation to issues raised in this subsection. Both Sites, B and D, are independent of the NWDE as regards funding. They rely on school fees paid by parents as well as fundraising. When this investigation was conducted, neither of the two institutions had applied for government funding. However, the principal of Site B had expressed intent to apply for government funding in the future. On the other hand, the principal of Site D indicated that Grade R would be offered for the last time at the institution in 2014. She stated that Grade R would be incorporated into the neighbouring public primary school.

However, it is necessary to mention that, in respect of Site D, funding from parents is not always sufficient to enable the institution to fulfil its monetary needs. Hence, the school conducts fundraising projects during the course of the year. This point was revealed by Respondent M in her response to the question: How is Grade R funded? In her response, she stated that:

We are not getting any financial assistance from the state. We conduct functions to enable us to raise enough funds. So, it is actually very bad. Er...at least once a year we conduct a big fundraising activity. This year, we have already conducted

one festival, just out of town, the Tamboekie Festival. We make some money out of that.

Unlike Respondent K, Respondent M also disclosed, willingly, the monthly fees paid by each learner at Site D. She pointed out that; “*we also ask parents at the beginning of the year...er...they are required to pay an amount of R380 – 00, per month, in school fees over eleven months...*”.

In respect of Grade R teachers’ salaries, the situation is not entirely the same for Sites B and D. For example, at Site B, the practitioner’s salary is paid from the fees contributed by the parents. And, according to the school principal, “*the teacher is not working for much money.*” However, in respect of Site D, the principal, who is also one of the two Grade R teachers, obtains her salary from the NWDE. On the other hand, Respondent M pointed out in respect of her Grade R colleague at Site D that, “*the other lady teacher obtains her salary from the school fund. She is paid by the governing body*”.

As regards the resources, I did not observe any indication, nor did I solicit any, from the respondents at either Site B or D, to suggest that there were LTSM and/or other essential resource shortages. The only challenge which I noted was in respect of the small classroom used by the Grade R class at Site B. However, as I said at the beginning of this chapter, for them there was hope since the new school building was going to alleviate their plight.

In concluding the discussion in this subsection, it is vital, in my opinion, to mention that the availability of resources at Sites B and D, respectively; puts the two institutions in good stead when it comes to learning and teaching activities. The fact that both sites, relative to Sites A and C, respectively; did not ‘display’ challenges emanating from funding or the shortage of resources means that the Grade R teachers at these institutions had fewer concerns than their counterparts at Sites A and C. In my view, this situation implies that the Grade R teachers at Sites B and D had fewer issues that would distract them from effective teaching. Hence, they would be able to focus on their pedagogical activities. By extension, these teachers should be able to integrate EE without having to worry about issues such as funding and resources. In the next point of discussion I focus on the definition of EE as provided by the respondents in this study.

5.4.9. Definition of Environmental Education: Participants' Perspectives

Disinger (2001) points to the absence of a universally accepted definition of the concept of Environmental Education. Hence, he writes that “a continuing dilemma for those concerned with environmental education lies in the matter of definition” (Disinger 2001: 17). It is on the basis of this definitional dilemma that I opted to provide a ‘working definition’, if you will, which I deemed ‘appropriate’ for this study in chapter one of this discussion. My considered view is that since this study is about the exploration of the extent to which EE is integrated in Grade R, it was prudent to establish the conceptualisation of the term Environmental Education by the participants of this study. This decision is based on the notion that what teachers teach “is influenced by what they know and feel” (Beuthe and Smallwood 1987: 39 cited in Hebe 2009: 4). Accordingly, one would expect the integration of environmental learning to be, somewhat, predicated on the conceptualisation of EE by the respondents.

In this study, I posed the following question to each of the respondents: what does the concept Environmental Education mean to you? A variety of responses were provided. For example, in defining EE, Respondent W provided the following response:

It means teaching learners about the background. Some learners don't know enough about the background.

As far as I was concerned, this response was not clear to me and, it seemed to me that it did not have anything to do with the definition of EE. Hence, my assumption was that it would be appropriate to rephrase and pose the question once more. However, I decided to do it in Setswana, the home language of the respondent since my guess was that she might have had a problem comprehending the question when posed in English. She presented her response in Setswana, and the response can be phrased in English as follows:

It means teaching children about the environment. A lot of children do not know the value of the environment...We are talking about, for example, buildings and trees. We are talking about natural things.

Respondent W also referred to the significance of teaching children, at a young age, about the environment. She stated that:

It is important that they should know about the environment so that they do not struggle later, when they reach higher classes. Therefore, it is important to teach

them while they are still young....It helps them to know how to take care of things such as trees while they are still young.

The conceptualisation of the environment being something of value about which learners need to be taught as suggested by Respondent Y was also alluded to by her school principal. As part of his response, Respondent J implied that the environment is of value and, hence, EE is, partly, concerned with the preservation of the environment. The following is Respondent J's view of EE:

Environmental education....I think it is about teaching learners or educating learners about what is happening in the environment. For example, how to take care of the grass...why it is, now, green...why it is dusty outside...I think it is about how to preserve the environment.

The characterization of EE by Respondents W and J, respectively, did not differ, fundamentally; to the one provided by Respondent X of Site B. According to Respondent X, EE is about, *“the surroundings, the importance of our surroundings...in our surroundings we have lots of trees. We must teach our children the importance of the plants around our place...and cleanliness, keeping your place clean.”*

The definition provided by the above respondents might not be comprehensive. However, all these respondents do highlight some of the components deemed significant in environmental learning. For example, the Tbilisi Conference on Environmental Education of 1977 underlined awareness and sensitivity to the environment as well as concern for the environment (UNESCO 1978) as some of the key elements that should form part of EE. Therefore, in my view, if learners know the value of the environment then they could be conceived as being aware and sensitive to the environment and some of the challenges affecting it. In this regard, the notion of EE being concerned about teaching young children on the value of the environment, as expressed by the Respondents W, J and X, could be considered one of the ‘appropriate’ ways of defining the concept of EE.

Likewise, the view of EE being concerned *“about how to preserve the environment”*, as stated by Respondent J, speaks to the value of the environment. In my opinion, this is in view of the fact that it is inconceivable why a person would want to preserve something unless it is of value to them. As far as I am concerned, the preceding point is expressed in one of “the components of environmental education” (<http://www.gdrc.org/uem/ee/tbilisi.html>), namely;

the “attitude of concern for the environment and motivation to improve or maintain environmental quality” (ibid.). In the interest of this discussion, I do note the point made by Respondent W about teaching EE to young children. However, since it was also referred to by other respondents in this study, I shall reflect on it later in this discussion.

On the other hand, in her definition of EE, Respondent K underscored, among other things, the importance of awareness, the reciprocal effect between human beings and the environment, and the importance of making EE practical and, thus, more meaningful to learners. In articulating her view of EE, Respondent K stated that:

I think how I understand it, it is to make children aware, that is one point, aware of the environment and the effect that the environment has on them and the effect they have on the environment. Secondly, I would say to educate, that is different from awareness...to educate is, really, to teach them...make it practical to them as well.

In addition to the above-mentioned points, it is essential to indicate that Respondent K expressed an intention to make EE practical in her school in the future. According to her, this would be done through “*planting some vegetables and stuff*”. There are of course a few other points raised by Respondent K in her definition of EE. Hence some of them are worth highlighting.

The notion of EE having to do with making “*children aware of the environment*”, as expressed by Respondent K, is in line with the declaration made by the Tbilisi Conference in 1977. According to the Tbilisi Conference, EE is defined, in part, as “a learning process that increases people’s knowledge and awareness about the environment and associated challenges” (<http://gdrc.org/uem/ee/1-1.html>). Of course, this view was also articulated in chapter one (*refer to 1.7.3*). Similarly, Respondent K talks about “*the effect that the environment has on them (young children) and the effect they have on the environment*” [**my emphasis**]. This conception of EE is in line with the idea expressed by Didone (2008: 28) who writes that “as I am part of nature, every problem that affects the environment – the air, plants, forests, rivers, animals, the conditions of life on earth – affects me”. This reciprocal relationship between human beings and the environment is also explicitly expressed in one of the “essential underpinnings of early childhood environmental education” underscored by the (NAAEE 2010: 6). The NAAEE (2010) amplifies the value of teaching young children that there is interdependence between human beings and nature. This underpinning states that

“people are connected to each other and to nature. What we eat, drink, breathe, and wear is drawn from nature, and we have an impact on nature as well” (NAAEE 2010: 6).

Besides conceptualising EE as being an expression of interdependence between human beings, themselves, and between human beings and nature, Respondent K also asserts that EE should be practical. This argument is also inherent to the notion of EE being learning *in/for/about* the environment. Similarly, Oltman (2002: 29) argues that young children should “experience an activity or environment first-hand, using real objects and appropriate equipment”. In my view, if learners experience the environment first hand as suggested by Oltman (2002) then that would enable them to gain a practical experience of the environment as expressed by Respondent K. Accordingly, practical experiences enhance children’s awareness about the environment, the challenges that exist in the environment and provide them with opportunities to think about various ways in which environmental challenges could be addressed early in their lives. In my view, this is one of the best ways in which EE should be conceived in the context of ECE.

In her definition of EE, Respondent Y referred to some of the points highlighted by Respondents W, X and J. Similarly, just like Respondent K; in her suggestion that “*the environment is next to human beings*”, Respondent Y also alluded to the interdependence between human beings and the environment. Hence, in my considered view, it is appropriate to merely present her conceptualisation of EE with no further elaboration since an ‘engagement’ with her definition would only serve to repeat statements that have already been raised. According to Respondent Y, EE...

...is mostly based on the environment as a whole...keeping the environment clean, planting trees, flowers or vegetables. And, again the environment is next to human beings because the way you are, you have to be in a clean environment...this is important for your health.

On the other hand, the view of the environment articulated by Respondent L underscores the importance of teaching children about the judicious use of natural resources in order to sustain our society. This view is expressed in the following statement by Respondent L:

In my own personal view, the concept environmental education means that we should use our natural resources so that we should sustain the development of

our communities and society at large. The learners should be aware of how to use these natural resources.

The above-mentioned definition of EE by Respondent L might not have been couched ‘appropriately’ but the essence thereof is, in my view, clear. This definition is, evidently, premised on the idea of sustainable development. On the other hand, the term sustainable development is embedded in the concept of environmental education (Sauvé 1996). The World Commission on Environmental Development (1987: 43 cited in Drexhage and Murphy 2010: 6) defines sustainable development as “development which meets the needs of the present without compromising the ability of the future generations to meet their own needs”.

In rounding this discussion off, a reflection on Respondent M’s view of EE is worth noting. Respondent M defined EE by referring to aspects such as the role of learners in the environment, the management of the environment and the notion of lifelong learning. Respondent M defined EE by stating that:

I would say that it has to do with teaching the young ones, from an early age, about their role in and how to manage the environment. This is because it is not easy to learn things such as heating and global warming on our own all at once. Hence, it is necessary to make people, gradually, aware of the dangers emanating from our failure to take care of the land.

One of the elements underlined in the above definition by Respondent M is the value of exposing children to environmental learning from a tender age. The reasons advanced by Respondent M as regards the importance of introducing EE early in the lives of children might not be exactly the same as those presented by Respondent W. However, both of them realise the importance of considering EE as a lifelong venture. Respondent M stresses the difficulty of comprehending processes such as “*heating and global warming*” in the teaching of EE. Accordingly, she is of the view that if people are to understand certain environmental processes then a gradual approach, commencing at ECE level, towards the creation of environmental awareness, is essential. The view of EE as a lifelong process is in line with UNESCO’s (1978: 27) declaration that EE should “be a continuous lifelong process, beginning at the pre-school and continuing through all formal and non-formal stages”.

In concluding this discussion, I contend that all respondents in this study seemed to have some idea of what the concept of EE entails. In my view, this should enable them to integrate EE, or at least advocate for the integration of EE in their respective institutions.

5.4.10. Findings emanating from the Analysis of Documents

In chapter four (*refer to 4.3.2.3*) I pointed out that some documents were sourced from each of the four Grade R teachers who participated in this study. These were analysed with the view to determine whether there was evidence to suggest that environmental learning was integrated by the respondents in their pedagogical activities. Accordingly, in this section I reflect very briefly on the evidence emanating from the analysis of the documents.

The Workbook 3–Grade R (*Bukatiro 3–Mophato R*) is one of the documents that were sourced and analysed. This document is supplied to public schools by the NWDE, notwithstanding the non–supply/late supply of the text to schools (*refer to 5.4.8*), and; from my observations at Site A, it seems to be used as the main document to facilitate learning and teaching. From my close examination of the document, I came to a conclusion that the text is well designed to enable environmental learning in Grade R. The workbook contains numerous pictures; each of the pictures covers a theme of relevance to environmental learning in line with the CAPS documents analysed in section 2.3.6.3 of this discussion. Accordingly, I provide three pictures (*refer to figures 5.20, 5.21 and 5.22*), below, to illustrate that, indeed; the workbook provides for environmental learning in Grade R.

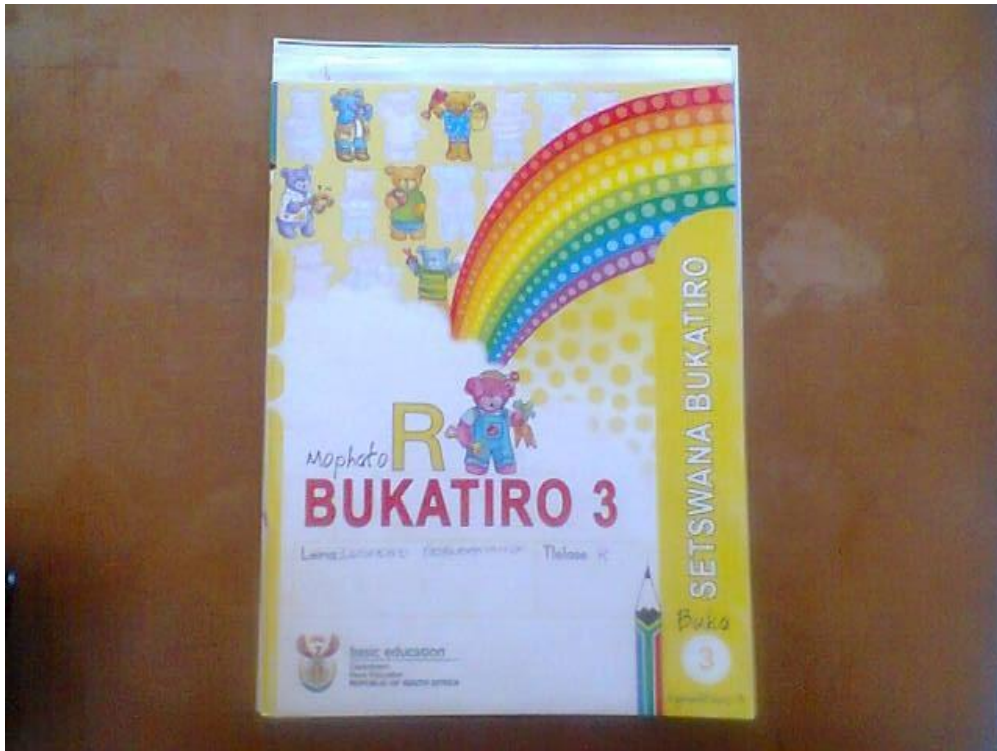


Figure 5.20: The front cover of the Workbook 3–Grade R

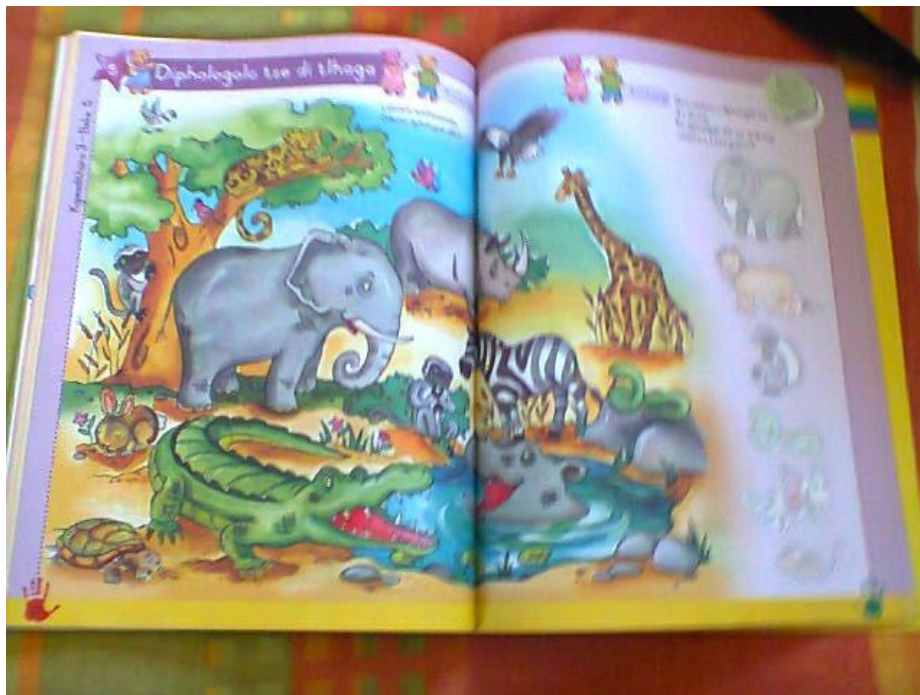


Figure 5.21: Diphologolo tse ditlhaga (Wild animals)

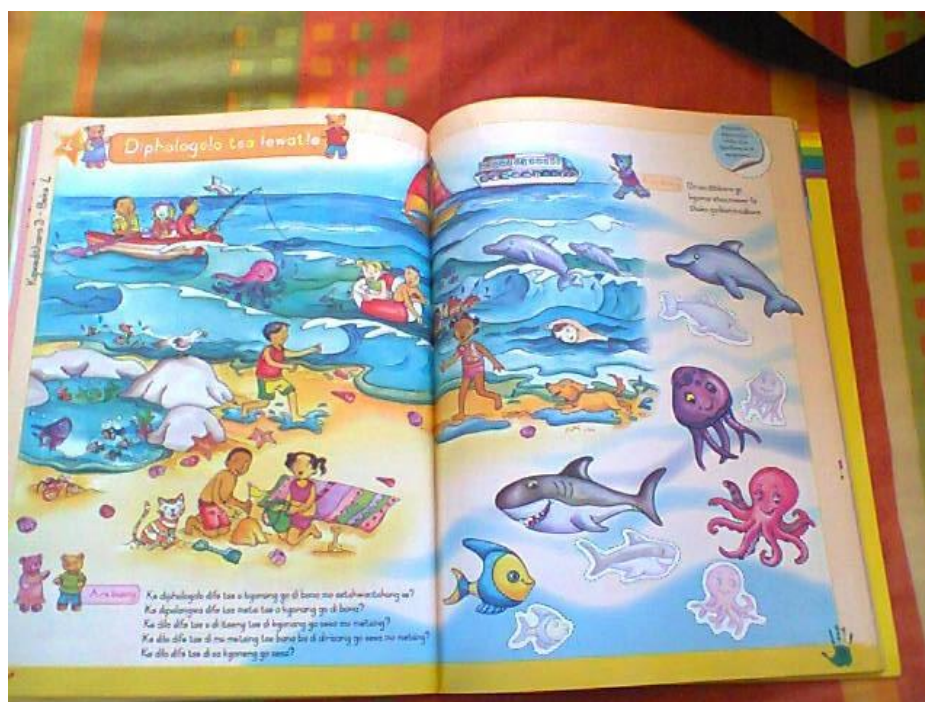


Figure 5.22: Diphologolo tsa lewatle (Ocean/Sea Animals)

The first picture, *figure 5.20* depicts the cover page of the workbook while each of the subsequent pictures (*figures 5.21* and *5.22*, respectively) is based on the theme on animals. In chapter two (*refer to 2.3.6.3*), I highlighted that the theme of “Animals” is catered for in the Grad R curriculum (DBE 2011c). Hence, it can be argued that there is a link between the CAPS documents analyzed in chapter two and the Grade R Workbook. The following is, therefore, a brief reflection on the two pictures (*figures 5.21* and *5.22*) depicted above.

The document, *figure 5.21*, portrays various examples of wild animals that would be found in the immediate environment of the learner and beyond. The animals displayed on the document include animals such: elephant, zebra, giraffe, crocodile, hippo, tortoise, and etcetera. Some of these animals, for example, a tortoise, a giraffe and a zebra are found in the game farms very nearer to learning sites which took part in the study. For that reason, learning *about* such organisms would, in my view, be meaningful to the learners since these animals are within their immediate environment. In fact, an activity that entails learning about these animals would be enhanced by a visit to one of the nearby game farms to enable learning in the environment as well. Therefore, it is my considered view that, as indicated elsewhere in this discussion (for example, *section 5.4.8*); the Grade R Workbook provided by the NWDE is a resource that could be used meaningfully to integrate environmental learning in Grade R.

Just like figure 5.21, figure 5.22 is based on the theme on animals. However, whereas figure 5.21 depicts wild animals, figure 5.22 depicts sea/ocean animals. Therefore, since the learners in the selected sites are distant from the sea/ocean; this document would be useful in terms of enabling them (the learners) to learn about animals that are found in other environments as well.

Apart from the above-mentioned documents, which were sourced from Site A, there are equally important documents that were sourced from Sites B, C and D as well. The documents from Sites B and C also have the concept of “Animals” as their theme. The following document (*figure 5.23*) – with the title *Busy Ants! Wise Ants!* – was sourced from Site B, and reflects on the activities of ants in their ‘everyday lives’.

A. Story Preparation

Instruct each child to follow along in his **Social Studies PACE RR12, pages 23-25**

B. Story

BUSY ANTS! WISE ANTS!

(Proverbs 6:6-8; 30:25)

(23) "Tick, tack! Tippity, tap!" The ants were marching, marching, marching! The ants were marching over warm, brown sand.

"Tick, tack! Tippity, tap!" The ants were marching, marching, marching! The ants were marching past the tall, green grass.

"Tick, tack! Tip . . ." Suddenly, an ant stopped! Right in front of the ant was something big and yellow! The ant looked up, up, up at the big, yellow object (thing). What could it be? Was it a balloon? Was it a ball?

The object was not quite round. Yet it was not quite square! The object must be . . . a kernel (grain) of corn!

"Swish, swash, swish!" All the ants swarmed around the big, yellow kernel of corn.

"Whoosh!" The ants lifted up the big kernel of corn. All working together, the ants were VERY, VERY strong.

"Tick, tack! Tippity, tap!" The ants began to march home. The ants wobbled from side to side as they carried the big kernel of corn.

"Tick, tack! Tippity, tap!" The ants marched over the sand. The ants marched past the tall, green grass.

"Tick, tack! Tippity, tap!" The ants marched right up Ant Hill. They marched to the very top.

(24) "Tick, tack! Tippity, tap!" The ants marched to a big, dark hole on top of the hill. It was the tunnel to Ant City.

"Tick, tack! Tippity, tap!" The ants marched down into the tunnel until they reached Ant City.

"Tick, tack! Tippity, tap!" The ants marched into Ant City carrying the big, yellow kernel of corn. It was a special "treasure (special to you)." The big, yellow kernel of corn was a food "treasure" for Ant City!

"Tick, tack! Tippity, tap!" The ants marched every day for many, many days. They marched in the hot sun. They marched in the wet rain. The ants marched everywhere looking for more food treasures. The ants marched in the spring. The ants marched in the summer. The ants marched in the fall.

One day, as the ants were marching, they began to shiver! The sun no longer felt warm. The air was very, very cool!

"Tick, tack! Tippity, tap!" The ants marched much, much faster. They were trying to stay warm.

"Splat!" Something fell in front of the ants. It was soft. It was wet and cold!

"Splat!" Something fell behind the ants. That "something" was also soft, wet, and cold!

"Splat! Splat!" Those "somethings" were snowflakes. It was starting to snow!

"Tickity, tack!" The ants hurried back to Ant Hill as fast as they could hurry!

"Skippity, scat!" The ants scurried up Ant Hill as fast as they could scurry!

"Zippity, zap!" The ants scooted down the tunnel until they reached Ant City.

Quickly, the ants scampered into Ant City. There was no snow falling in Ant City at all! Ant City was snug and warm.



(25) "Splat! Splat!" The snow kept falling outside. It fell all day! The snow covered tiny grains of sand. The snow covered tall, green blades of grass. Finally, the snow covered Ant Hill. Even the door to the tunnel could not be seen.

The ants could not leave Ant City. They could not look for food treasures. The ants could not gather any more food.

Yet, the ants were not afraid. The ants were not afraid at all! In Ant City, there were already many, many food treasures. There were big, yellow kernels of corn. There were green leaves, purple grapes, and big, brown bread crumbs. Why, Ant City was full of yummy, yummy ant food!

Aren't you glad that the ants went marching for food treasures each day? The ants did not sit in the cool shade. The ants hunted for food in the warm spring sun. They hunted for food in the hot summer sun. They hunted for food in the cool fall sun.

God's Word tells us something very important about ants. Ants do not have someone who says, "Hurry up! Find food!" There are no ant PACE's that read, "It's going to snow!"

God made ants very special. God made ants to gather food. Ants do not even have to think about it! The ants obey. The ants obey God!

God made each one of us special, too. God made us to obey Him! God knows what we need. God knows how to take care of each one of us.



Comprehension Questions

1. In the beginning of the story, what big, yellow object made the ant stop marching? *(The big, yellow object that made the ant stop marching was a kernel of corn.)*
2. What was at the very top of Ant Hill? *(The hole opening into the ant tunnel was at the very top of Ant Hill.)*
3. What was at the very bottom of the ant tunnel? *(Ant City was at the very bottom of the ant tunnel.)*
4. What were some of the food "treasures" that the ants found? *(The ants found brown bread crumbs, yellow kernels of corn, purple grapes, and green leaves.)*
5. One cold day, what fell "splat" in front of the marching ants? *(A snowflake fell "splat" in front of the marching ants.)*
6. What fell "splat" behind the marching ants? *(A snowflake fell "splat" behind the marching ants.)*
7. Did any snow fall inside Ant City? *(No snow fell inside Ant City.)*
8. In Ant City, the ants did not have to be afraid of snow because there were many, many food _____. *(treasures)*
9. Whom do the ants obey? *(The ants obey God.)*
10. Whom must we obey? *(We must obey God.)*

C. Song

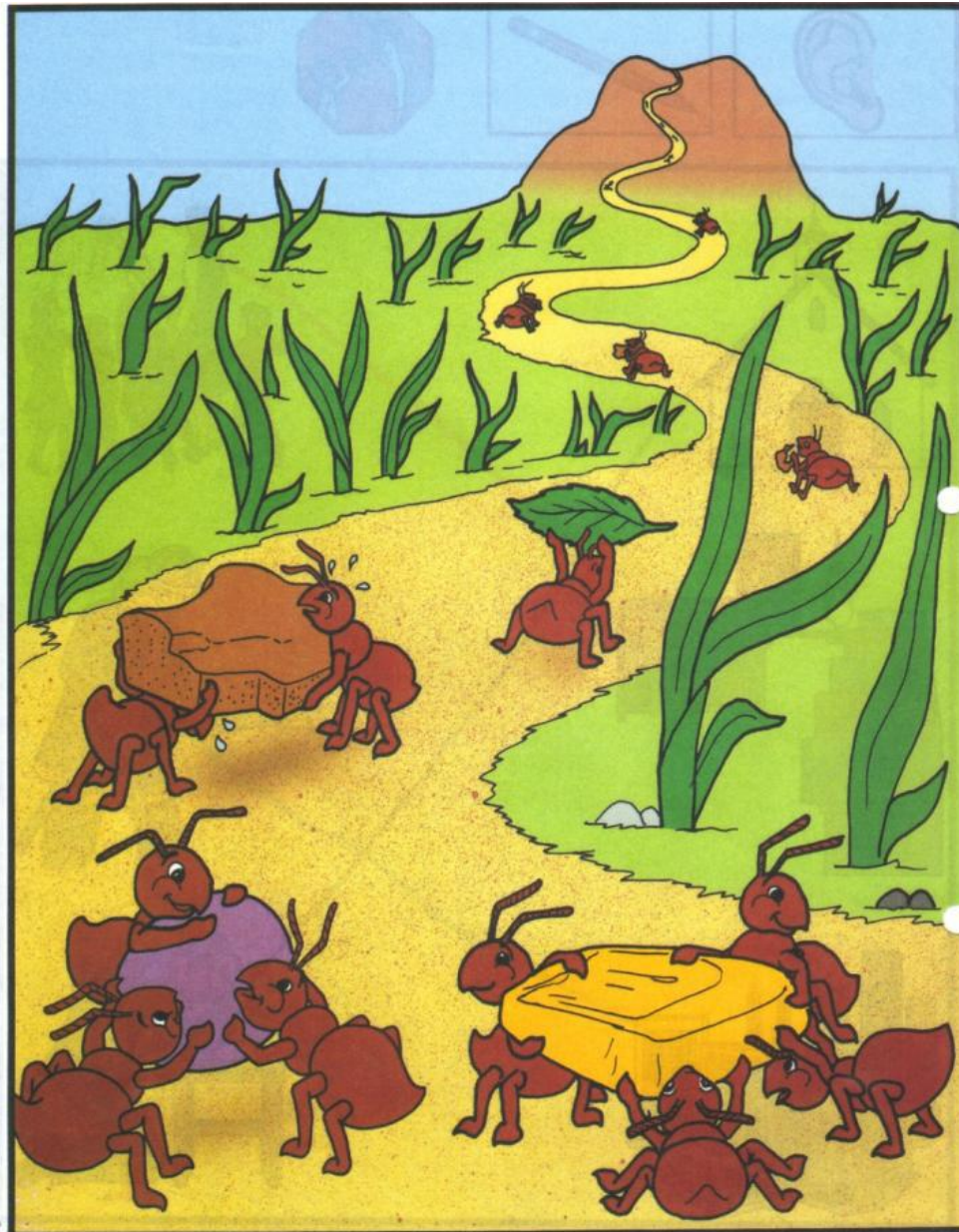
Salvation Songs (Number 3) #29, "I'm Gonna Work"

IX. SCRIPTURE MEMORY (10:20-10:30)

(Review any learned Scripture: Psalm 100, Life of Christ verses, Psalm 23, Psalm 1.)

X. BREAK (10:30-11:00)

Rest room, water fountain, and outside free play



(23)

Figure 5.23: Busy Ants! Wise Ants!

The above document reflects on one of the daily activities of the ants – collection of food in preparation for future needs. In my analysis of the document I came to a conclusion that this document is relevant in the integration of EE in Grade R. This argument is based on the view that if the story–reading lesson is conducted appropriately, it should enable the learner to know more *about* some of the roles of the ants in the environment. The teacher would assist the learners to make sense of the non–stop, up and down movement which characterises the regular behaviour of ants in the environment. The learners would become aware, for example,

that one of the reasons for the up and down movement of ants is to forage food for a particular purpose. Hence, it is my view that the story is relevant in terms of teaching *about* the niche of ants in the ecosystem. This is an important aspect of environmental learning.

As already pointed out, another document that was based on the theme of “Animals” was sourced from Site C. The focus of this document is a drawing whose focus is on habitats or ‘homes’ of various animals. This documents with the title *Ke nna kae? (Where do I stay?)*; is depicted in figure 5.24, below.

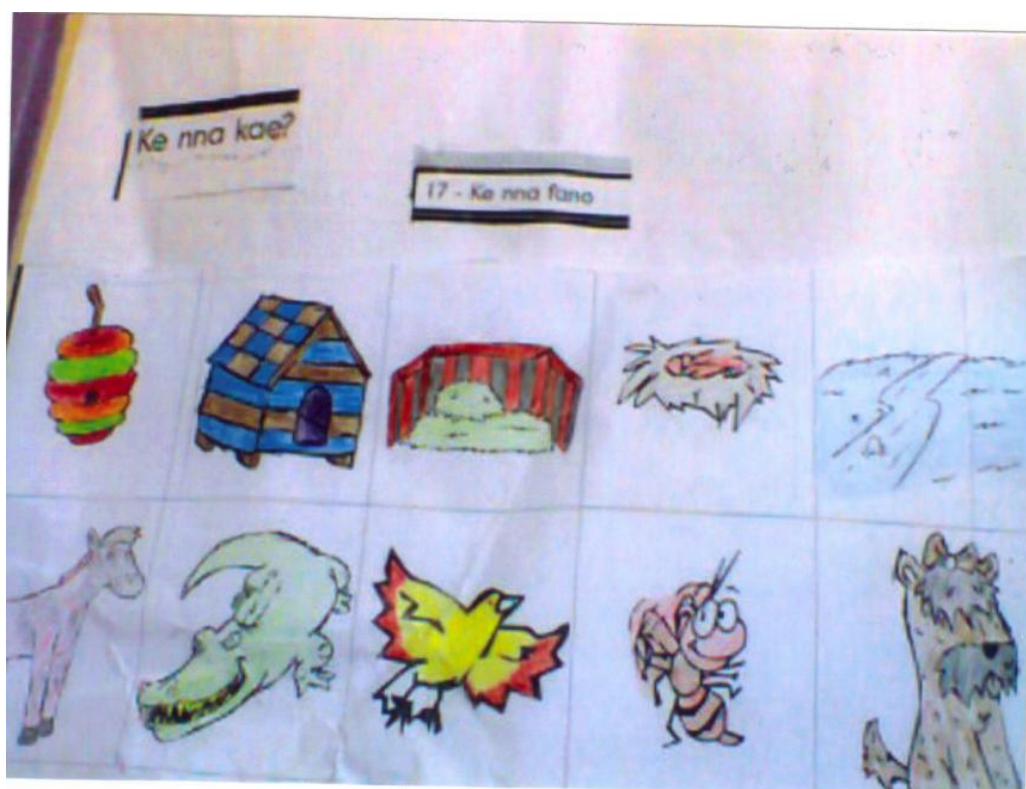


Figure 5.24: Ke nna kae? (Where do I stay?)

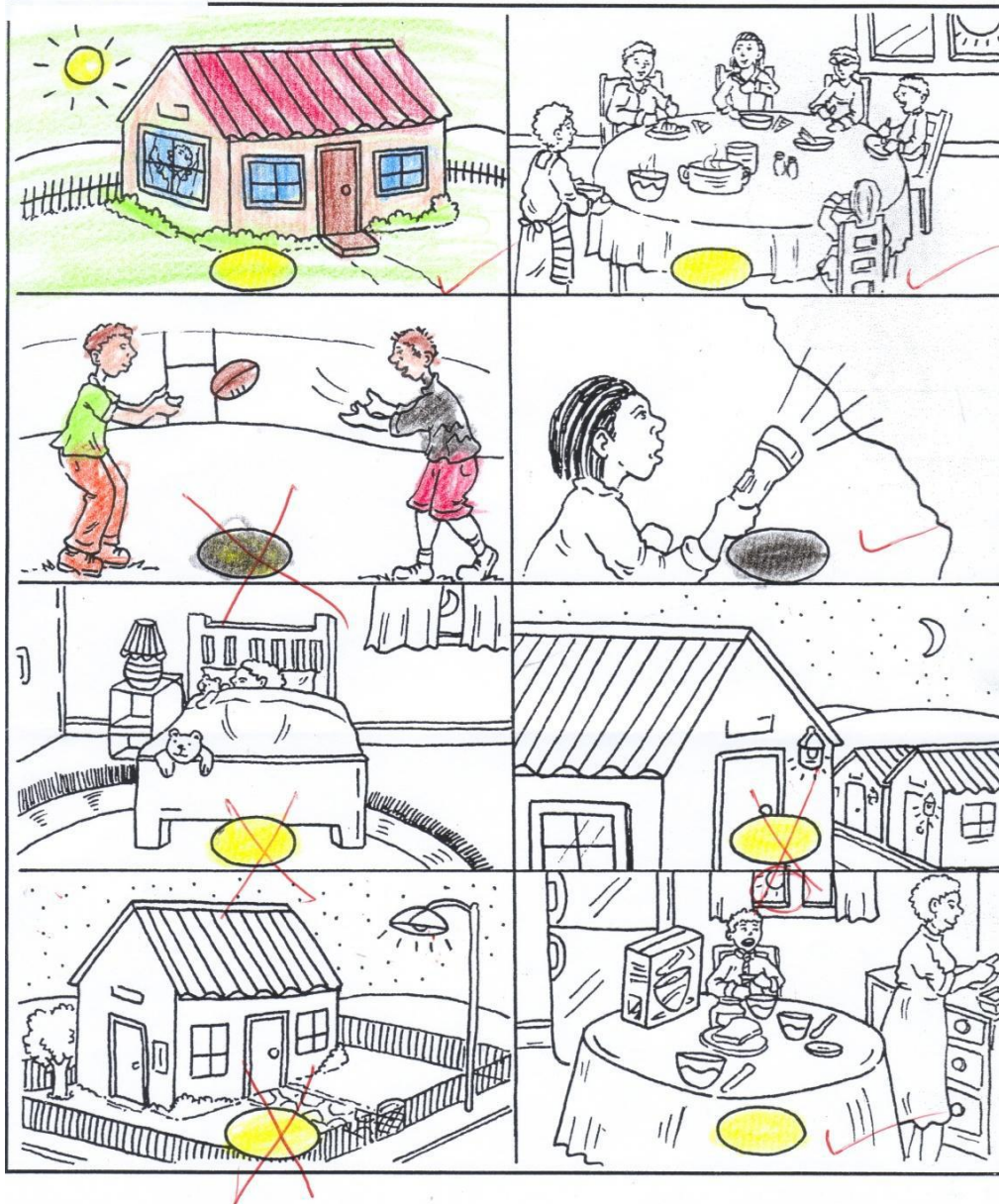
Upon closer analysis of the documents I came to a conclusion that the purpose of the documents was, possibly, to enable the learners to match different animals to their respective habitats. A comparison of the title of the document to the pictures displayed on it suggests that the learning–teaching that must have employed the use of the document could have been aimed at enabling the learners to match each organism to its appropriate habitat. Hence, I would argue that the title; “*ke nna kae? (Where do I stay?)*”, is appropriate. The title of the document is also very interesting since it uses the first person “*nna(me)*” rather than “*tsona(they)*” which would be fitting in the context of the document since it is “*tsona di phologolo(they, the animals)*” that are displayed and not a person(i.e. “*nna*” or “*me*”). The

designer of the poster might have well used the title, “*Di nna kae di phologolo tse? (Where do these animals stay?)*”; but chose not to do so. This in my view suggests that the teacher and the learner are placed on par with other organisms in terms of significance. This approach is in line with the notion that EE in ECE should underscore the interdependence that exists between various organisms in the ecosystem (Pramling Samuelsson and Kaga 2008).

It is therefore my considered view that this document represents one of the most appropriate ways in which a learner at the level of Grade R could be made aware of the importance of habitats in the lives of various organisms. Knowing about the importance of habitats should enable the learners to realise that as much as it is important for human beings to stay in a specific “*home or house*”; it is also important for the other organisms to have a home as well. This document, therefore, serves an essential function in terms of enabling the integration of EE.

The last point worth mentioning in respect of documents analyzed in this study is in respect of the document that reflects on the concept of time. The concept of time and the changes that occur around the environment is considered significant for environmental learning in Grade R (*refer to section 2.3.6.3*). Therefore, the document with the title (depicted as *figure 5.25*), below, sourced from Site D was considered relevant for analysis in this study.

Dintle



Wys in die ovaalvorm onder elke prent of die prent in die dag of die nag is. As dit dag is, kleur die ovaal geel. As dit nag is, kleur dit swart.

Tema 21: Tvd in mv wêreld

89

Figure 5.25: Day and night activities

This document depicts an array of activities that would be carried out by people either during the day or at night. My conclusion, based on the analysis of the document, was that Respondent M wanted to give the learners an opportunity to demonstrate that they could distinguish between day and night activities. This intent is highlighted in the statement at the

bottom of the document which reads “*wys in die ovaalvorm onder elke prent of die prent in die nag of die nag is. As dit dag is; kleur die oval geel. As dit nag is, kleur dit swart (indicate in the oval shape below each picture whether the picture illustrates day or night. If a picture depicts the day, colour the oval in yellow. If it portrays night, then colour the oval in black)*”.

This document is, in my view, relevant to the integration of environmental learning in the sense that for the learner to be able to complete the activity, then that learner would have to be aware of things or activities that take place around him or her. So, the learner would reflect on the context represented in the activity by relying on his or her personal experiences emanating from observing the environment around him or her. The learner would have to observe each picture carefully and cognitively analyse it and; thereafter, reflect on personal experiences to respond to the question on the activity sheet. *Dintle*, one of the learners managed, as depicted by the activity sheet, to get four of the eight frames correct.

In concluding this section on the findings based on document analysis, I need to point out that apart from the documents reflected upon in this section; there are other documents which also portrayed wild animals which were sourced from the sites which participated in this study. Therefore, one can conclude that the theme on animals was covered extensively by the respondents in this study. In the final analysis, my view is that, apparently; the Grade R teachers who took part in this study made an effort to use documents that could facilitate environmental learning in their pedagogical practices. In the next section, I reflect on how the findings of this study could be linked to the questions that were raised to enable this inquiry to proceed.

5.5. Syntheses: Linking the Findings to Research Questions

As stated in chapter one, the purpose of this study was to investigate the integration of environmental learning in selected Grade R centres in the North West Province of South Africa. In order to facilitate the process of inquiry, I posed the main question of the study as follows:

What is the current status in respect of the implementation of Environmental Education in Grade–R of selected ECD centres in the North West Province of South Africa?

Furthermore, in an effort to focus the investigation process, I coined the sub–questions as follows:

- What opportunities/challenges/hindrances exist in respect of the implementation of environmental education in Grade–R in the North West Province?
- What types of programmes are utilised to aid the implementation of environmental education in Grade–R?
- To what extent are the ECD practitioners equipped to implement environmental education?
- What impact does the funding of ECD centres have on the implementation of educational programmes, in general, and environmental education in particular, in the North West Province?
- What type of support is provided by the North West Department of Education (NWDE) to the ECD centres?

I deemed it essential to restate the main question of this study together with the related sub-questions because the findings of this study are a direct response to these questions. Hence, in this section I make an effort to highlight how the findings contributed to answering each of the above-mentioned sub-questions and thereby provide a tangible response to the main questions of this study.

It is my considered view that, as I shall illustrate, each of the preceding questions was addressed by the findings as presented in this chapter. The following are, therefore, the inferences/conclusions that can be drawn in respect of each of the sub-questions:

5.5.1. What opportunities/challenges/hindrances exist in respect of the implementation of environmental education in Grade–R in the North West Province?

The evidence generated from this study suggests that there are some factors that could be considered as enablers of EE integration in Grade R classes of the selected schools. These include the following: the design of the NCS, LTSM supplied by the NWDE, and collegiality and collaboration among Grade R teachers. In chapter two (*refer to section 2.3.6.3*) I demonstrated that the curriculum as entailed in the CAPS documents (DBE 2011a; DBE 2011b; DBE 2011c) is designed in a manner that makes it possible to accommodate environmental learning. This point was reiterated in this chapter (*refer to sections 5.4.6 and 5.4.10*). Likewise, the findings also point to the usefulness of what appeared to be the main

resource material for Grade R in public schools, the Grade R workbook (*Mophato R, Bukatiro*). As suggested in section 5.4.1, this text contains topics that are designed, mainly, to enable education *about* the environment. Of course, teachers could still be able to use the topics in the workbook to design programmes oriented towards both education *in* and *for* the environment. It is also essential to point out that the resources designed for teaching and learning at the two independent schools which participated in this study also enabled EE integration in Grade R (*refer to section 5.4.10*). Apart from the enabling curriculum and the well-designed workbook in so far as it provides for environmental learning, the findings also suggest that some of the Grade R teachers who participated in this study were able to consult and share information and good practice with one another (*refer to 5.4.2 and 5.4.3*). This collaboration occurred within and across different learning institutions.

Notwithstanding the factors that could be considered ‘enablers’ of EE integration in Grade R, as pointed above, this study also revealed several shortcomings which could be regarded as, somewhat, hampering the prospects of environmental learning in the Grade R classes of the schools which took part in this inquiry. These factors include: inadequacies in the support given to the Grade R teachers by both the SMTs (*refer to 5.4.3*) and the office-based officials of the NWDE (*refer to section 5.4.4*) as well as the constraints posed by inadequate of funding and the lack of or insufficient LTSM and other resources (*refer to section 5.4.8*). According to the evidence provided by some of the Grade R teachers who participated in this study, there is either inadequate or lack of support (i.e. support to help them do their work competently as Grade R teachers) from both their SMTs and relevant office-based workers of the NWDE. The claim concerning the lack of support in respect of curriculum issues has the potential to hamper the infusion of EE in Grade R of the selected institutions. Additionally, evidence from this study highlighted funding (*refer to 5.5.4*) and inadequate (and even non-supply of) LTSM and other resources that facilitate learning and teaching (*refer to 5.4.8*). The challenge posed by the lack of and/or inadequacy of LTSM resources, as noted in public schools which took part in this inquiry, was attributed by to the shortcomings on the part of the NWDE. This challenge did not only constrain learning and teaching but, by extension, it could be regarded as a factor that, potentially, hinders EE integration. The preceding point is predicated on the notion that EE can be integrated best into existing curriculum programmes, therefore, any constraints to teaching and learning impact negatively on environmental learning.

5.5.2. What types of programmes are utilised to aid the implementation of environmental education in Grade-R?

In terms of the EE approaches discussed in chapter one as postulated by Lucas (1972), it can be concluded that very little was observed in respect of environmental learning at the four learning institutions which participated in this inquiry (*refer to 5.4.7.*). However, in instances where environmental learning occurred (Sites B, C and D), it took; mostly, the form of education *about* the environment and, to a very limited extent education *in* the environment was also noticed (Sites C and D) and through the verbal account (Site D) it was also suggested that, indeed, education *in* the environment does take place. However, no education *for* the environment was observed and, except for Respondent M of Site D; no respondent suggested that they did conduct education *for* the environment in the past.

In respect of pedagogical approaches use to enable the integration of EE, the following strategies were noted, either through observation or the verbal accounts by some of the respondents: storytelling, story-reading, questioning or inquiry-based teaching, experimental teaching-learning and modelling.

5.5.3. To what extent are the ECD practitioners equipped to implement environmental education?

In section 5.3.2 I provided the profiles of the respondents who took part in this study. These profiles indicate the academic qualifications and the teaching experience possessed by each of the Grade R teachers who participated in this study. The academic qualifications suggested that, two of the Respondents (i.e. Y and M), superseded the minimum teaching professional qualification required by the DBE for any person to be deemed professionally qualified to teach at foundation phase(including Grade R). Additionally, each of the two respondents had more than 36 years of professional teaching experience at ECE level. Even though neither of the two teachers had any ‘special training’ in the integration of environmental learning, they could be deemed ‘adequately’ qualified to integrate EE at ECE level.

On the other hand, the other two teachers who participated in this study, namely; Respondents W and X, respectively, did not have the minimum qualifications required by the DBE for one to be regarded as professionally qualified to teach at foundation phase (or any other level for that matter). Neither of them had any training in respect of the integration of EE. Likewise, each of the two teachers had some teaching experience of less than five years.

Accordingly, on the basis of this information, it can be concluded that neither of them was ‘adequately’ equipped/qualified to facilitate environmental learning in Grade R.

Nevertheless, evidence generated from this study suggests that, to some extent, three of the respondents, namely; Respondents X, Y and M were able to integrate EE in their teaching and learning activities (*refer to section 5.4.7*).

5.5.4. What impact does the funding of ECD centres have on the implementation of educational programmes, in general, and environmental education in particular, in the North West Province?

In section 5.4.8 I presented a detailed account, based on the information provided by the principals (Respondents J, K, L and M) who participated in this inquiry, on the aspect of Grade R funding in each of the institution which took part in this study. Each one of them suggested that their respective institutions had challenges in terms of Grade R funding. Two of these respondents, namely; Respondents J and L, relied on Grade R funding from the NWDE. According to them, the funding obtained from this PED is inadequate to meet their institutional Grade R needs, including the needs associated with EE integration. For example, Respondent J suggested that he would have liked to have his Grade R learners undertake fieldtrips to enable them to learn *about* the environment; unfortunately he was, purportedly, constrained by financial challenges.

Likewise, Respondents L and M, respectively, suggested that their educational programmes, including the integration of EE, were constrained by the challenge of funding. However, I need to point out that even though respondent M felt constrained by funding, she suggested that she was able to take her Grade R learners for EE related trips. According to her, the parents of her Grade R learners funded the field trips.

Accordingly, it can be concluded that funding seems to have a negative impact on the delivery of Grade R educational programmes in the institutions which participated in this study. This impact extended to the integration of EE.

5.5.5. What type of support is provided by the North West Department of Education (NWDE) to the ECD centres?

This question was addressed, mainly, by the findings presented in section 5.4.4 of this chapter. The issues of support addressed were, mainly, in respect of professional support and

monitoring of Grade R programmes, including, teacher development and institutional support with specific focus on Grade R. In respect of three schools (Sites A, C and D), the principals were happy with the support provided to their institutions, including support given to the Grade R teachers, by the NWDE officials.

On the other hand, Respondents W and Y, both of whom were Grade R teachers at two of the public schools (Sites A and C) which took part in this study, provided divergent views in respect of support provided by the NWDE officials – it must be recalled that Respondent M had a dual role of principal and Grade R teacher, therefore, her positive view in respect of the support given to her institution by the NWDE was extended (as discernible from her responses) to the support given to her as a Grade R teacher by the official of the department of education. Whereas respondent Y felt that the support provided to her, by the NWDE official, to enable her to discharge her Grade R duties competently was inadequate; Respondent W was content with the support from the NWDE officials. For example, Respondent Y felt that even though the Senior Education Specialists would invite the Grade R teachers (together with other foundation phase teachers) to workshops and meetings meant to provide them with guidance and professional development, the Grade R teachers were not catered for in those workshops and meetings. Hence, in her view they (Grade R teachers) were not provided with the necessary professional support to enable them to perform their duties proficiently.

5.5. CHAPTER SUMMARY

In this chapter I provided a detailed account of the findings emanating from data generated in each of the four learning institutions that formed part of this qualitative empirical-inquiry. I also made an attempt to underscore the implications of the findings in terms of the integration of EE in the Grade R classes, especially, in each of the learning sites from which data were generated. Likewise, I also made an attempt to highlight how the findings responded to the research questions which guided this investigation. However, prior to the presentation and discussion of the findings, I reflected on how the process of gaining access into the research field unfolded.

In discussing the process of gaining field entry, I made an effort to underline the challenges I encountered, in particular, the role of gatekeeping. In the same vein, in an attempt to fulfil the requirements associated with the transferability of the findings, I provided brief profiles of both the institutions and the respondents of this study. In the next chapter I provide a

summary of the main findings of this study. This is followed by a brief reflection on some of the theoretical and practical contributions made by this inquiry in the field of environmental education at ECD level, in general, and at Grade R in particular. Furthermore, I reflect on aspects I deemed to be the limitations of this study. As informed by the findings of this inquiry, I round off this discussion by presenting some recommendations that could aid policy and guide further research. Ultimately, I conclude by proposing some guidelines that could aid the integration of EE in Grade R.

CHAPTER SIX

EPILOGUE: SYNOPSIS, MAIN FINDINGS, CONTRIBUTIONS, LIMITATIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

The purpose of this study was to investigate the extent to which EE is integrated in Grade R. To this end, an interpretivist case study was undertaken in selected ECD centres in the North West Province of South Africa. This research was precipitated by the literature reviewed which suggests that, globally; there is paucity of research which focuses on environmental learning in the context of early childhood education (Stuhmcke 2012, Davis 2009, Johansson 2009, Victorian Curriculum and Assessment Authority 2008). Likewise, as indicated in chapter one, my literature survey of studies undertaken in South Africa, confirmed that indeed little has been done to explore the extent to which environmental topics are addressed at ECD level. Accordingly, this study was carried out with a view to contribute towards filling the void in this area.

Subsequently, the data generated in terms of the methodological framework explicated in chapter four enabled a tangible response to the main research question as indicated in chapter one, and reiterated in chapter five. The evidence presented and discussed in chapter five, and summarised below; indicates that despite numerous challenges, environmental learning is integrated in three of the four ECD centres which participated in this inquiry, albeit to a limited extent. Likewise, empirical evidence produced from this study raises various factors which could be considered as either enablers or hindrances to the integration of EE in Grade R. These factors and several other issues are reflected upon later in this chapter. However, for the purposes of this discussion, it is essential to; first, provide a synopsis of the activities entailed in each of the six chapters of this study. This should enable the reader to gain a broader picture in respect of the activities carried out in order to provide a meaningful response to the research question of this inquiry.

6.2. SYNOPSIS OF THE STUDY

In **chapter one** I introduced the reader to the study by highlighting the need for and the significance of this inquiry. I did this by, among other things, reflecting on some of the challenges affecting the environment and the importance of EE in addressing those

challenges. In order to justify the need for this study, I underscored the scarcity of research that deals with environmental issues in the ECE. Subsequently, I presented the statement of the problem for this study. This was followed by brief details on the demarcation of the study. In concluding the chapter I reflected, albeit briefly, on the research methodology and design chosen for this study.

In **chapter two** my focus was on the state of ECE in six different countries. The discussion concentrated, mainly, on the class of Grade R or its equivalents in six different countries. The latter part of the chapter focused on South Africa while the former section juxtaposed the following countries: Australia, Brazil, Japan, Sweden and the United States of America. I opted to discuss South Africa in 'isolation' since the study focuses on the country. On the other hand, due to the paucity of literature that focuses on ECE issues, I chose the other five countries because according to my literature survey they, compared to many other countries, had more literature that I could work with. In the discussion I gave attention to issues I deemed to have an impact on the integration of EE in the area of ECE. The state of ECE in each of the countries was discussed with a focus on the following issues: provision and access, monitoring and support, funding, teacher training, curriculum and the implementation of environmental education (or the implications of the five preceding issues on the integration of EE).

In a nutshell, the literature reviewed in **chapter two** suggests that, generally, ECE does not receive the attention it deserves. The approaches followed in terms of education provision in each of the countries discussed, with the exception of Japan, could be regarded as fragmented and lacking in cohesion. For example, not all children who qualify, especially those from poor families, have access to ECE. This is, particularly, the case with Brazil. In instances where there is access to ECE in some countries, for example, Brazil and South Africa; there are challenges such as: inadequate resources, lack of infrastructure, inadequate support for ECE teachers, and so on.

In respect of curriculum and pedagogical issues, some countries, for example Brazil; tend to follow more formal and academic oriented strategies with little or no play-based approaches to learning and teaching. Additionally, certain countries, for example Australia and the USA; do not have nationally determined curriculum guidelines. Each state or territory develops and implements its own curriculum. Each state or territory determines its curriculum and the implementation process; consequently, diverse ECE standards exist in such situations.

The other problem associated with curriculum at ECE level emanates from shortcomings in respect of interpretation. For example, some studies conducted in South Africa (SAIDE 2010, Umalusi, CEPD and Wits 2010) highlighted that there were several challenges concerning curriculum implementation, notwithstanding the fact that there is a new curriculum that became effective in January 2012. According to SAIDE (2010), for example, some ECD practitioners were found to have shortcomings with regard to curriculum implementation, especially play-based curriculum. Likewise, some dichotomies in respect of policy interpretation were noted and, generally, monitoring and support given to ECE teachers were also highlighted as matters that needed attention (SAIDE 2010; Umalusi, CEPD and Wits 2010).

Lastly, in respect of funding and teacher training in ECE, literature suggests that a lot still needs to be done to improve the situation in various countries. The countries reviewed in **chapter two** do not contribute adequately to the funding of ECE. For instance, countries like Australia contribute about only 0,45% of their GDP to ECE. In respect of South Africa, the greatest challenge seems to be financial mismanagement because the studies referred to in this chapter (SAIDE 2010, HSRC 2015) suggest that upon distribution from National Treasury monies do not always reach their intended destination (the schools). On the other hand, as regards teacher training, evidence from reviewed literature indicates that, in most of the countries referred to in this study, some work still needs to be done in order to empower teachers in the ECE sector. Four countries, with the exception of Japan and Sweden, have numerous shortcomings that require urgent attention in terms ECE teacher training. There is much that could be done in terms of, among other things, curricula for ECE teacher training, the type of training and skills required, the provision of on-going (especially in-service) training, lifelong learning and development as well as career-pathing for ECE teachers.

Just like **chapter two**, **chapter three** is based on some detailed review of literature. However, in this chapter my discussion focused on six theories of learning and teaching, namely; Piaget's theory of Cognitive Development, Erikson's Psychosocial perspective; the Sociocultural Paradigm by Vygotsky, the Bio-ecological tenet attributed to Bronfenbrenner, the Social Learning theory, and the theory of Multiple Intelligences postulated by Gardner. In discussing these theories, I demonstrated how each one of them can be used in the integration of EE in Grade R. Accordingly, in order to accentuate the feasibility of employing these theories; I used practical examples based on themes/topics covered in the Grade R subjects as reflected in the Curriculum and Assessment Policy Statements (CAPS) of the South African

Department Basic Education (DBE). In rounding chapter three off, I reflected on the philosophical underpinnings, the evolution and the relationality of some of the theories discussed in this chapter. Likewise, I also argued and underlined some of the reasons why I consider Vygotsky's view on the role of play activities in ECE set his theory apart from the other tenets.

In **chapter four**, I provided detailed information on the methodological framework used to guide aspects such as sampling, data generation, data analysis and data presentation in this interpretivist qualitative research inquiry. On the other hand, in **chapter five**, the penultimate chapter of this study, I presented and discussed the findings in detail. Throughout the discussion, I used evidence generated from the empirical inquiry and literature to elucidate my arguments. In rounding the chapter off, I indicated how the research findings addressed each of the research questions which guided this inquiry.

In **chapter six**, I provide a summary of the main findings of this empirical investigation. This is followed by a brief reflection on some of the contributions made by this study in respect of theory and practice in the field of EE at ECE level, in general, and at Grade R level, in particular. Thereafter, I present what I consider to be some of the limitations of this inquiry. Subsequently, before rounding off this chapter with a final commentary, I present some policy oriented and research oriented recommendations as well as a few guidelines in respect of how EE could be meaningfully integrated in Grade R.

6.3. SUMMARY OF THE FINDINGS

As stated in chapters one and five, respectively, the purpose of this study was to investigate the integration of EE in selected Grade R centres in the North West Province of South Africa. In chapter five, I the findings and highlighted how the findings respond to the research questions. Accordingly, in this section I present a summary of the findings of the study. This is done with the view to enable the reader to have a bigger picture (at a glance) of what the outcomes (findings) of this study entail. The following is, therefore, a summary of the main findings of the study.

6.3.1. Factors Hindering the Integration of Environmental Education in Grade R.

Evidence generated from this study suggests that there are numerous factors that could be viewed as hindrances to the integration of EE in some of the centres that participated in this

study. The following are some of the major challenges which hamper or could hamper the integration of EE in some of the sites which participated in this study.

6.3.1.1 Accessibility of Grade R

The need to access Grade R is one of the major challenges affecting some of the institutions which participated in this study, especially Site C. Apparently, not all deserving children or children who qualify to be in Grade R are able to access this class. This was evident from the school principal of Site C who indicated during our interaction that:

The only challenge that we have now is that many parents want their children to be enrolled at this school. So, this year, 2013 alone, we didn't have any waiting list. But the most common challenge is that we do not have accommodation. Therefore we had to turn back more than four hundred learners.

Similarly, in her statement which says that “*every year we take in sixty; sixty preschoolers... we try to keep the number at sixty.*”; the principal of Site D implied that they are compelled by the post provisioning model, which prescribes that each Grade R classroom should have only 30 learners, to accommodate only sixty learners since they had only two Grade R classes at Site D. Therefore, from the points made by the principals from Sites C and D, respectively, it should be evident that not all the children who are supposed to access Grade R are able to do so. Subsequently, those children who do not have access to Grade R are excluded from the learning and teaching activities that take place in Grade R, including possible exposure to environmental learning.

However, an important point that is related to the need to access Grade R and is worth noting is in respect of classroom overcrowding. In my view, despite the fact that overcrowding did not seem to affect all four participating sites, it is essential to highlight it since it impacted negatively on the teaching and learning at Site C. According to the school principal of Site C as well as my observations at the school, each of their four Grade R classes accommodated more than forty learners. This situation culminated in a constrained classroom environment which made it difficult for the teacher to manoeuvre. For example, Respondent Y, my host teacher at Site C, underscored overcrowding as one of the many challenges which impacted on her teaching as follows:

The other problem is overcrowding in classrooms. We have a lot of kids here. On top of that we cannot attend to them as we would like or as we would wish; or as they say from above that we 'must see to it that each and every learner gets your attention'.

It should be evident from the statement by Respondent C, above, that overcrowding constrains the ability to teach effectively in the Grade R classroom. Subsequently, even the learning process becomes difficult since the learners have to be crammed in a small space and this makes it difficult for them to learn freely and with ease. By extension, due to challenges imposed by overcrowding, the infusion of EE would also be impacted negatively, that is, it might be difficult to infuse EE even if the teachers would have wanted to do so. The teacher would, in my view, find it challenging to give attention to all aspects that she would have wanted to accommodate in her activities. Overcrowding is also related to the scarcity of resources, a point that I refer to later in this discussion.

6.3.1.2 Shortcomings in Respect of Support from School Management Teams

Apart from overcrowding, the other challenge that could be considered a hindrance to effective learning and teaching, and thus has the potential to impact on the infusion of EE, is the apparent shortcoming in respect of Grade R teacher support. Evidence generated from this study indicates that in two of the four learning sites which participated in this study, the Grade R teachers lacked tangible support from their seniors within the school setup. The Grade R teachers of Site A and C suggested that their principals and HODs did not have the capacity to provide them with the necessary support to enable them to do their work, as Grade R teachers, effectively. For example, when I asked her about the support she obtained from her supervisor at school, Respondent Y, the Grade R teacher at Site C indicated that she received “*no support*”. According to Respondent Y, her HOD, just like her, was “*on the learning track of this Grade R class*”. Similarly, Respondent W, the Grade R practitioner at Site A, also pointed to the lack of support from her school principal, Respondent L, who also acted as her HOD by asserting that “*to be honest, I don't get support.*” This assertion by Respondent W was contrary to the view by her principal who claimed that he did provide her with all the support she required to enable her to do her work with competence.

The apparent lack of support for the Grade R teachers, as expressed in the two examples above, poses a challenge in the sense that the Grade R teachers affected were not certain about what they were doing in their teaching and learning activities. This point was expressed clearly by Respondent Y, who indicated that, “*I am not sure of what I am doing presently. I*

am just copying from other people". Similarly, since Respondent W did not obtain help from her school principal, she had to "*get help from somebody else in the township*" in another school. The fact that some Grade R teachers, as indicated in the preceding points, were not sure of what they were doing, pedagogically, suggests that it was likely, as some of them pointed out; that they were not even certain of how they had to integrate environmental learning in their classroom activities. For that matter, some of the respondents (Respondent W and Y) did not know whether they were integrating EE in their teaching or not.

6.3.1.3 Insufficient Resources

Of the four learning sites which formed part of this study, two of them (Sites A and C) experienced an array of challenges in respect of resources. For example, at Site C, there were insufficient tables and chairs for learners to sit on and do their classroom activities. Similarly, the same institution had a challenge in respect of the supply of *Mophato R–Bukatiro*, the main Grade R workbook which, according to my examination of the text, is invaluable in enabling the integration of environmental learning in Grade R. This was evident during my observation sessions at Site C. This non–supply of textbooks was expressly a matter of concern for Respondent Y, the Grade R teacher at Site C who stated that:

Presently we don't have books. We only got the books for the first term. Here at school we haven't received any books for the second and third term from the department. And, I also reported to the H.O.D that we did not receive any books for the learners.

Likewise, according to Respondent J, the principal of Site A, their Grade R class had a serious need of DVDs which, on the basis of my lesson observations at the site, could facilitate the integration of EE. During our interaction, Respondent J underscored this challenge by stating that "*we do not always have the relevant DVDs for the relevant content that she (Respondent W) has to portray to the learners*" [**my emphasis**]. Consequently, the learners miss out on numerous experiences such as seeing, through DVDs, some of the phenomena that exist in the environment. Respondent J accentuated the preceding point by stating that "*the basic thing that I think our learners are missing is; if you talk about a train, they have to vividly see a train*". It should be evident from the sentiments expressed by Respondent J that these resources (the DVDs) could assist in making teaching meaningful to the Grade R learners. In my considered view, Respondent J's concerns are not unfounded because Learning and Teaching Support Materials(LTSM) including DVDs, generally,

facilitate and strengthen the process of learning and teaching, especially, by contextualising and making the learning content meaningful (Yara 2010; Leyendecker, Ottevanger and van den Akker 2008).

Apart from the above-mentioned shortcomings experienced in terms of resources, both Sites A and C had a major challenge concerning playground equipment. Both institutions did not have the resources that could be used outdoors to fulfil the play needs of Grade R learners. On the one hand, Site C had a playground which was reserved only for the Grade R learners but the institution did not have many meaningful play equipments save for the swings and the climbing equipment. On the other hand, at Site A, the Grade R learners did not have access to the playground since the entire school, Grade R – 7 learners, used the same playground and the limited resources at the playground. In fact, the playground itself was, from my observation, not suitable for young children to play on since it was a very hard ground which could expose learners to possible injuries (*refer to figure 5.4.*).

It is essential to point out, though, that both Sites A and C had some supply of play equipment that was used indoors. However, from my observation, even this supply was insufficient for the Grade R learners at Site C. This could be ascribed to the overcrowding experienced at the institution. Similarly, the learners found it difficult to move freely and play indoors at Site C since the classroom was too small relative to the number of learners accommodated inside.

The lack of play equipment in some of the institutions, as pointed in the preceding paragraph, is a matter of concern since learning and teaching, including the integration of EE, in the Grade R age-group takes place mostly through play-based activities (Breathnach 2013; McMonagle 2012; Gordon and Browne 2011; Oltman 2002). Therefore, this challenge has negative effects and implications for pedagogy in the institution concerned in the sense that it constrains both the creativity as well as teaching and learning activities for the teachers and learners. This situation is, therefore, undesirable since it suggests that the integration of environmental learning through the use of play-based activities could be compromised.

In rounding this subsection on the factors that hinder the integration of EE off, it is necessary to mention that these are not the only factors that either hinder or have the potential to hinder the integration of EE in the selected Grade R classes. The other two findings that could be deemed relevant in this subsection are, in the interest of this study, discussed separately. These factors have to do with Grade R funding, the support and monitoring role of the office-

based officials of North West Department of Education (NWDE) and the training of Grade R teachers. Similarly, it is also essential to underline the fact that data generated from the two institutions classified as private, namely Sites B and D, did not yield any factors that could be, reasonably, considered as hindrances to the integration of EE in Grade R. In the next section I reflect on the factors that could be termed enablers of the integration of EE in Grade R.

6.3.2. Factors Enabling the Integration of Environmental Education in Grade R.

According to the findings of this study, the following are some of the factors that could be classified as enablers of EE integration in Grade R.

6.3.2.1 Collegiality and Collaboration

Evidence generated from various sites in this study suggests that Grade R teachers are able to cooperate and work together within and across different learning institutions (*refer to 5.4.2*). Their collaboration was noted in respect of issues such as lesson planning, problem-solving and on-going consultation on various matters concerning learning and teaching. For example, in respect of the collaboration between her and her Grade R colleague at Site D, Respondent M pointed out that “*we do our planning together. It helps a lot because our work is exactly the same.*” Based on the evidence generated during my observations at Site D, I contend that Respondent M is able to integrate environmental learning in her teaching and learning activities. Hence, the working together between her and her colleague at Site D should assist both of them to integrate EE into their activities.

Similarly, Respondent Y and her Grade R colleagues at Site C have a collegial relationship which makes them collaborate in various ways. This collegiality was discernible from different behaviours observed during the process of data generation at the institution. For example, on the last day of my observation at Site C, Respondent Y and another Grade R colleague sat down and discussed, at some length, issues related to their Grade R lessons. Likewise, during our one-on-one interaction, Respondent Y stated that she and her Grade R colleagues “*do sit and discuss whatever we have. If we don't get any solution we go to the HOD*”. On the basis of the preceding points I assert that the collaboration between Respondent Y and her colleagues at Site C should be deemed a factor that enables the integration of EE in Grade R. Moreover, evidence generated during my observation of

Respondent Y's teaching and learning activities in the classroom demonstrated that she is able to integrate environmental learning in her pedagogical activities.

In concluding this discussion on collegiality and collaboration, I should mention that collegiality does not always benefit every person (Brownell *et al.* 2006). This was demonstrated by Respondent W, the Grade R practitioner at Site A. Despite her admission that she obtained help “*from another teacher who is teaching at School X (name withheld for confidentiality reasons)*”, Respondent W's classroom practice revealed a serious challenge in respect of competence. Nevertheless, based on evidence from this study, I contend that collaboration among teachers provides an opportunity to share ‘good classroom practice’ including the integration of environmental topics.

6.3.2.2 Learning and Teaching Support Material

Evidence from this study demonstrates that there is an array of resources that could be used to the benefit of Grade R learners, especially, the integration of environmental learning. For example, in the discussion on factors that hinder the integration of EE (*refer to 6.3.1*) I referred to the shortage of relevant resources that could assist learning and teaching in Grade R. Similarly, I also referred to the challenge in respect of the non-delivery of the Grade R workbook, *Mophato R–Bukatiro*, during certain school terms at Site C. However, it is essential in the interest of this discussion to underscore the fact that these resources are some of the resources that are available to aid the integration of EE in Grade R in some of the selected Grade R centres.

Some of the resources at the disposal of certain Grade R teachers could be utilised to enable the integration of EE. For example, I referred to the relevance of the workbook, *Mophato R–Bukatiro*, in terms of integrating EE in Grade R (*refer to 6.3.1.3*). Likewise, during one of my classroom observations at Site A, the Grade R practitioner used a *DVD* for lesson presentation. The *DVD* presented the Grade R practitioner with the real opportunity to integrate EE. Unfortunately, she did not utilise that opportunity but instead the *DVD* show became meaningless. For the sake of this discussion the following excerpt from my classroom observation is, in my view, relevant in terms of demonstrating that, indeed, some of the resources such as the *DVDs* available at certain Grade R centres can be used to integrate EE in the teaching and learning activities:

The play activity was soon followed by a video show. The video had been mounted against the wall by the school handyman while the learners were absorbed in their toys. The video broadcast was in English and its content was centred on what could be considered the kind of “good behaviour expected from children”. For example, the video referred to issues such as health and safety: “wash your hands”, “eat a balanced diet”, “eat few sweets and chocolate”, “keep surroundings clean” and etcetera. The video also talked about the “good habits” preceded by the instructional phrase “don’t”. These “good habits” included the following: “don’t tease animals”, “don’t pluck flowers”, “don’t litter”, “don’t fight with others” and etcetera. The learners seemed to follow the video very well since some of them even tried to translate what was said to their home language, Setswana. In fact, in most instances their translation was spot on. (Participant Observation Entry 2013 October 08).

It should be evident from the preceding account that the contents of the DVD used by Respondent W were appropriate for the integration of EE in her teaching and learning activities. Hence, I argue that some of the resources available at some of the centres are relevant for the integration of environmental learning.

In rounding off this point of discussion, I need to underline the fact that, as I have tried to illustrate, some of the institutions offering Grade R do have relevant resources that could be used to enable the integration of EE. Apart from the ones already referred to in this subsection, an assortment of resources such as weather charts (Sites B, C and D), an artefact depicting various animals (Site C) and music CDs with recordings of various animal sounds (Site B) were at the disposal of various Grade R teachers at the selected centres. Some of these resources were utilised for teaching and learning activities and, indeed, the integration of environmental learning in Grade R. Hence, I reiterate that there are resources that can be utilised for the meaningful integration of EE in Grade R at certain institutions.

6.3.2.3 Enabling Curriculum Framework

Evidence generated from this investigation suggests that the curricula pursued in all four learning sites which participated in this study enable the integration on EE in Grade R. Of the four learning sites, three sites (Sites A, C and D) use the National Curriculum Statement (NCS) entailed in the Curriculum and Assessment Policy Statements (CAPS) documents (DBE 2011a; DBE 2011b; DBE 2011c), the curriculum of the Department of Basic Education

(DBE) while Site B pursues the Accelerated Christian Education (ACE) curriculum as designed by ACE ministries (<http://aceministries.co.za/Default.asp>). Based on data generated from this study, both curricula are structured in a way that enables the infusion of environmental learning in Grade R. Hence, in chapters two and three, respectively, I demonstrated how the DBE curriculum can be utilised to integrate EE in Grade R.

Similarly, in chapter five I provided even more evidence to assert that, indeed, both the ACE and DBE curricula seek to factor in the integration of EE in teaching and learning activities in Grade R. It is also important to state that even some of the respondents of this study also underlined the fact that the respective curricula mentioned in this subsection do accommodate the integration of EE. For example, while attempting to define the concept of Environmental Education during our one-on-one interaction, Respondent J, the principal of Site A, pointed out that environmental education “*is being integrated in CAPS*”. Likewise, Respondent K, the principal of Site B, also pointed out that the ACE curriculum does enable the integration of EE by asserting that “*I think a lot of that is worked in, into our program, through the stories and through the activities the children do... there is some emphasis on environmental education.*”

The factors mentioned in this subsection are, certainly, not the only ones that could be regarded as enabling the integration of EE in Grade R. The other factor that seemed, at least to some extent, to enable the integration of EE in Grade R is the level of teacher training and experience. This element is discussed separately in section 6.3.5. The next point of discussion focuses on some of the approaches used in the integration of EE in Grade R.

6.3.3. Approaches and Programmes used in the Integration of Environmental Education in Grade R.

Evidence generated from this study suggests that three (Respondents M, X and Y) of the four Grade R teachers who participated in this study do integrate environmental issues in their teaching and learning activities, *albeit*, to a very limited extent. Similarly, this infusion of EE is done, mainly, through teaching *about* the environment with little or no teaching *in* and *for* the environment. In essence, the Grade R learners who are exposed to environmental learning engage in learning and teaching activities whose focus is, mainly, on issues and facts *about* the nature of and activities that take place in the environment. This is essentially different from learning actively *in* the environment, outdoors, and experiencing the environment as well as undertaking activities meant *for* addressing the problems and challenges facing the

environment and thereby contribute to, for example, a healthy, safe and sustainable environment.

Hence, viewed from Kopelke's (2012) perspective, the infusion of environmental learning in this study, predominantly, takes the form of environmental studies (*also refer to 1.7.4 and 5.4.7*). For example, some of the respondents engaged their learners on activities whose focus was on phenomena and processes such as weather conditions, seasonal change, animal diversity and animal behaviour. However, the teachers did not make an effort to reflect on the environmental problems and challenges related to those processes and phenomena. Neither was there any focus on human behaviours and attitudes that could help in addressing environmental problems. For example, in the presentation on animal diversity and behaviour, the teacher(s) who dealt with the topic did not reflect on human activities that contribute to reducing animal diversity such as hunting of animals. Similarly, there was no attempt to integrate ideas on how animal safety and diversity could be promoted (*refer to 5.4.7*). Hence, in my view it is appropriate to assert that in this study the Grade R teachers focused mostly on environmental studies with little attention being given to environmental education. Nevertheless, since this section is intended, mainly, to reflect on some of the approaches used by the respondents of this study in their quest to integrate EE in their pedagogy, I turn my attention to that aspect.

In the preceding subsection (*refer to 6.3.2.3*) I indicated that all four sites which participated in this study pursue curricula that make it possible to integrate EE in Grade R. Therefore, my view is that it is appropriate in the interest of this discussion to not only reiterate but to also underline the fact that the teaching and learning programmes followed by each of the three participants (Respondents M, X, and Y) who integrated environmental learning in their activities were informed, directly, by the curriculum frameworks pursued in their respective institutions. For that reason, the pedagogical approaches applied by each one of these three respondents were, generally, informed by the teaching and learning programmes entailed in their school curricula.

In chapter five of this study (*refer to sections 5.4.5 and 5.4.7*), I provided a detailed discussion on some of the pedagogical approaches used by the three teachers (Respondents M, X and Y) to integrate environmental learning in their activities. The approaches used in the integration of EE in this study include the following: storytelling, story-reading, questioning or inquiry-based teaching, experimental teaching-learning and modelling.

Evidence from this study also indicates that learners also visited the outdoors, for example, the school garden (Site C) and the nearby game farm (Site D). In my opinion, in the interest of this discussion, a brief account on how some of the already-mentioned teaching strategies aided the integration of EE in Grade R is essential.

The teachers who used story reading (Respondents M, X and Y) read stories from books. These stories had some theme(s) which are relevant to environmental learning, for example, a story about animals that worked together to clean a poisoned creek. In respect of storytelling, each of the Respondents (M, X and Y) told stories that accommodated environmental learning, for example, the dangers of fire and how learners should behave in relation to fire in their environments. Very often the teachers also gave the learners opportunities to tell their own stories as well.

Apart from the story reading and storytelling, the teachers (Respondents M, X and Y) also used inquiry-based learning and teaching to integrate environmental learning in their activities. For example, at least on one or more occasions, each of the three respondents (M, X and Y) used questioning in order to integrate learning *about* the weather on a given day. The teacher would ask questions about various weather elements, for example, rainfall, wind sunshine and so forth; and the learners would observe, although from inside the classroom, and talk about the conditions of the atmosphere outside the classroom and how these affected them (learners).

Evidence from the study also indicates that some of the respondents also took the learners outdoors for certain activities. For example, Respondent Y took her learners for a visit to the garden for learning purposes. Similarly, by her own account, Respondent M took her Grade R learner to the nearby game farm for sightseeing and learning *about* various animals. Likewise, Respondent M and her Site D colleagues also served as role models, on numerous occasions, to their learners during the process of cleaning the surroundings at the school.

There is, indeed, other evidence to suggest that various strategies are employed by three of the four Grade R teachers in order to integrate environmental learning in their pedagogical activities. However, for the purposes of this discussion, the preceding points should suffice. And, in rounding this section it is essential to indicate that in view of the fact that pedagogy is linked to learning and teaching theories, I deemed it essential to also reflect on some of the teaching approaches that could be linked to the learning theories discussed in this study.

Hence, in the next point I highlight how some of the theories discussed in this study were used by certain teachers in the field.

6.3.4. The Application of Learning Theories in the Integration of Environmental Education

As stated in the synopsis of this study (*refer to 6.2*), in chapter three I reflected on six learning and teaching theories that could be applied in Grade R pedagogy in an effort to integrate environmental learning. Hence, in my view, it is essential to point out that there is evidence to suggest that, to an extent, some of the Grade R teachers who participated in this study did apply some of the theories in their pedagogical activities. Some of the theories used by Grade R teachers in this inquiry are: cognitive development theory, sociocultural theory, psychosocial paradigm, Multiple Intelligences theory and the behaviourist tenet. The following are, therefore, some of the examples drawn from the study to illustrate how the already-mentioned paradigms were used in the study.

In one of her activities, Respondent Y of Site C took her Grade R learners outdoors for a brief exploration of the school garden (*refer to 5.4.5*). Among the things that were learned during this visit to the garden is that some plants, for example vegetables, are good and therefore essential for consumption. And, that certain plants such as weeds are bad and have to be removed from the garden. Likewise, from my observation, some of the learners discovered for the first time that water can be used for watering plants in the garden. In my opinion, as per the assumptions of the cognitive development paradigm, the cognitive schemes among some of the learners were, possibly, restructured to assimilate (Woolfolk 2010) familiar concepts such as ‘plant’ and ‘water’ and thereby enable the learners to make sense of the explanation presented by the teacher. In the same breath, the introduction of ‘new’ concepts and phrases such as ‘weed’ and ‘watering of plants’ to the class must have led to the formation of new cognitive schemes (Gordon and Browne 2011; Berk 2009) in some learners, to facilitate the accommodation of those new concepts. Hence, I contend that Piaget’s theory of cognitive development was applied in the process of learning about an environmental aspect, the school garden, that might not have been ‘known’ to the Grade R learners of Site C. Certainly, there are numerous other instances where this theory was applied in the study, however, the preceding example should suffice at this stage.

In another activity, Respondent Y provided her Grade R learners with an opportunity to engage in manipulative play (*refer to 5.4.5*). This activity entailed the use of various small

plastic toys by the learners to, individually, construct objects of their choice. Once the activity was done, the teacher asked some of the learners to tell her and the class about what their constructions represented. Various responses were supplied by individual learners. For example, answers such “ntlo (a house)”, “sethunya (a gun)”, “koloji (a car)” and “pitse (a horse)” were provided by the learners. In my view, in this activity the learners applied their cognitive abilities to create some of the objects found in their immediate environment. However, since I have already referred to the cognitive development theory, I will reflect on some of the elements that could be ascribed to Vygotsky’s sociocultural perspective (refer to 3.3.3), Erikson’s psychosocial theory (*refer to 3.3.2*) and Gardner’s Multiple Intelligences theory (*refer to 3.3.6*), respectively. Hence, I refer to how the two theories can be linked to this activity.

In my opinion, the toy manipulation activity which resulted in the Grade R learners creating objects that had meaning to them (learners) is not only in line with Vygotsky’s (1978) view that during play familiar objects acquire new meaning in early childhood but it also accommodated certain assumptions of Erikson’s psychosocial theory, especially some of the aspects associated with the stage called Preschool Age (Louw, Van Ede and Louw 1998). As per Erikson’s theory, in this stage of development, children aged between 3 – 6 years are required to negotiate the crises posed by the polarities associated with Preschool Age, namely; “initiative” and “guilt” (Louw, Van Ede and Louw 1998). As stated in chapter three, one of the key activities of children at this stage is to learn social rules that help them to take initiatives without feeling guilty about the outcomes of their actions (Woolfolk 2010; Meyer, Moore and Viljoen 1997). And, therefore, one of the roles of the teacher is to help the learners take initiatives and make mistakes without being scolded, ridiculed or punished. Hence, in my considered view, Respondent Y was able to apply Erikson’s psychosocial theory because the learners were given the freedom to utilise available resources to recreate their lifeworld without feeling guilty. As it is the case with the postulations in Vygotsky’s sociocultural perspective; to the learners, the objects of their creation were part of their lifeworld and, therefore, had meaning to them.

Likewise, the object manipulation activity, referred to above, also addressed two forms of intelligence entailed in Gardner’s Multiple Intelligence theory (Gardner 2011a; Gardner 2011b), namely; linguistic intelligence and spatial intelligence. As part of the activity, the Grade R learners had to use language to express their thoughts, ideas and feelings (Gordon and Browne 2011) to talk about their ‘designs’ and, in my view, this process of talking about

one's work contributes to the development of linguistic intelligence. In the same vein, this play activity could be conceived as an effort to enable the Grade R learners to develop and/or demonstrate their spatial intelligence because this form of intelligence is discernible, partly, from "children who like to draw, build and create things" (Gordon and Browne 2011: 339). Hence, I contend that, to some extent, the teacher applied the Multiple Intelligences theory to enable the learners to express themselves, if you will, in the process of learning *about* their environment. In rounding this subsection on the application of various learning theories, I refer to the behaviourist theory.

Evidence from this study suggests that the behaviourist paradigm (*refer to 3.3.5*) is another theory that was, to some extent, applied by one of the respondents in this inquiry. One of the key assumptions of the behaviourist theory is that values and attitudes are developed through the process of social learning (Woolfolk 2010; Louw, Van Ede and Louw 1998). Accordingly, Baron and Byrne (2003: 121) assert that "one important source of attitudes is obvious: we acquire them from other persons through the process of social learning...we interact with others or merely observe their behaviour". It is thus not surprising that one of the forms of learning reflected upon in this paradigm bears the name observational learning (also known as modelling); the other forms of learning which forms of learning referred to in this tenet include classical conditioning and operant conditioning (Robbins, Odendaal and Roodt 2003).

Although, I did not observe any display of modelling during the personal observation sessions in this study, evidence solicited from one of the teachers during our one-on-one interviews suggests that, to some extent, she did apply modelling in her pedagogical activities. During our interview session, Respondent M provided a response which, partly, suggested that she sometimes employed modelling as a pedagogical strategy in her teaching and learning activities. This was detectable from her response to the question: Do you integrate Environmental Education in your teaching? Her response was as follows:

Yes. There are various themes....we also encourage them to work on the school grounds. All of us clean the surroundings by removing papers. We do this so that the learners should know that dirt should not be thrown around. We teach them to use dustbins for rubbish dumping purposes.

The sentence; "*all of us clean the surroundings by removing papers*" in the above statement suggests that Respondent M and her colleagues at Site D modelled the kind of behaviour they

would like to see emulated by their learners. Therefore, it would appear that all teachers at the centre work collectively, as models for the learners, and with the learners, in taking care of the school surroundings. Hence, I would argue that on the basis of this response it would appear that Respondent M did apply the behaviourist paradigm in the quest to integrate environmental learning in her pedagogical activities.

On the basis of the preceding points it would appear that, indeed, some of the paradigms discussed in chapter three were applied by some of the Grade R teachers in this study. Hence, it is my considered view that the Grade R teachers and, indeed, teachers at other levels of education; can be able to apply a variety of learning theories in the integration of environmental learning. In the next subsection, I reflect on the extent to which the Grade R teachers who participated in this study are empowered to integrate EE in their learning and teaching activities.

6.3.5. The Level of Grade R Teacher Qualification and Implications for the Implementation of Environmental Education

Of the four Grade R teachers who participated in this study, two of them (Respondents M and Y) had the appropriate academic qualifications which enabled them to be classified as professionally qualified and therefore eligible to teach at foundation phase (*refer to 5.3.2.3 and 5.3.2.4*) in South African public schools (Naicker 2010). Each of these two teachers had a minimum of Grade 12 and four or more years of tertiary education acceptable for foundation phase teaching. Similarly, each one of them had 36 years of foundation phase teaching experience, including Grade R teaching.

Based on the preceding points as well as my classroom observations, I contend that each of the two teachers was adequately equipped to teach in Grade R. As indicated in section 5.4.7 the two teachers demonstrated that they were equipped and capable to integrate EE in their teaching and learning activities. However, it is essential to underline the fact that contrary to my observations, during our one-on-one interaction Respondent Y expressed uncertainty concerning both her abilities to handle the Grade R class and to integrate EE. This view is articulated in the following statements uttered by Respondent Y in her response to the question on whether she did integrate EE in her teaching:

I am not sure of what I am doing presently. I am just copying from other people..... I am not certain about it...concerning what I am doing, I am not sure

whether is correct. But I do sometimes...er...touch the aspect of the environment, yes. But I am not sure, I don't want to say any further about that.....

Respondent Y's uncertainty concerning her ability to handle Grade R as well as integrate EE should be evident from the preceding statement. Likewise, it is important to highlight the fact that based on the evidence generated through the interaction with Respondents Y, her situation, that is, her uncertainty concerning her competence was compounded by the apparent lack of or insufficient support from her SMT and the NWDE officials (*refer to 5.4.3, 5.4.4, 6.3.1.2 and 6.3.7*). Nevertheless, as I mentioned earlier in this subsection Respondent Y demonstrated that she is capable of handling Grade R, including the integration of environmental learning in her pedagogical activities.

On the other hand, the other two Grade R teachers (Respondents W and X) who participated in this study were neither as qualified nor as experienced as Respondents M and Y. For example, each one of them had completed Grade 12 and was studying to towards a teaching qualification that would, hopefully, culminate in the attainment of the status of "qualified teacher". Respondent W was working towards ECD Level 4 while Respondent X had completed the same level and was pursuing ECD Level 5. The two teachers had a combined experience of six years foundation phase teaching (*refer to 5.3.2.1 and 5.3.2.2*).

On the basis of the preceding points, I contend that the two teachers were not adequately empowered to either teach in Grade R or integrate EE at the same level. Evidence generated from my observation of Respondent W during my visit to her institution gives credence to the preceding argument. Likewise, evidence also suggests that Respondent W's shortcomings were compounded by the lack of support from her school management team (*refer to 5.4.3 and 6.3.1.2*).

However, in respect of Respondent X, despite her inadequate training; evidence suggests that she is competent to handle Grade R as well as integrate environmental issues in her teaching and learning activities. This could be ascribed to the support obtained from her seniors at school (*refer to 5.4.3*). Similarly, from my observation and analysis of documents, the learning and teaching workbooks used at Site B, Respondent X's, are designed in such a way that it is easy for the teachers to present their learning and teaching activities (*refer to Addendum C: 3*).

It should be clear from the points highlighted above that the level of empowerment among the Grade R teachers who participated in this study varies from one teacher to the other. Subsequently, even the extent to which each one of them is able to integrate EE in their pedagogical activities is not the same. In the next point of discussion I reflect on Grade R funding and its implications for the integration of EE in Grade R.

6.3.6. The Funding of ECD Centres and Implications for EE Integration in Grade R

The evidence generated from this inquiry indicates that Grade R funding is one of the greatest challenges facing the majority of the sites which participated in this study. For example, three (Respondents J, L and M) of the four school principals who took part in this investigation expressed serious concerns and/or frustrations in respect of Grade R funding at their respective institutions. Although the fourth principal (Respondent K) also highlighted funding as impacting negatively on her institution as a whole, her statements did not suggest that her school was in a bad situation. The following are the sentiments expressed by some of the principals in respect of Grade R funding in their institutions. Respondent L, the school principal at Site C, stated that, *“it is not sufficient...very, very little; because we augment it with three hundred rand contributions from each Grade R parent.”* Likewise, Respondent M, the head of Site D pointed out that, *“we are not getting any financial assistance from the state. We conduct functions to enable us to raise funds. So, it is actually very bad.”*

However, the verbal statements presented by Respondent J, the school principal of Site A suggested that the situation at Site A, the poorest institution among the four participants; was worse than that of other participants when it comes to Grade R funding. Responding in respect of Grade R funding from the NWDE, the school principal of Site A stated that *“this year we got zero. We got zero for this year, that is, 2013”*. According to him, he inquired on numerous occasions from the relevant authorities about Grade R funding for his school during the course of 2013. Unfortunately, the officials were not forthcoming since according to him, *“sometimes when a person asks a question, an unclear response is provided. Nobody is able to provide a reason why an allocation was not provided for 2013.”*

In the interest of this discussion, it is essential to mention that Site A is a farm school which, according to the quintile system (*refer to 5.4.8*) used by the DBE, is classified as a quintile 1 school. According to the *National Norms and Standards for Grade R Funding* (DBE 2008) the schools that are categorized as quintile 1 should not only receive more Grade R funding than the other schools funded by the department of education but they must also be

prioritized. Similarly, such schools “must earmark a proportion of their Grade R allocation towards personnel costs, and a proportion towards non–personnel costs” (DBE 2008: 14). However, according to data produced from this study this was not the case with Site A. The school struggled to fund its Grade R, especially in 2013, and had to raise funds to finance the class in respect of certain resource requirements as well as for the monthly stipend paid to the Grade R practitioner.

In the interest of this discussion and since a detailed account is provided in section 5.4.8 in terms of the findings made about Grade R funding, it is in appropriate in my view to only highlight, in point form, the other significant findings concerning Grade R funding. Hence, the following are the other points worth noting about the findings emerging from this study in respect of Grade R funding:

- For the public institutions (Sites A and C) that rely on the NWDE for funding, Grade R funding is, generally, insufficient. Hence, these institutions have to rely either entirely (Site A) or in part (Site C) on fundraising and donations from Grade R parents.
- Even the private/independent institutions (Sites B and D) experienced challenges concerning Grade R funding. They relied on funding from monthly school funds contributed by parents as well as fundraising projects. For that reason, they were even considering applying for funding from the NWDE to alleviate their plight.
- The challenge of funding impacted negatively on various issues especially the availability of certain resources such as writing material and audiovisuals required by some of the institutions (Sites A and C).
- Similarly, the challenge of Grade R funding culminated in salary disparities among the Grade R teachers. For example, some of the teachers (Respondent W and X) who participated in this study obtained their salaries from the School Governing Bodies (SGB) while the others (Respondents M and Y) obtained their salaries from the NWDE. Subsequently, salary disparities exist between these two groups of Grade R teachers; and those who are on the payroll of the NWDE are marginally better off than those paid by SGBs.
- The challenge of funding was highlighted by some of the school principals (Respondent J and L) as a factor that inhibits the undertaking of fieldtrips and excursions for Grade R learners. For example, Respondent J pointed out that in order to promote the environmental awareness of his Grade R learners, “*I would take them to places like*

Sterkfontein, to places where they could learn about the evolution of the earth. Those are some of the things that would contribute to their education. However; because of finance....”

Therefore, in rounding this discussion off, I assert that some institutions are faced with a serious challenge in respect of Grade R funding. Subsequently, some of the institutional needs, such the purchasing of certain resources like audiovisuals that would ease learning and teaching in Grade R; are not fulfilled. In this regard, the integration of EE, as illustrated by the frustrations of the principals of Sites A and C in this study; is negatively affected. The next and final point of this discussion on the summary of the findings focuses on the findings made in respect of the support and monitoring roles played by the NWDE officials.

6.3.7. Monitoring and Support Role Played by the NWDE towards Grade R Centres

According to the evidence generated from this study, there are various support functions fulfilled by office-based NWDE officials in order to enhance the quality of education in Grade R. Likewise, there is also some evidence which points to the contrary. For example, both respondents from Site A, namely; the school principal and the Grade R practitioner concurred that the school consistently received support from the office-based Senior Education Specialists (SES's). According to the two respondents, this support enabled Respondent W, the Grade R practitioner at Site A, to cope with her Grade R duties. The same sentiments were echoed by Respondent M, the principal and Grade R teachers at Site D, in respect of the support given to her by the SES's.

However, the data generated from the study paints a different picture in respect of both Sites B and C. For example, the evidence produced from Site B, an institution which is, like Site D, classified as independent and private, indicates that neither monitoring nor support is provided by the office-based NWDE officials to the institution. This was discernible from the reply provided by Respondent X, the Grade R practitioner, in response to my inquiry on whether there were any visits to the institution or invitations to workshops by the NWDE's foundation phase Senior Education Specialists. For instance, in response to my inquiry on whether the NWDE officials ever visited her school in respect of Grade R-related matters, Respondents X's reply was, *“No. There is no one who came for such purposes from the department of education”*.

On the other hand, there was a discord between the responses provided by Respondent L, the school principal of Site C and Respondent Y, the Grade R teacher at the same institution, in terms of the support provided by the NWDE officials to the Grade R teachers at the school. The school principal appeared to be content with the support given to the Grade R teachers by the NWDE officials. However, the same cannot be said about Respondent Y. For example, Respondent L was of the view that the Professional Support Forums (PSF's) and workshops organised by the Senior Education Specialists were beneficial to the Grade R practitioners. However, Respondent Y, an attendee of such gatherings pointed out that "*we normally attend the Professional Support Forums (PSFs) and there nothing is said about the Grade Rs*". Evidently, this response was in direct contrast to the sentiments expressed by Respondent L.

In rounding off this point of discussion, it is important to underline the fact that it is my considered view that the provision of quality education in Grade R should be regarded as an absolute imperative. Subsequently, the provision of quality education should not only assist in improving the competence of Grade R teachers in their teaching but it should, in my opinion, also enable them to integrate EE in their activities. Hence, in order to enhance the provision of quality education and, by extension, to facilitate the integration of EE in Grade R; it is essential that the NWDE officials should consistently provide tangible support to Grade R teachers. The final point worth reflecting upon has to do with whether the research question of this study has been addressed.

In my view, the question has been addressed in chapter five (*refer to 5.4.5, 5.4.7 and 5.5*). However, in the interest of this section it suffices to say that evidence generated from three of the four ECD centres which took part in this study suggests that there is some integration of environmental learning in Grade R programmes of certain centres that took part in this study. The infusion of environmental issues when it is done, it takes the form of teaching *about* the environment with little or no teaching *in* and *for* the environment (*refer to 6.3.3*). In the next section I reflect on what I consider to be some of the contributions made by this study.

6.4. CONTRIBUTIONS OF THE STUDY

In my view, this empirical study has made some contributions in a number of ways. Accordingly, the discussion in this subsection focuses on some of those contributions.

6.4.1. Towards Filling the Gaps in Literature

In chapter one I referred to the paucity of research that focuses on the position of EE in the ambit of ECE. To underline this shortcoming, I reflected on some of the concerns raised by Davis (2009: 229) who writes that “in general, early childhood education researchers have not engaged with environmental/sustainability issues; and environmental education researchers have not focused on very young children and educational settings”. In her projection of this challenge, Davis (2009) uses the metaphor of a research ‘hole’ that needs to be filled. Furthermore, Davis (2009: 237) argues for the need “to find out what works, why and how, and what are the barriers and opportunities for implementing education for sustainability” in ECE.

Accordingly, it is my considered view that to some extent this study makes a contribution towards filling the research ‘hole’ identified by Davis (2009) in respect of numerous ECE issues, in general, and the integration of EE in Grade R, in particular. For example, through this empirical study, I was able to investigate the extent to which EE is integrated in the Grade R classes of four different EECD centres and thereby establish, in Davis’s (2009: 237) words, “what works, why and how, and (*some of*) the barriers and opportunities for implementing (*environmental*) education” (**my emphasis**) in the selected institutions.

6.4.2. Corroboration of Previous Research Findings

In chapter two of this study I focussed my discussion on various studies including those studies whose focus was on the broader ECE setting (e.g. Penn 2008) as well as those which gave attention to Grade R (e.g. SAIDE 2010). These studies highlighted numerous findings which underscored certain areas that required attention in order to make the implementation of Grade R in South African ECD centres more effective and efficient. Some of the findings emanating from this study corroborated a number of the findings made by previous studies, particularly, those highlighted in chapter two. For instance, the following are among the issues that were identified by previous studies and were also underlined by this investigation as some of the areas that still need attention in respect of Grade R: teacher training (Feza 2015; van der Berg *et al.* 2013; Atmore, van Niekerk and Ashley–Cooper 2012; Naicker 2010; Umalusi, CEPD and Wits 2010), funding (Feza 2015; van der Berg *et al.* 2013; SAIDE 2010; Penn 2008), the empowerment of School Management Teams (Umalusi, CEPD and Wits, 2010) and support and monitoring role of the department of education (SAIDE 2010).

6.4.3. Linking Educational Theories to Pedagogical Practices

Literature (Gordon and Browne 2011; Pham 2011; Horii 2007; Moore, Leamon, Cox and Servis 2002) highlights the importance of the link between pedagogical practices and learning and teaching theories. This point is discernible from the assertion by Pham (2011: 406) who writes that; “there is a strong relationship between learning theories and instructional practices. Effective learning occurs as a result of effective strategies. Effective teaching requires teachers to understand learning concepts and to develop a theoretical orientation combined with practice for efficient instructional design”. Pham (2011) further argues that the key to attaining effective teaching and learning as well as the stimulation of learner interest is the fundamental grasp of various learning theories by the teacher. Accordingly, he asserts that “underlying all this is the importance of the teacher’s critical understanding of learning theories and how to apply them to the cognitive, motivational and psychological process” (Pham 2011: 406).

In agreement with Pham’s (2011) view on the importance of learning–teaching theories in facilitating learning and teaching activities, Moore, Leamon, Cox and Servis (2002: 117) point out that “an understanding of educational theories can provide a common vocabulary for discussions about teaching, clarify the intent of instructional techniques, stimulate our thinking and enliven the daily experience of teaching”. Hence, as teachers and educators “we can design our teaching strategies based on this understanding” (Horii 2007: 369) of learning and teaching theories.

Therefore, in line with the preceding points, this study accentuates the link between educational theories and pedagogical practices. In chapter three of this study I demonstrate how six educational theories can be utilised to integrate environmental learning in Grade R (*refer to chapter three*). To this end, I adapted some topics from the framework of subjects as outlined in the Grade R Curriculum and Assessment Policy Statements (CAPS).

6.4.4 Guidelines for the Integration Environmental Education in Grade R

The findings indicate that, to some extent, issues of environmental concern are integrated in three of the four learning sites which participated in this inquiry. However, one of the notable findings, in my view, is that the integration of EE is done, mainly, through the mode of learning *about* the environment with little or no integration *in* and *for* the environment. For that reason, I deemed it necessary to propose a few guidelines in respect of how EE could be

integrated in Grade R. These guidelines which are informed by both literature and the findings of this inquiry are presented later in this chapter (*refer to 6.7*). In the next section I reflect on some of the limitations of this empirical investigation.

6.5. LIMITATIONS OF THE STUDY

Just like any other empirical investigation, this study has its own limitations. In my view, some of the limitations of this study can be discernible in respect of the following elements: recruitment of participants, the amount of time spent in the field and the generalisability of the findings.

6.5.1. Recruitment of Research Participants

In retrospect, I suspect it would have benefitted this study even more had two different participants, namely; a Grade R teacher and the school principal participated from all four research sites which formed part of this study. This was, indeed, the case in respect of three sites (A, B, and C). However, at Site D the school principal fulfilled the roles of both the school principal and the Grade R teacher. Unfortunately, as a consequence of either deliberate or unintended gatekeeping; Respondent M only informed me during our one-on-one interview that formed part of the investigation rather than during our initial, permission seeking, interaction that there was another Grade R teacher other than herself at Site D. In my opinion, the participation of that “*other*” Grade R teacher would have further enriched the findings of this study.

Nevertheless, this does not suggest in any way that the findings emanating from Site D are worthless. It is my considered view that all the findings of this study, including those of Site D, can withstand any scrutiny of trustworthiness. This is in view of the fact that various elements of trustworthiness were addressed in this inquiry (*refer to 4.4*).

6.5.2. The Amount of Time Spent in the Field

Prior to venturing into the research field I had planned to spend at least two weeks, spread over two different school terms, in each of the participating sites. However, due to the phenomenon called saturation (*refer to 4.3.3.1*) and various field dynamics including institutional regulations and other forms of gate-keeping as well as financial constraints made it difficult for me to spend more time than I did in the research field.

However, this limitation does not suggest that the findings of this inquiry are, for lack of a better word, deficient. My view is that the evidence presented in this study does provide the reader with rich data in respect of the extent to which EE is integrated in the Grade R classes of selected sites.

6.5.3. The Perspective of the NWDE Officials

In my view, the nature of the findings generated from both the sites and the respondents in this study warranted the recruitment and participation of the office-based officials of the North West Department of Education in this inquiry. Accordingly, I made an effort to access relevant officials from Maquassie Hills Area office of the NWDE since the officials from this office are better placed to deal with issues affecting the ECDs which participated in this study. The intention was to obtain their perspectives on some of the issues raised by certain respondents as well as pose questions informed by my observations made during data generation at various institutions.

I made contact with the Deputy Chief Education Specialist responsible for the General Education and Training (GET) phase, the division which deals with issues concerning Grades R – 9. Subsequently, she referred me to the ‘relevant’ official who handles Grade R issues. The official agreed to grant me an interview in respect of this study. Unfortunately, each time I made an attempt to have an interview with her, she was perpetually unavailable. Hence, I could not obtain the perspective of the NWDE on some of the issues raised in this study. These issues included matters related to the support and monitoring role of the NWDE, Grade R funding, the non-delivery of LTSM and so on.

6.5.4. Generalisability of the Findings

In light of the fact that this investigation is grounded on the interpretivist perspective, this inquiry, just like the other studies premised on this paradigm, “rejects all generalisation” (Payne and Williams 2005: 295), especially, since “generalisability is not the purpose of qualitative research” (Horsburgh 2003: 311). Accordingly, the findings of this investigation cannot be generalised “to a larger population even when (*any of the cases in a study*) constitutes a subset of the population” (Delmar 2010: 117). This assertion is informed by the fact that qualitative research acknowledges the importance and dynamic nature of context. Therefore, as Payne and Williams (2005: 296) write, “to generalise is to claim that what is the

case in one place or time will be so elsewhere or in another time”. And, since no settings are exactly the same, generalisation in qualitative research “is too simplistic” (ibid.).

Nonetheless, even though the findings of this study cannot be generalised, the transferability of the findings is possible (Anney 2014; Delmar 2010; Larsson 2009). Popay *et al.* (1998: 348 cited in Horsburgh 2003: 311) write, in respect of transferability, that “the aim is to make logical generalizations to a theoretical understanding of a similar class of phenomena rather than probabilistic generalizations to a population”. Therefore, in this study the transferability of the findings is accommodated through numerous measures (*refer to 4.3.1 and 4.4.2*). For example, in order to enable the transferability of the findings I made an effort to provide what is termed a ‘*thick description*’ (Daymon and Holloway 2011) by presenting “detailed description of inquiry” (Anney 2014: 278) throughout this report.

6.6. RECOMMENDATIONS

On the basis of the findings of this study I would like to present the following recommendations. In my view, these recommendations could be useful in terms of informing policy decisions and, thereby, help the NWDE and, possibly; the DBE to improve the areas that require improvement in the context of Grade R pedagogy. Consequently, an improvement in pedagogy should facilitate the infusion of EE in Grade R. Apart from policy related recommendations; I also highlight what I believe to be areas that need more research regarding Grade R and the integration of EE at Grade level.

6.6.1. Policy Oriented Recommendations

6.6.1.1. Access to Grade R

The department of education has made some strides in terms of ensuring that all deserving children access Grade R (Feza 2015; Zuma 2014; NWDE 2013; van der Berg *et al.* 2013). This effort needs to be sustained because not all deserving children are enrolled for Grade R, annually. However, it is necessary to acknowledge that the noble attempts made by all concerned to accommodate more children into the Reception Year have, as it is the case with Site C in this study, culminated in classroom overcrowding and the, concomitant, exclusion of some children due to insufficient accommodation.

As reflected in chapter two, literature demonstrates that there are many positive outcomes associated with the introduction of children to preschool education. Hence, Barnett,

Schulman and Shore (2004: 2) write that “a large body of evidence links high quality preschool education with substantial increase in school readiness and persistent achievement gains...by following preschool participants over many years, researchers have also documented long-term benefits that include rates of high school graduations and low rates of delinquency and arrests”. Therefore, it is important for the NWDE to continue to strive to enable all deserving and qualifying children access to Grade R.

However, it must be noted that literature also underlines classroom overcrowding as a phenomenon that negatively affects various levels of schooling, including preschool (Mustafa, Mahmoud, Assaf, Al-Hamadi and Abdulhamid 2014; Barnett, Schulman and Shore 2004; Barnett 2008; Graue, Hatch, Rao and Oen 2007). There are various shortcomings that can be attributed to overcrowding, these include; difficulty in giving individual attention to each learner, inability to accomplish all objectives set by the teacher, disruptive behaviour by certain learners and low levels of learner performance (Mustafa *et al.* 2014; Barnett 2008). In the interest of this discussion, it is essential to mention that some of these challenges were noted in this study.

Hence, on the basis of the above-mentioned points, it is my considered view that the NWDE and/or the DBE would have to; ideally, review the Grade R learner class size. It might be true that, indeed, “it is what teachers do in and with smaller classes that makes the difference, not simply being in smaller classes” (Anderson 2002: 52 cited in Graue *et al.* 2007: 673). However, the benefits associated with reduced class size are enormous (Jacob and Ludwig 2009; Graue *et al.* 2007; Barnett, Schulman and Shore 2004). Additionally, according to Graue *et al.* (2007: 672) “the effects of small class size seem to be the most positive in the early grades”. Therefore, as I argued both in previous chapters and this one (for example, refer to 5.4.1 and 6.3.1.1), a small class size is likely to afford the Grade R teacher more time to plan for the lessons and, possibly, infuse outdoor activities including the integration of environmental learning.

Some authors (Gordon and Browne 2011; Barnett, Schulman and Shore 2004) propose that an ideal preschool/kindergarten class should have between 10 – 20 learners with two adults, namely the teacher and his/her assistant. However, in view of the priorities that the NWDE might have, it would be appropriate, in my opinion, to commence by enforcing adherence to the Grade R teacher-learner ratio of 1: 30 while considering the essential review of the current status quo. My view is that reduced class size does not only have the potential to

benefit learning and teaching in general but it could enable the Grade R teacher to accommodate the integration of EE in his or her classroom activities since a reduced class size should lead to a reduction in workload and thus facilitate improved lesson planning.

6.6.1.2. LTSM and other Resources

It is essential to mention that, generally, Learning and Teaching Support Material (LTSM) play an important role in the context of learning and teaching. Hence, it is my considered view that LTSM and numerous other resources should be deemed to be even more significant in the context of ECE. The value of learning and teaching resources is underlined by Yara (2010: 126) who writes that the “availability of teaching/learning resources enhances the effectiveness of schools as these are basic things that can bring about a good academic performance in the students”.

However, LTSM and numerous other resources such as chairs, tables, playground equipment; etcetera were identified as some of the resources that were found to be lacking or insufficient in some of ECD centres that participated in this study (*refer to 5.4.8 and 6.3.1.3*). This is despite the fact that evidence generated from this study suggests that these resources do not only ease learning and teaching but there is also a clear indication that some of these resources enable the integration of environmental learning in Grade R. For example, *Mophato R–Bukatiro*, the main Grade R workbook that is supplied by the NWDE to public schools is, as indicated elsewhere in this discussion (*refer to 5.4.8 and 6.3.2.2*), a good resource that enables the integration of EE. Similarly, based on my observations in one of the ECD centres in this study, I also referred to the relevance of certain DVDs in the integration of EE in Grade R (*refer to 6.3.2.2*).

Unfortunately, according to my personal observation and the account of certain respondents, the supply of LTSM required by Grade R classes to facilitate learning and teaching and, by extension, the integration of EE is often inadequate (sometimes there is no supply at all). And, sometimes in instances where LTSM is supplied, this occurs very late into the academic year in which it is supposed to be utilised. Consequently, the learning and teaching activities, including the integration of EE, are negatively affected. Hence, it is my considered view that the North West Department of Education would have to work very hard to improve on aspects such as the supply of requisite LTSM in Grade R.

Likewise, evidence generated from this study indicates that apart from LTSM there is an array of other resources that are either inadequately supplied or not supplied at all in some Grade R public institutions. These resources include, among other things, play equipment, tables and chairs (*refer to 5.4.8*). Evidence from this study suggests that this situation impacts negatively in learning and teaching, including the implementation of play-based pedagogy, in Grade R. Hence, it would be advisable for the NWDE to assist the Grade R public institutions in terms of resources supply in this regard.

6.6.1.3. Collaboration

According to the evidence generated from three of the four Grade R teachers who participated in this study, collaboration with other Grade R teachers benefitted them professionally (*refer to 5.4.2 and 6.3.2.1*). This working together of teachers occurs within and across different learning institutions. From the account of some of the participants, it would appear that, to some extent, this collaboration benefitted them in their teaching practice, including the infusion of environmental learning.

As highlighted in chapter five, some authors (Feng 2012; Shah 2012; Brownell *et al.* 2006; Kelchtermans 2006; Shah 2012; Briscoe and Peters 1997) consider collaboration a vital element in the field of teaching and learning. Hence, Miller and Burden (2007: 1) assert that “much literature calls for teachers to be collaborative”. It is, therefore, my considered opinion that the relevant education authorities should encourage and assist Grade R teachers to work collaboratively. This is essential both in respect of sharing good practice as well as in helping those teachers who need to “change their instructional practice” (Brownell *et al.* 2006: 169). For example, Respondent W, a practitioner who participated in this study, could possibly benefit from focussed and guided assistance thereby improve her teaching strategies. This could also aid her in respect of EE integration.

In rounding off the point on collaboration, it is important in my view to emphasise that the office-based workers of the NWDE, for example, the Senior Education Specialists (SES's) could play a significant role in terms of encouraging, guiding and even coordinating Grade R teacher collaboration, especially, across different learning institutions. This is in view of the fact that SES's are able to visit various learning institutions and, possibly, observe teaching practices that should include EE integration. At the same time, these officials are able to conduct workshops and Professional Support Forums (PSFs). It is through such platforms that they could encourage collaboration across different learning institutions.

Accordingly, as Darling–Hammond (2012: 4) writes, “a major part of teachers’ on–going professional learning takes place as they develop in collaboration with their colleagues”. Therefore, in my opinion, on the basis of the findings of this study, which suggest that collaboration can assist teachers in their pedagogical practices; the NWDE officials would have to consider utilising teacher collaboration as one of the means to aid Grade R teacher empowerment. This is significant since “collaboration facilitates change because it provides opportunities for teachers to learn both content and pedagogical knowledge from one another” (Briscoe and Peter 1997: 51). It is, partly, through teacher collaboration that efforts towards teaching and learning *about/in/for* the environment could be enhanced and encouraged in Grade R.

6.6.1.4. Funding

According to the evidence generated from this inquiry, one of the major challenges affecting the four institutions which participated in this inquiry is lack of and/or insufficient Grade R funding. Subsequently, numerous other challenges were experienced by some of these institutions. The following are some of the challenges worth mentioning: the inability to undertake field trips, such as a visit to the local game farm, which could promote environmental learning; difficulty in purchasing LTSM such as DVDs with environmental education content, etcetera.

Evidence produced from this study suggests that the key factor in terms of the financial shortcomings experienced by the institutions that formed part of this study is either the lack of or insufficient funding from the NWDE. Notwithstanding the fact that the financial shortcomings in two (Sites B and D) of the four institutions that took part in this study emanated from their decision not to apply for funding from the department of education, as expected of private/independent institutions; even the two government funded institutions (Sites A and C) were plagued by financial limitations. The major cause of financial challenges in one (Site A) of the public schools was, as per the evidence from the study, the result of failure by the NWDE to comply with the policy on the *National Norms and Standards for Grade R Funding* (DBE 2008).

Therefore, informed by the findings of this investigation, I propose that the Department of Education should ensure that the policy on *National Norms and Standards for Grade R Funding* is adhered to at all costs. Similarly, based on my reading of the same policy on Grade R funding, it is evident that this policy attaches significance to both the overall funding

of Grade R and the remuneration of Grade R teachers in public schools. This is informed by the fact that, over and above the overall funding of Grade R, the policy on the *National Norms and Standards for Grade R Funding* (DBE 2008) also makes provision for the payment of Grade R teachers' salaries. Hence, since it is evident from the findings of this study that government funding of Grade R comes across as insufficient, it is my view that the Grade R teachers' salaries should not only be separated from the general funding of Grade R but they should also be reviewed. Evidence from this study (*refer to 5.4.8*) indicates that when it comes to remuneration, Grade R teachers (who are paid by the SGB) appear to be inadequately remunerated.

In my view, a positive response to the above-mentioned recommendations in respect of both the overall funding of Grade R and the Grade R teachers' salaries should contribute towards improved learning and teaching as well as boost the morale of Grade R teachers. Consequently, the integration of environmental learning could, possibly, be improved in Grade R.

6.6.1.5. Training, Monitoring and Support

The findings of this empirical study suggest that there is a need for Grade R teachers to be assisted so as to be able to handle their classes with confidence. This is, particularly, significant due to the fact that two of the four teachers who participated in this inquiry were still considered "unqualified" to teach hence they were labelled "practitioners". The shortcomings noted in respect of one of the two practitioners during lesson presentations as well as her acknowledgement of her own shortcomings demonstrated the need for professional training. In fact, this practitioner could not even tell whether she was able to integrate EE in her teaching, that is, she could not reflect on her own teaching. Likewise, one of the two experienced and qualified teachers who took part in this investigation recognized the need for her to be empowered in respect of Grade R teaching.

Based on the above-mentioned points, my view is that there is an urgent need for the Department of Education to not only ensure that Grade R teachers are trained but that on-going in-service training is provided to these teachers. According to Darling-Hammond (2012: 2) an "on-going professional development" enhances both "teacher quality and teaching quality" (*ibid.*). Subsequently, an improvement in teaching quality and teacher quality should, possibly, contribute towards enhancing the chances of EE integration in Grade R classrooms.

However, for Grade R teachers to be empowered, the people who are entrusted with the responsibility to assist them to grow professionally need to acknowledge and recognise the importance of providing monitoring and support to Grade R teachers. This notion is supported by Harwell (2003: 2) who writes that “professional development can succeed only in settings, or contexts, that support it. Probably the most critical part of that support must come from administrators. The outcome of every professional development initiative will depend ultimately on whether its administrators consider it important”.

Apart from the need for senior administrators of the NWDE to provide support and professional development to Grade R teachers, the School Management Teams and Senior Education Specialists have an even bigger role to play in respect of Grade R teacher empowerment. It is very essential for departmental heads and school principals to provide solid and continuous support to Grade R teachers. Likewise, in line with the provisions of the *Policy on the Organisation, Roles and Responsibilities of Education Districts* (DBE 2013), office-based Senior Education Specialists should also play a meaningful role in terms of providing support to Grade R teachers. This is particularly significant since some of the Grade R teachers who took part in this study stated that the School Management Teams and Senior Education Specialists did not provide them with support.

In my view, the School Management Teams and Senior Education Specialists should be considered as pillars of support and mentorship for and by Grade R teachers. Hence, these support officials should perceive their roles towards the Grade R teachers, partly, as “mentors and advisors who can model teaching methods, provide different ideas about environmental issues and assist in expanding the skill base of teachers” (McDonald and Dominguez 2010: 21). However, it is essential to accentuate, once more, that the findings of this study suggest that certain SMTs displayed some shortcomings in respect of providing support to Grade R teachers.

Therefore it is important, in my opinion, to mention that although the School Management Teams and Senior Education Specialists are required to fulfil monitoring and support roles towards the Grade R teachers, they too might be in need of professional development and monitoring. Accordingly, on the basis of the findings from this study, it is my recommendation that in order to provide the Grade R teachers with optimal support, the North West Department of Education would; possibly, have to ensure that these mentors and advisors, that is the SMTs and SES's, are themselves provided with on-going professional

support and development, and are duly monitored on a regular basis. In my opinion, this should contribute not only to their effectiveness but the quality of Grade R teaching would improve. Subsequently, the chances of EE integration in Grade R would also be increased.

6.6.2. Research Oriented Recommendations

The following are some of the research undertakings that I believe could make some contribution in respect of education related issues, especially in respect of Grade R and the integration of environmental learning at that level. These recommendations are informed by the findings of this inquiry.

6.6.2.1. Replication and Transferability of the Study

This investigation focused only on just a single small area within the Dr Kenneth Kaunda district of the North West province in South Africa. Therefore, as stated earlier in this chapter (*refer to 6.5.4*), the findings of this study cannot be easily generalized. However, it is possible and, in my opinion, essential for other researchers to consider undertaking similar or related empirical studies elsewhere in South Africa. This should provide more depth and information in terms of our understanding of the challenges affecting Grade R and, indeed, enable us to have a bigger picture as regards the integration of EE in Grade R. Perhaps such inquiries would also contribute towards ensuring that ECE and, indeed, the integration of EE are given the necessary and deserved attention.

6.6.2.2. Teachers' Reflection on their own Teaching

The one-on-one interaction with Respondent W, one of the Grade R teachers who participated in this study, invoked in me a concern about her apparent inability to “follow” her own teaching activities. The fact that Respondent W informed me at one point during our conversation that “*sometimes I am not aware that I am teaching environmental education*” made me think of two possibilities, over and above her lack of/or inadequate teacher training. I was not sure whether she was unable to comprehend the concept of environmental education or that she could not reflect on her teaching processes. However, as soon as I noticed that she had some idea of what the concept of EE entailed, it dawned on me that she must have had a challenge in respect of reflecting on her teaching.

Accordingly, my opinion is that teachers should be able to reflect on their own teaching practices. To some extent, this should enable teachers to identify their individual strengths

and limitations. Consequently, they would ‘know’ the weak areas that need improvement and their strengths that could assist them to become even more accomplished.

In respect of this study, it could be argued that if a teacher is to be able to integrate EE effectively, then the teacher’s ability to reflect on personal teaching approaches is vital. For example, a reflexive teacher would be able to know whether or not he or she is integrating environmental learning in pedagogical practices. Similarly, through reflexive teaching, teachers would be able to identify opportunities, in curricula, which enable or could enable the infusion of EE.

Hence, it is my considered view that it is essential for researchers to conduct some investigations in respect of the nature and extent of reflective teaching (Thomas and Packer 2013), especially in the context of ECE in South Africa. This is also in view of the fact that there is evidence to suggest that some inquiries have been made as regards reflexive teaching practices in higher grades (Nyaumwe and Mtetwa 2009). However, in the case of ECE, there seems to be little, if any evidence, to indicate that investigations on reflective teaching have been conducted. More importantly, although authors have diverse views concerning the meaning of reflexive teaching (Loughran 2002), many of them do acknowledge the value of reflexive teaching in terms of enhancing the quality of teaching (Çimer, Çimer and Vekli 2013; Giaimo–Ballard and Hyatt 2012). Thus, in my considered view, there is a need for some investigations on reflexive teaching practices in ECE.

The above are just a few recommendations worth considering and pursuing. In the next and final section of this study I reflect on some of the guidelines that could be utilised in terms of enabling the integration of EE in Grade R.

6.7. PROPOSED GUIDELINES FOR THE INTEGRATION OF ENVIRONMENTAL EDUCATION IN GRADE R

The evidence produced from this study demonstrates that the integration of environmental learning is practicable and, in fact, does take place; although to a limited extent, in some Grade R classes. In my view, key to the integration of EE is an enabling curriculum. However, of great concern should be the fact that, as per the evidence from this study, the infusion of EE in Grade R is primarily in the form of learning *about* the environment with little or no learning *in* and *for* the environment. Accordingly, in this section I present a few

guidelines that could contribute towards enabling the infusion of EE and effective teaching and learning *about/in/for* the environment.

6.7.1. A Holistic View of the Grade R Learner

In order for teachers to be able to integrate EE meaningfully, it is essential to adopt a holistic approach (Hughes 2007) towards lesson planning. By holistic approach I am referring to the accommodation of environmental learning with a focus on teaching *in/about/for* the environment across different subjects as well as taking into account various developmental needs of individual Grade R learners. In this respect, planning should be tailored to meet the learner's physical, cognitive, emotional and other developmental needs. The essence of planning to meet the needs of the whole child is captured by Oltman (2002: 10) who writes that "for children to learn effectively and joyfully, they must be engaged. It is impossible to separate the cognitive; physical, social and emotional aspects of development when discussing and planning activities and programmes for young children. Children are learning about everything all the time and with every fibre of their being".

6.7.2. Authentic Experience

Environmental education programmes that are tailored to meet the needs of the whole child should endeavour to enable the child to use various senses. For this to take place, the learner requires regular exposure to experiential learning. Therefore, in order to facilitate experiential learning, learning programmes should be designed in a way that accommodates outdoor learning, particularly learning that occurs in the natural environment. The significance of exposing learners to natural environments is highlighted in the following assertion by the Canadian Ministry of Education (2007: 9) which writes that:

Direct experience with the environment, both individually and in groups, is an important and vital way to learn about sustainability. These opportunities must be provided for studies to be relevant because they help provide students with a deeper understanding of natural systems and the impact human beings have on those systems. Direct experience then allows students to challenge other cultural perspectives regarding environmental problems and examine them critically.

Exposure to direct environmental experience also helps the learners to develop positive emotions. This is discernible from the assertion by Drissner, Haase, Rinderknecht and Hille (2013: 2) who assert that "studying nature outside the classroom is the most effective and, at

the same time, the most pleasurable way to teach children about various species and biodiversity”. More importantly, direct experience should not necessarily be too expensive to attain because the exploration of the natural environment can involve undertaking short fieldtrips within the immediate environment, for example, the school grounds and the local park (Lotz 1996) with a view to interact meaningfully with the environment while also learning about the challenges and solutions to those challenges that affect the environment.

6.7.3. Developmentally Appropriate Practice (DAP)

Inherent in the notion of developing the whole child is the concept of Developmentally Appropriate Practice (DAP). According to Oltman (2002: 2) Developmentally Appropriate Practice entails “matching the learning – the physical set-up, materials, schedule, curriculum, teaching methods and so forth – to the developmental levels of children”. In the context of Grade R, Developmentally Appropriate Practice takes centre stage or it should, at least, do so. This is in view of the fact that young children do not learn in the same way as older children and adults do. Similarly, their developmental needs and interests are different and unique to them.

Accordingly, for educational programmes to effectively meet the needs of the whole Grade R child and to also enable a meaningful integration of EE, during the planning and presentation of environmentally-inclined programmes, the age and developmental needs of Grade R learners should be prioritised. There are various ways in which DAP could be enhanced in order to facilitate the integration of EE in Grade R. However, in the interest of this discussion only a few suggestions should suffice. For example, the following Developmentally Appropriate Practices, presented with minor adaptations, by Hughes (2007) could contribute towards environmental learning in young children. The Grade R teachers could undertake the following, among other, activities during planning and lesson presentation:

- Develop natural outdoor play spaces – use recyclable/reusable material such as tyres, plastic bottles; etcetera.
- Focus on positive issues in environmental education, and include these issues in the array of themes to be used to organise new knowledge, skills and attitudes during the year.
- Include locally relevant issues and information, for example, local wild life and plants.

- Encourage and help facilitate children's contact with the natural world.
- Expose the learners to problem-solving strategies that seek to address local environmental challenges.
- Assist the learners to reflect on life style choices, attitudes and values.

6.7.4. Child-directed and Play-based Activities.

In preceding chapters (e.g. *refer to 3.5 and 5.4.5*), I highlighted the significance and value of play in the learning and teaching of young children. In fact, in my discussion of various theories I made an attempt to underline the value of play in ECE. More importantly, in section 3.5 I underlined Vygotsky's view of play as the best perspective on what play entails in ECE. This is based on the fact that Vygotsky projects play as one of the vehicles that enable holistic development in children at ECE level, especially those who are at preschool stage. For that reason, in this section I shall not be elaborate save to re-emphasize the importance of using play in learning and teaching, especially, in the integration of EE in Grade R.

It is also important to mention that child-directed and play-based activities are also considered relevant in regards to 'whole child' teaching and, generally, are also viewed as developmentally appropriate in the teaching of young children (NAAEE 2010). Hence, NAAEE (2010) proposes that, as a strategy that could be used to integrate EE in the teaching of young children, play-based activities should not only be child-directed but they must also be inquiry-based. Such activities need to be open-ended, provide learners with choices on what they want to do, be hands-on and should also involve authentic experiences of the environment. Play-based activities can take place either indoors or outdoors.

6.7.5. Accommodation of Diversity

Most classrooms tend to accommodate learners with different needs and, these needs are a result of their diverse backgrounds and abilities (Woolfolk 2010). Hence, it is essential for teachers, including Grade R teachers, to cater for "the range of different needs of students, whatever their background, ability or circumstances" (Donald, Lazarus and Lolwana 2010: 17). There are various ways in which ECE teachers could accommodate diversity with a view to a meaningful integration of EE in their learning and teaching activities.

One of the best ways of accommodating diversity is for teachers to "provide a variety of activities to address the different learning styles, cultural backgrounds, and individual

capabilities of young children” (NAAEE 2010: 21 – 22). This approach is in line with the notion of culturally responsive teaching (Gay 2013; Metropolitan Centre for Urban Education 2008; Kea, Campbell–Whatley and Richards 2006; Gay 2002; Landson–Billings 1995). Gay (2013: 49 – 50) defines Culturally Responsive Teaching (CRT) as a pedagogical approach in which a teacher uses “the cultural knowledge, prior experiences, frames of reference and performance styles of ethnically diverse students to make learning encounters more relevant and effective for them”. Therefore, this strategy advocates for the accommodation of cultural diversity (Landson–Billings 1995), encourages differential instruction in which the needs of “students with different needs in the classroom” (Metropolitan Centre for Urban Education 2008: 2) are catered for, and it facilitates the promotion of the constructive approach to learning, for example, through the use of scaffolds to enable the acquisition of new knowledge (Kea, Campbell–Whatley and Richards 2006). Furthermore, Athman and Monroe (2000) assert that Howard Gardner’s theory of Multiple Intelligences, the theory discussed in chapter two of this study; should enable teachers in ECE to plan effectively for the integration of EE. This is due to the fact that the theory of Multiple Intelligences addresses an array of skills and abilities that are likely to be displayed by learners in diverse classrooms.

Similarly, in order to accommodate learner diversity, it is essential to also adhere to the notion of teaching the ‘whole child’. Additionally, it might also benefit a teacher whose EE programme seeks to accommodate diversity to provide “multiple new opportunities for provoking the children’s (and adult’s) curiosity about the natural environment” (Davis 2008: 22). These multiple opportunities could, at least in the long run, help the learners irrespective of their background to “develop environmental sensitivity and social responsibility”(ibid.), and thereby contribute to environmental sustainability. Hence, it is vital for environmental learning oriented programmes in Grade R to be well thought out, thoroughly planned and meaningfully presented in order to accommodate learner diversity.

6.7.6. The Use of Various Pedagogical Approaches

As part of an effort toward teaching the ‘whole child’, it is imperative for Grade R teachers to, at all times, use a variety of approaches, especially to advance education *about/in* and *for* the environment (Lucas 1972); in the integration of environmental learning in Grade R. The use of multiple teaching and learning strategies in the integration of EE should also be seen as another way of accommodating diversity (as referred to in 6.7.5, above) and unique learner needs. Similarly, the utilisation of various teaching strategies may also assist in ensuring that

environmental topics are not incorporated only through teaching *about* the environment, as it was the case in most of the learning institutions which took part in this investigation, but it should assist in enabling teaching *in* and *for* the environment as well.

In chapter five of this study, I referred to numerous strategies that were used by some of the Grade R teachers who took part in this study in their efforts to integrate issues of environmental concern (*refer to 5.4.5*). Likewise, earlier in this section I also reflected on some approaches that could be used in the integration of EE in Grade R (e.g. *refer to 6.7.3*). Hence, for the purposes of this discussion, it is important to underline the fact that a variety of strategies exist that could enable the incorporation of EE in Grade R. These approaches would make it possible to accommodate not just teaching *about* the environment, but teaching *about, in* and *for* the environment.

Among the plethora of approaches that could be used in the integration of EE in Grade R, Oltman (2002) mentions inquiry-based learning which involves the use of questioning, hands-on learning which is centred on the use of direct experience, outdoor exploration, dramatic play and the use of songs in learning and teaching. On the other hand, Chelliah (1985) recommends the use of case studies in the presentation of EE programmes. To highlight the value of case studies and how they could be used, Chelliah (1985: 4) writes that:

Case studies are ‘environmental encounters’ where learners participate in/undertake an environmental problem-solving activity. This should seek to help learners to gain knowledge on a particular problem, develop skills, attitudes and values in respect of how that problem impacts the environment. Consequently, planning should be done to involve/engage learners in action related activity which should seek to address real life problems.

Davis (2008) and Norddahl (2008) demonstrate that, indeed, learners at ECE level can benefit from and are able to participate in case studies inclined towards addressing environmental problems. For example, Davis (2008) refers to various mini projects in which teachers planned with and enabled their learners to take a lead in those projects. The environmental projects involved topics such as ‘litter-less lunches’, a project that addressed pollution; ‘vegetable garden’ project, and a number of other projects. In highlighting the role of learners in these projects, Davis (2008: 21) writes that “as time passed, these mini projects became embedded into the everyday practices of the centre and, increasingly, the children have been the main initiators of new projects”. In the same vein, in reference to a pollution-related case

study in which young learners participated, Norddahl (2008: 76) writes that “young children at 5 to 6 years of age could discuss and explore problems in society, which initially the teachers did not think the children were able to do”.

Therefore, in the incorporation of EE, teachers could involve their Grade R learners in case study projects that are relevant to their everyday lives. For example, programmes related to water management, pollution within the school, etcetera are some of the projects that could be handled through the active participation of Grade R learners. Through such projects learners could “develop EE (Environmental Education) knowledge, attitudes and skills” (Hughes 2007: 11) that would, in the long run, enable them to contribute towards a sustainable society.

6.7.7. Involvement of Partnerships

Meaningful and successful integration of environmental learning requires collaboration, team work and involvement of different stakeholders (NAAEE 2010; Bates and Tregenza 2004; Chelliah 1985). This suggests that for Grade R teachers to succeed in their endeavour to integrate EE in their activities, they would have to involve partnerships in the planning and implementation processes. These partnerships would have to include teachers working with other teachers, School Management Teams, parents, some local organizations, government departments and so forth. Writing in support of team work in the teaching of EE, Chelliah (1985: 5) argues that “it would prove convenient to maximise the subject expertise of different teachers. Teachers could form a team of experts to teach and supervise student work on environmental issues”. However, in my opinion, the most important thing in respect of Grade R is that teachers could work together and decide on how to expand certain topics and integrate EE in their curriculum so as to maximise the benefit of environmental learning *about, in and for* the environment.

Likewise, in the integration of EE, through the assistance of their School Management Teams, Grade R teachers would have to involve external organizations, where possible. For example, in teaching *about* water, its significance and preservation; the Grade R teacher could invite a representative from the Department of Water Affairs and Sanitation at local government or municipality level. Partnership with various stakeholders benefits EE integration, hence it is essential to establish and sustain relationships with relevant individuals and organizations. In highlighting this point, the NAAEE (2010: 16) writes that “active communication (**should be**) maintained with a variety of interested individuals and

organisations to support networking, resource sharing, enhanced programme development and expanded audience outreach. Partnership activities strengthen their respective organisations” (**my emphasis**).

6.7.8. On-going Evaluation

As indicated in chapter one (*refer to 1.7.4*), one of the key aims of EE is to assist learners to gain knowledge, values, attitudes and skills that should empower them to contribute in solving environmental problems and thereby enable sustainability of our society (Sauvé 1996; UNESCO 1978). Hence, it is vital for the Grade R teachers to continuously evaluate not only the appropriateness but also the effectiveness of their EE programmes (NAAEE 2010; Bates and Tregenza 2004; Oltman 2002). In order to underline the significance of an on-going evaluation of EE programmes, the NAAEE (2010: 15) writes that “the early childhood environmental education program has an evaluation and assessment plan that is instrumental to teaching and learning, program, and facility improvement”.

There are various ways in which the impact of an EE programme could be measured or evaluated (Ruiz-Mallen, Barraza, Bodenhorn and Reyes-Garcia 2009; Rickinson 2001; Hoody 1996). However, according to Bates and Tregenza (2004: 11), in respect of EE programmes in the ambit of ECE, “the most significant outcome of the sustainability focus of the preschool must be measured in terms of changing human behaviour”. There are numerous ways in which the changes in Grade R learner behaviour could be measured. For instance, once a project such as ‘litter-less’ referred to by Davis (2008) is completed, the teacher may observe how learner behaviour has been affected by the programme as regards waste disposal. The teacher could observe the behavioural traits displayed by individual learners, over time, and record such behaviour. This would assist the teacher in terms of determining whether the programme was successful or not. Subsequently, the teacher would be able to decide on the way forward in respect of a particular EE programme.

It is important to point out that as Bates and Tregenza (2004) attest that the impact of EE programmes on the behaviour of young children are neither immediate nor similar for every child. Therefore, it is essential for the Grade R teacher to exercise patience because “the process of becoming more ecologically sustainable is long and challenging” (Bates and Tregenza (2004: 13). Likewise, on the part of the teacher, there is also a need for “an ongoing commitment to self-examination, learning and improvement regarding sustainable practises” (ibid.).

Indeed, there are many other guidelines that could be considered relevant in terms of facilitating the integration of environmental learning in Grade R. Hence, the above-mentioned points should not be deemed as cast in stone. However, it is essential to mention that, depending on the circumstances of each Grade R teacher; these guidelines can be modified or adapted to enable the integration of EE in various Grade R classes.

6.8. CONCLUDING COMMENTARY

There is no denying that our planet is under tremendous pressure to provide for the needs and wants of the ever increasing human population. Consequently, most of the available natural resources are dwindling rapidly due to human activities associated with the satisfaction of needs and wants. This does not only result in environmental spoilage emanating from extraction of resources but sustainable development is invariably threatened as well. And, any form of threat to sustainable development implies that the needs of future generations are likely to be compromised (Sookram 2013; Cronin and Pandya 2009; Toomey 2008; Arms 1994).

Accordingly, in order to offset the impact of human exploitation of the earth while trying to satisfy their needs and wants, it is essential to empower humanity with education. This is due to the fact that, as UNESCO (2012 cited in Hung 2014: 18) suggests, “the potential of education is enormous...education not only informs people, it can change them. As a means for personal enlightenment and for cultural renewal, education is not only central to sustainable development; it is humanity’s best hope and most effective means in the quest to achieve sustainable development”. For this reason, just like the other levels and forms of education, “Early Childhood Education has a major role to play in achieving sustainable development” (Siraj-Blatchford 2009: 9).

As highlighted in this study, environmental education is acknowledged as the vehicle through which the ideals of sustainable development could be communicated and advanced. Therefore, very early in their lives, young children have to be introduced to both ECE and EE. However, as demonstrated in chapter two of this study, in numerous countries across the globe; ECE tends not to receive the attention it deserves. For example, ECE is plagued by challenges such as lack of resources, underfunding, learner overcrowding, inadequately trained teachers, and so forth. Hence, as highlighted in this chapter (*refer to 6.4.2*) some of the challenges identified by previous studies in respect of ECE, in general, and Grade R, in particular, were also identified in this study. Likewise, numerous global challenges reflected

in chapter two in respect of ECE were also highlighted as affecting Grade R in some of the learning institutions that participated in this inquiry. For this reason, I refer briefly to some of these challenges affecting ECE and/or Grade R, namely; access to ECE, funding, teacher training and lack of resource.

Literature (Becker, 2007; UNESCO 2007a) suggests that in countries such as Brazil, not all children who deserve access to ECE are able to do so, especially those from poor households. Likewise, the findings from this inquiry suggest that not all deserving children are able to access Grade R. For example, as per the account of the school principal at Site C, the school lacked sufficient accommodation to enable them to enrol some of the deserving children who needed to access Grade R. Consequently, these children were turned away. Hence, their access to Grade R education, including possible exposure to EE was compromised.

Apart from access to Grade R, evidence from this study, for example in respect of Sites A and C; suggests that the class of Grade R is plagued by shortage of resources such as Learning and Teaching Support Material (LTSM), tables, chairs, and so forth. Additionally, the already-mentioned learning sites lacked playground and/or play equipment for Grade R learners. As per the literature reviewed in this study (e.g. Becker 2007), it would appear that when it comes to ECE, countries such as Brazil are also facing serious challenges concerning the lack of resources and infrastructure. Thus, I would like to reiterate my assertion (*refer to 5.4.8 and 6.3.1.3*) that it is my considered view that the lack of resources does not only impact negatively on learning and teaching but it has the potential to deny the children at ECE level an opportunity to gain exposure to EE.

In respect of funding, literature (Education International 2010; Dowling and O'Malley 2009; Becker 2007) indicates that, at international level, countries such as Australia, Brazil and the United States of America provide very little funding to ECE when compared to countries which are, relatively, at similar economic levels and, in some instances, poorer. For instance, in countries such as the USA, ECE funding varies from state to state, however, in general terms more than 60% of ECE funding comes from parents (Kammerman and Gatenio-Gabel 2007). Likewise, the findings from this study suggest that all four institutions which formed part of this inquiry had challenges in respect of Grade R funding. Even in institutions which are supposed to obtain favourable funding from government since they are classified as the poorest, as it was the case with Site A, 'deficiency' in Grade R funding manifested itself as a serious challenge. Indeed, in my view, the findings of this study underscore what appears to

be a general international trend in which ECE is not given the attention it deserves when it comes to funding (Education International 2010; Penn 2008). And, as highlighted in this study, the lack of funding impacts ECE negatively on various fronts, for example, it hinders the ability to purchase essential resources such as LTSM and numerous other resources. Consequently, to some degree, this constrains effective teaching and, by extension, the integration of EE in ECE is, somewhat, compromised.

The last point worth reflecting upon is in respect of teacher training and qualification in the ambit of ECE. Evidence from this study indicates that two of the four Grade R teachers were unqualified to teach at ECE level, including Grade R, while the other two respondents were qualified to teach at ECE level (including Grade R). From the evidence generated in this study, the shortcoming of being unqualified to teach at Grade R level was very apparent in respect of at least one of the two respondents in this study. Certainly, the respondent required a great deal of support from her school management team which she was, unfortunately, not receiving since the school managers themselves had their own deficiencies when it comes to providing support to the Grade R teacher. Literature (Atmore, van Niekerk and Ashley-Cooper 2012; Naicker 2010; SAIDE 2010) indicates that, over the years, the absence of universal and lucid qualification requirements for ECE teachers in South Africa has been one of the major reasons why ECE has too many unqualified teachers.

Likewise, according to the literature reviewed, it would appear that South Africa is not the only country that needs to work hard to improve the situation on ECE teacher training and qualification. For example, Brazil has too many unqualified teachers at ECE level; including the Preschool class (Becker 2007). Part of the reason for the low teacher qualification in Brazil has been attributed to the low requirements laid down by government. In the same breath, countries such as Australia and the USA have fragmented approaches to ECE teacher training in the sense that these countries do not have universal, nationally determined, ECE teacher training requirements. In these countries the states, territories and, in some instances, the ECE 'teacher-hiring' institutions have the latitude to determine teaching qualification requirements (Education International 2010; Dowling and O'Malley 2009; Gatenio-Gabel 2007; Kauerz 2005). Certainly, as highlighted in this study, low teacher qualification has a very negative impact on teacher effectiveness and, this has the potential to hamper the integration of EE at ECE level, including Grade R and its equivalents.

It should be evident from the preceding points and, indeed, numerous other points underlined elsewhere in this discussion; that ECE is plagued by an assortment of challenges. Undoubtedly, a lot of work still needs to be done to offset the current and possible future impact of these challenges at this level of education. This is essential in order to enhance the chances of effective integration EE in the ambit of ECE. However, as things stand, the issues highlighted in this section, and numerous others, pose a challenge and thus can be regarded as hindrances to the successful integration of EE in early childhood classes such as Grade R.

Nevertheless, it is heartening to note that not all is lost. Evidence from this inquiry indicates that irrespective of challenges, it is possible to integrate environmental topics in learning and teaching programmes in Grade R. Therefore, it is essential to not only identify the ‘model’ institutions where EE is integrated in early childhood classrooms but to also identify the factors that enable the integration of EE and build on them. This assertion is discernible from Davis (1998: 153) who writes that:

We need a register of quality childhood settings that are engaged in sound environmental education and workplace change to act as exemplars of good practice to inspire others. We need many more resources that are developed specifically for the early childhood field. We need a research base for early childhood environmental education to support teachers as they embark on curriculum change. As professionals, we need to encourage our education institutions and professional associations to advocate for environmental education as a necessary part of both pre-service and ongoing professional development of early childhood teachers. We need to work in, support and extend teacher networking in this area.

Indeed, the integration of Environmental Education in the context of Early Childhood Education might be conceived as a serious challenge at this stage; however it is not an insurmountable challenge. All that is required is commitment and positive thinking from all humanity particularly those who have the awareness regarding importance of Environmental Education in field of Early Childhood Education. There is thus a need for all of us to muster courage and make collective and conscious efforts to work earnestly towards improving the situation in respect of Environmental Education in the ambit of Early Childhood Education.

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ADDENDA

**A. ADDENDUM A: PERMISSION AND ETHICAL CLEARANCE DOCUMENTS
A: 1 PERMISSION LETTERS**

P.O. Box 866
WOLMARANSSTAD
2630
2012 November 15

The Superintendent–General
Department of Education
North West Province
First Floor: Garona Building
Private Bag X 2044

MMABATHO
2735

Dear Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT A PHD STUDY

I am currently a PhD (Curriculum Studies) candidate at Stellenbosch University. My research project focuses on the investigation of pedagogical approaches, particularly the integration of Environmental Education (EE), in Grade R. This is premised on the educational notion of “infusing the principles and practices of environmental justice” in the curriculum as entailed in the *National Curriculum Statement Grades R – 12*. Hence my research topic is titled: **Exploring the implementation of environmental education in Grade R: A case study of selected ECD centres.**

This study was prompted by the fact that, as per the literature reviewed, there is a paucity of research that gives attention to the integration of EE in the field of Early Childhood Education (ECE). Apart from this, there is also a need to determine the extent to which the Reception Year (Grade R) prepares the learners for the first class of formal schooling (Grade 1) in the context of South Africa. Accordingly, this study seeks to respond to the following research question:

What is the current status in respect of the implementation of Environmental Education in Grade–R of selected ECD centres in the North West Province of South Africa?

The above question is augmented by the following **sub–questions**:

- What opportunities/challenges/hindrances exist in respect of the implementation of Environmental Education in Grade–R in the North West Province?
- What types of programmes are utilised to aid the implementation of Environmental Education in Grade–R?
- To what extent are Grade–R practitioners equipped to implement Environmental Education?
- What type of support is provided by the North West Department of Education (NWDE) to the ECD centres, especially those catering for Grade–R?

The ECD centres located within the vicinity of Maquassi Hills Area Office of the Dr Kenneth Kaunda District have been earmarked for this case study. The study shall employ a qualitative research methodology for both data gathering and analysis. It is envisaged that data collection shall include observations of classroom practise, document analysis as well as one–on–one interviews. The interviews will be semi–structured and guided by an interview schedule. At learning site–level, the following respondents are targeted for interview purposes: one Grade–R practitioner and one learning–site manager per selected ECD centre. The researcher will also seek to obtain the perspective of the North West Department of Education by interviewing one senior official responsible for ECD (particularly Grade–R) issues in each of the following offices: an area office (Maquassi Hills Area Office), a district office (Dr Kenneth Kaunda District Office) and the provincial office.

On the basis of the above–mentioned points, I humbly request to be granted permission to make arrangements and visit institutions as well as interact with potential respondents in the areas under your control in a quest to fulfil the outlined project. I would like to assure you that, if granted permission, I shall, to the best of my abilities, endeavour to be as professional and as ethical as possible. Accordingly, I promise to adhere to ethical requirements such as: informed consent, avoidance of deception, ensuring anonymity and confidentiality of participants and institutions identified for the study; and I will also take care not to violate any person or institution’s privacy.

These ethical principles shall be observed by, for example, providing participants with detailed information, both verbally and in writing, about the purpose of this study before they could participate in it. In respect of the Grade–R learners who will, in essence, only be

observed; consent will be obtained from their guardians through their teachers. Respondents will, in essence, participate voluntarily and on the basis of accurate information from the researcher. I also pledge to ensure anonymity and confidentiality by using codes and/or pseudonyms in reference to research participants and the institutions sampled for this study.

Furthermore, I commit myself not to interfere with the daily functioning of the learning institutions as well as the participants of this study. And, I declare; once more, that I shall endeavour to be, at all times, professional in my approach. Similarly, I shall also provide a copy of the project if so required by the North West Department of Education.

I look forward to your positive and timely response.

Yours faithfully

Headman N. Hebe Mr

Student Number: 16784154

Contact Details: Telefax: 018 596 2996

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17 JANUARY 2013

Mr Headman Hebe

PO Box 866

WOLMARANSTAD

2630

Sir

RE: PERMISSION TO CONDUCT RESEARCH

This serves to inform you that permission to conduct research is herewith granted, subject to the following conditions:

- that it should not interfere with teaching and learning at schools and no disturbance in the offices; and
- that the Department will receive a final copy of the research and summary of the research findings be made available.

Your cooperation in this regard will be appreciated

Thanking in you in anticipation

.....
Dr MC Teu
Director-WSD

A: 2 CONSENT FORMS: SAMPLE



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
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STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH

EXPLORING THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION IN GRADE R: A CASE STUDY OF SELECTED EARLY CHILDHOOD DEVELOPMENT CENTRES [consent form for Grade R Practitioners/Teachers]

You are asked to participate in a research study conducted by:

HEADMAN NGILOSI HEBE – MEd (UNISA); BA (Honours in Psychology) (UNISA); BA (UNISA), SPTD (Soweto College of Education); from the Curriculum Studies Department of the Faculty of Education; at Stellenbosch University

The findings will contribute to the writing of a PhD thesis and the publication of scholarly journal articles. You were selected as a possible participant in this study because you are an ECD practitioner/teacher who teaches Grade R, a class that is the focus of this study.

1. PURPOSE OF THE STUDY

This study is designed to establish the extent to which Environmental Education (EE) is integrated or infused in the teaching of learners in Grade R.

2. PROCEDURES

If you volunteer to participate in this study, I would ask you to do the following things:

1. To grant me permission to attend your lessons and observe you while interacting with your learners. I hope to spend a minimum of three full days in a week for a period of two weeks observing you. I intend to take notes on my observations as the teaching–learning activities unfold. My wish is to observe all the activities both indoors and outdoors. The intention of the observation is not to judge/criticise you but I am interested in observing how and if you do infuse Environmental Education (EE) in your teaching.
2. To allow me to go through some of your lesson plans so as to establish whether your planning makes provision for the infusion of EE. At the same time I shall request you to provide me with some learner activity books/sheets for the purpose of examining whether EE forms part of learner activity or not.
3. To allow me to conduct a one–on–one interview with you. This would be done, preferably, during the last day of my class observations or the day after my last observations. The aim of the interview is to establish: an impression of your infusion of EE into your teaching, challenges/opportunities that affect your integration of EE in your teaching–learning activities, the nature and extent of support provided to you by your seniors both within and outside the ECD centre to enable you to do your job and develop as you would like to; and generally the challenges/opportunities that impact on your teaching (the aim here is to determine whether or not such factors facilitate or hinder the implementation of EE). The interview shall, with your

permission, be audio-recorded in order to facilitate the comprehension and analysis of the information generated during our interaction. This information will be transcribed and coded so that during the writing process your identity is concealed. At the same time this coding should enable me to distinguish you from the other participants in the study. The information will be kept strictly confidential and a high degree of anonymity will be ensured. You will be permitted to withdraw from the interview anytime you wish and you will not be forced to disclose information that you do not want to disclose. In the same breath, you will not be forced to respond to questions that you feel make you uncomfortable. The interview shall be conducted in English. However, you will be allowed to use the language of your choice during the interview.

4. To provide personal particulars such as your qualifications, experience, gender and age. This information is deemed essential in enabling our understanding of your teaching practise.

3. POTENTIAL RISKS AND DISCOMFORTS

There are no risks associated with this study. Perhaps, my presence in your classroom and the interview process might make you feel a little bit uncomfortable at first. However, be assured that there is no need to panic because my visit and interaction with you shall be both harmless and professional. I do not intend to disturb your activities neither do I intend to participate in them, mine will be just to observe. Even with regard to the interview, my intention is not to make you uncomfortable. At the same time you have the latitude to determine the time and place for the interview, and the interview shall be terminated if you feel it is necessary to do so or if it is uncomfortable for you to go on with it.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

This study has the potential to benefit you as a participant, professionally. For example, you might gain novel ideas that could assist you to integrate EE in your teaching so as to benefit the learners in the long run. At the same time this study could also bring to the fore some new perspectives and challenges that the education department officials, politicians and scholars were not aware of in respect of the teaching-learning activities in Grade R.

5. PAYMENT FOR PARTICIPATION

Participation in this study is both voluntary and free. Therefore you will not receive any form of payment, both financially and in kind, for your participation in this study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of codes and pseudonyms (for example the use of names such as Respondent XX, Respondent YY, etc) when reference is made in respect of the participants, their institutions, and any other person associated with their institutions. Therefore you should be assured that your identity and the matters raised by you during your participation in this study shall remain strictly confidential.

Strict confidentiality will be maintained even with regard to the documents containing the transcripts of the interviews, the observation notes and any other data generated as part of this study. All data shall be accessible only to me. This information shall be kept in a safe place under lock and key and computerised data shall be accessible through a password, only to me. However, the information gathered might be needed by my study supervisors and in this case it would have to be handed over to them. But they too are well trained with regard to rules of confidentiality and shall, therefore, adhere to the code of confidentiality at all times.

You have the right to access your tape-recorded interviews and in case certain information cannot, in your view, be disclosed then that right is reserved for you. However, we (you and I) might have to interact and evaluate the need and importance of using such information in this study.

I must also mention that since this study is educational in nature, there will be a process of writing the thesis and journal articles, all of which will certainly use some of the information generated through your participation in this study. In such cases, the data generated shall still be presented in a confidential and codified fashion. There will, of course, be instances where some of your statements are quoted directly but these statements shall in no way identify you. Codes and pseudonyms shall still be used.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances which warrant doing so arise.

8. IDENTIFICATION OF INVESTIGATORS

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

Headman Hebe, PhD Student and researcher at

P.O. Box 866

Wolmaransstad

2630

Telefax: 018 596 2996(all hours)

Cell: 073 323 3365

E-mail: herbzhn@telkomsa.net

Or my supervisor

Professor Lesley Le Grange

Tel: 021 808 2280

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or my co-supervisor

Dr. Linda Rutgers

Tel: 021 808 3930

Fax: 021 808 2295

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9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE
--

The information above was described to me, _____, by Headman Hebe in English and Afrikaans and I am in command of these languages. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to_____. She was encouraged and given ample time to ask me any questions. This conversation was conducted in English and Afrikaans/SeSotho and no translator was used.

Signature of Investigator

Date

A: 3 ETHICAL CLEARANCE LETTER



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Approval Notice New Application

09-Jul-2013
HEBE, Headman Ngilosi

Proposal #: DESC_Hebe2013

Title: EXPLORING THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION IN GRADE-R: A CASE STUDY OF SELECTED EARLY CHILDHOOD DEVELOPMENT (ECD) CENTRES

Dear Mr Headman HEBE,

Your DESC approved New Application received on 01-Jul-2013, was reviewed by the Research Ethics Committee: Human Research (Humanities) via Committee Review procedures on 03-Jul-2013 and has been approved.

Please note the following information about your approved research proposal:

Proposal Approval Period: 03-Jul-2013 -02-Jul-2014

Present Committee Members:

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

Please remember to use your proposal number (DESC_Hebe2013) on any documents or correspondence with the REC concerning your research proposal.

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

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

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

National Health Research Ethics Committee (NHREC) registration number REC-050411-032.

We wish you the best as you conduct your research.

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

Included Documents:

Research proposal
Informed consent teachers
DESC Form
Informed consent forms principals
Informed consent
Permission letter
Interview schedule

Sincerely,

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

ADDENDUM B: INTERVIEW SCHEDULES AND OBSERVATION GUIDE

B: 1 TEACHERS' INTERVIEW GUIDE

BIOGRAPHY QUESTIONNAIRE FOR RESPONDENTS (GRADE R PRACTITIONERS/TEACHERS)

Please complete the following information by inserting a cross(X) in the relevant box and by providing the information applicable to you as directed.

A. Biographical information

This section of the questionnaire refers to background or biographical information. Although I am aware of the sensitivity of the questions in this section, however, the information is required in order to enable me to compare groups of respondents. At the same time it will inform the conclusions of this study. Once again, I assure you that your responses will remain anonymous. Your co-operation is appreciated.

1. Age category

Please indicate your age in years by putting a cross(X) in the relevant box.

1.1. Younger than 30.....	
1.2. 31 to 40.....	
1.3. 41 to 50.....	
1.4. 51 to 60.....	
1.5. 61 and older.....	

2. Personnel category

Please indicate your personnel category by placing a cross (X) in the relevant box.

2.1. Principal.....	
2.2. Deputy Principal.....	
2.3. Head of Department.....	
2.4. Teacher/Practitioner.....	

3. Qualifications (all) (e.g. JPTD, NPDE, SPTD, BA; BA Ed, BSc.Ed, UDE (JP), etc.).

Please complete the section below by indicating all your qualifications. This section must be completed even in case you are still studying.

Qualification e.g. ECD Level Four	Institution Type e.g. FET College	Completed or In progress?

4. Teaching Experience

4.1 Years of teaching experience years

4.2. Subject(s) and grade(s) or level(s) currently taught and teaching experience in years.

SUBJECT	GRADE/LEVEL	TEACHING EXPERIENCE(IN YEARS)

Grade R Practitioners/Teachers:

1. What types of challenges, if any, are you faced with in your duty as a Grade R Practitioner/Teacher?
2. How do you negotiate those challenges?
3. Do you integrate Environmental Education (EE) in your teaching? If yes, how do you integrate EE in your teaching activities? If no, why not?
4. What challenges, if any, impact on your integration of EE in your teaching?
5. What support, if any, is provided to you by:
 - Your seniors at school, for example, your principal, Head of Department (HOD) to help you improve your teaching?
 - Your seniors from outside the school, for example, the Senior Education Specialists (Subject Advisors) to help you to improve your teaching?
6. How would you define the concept Environmental Education?

B: 2 PRINCIPALS' INTERVIEW GUIDE

INTERVIEW GUIDE FOR GRADE R PRINCIPALS/CENTRE MANAGERS

Principals/Centre Managers:

1. When did you introduce Grade R in your institution? (In essence, how long have you been presenting Grade R in your institution?)
2. What is the level of your Grade R enrolment? (In essence, how many Grade R learners do you have at this institution?)
3. How many Grade R practitioners/teachers do you have?
4. Are your Grade R practitioners/teachers qualified to teach Grade R? Please elaborate (i.e. indicate/or comment on the nature of training/qualifications they have).
5. What kind of support do you provide to the Grade R practitioner(s) to enable her/them to become effective and efficient in her/their duties?
6. How is Grade R funded? (In essence, do you receive funds from the government/department? Do the parents pay any fees? How much funding do you receive?)
7. What challenges, if any, resulted from the introduction of the Grade R class at your institution?
8. How do you negotiate these challenges?

9. Do you encourage the integration of Environmental Education (EE) in Grade R? If yes, how do you do that? If no, why not?
10. What does the concept Environmental Education mean to you?

B: 3 OBSERVATION GUIDE

Although I made an attempt to observe everything in the field, the following were the key focal points:

1. The general physical layout of the classroom and how it affects learning and teaching activities. For example, questions such as the following were of significance: How big or small is the classroom? Which areas/spaces are used and for what purpose?
2. Teaching and learning activities with particular reference to the following aspects:
 - Learners' individual and collective roles
 - Interaction between the teacher and the learners (collectively and individually)
 - Interaction between and among the learners
3. Language used and how it is used as well as its impact on learning and teaching. For example, is the language used by the teacher the same as the one used by learners? Do learners comprehend the language used by the teacher?
4. The link between theory (teacher's theory, text-based theory, and etcetera) and the learners' lived experiences.
5. Availability and nature of LTSM and other resources as well as their use and effect on learning and teaching
6. Pedagogical approaches, including play-based learning and teaching, used by the teacher and their effect on the integration of Environmental Education.
7. The integration of Environmental Education and how it is done. For example, does the integration accommodate teaching *about/in/for* the environment?
8. Evidence of outdoor learning and teaching activities and how they benefit the infusion of Environmental Education.

ADDENDUM C: FINDINGS – EVIDENCE/SAMPLES**C: 1 PARTICIPANT OBSERVATION NOTES: SAMPLE FROM SITE D****Day One: Monday (2013/10/28)**

I arrived at about 07H25 in the classroom for my first observation, the teacher and two learners were in class. The teacher informed me that the majority of the learners arrive at 08H15. I then decided to move out and returned at about 08H05.

I was given a chair that was more adult and comfortable than the ones I had grown accustomed to, which were meant for five year-olds, when I visited the other learning sites for lessons observation. I sat at a distant corner closer to the door. In front of me there was a carpet. There were some learners who were playing “house” on the carpet. At about 08H10, the carpet was cleared. The learners then moved to the northern corner of the classroom next to their teacher. They sat on the carpet just in front of the teacher. Subsequently, the teacher commenced with a lesson on “**Die weerkaart (The weather chart)**”.

“Sê vir my, hoe lyk die weer? (Tell me, how is the weather?).” The teacher asked the learners. “**Daar is wolke en die son (There are clouds and the sun.)**”, responded a learner. “Hoekom het ek die venster toe gemaak? (Why have I closed the window?)”, the teacher proceeded with another question. “**Daar is wind (There is wind)**”, responded another learner. Afterwards, the teacher together with the class went on to talk about the day’s date. The teacher asked the learners to tell her the date by using the following leading question–statement; “On Saturday it was the 26th of October. Yesterday it was the 27th of October. Now, what is today’s date?” In unison, the learners provided the teacher with the correct answer. She then wrote the date on the chart that was pasted on the wall.

Once the learners were done with “today’s date”, they went on to sing a few songs. For example, they sang “Visvang vir Jesus” in Afrikaans, and thereafter they sang the same song in English. In this case they sang, “Fishing for Jesus”. They went on to sing, “Ek is nie ’n siek soldaatjie (I am not a sick soldier)”.

At about 08H15 the teacher marked the learner–attendance register. Apparently, all the learners were already in. Only one learner could not make it to school, seemingly, due to ill health. At about 08H20, we all went outside. The learners sat in a semicircular pattern on the grass. **The teacher together with the learners observed the sky and talked about what they**

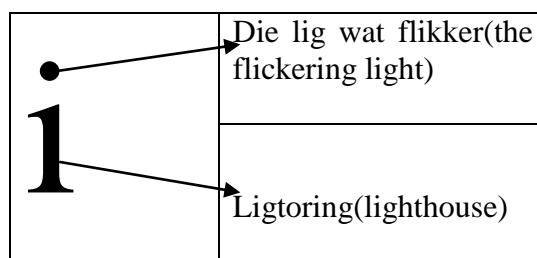
(especially, the learners) were seeing (or observing), both, in terms of the weather and various other phenomena (objects/organisms) in the sky.

The teacher allowed the learners to observe and then respond to her questions. “Wat sien hulle in die lug? (What do you see in the sky?)”; the teacher asked the learner. “Wolke (clouds)”, the learners responded in unison. The teacher talked about the notion of rain formation as a culmination of the clouds coming closer to each other. The learners were then asked to mention various other things they observed in the sky at that time. The learners mentioned things such as “Voeltjies (Birds)”, “Vliegtuig (an aeroplane)”, and etcetera.

Once the learners were done talking about the things they had seen in the sky at that time, the teacher went on to talk about the things that could be seen at night, that is, when it is dark at night. In essence, the teacher contrasted day and night. Not only did the teacher indicate to the learners that it is difficult to see at night since there is no sun and people rely on neon light but she also referred to the effect of pollution in terms hindering visibility. For example, she indicated that, “as daar stof is in die lug, die wolke kan ook donker wees (if there is dust in the sky then the clouds also become darker)”. In essence she was trying to explain that pollution covers the sky above us and makes it difficult for people to see very well.

At about 08H30, the learners went back to class. On returning to class the teacher further explored the concept of “the things that can be seen in the sky”. In order to elucidate the topic, the teacher used various pictures/photos that were pasted on a chart. The chart as depicted in figure 5.13 in this discussion has a heading: “Ek sien in die lug die... (In the sky I see the...)”. The chart goes on to list some of the things that could be seen in the sky. These include the following things: “wolke (clouds)”, “reenboog (rainbow)”, “vleër (kite)” and etcetera. In order to enable them to emphasise a point made earlier when they were outside of the classroom, the teacher also showed the learners another chart. She intended to highlight to the learners that it is difficult for people to see very well at night unless they use certain sources of light. This is due to the absence of sunlight at night. The chart had the heading: “Maniere om in die nag te sien (The ways of seeing at night)” and it portrayed various sources of light that are, usually, used at night. The following are some of the sources depicted in the chart: “elktriese lig (electrical light)”, “kerse (candles)”, “flirts (torch)”, “maan (moon)” and etcetera. Of course, the moon is one of those sources that are not used regularly since it has its own schedule of “appearance”.

Once the teacher was done with the chart on “Maniere om in die nag te sien (the ways of seeing at night)”, she went on to relate a story to the learners. This story about “Isak ’n visserman (Isaac a fisherman)” was, evidently, aimed at introducing a lesson on the letter “i” which in its capital form can be written as “I”. According to the story, Isak used his boat to move around, fishing at sea. One day he rowed his boat far away looking for fish and returned very late. It was already dark when he made his way back home. Consequently, he found it difficult to see due to darkness. However, he continued to row until he saw a “ligtoring (lighthouse)” on the other side of the sea. The teacher went on to tell the learners that “die lictoring wys vir die mense dat hulle is naby die seë (a lighthouse shows people that they are nearer to the sea)”. She then showed them a picture of a lighthouse. This was followed by an introduction of “’n nuwe klankie (a new sound)”. The new sound in this case was “i”. She also made an attempt to emphasise that the letter “i” can also be written as “I”. The teacher tried to link the letter “i” to the physical structure of a lighthouse. Hence, she represented the letter “i” as follows:



The teacher went on to develop the lesson on the new sound by asking the learners to name the persons, among the classmates, who had the name commencing with the letter “I”. There was an example of *Itumeleng* in class. The teacher proceeded by handing each learner a tag that had his or her name written in it. Each and every one of them was asked to paste their name on a wall in the classroom. The learners did exactly as instructed by the teacher. The entire class had to identify the names, from all the names pasted on the wall, which contained the letter “i”. Once the learners were done with this activity, they began with the writing activity.

The writing activity was informed by the activities that took place earlier in the day, especially, the observation of the sky by the learners when they went outside the classroom. Each learner was given a blank white A4 paper as well as a smaller black A5 paper. The learners were required to draw the things that could be seen during the day on the white paper. The black A5 paper was used to draw the things that could be seen at night. For

example, the sun and other things that could be seen during the day would be drawn on the white A4 paper while the stars, the moon and other things that could be seen at night would be drawn on the black A5 paper. The teacher moved around the tables observing and guiding the learners through the completion of the activity. Once the learners were done, they would sit on the carpet and play. By 09H40 all the learners were done with the drawing activity.

At about 09H50, the learners were told to stand in a circular formation and hold hands. For a moment while the learners were doing as told, a female visitor came to see the teacher but soon left as quickly as she came. Once the visitor had left, the teacher instructed the learners to count from one to forty. They all did as instructed. Thereafter the learners were instructed to sit down in a circular manner. The teacher then placed various cards, each with a unique number, in the centre of the circle in a ‘non-orderly’ manner. The numbers were not in digit/numerical form but rather in word form. The teacher then instructed various learners, individually, to stand next to specific numbers. For example, she instructed *Geraldine* to “staan by nege (stand next to nine)”. In instances where learners became confused (a few of them got confused), she would use the first letter of the number as a guide. For instance, at one point the teacher put an emphasis on “s-s-s-s-s” for “sewe (seven) in order to assist a learner who was required to stand next to “sewe”. This technique seemed to work for both the teacher and the learner.

The teacher then put some wooden blocks which were also used for counting purposes on the carpet. In this case, however, the teacher used word problems. For example, she would instruct an individual learner as follows: “You have three sweets and your mother gives you another four. How many sweets do you now have”? In this case the learner would be required to use the wooden blocks to add three and four together. Once that was done the learner would then take the card depicting the answer and place it next to all the wooden blocks that had been added together. For example, 3 wooden blocks + 4 wooden blocks = a card written the word “sewe” on it. The teacher tried to give all the learners a chance during the mathematics activity.

At about 10H25, a group of about eleven learners left the classroom and the other eleven stayed behind. The remaining learners sat on the table at the centre of the classroom. They played individually, as it was the case with the ones who were completing the jigsaw puzzles, or collectively; as it happened with the ones who played dominoes. The teacher also participated in the play activities. She decided to join the group that played dominoes.

At about 11H05, the learners were done with their play activity. They put the dominoes and the puzzles away. They prayed for their meals, took out their lunch boxes and sat around the tables to enjoy their meals. The other group that had left earlier had not yet returned. I then decided to leave the classroom so as not to disturb the learners during their meal break. I hung around the school yard so as to be able to notice when the learners' break was over since I was not informed about the commencement and ending of the meal break.

At about 11H45 I returned back to class and by this time the eleven learners had returned from wherever they had gone to earlier. I soon heard during the conversation between some of them and the teacher that they had gone to the local primary school. I suppose this was part of their orientation for the commencement of Grade one that following year, that is, in 2014. The teacher informed the girls that one netball juffrou (she mentioned her name but, unfortunately, I did not catch it) at the Laerskool would like them to come and “oefen netball(train netball)” at the primary school sports fields at the end of that day's schooling session. The girls were very excited to hear these tidings! The teacher then issued the “briewe vir die ouers (letters to the parent)” to each and every learner. She stapled the letters on the learners' schoolbags.

The learners were instructed to go outside for “free-play”. They collected their hats from the pigeon holes and put them on before leaving the classroom. One learner approached me and asked, “Sal oom saam met ons buitekant gaan speel (is uncle going to play with us outside?)”. “Nee, nie vandag nie my kind (no not today my child)”, I responded with a smile. I also went outside and observed the learners from the distance as they played. Almost the entire learner population including younger ones played in the same playground at the same time. There was one class that could not go to the playground; apparently those were the youngest children at the centre.

At about 12H30, all the learners left the playground and returned to their respective classes. The Grade R teacher sat on her chair and the learners sat on the carpet in front of her. This was story time! **The teacher read a story and also used some pictures to amplify its meaning. The story had to do with “Die kraai van die haan (The crowing of the cock)”. The teacher tried to link the crowing of the crow to a specific time of the day.** In essence, the teacher or at least the story, attempted to create an awareness of time as signalled through “die kraai van die haan”. **During story reading the learners also got a chance to crow like a cock.** The story also referred to a jackal which, as the cock crowed kept on trying to catch it without success.

In fact, the cock ended up ‘manipulating’ the jackal to do its work, that is, the jackal ended up crowing like the cock until the early hours of the morning!

At about 12H40, just after story time, the learners began to take their bags from the pigeon holes. This was the end of their school day.

The Integration of Environmental Education

The teacher presented a number of lessons that could be said to have the potential to help the learners develop awareness about their environment. For example, the lesson that dealt with “die weerkaart (the weather chart)” provided the learners with a chance to reflect on the weather conditions in their immediate surroundings. Similarly, the learners would be able to learn about the effect of the weather on their daily lives. For example, the fact that the teacher had to close the window as a result of the wind outside served to draw the learners to the impact of the weather on the learners’ and, indeed, other peoples’ lives.

The other aspects of the lessons that could influence the learners’ environmental awareness included: the observation conducted outside the classroom. During this observation session, the learners observed the sky and saw various things that were seen in their immediate environment at the time. The learners saw things such as clouds, birds, a passing aeroplane and etcetera. The teacher also reflected on pollution, albeit very briefly, by referring to the effect of smoke on the sky. Similarly, the story on the “crowing cock” and its implications to our sense of time could also be deemed significant for environmental learning. For example, the story highlighted that the role of “die haan wat kraai (the crowing cock)” in terms of making people aware that “it is time to wake up”.

The above-mentioned points serve to illustrate the extent to which the teacher attempted to integrate EE in her lessons. On the basis of these points it is my contention that the teacher made a meaningful attempt to integrate Environmental Education in her learning-teaching activities.

C: 2 INTERVIEW WITH GRADE R TEACHER: SITE A – RESPONDENT W

Researcher: I would like to thank you for your time and the fact that you agreed to be interviewed. Let me indicate like I did in the consent form that you are free to respond in any language of your choice. And, if you feel that you do not want to respond to a particular question, then, you are free to tell me that ‘I cannot respond to that question’. At the same time, if you want to withdraw from the interview at any given point, it is still your right to do so.

The first question I have for you M’am is: What challenges, if any, are you faced with in your duties as a Grade R practitioner?

Respondent W: The challenge I am facing is that **when I am trying to teach, some of the learners keep on playing.** I am not facing a lot of challenges because most of my learners are able to listen to me when I teach. So, I am not facing that much of a challenge I am able to control them.

Researcher: Are you are saying that some learners are playing while you are teaching...?

Respondent W: (interject)....they tend to disturb the others.

Researcher: So, how do you handle that situation?

Respondent W: When I am busy with some learners on the table, maybe doing maths or home language, **I instruct the naughty ones to sit on the mat and I hand them some toys to keep them busy.**

Researcher: Apart from the question of having problems while you are teaching learners, you indicated in your form that you are still busy with your level four...

Respondent W: (juts in) ...level five.

Researcher: Oh, level five? As far as your qualification is concerned, are convinced that it enables you to deal with whatever challenges you have in class? In other words, what I am trying to find out is; do you feel that as person who is still busy with your studies, who is not yet completely qualified to the extent possible, is it an advantage or disadvantage at this point?

Respondent W: **It is a disadvantage.**

Researcher: Do you have any challenges that, perhaps, as far as you are concerned, could be related to the fact that you are not yet qualified? Do you think there are any challenges related to that?

Respondent W: There are.

Researcher: Such as...?

Respondent W: (She takes a long pause)...Sometimes it is hard to deal with small children if you are not experienced enough.

Researcher: Are you confident that by the time you are qualified in terms of your studies you will be able to deal with those challenges?

Respondent W: I will because I will be having enough experience.

Researcher: Is the qualification empowering you? Do you feel that your training is equipping you or preparing you sufficiently to be able to face the challenges you have already mentioned?

Respondent W: Yes. It is preparing me because when we are attending classes we share information and we give one another advice on how to deal with various problems. So, we are helping one another.

Researcher: As far as you are concerned, how much time is left for you to complete it? In other words, how far are you before you could complete your qualification?

Respondent W: I am not sure because they didn't tell us how long it will take.

Researcher: So, you are not sure how long it will take you?

Respondent W: Yes.

Researcher: Thank you for your responses. As far as you are concerned, does your teaching involve the integration of Environmental Education?

Respondent W: Yes, it involves it.

Researcher: Ok. You said it does?

Respondent W: M-h-h (she nods).

Researcher: How do you integrate Environmental Education in your teaching?

Respondent W: Especially in Life Skills when I take children out, I draw their attention to some environmental things outside, things they can see or that they know.

Researcher: Can you paint me a picture; an indication as to how, perhaps, one scenario or one instance where you felt that you were integrating Environmental Education in Life Skills or in any other subject?

Respondent W: There was sand, the river sand next to the swings there, ja, when we are playing...that's soil and water...(Respondents takes a long pause and appears to be thinking deeply).

Researcher: Ok. Apart from playing with water and sand, how else do you normally integrate Environmental Education in your teaching?

Respondent W: In my teaching...inside the classroom when we are doing Maths or Home Language.

Researcher: Ok. How...in which way? If you could think of any example, I would appreciate it if you could mention it to me.

Respondent W: Like drawing some buildings and shapes....they are related there.

Researcher: Right. Thank you for your response. What challenges, if any, do you think impact on your integration of Environmental Education?

Respondent W: There are a lot of challenges because sometimes I am not aware that I am teaching Environmental Education.

Researcher: So, you are not aware at times that you are integrating it?

Respondent W: (Juts in)...it ...Ja.

Researcher: What would improve your level of awareness to enable you to say, 'now I am integrating Environmental Education'? How would you be able to know that at a particular point you are integrating Environmental Education?

Respondent W: I have to indicate it in my daily program so that I...It must be.... (Respondent takes a long pause and appears to be uncertain of what she wants to say).

Researcher:it must appear in writing?

Respondent W: (She nods her head).

Researcher: So, you feel that if you don't indicate it in writing then you might not necessarily be integrating it?

Respondent W: Not that. I must put it so that it must be...it must have its own time...to do it alone.

Researcher: Ok. Oh, if I understand you correctly, you feel it would be best for you to integrate it, by teaching it separately?

Respondent W: Separately. Yes.

Researcher: So, you don't feel you are integrating it as you would like to at the moment?

Respondent W: When I do it alone it will give me...it will mean that I am doing it each and every day.

Researcher: Let me just get this correctly. Number one, you are saying that you do integrate Environmental Education?

Respondent W: M-h-h (as in Yes).

Researcher: But then there are instances where you are not aware that you are integrating it?

Respondent W: Aware...M-h-h (as in Yes).

Researcher: I'll repeat my question. What would make you aware that, 'now I am integrating Environmental Education'? At what point or at least what should happen for you to feel comfortable to say, 'ok, I have taught, let's say Life Skills and I have integrated Environmental Education'? What would indicate to you that, that has happened?

Respondent W: (Respondent kept quiet for more than a minute apparently confused).

Researcher: Ok. It's a difficult question? I would like you to indicate to me that 'by including this and that in my teaching of a given subject then, I have integrated Environmental Education'.

I take it that in your teaching whether it's Life Skills, it's Mathematics, it's Language; at some point you do integrate each and every one of those subjects. Let's say you are teaching Life Skills, you do at some point integrate Mathematics, isn't it?

Respondent W: Yes.

Researcher: You do integrate Language, isn't it?

Respondent W: Yes.

Researcher: And, you do realise that 'now I have integrated' isn't it?

Respondent W: Yes.

Researcher: So, the question I was trying to pose is: When would you be able to know, confidently, that indeed 'I have integrated' Environmental Education?

Respondent W: (She keeps quiet, still appearing puzzled).

Researcher: Ok. Er...you said you have challenges...you know your challenges. What support, if any, do you get from your seniors at school to enable you to deal with those challenges?

Respondent W: To be honest, I don't get support. It's once in a while, meneer will... (Respondent does not complete the statement. She spreads her arms as if to say 'I don't know').

Researcher: So, you don't get support?

Respondent W: (Nods her head but utters no word).

Researcher: Mhh...Er...tell me...Do you raise your challenges with your H.O.D. or any person you consider to be your senior and is capable to assist you to say, "I have challenge X, Y or Z"?

Respondent W: (Shakes her head and still no word).

Researcher: Why are you not raising your challenges with them?

Respondent W: Because they do not help me most of the time. So, I don't see... (The statement is not completed. Apparently, the respondent is reluctant to express her views).

Researcher: You don't see.....?

Respondent W: (She pauses as if to think about how to present her thoughts)....I think I will disturb them.

Researcher: So, that is your assumption?

Respondent W: M-h-h (as in Yes).

Researcher: So, you want to tell me that each time you encounter challenges; you don't feel like saying, 'You know what, this challenge has to be dealt with. Let me approach somebody else who has experience'. So, you want to tell me that you have never approached them with your challenges because you assume that they are too busy?

Respondent W: M-h-h (as in Yes). I get help from somebody else in the township.

Researcher: I want to get this clear. You are saying that you don't go to them because you assume that they won't help you?

Respondent W: M-h-h (as in Yes).

Researcher: Apart from the fact that you think that you would be disturbing your seniors, what else makes you afraid or sceptical to go to them?

Respondent W: Nothing.

Researcher: Now if you are not getting assistance from your seniors, then where are you getting it from?

Respondent W: I am getting it from another teacher who is teaching at School X (name withheld for confidentiality purposes).

Researcher: And, is that teacher able to assist you?

Respondent W: Yes.

Researcher: There is something I am trying to get here. Who checks your work? Is your work checked at school by your seniors?

Respondent W: Yes. The principal checks my work.

Researcher: Is your principal happy with your work? Are there no instances where he says; ‘Man, my sister, I don’t think you did this correctly’?

Respondent W: When he is not happy he tells me, ‘here you need to get assistance’. So, when he says so I go to that teacher (the teacher at School X).

Researcher: I find it difficult because I thought your H.O.D...(The researcher could not finish the sentence. The respondent juts in.)

Respondent W: ...We do not have an H.O.D.

Researcher: You don’t have an H.O.D?

Respondent W: Yes.

Researcher: So, your work is checked by the principal?

Respondent W: Yes.

Researcher: And, do you get support from the principal?

Respondent W: Yes.

Researcher: Do you think if you had an H.O.D you would be able to approach him or her?

Respondent W: Yes. There was a teacher here, he passed away, he used to help me because he used to teach Grade One at School XX (The name of the school withheld for ethical reasons). So he used to... (Respondent rotates her hands).

Researcher:to guide you?

Respondent W: Yes.

Researcher: Now that you are saying that you are getting assistance from elsewhere, does your principal know that you are getting assistance from elsewhere?

Respondent W: I told him.

Researcher: How does he feel about that?

Respondent W: (Keeps quiet).

Researcher: ...the fact that you are getting assistance from elsewhere?

Respondent W: (Keeps quiet).

Researcher:is he happy?

Respondent W: Yes. He's fine because somebody is giving me help.

Researcher: Ok fine. Let us proceed to the next line of question. We are done with the support from the school level. Are you getting any support from the officials outside the school, I mean those who are in offices, your subject advisers and so on?

Respondent W: Yes.

Researcher: Are they able to assist you in respect of your teaching as a Grade R practitioner because in your profile you are saying that you are teaching Grade R and Grade One? Are you teaching Grade One at present as well?

Respondent W: Grade R only, before..... (She does not complete her statement).

Researcher: ...you were teaching Grade One as well?

Respondent W: Grade One, as well.

Researcher: So, I'll come back to Grade One and check how you did things there. Do you feel that your subject advisers, or your specialists, are able to provide you with the support that you believe you need to be able to handle Grade R?

Respondent W: Yes.

Researcher: Let's go back to this issue of you having taught Grade R and Grade One because during my observations it was only Grade R.

Respondent W: Yes.

Researcher: Let me check. Did you have both Grade R and Grade One in the same class?

Respondent W: Yes, in the same class.

Researcher: How did you handle Grade R and Grade One in the same class?

Respondent W: It was a mess. Nothing went right there. When you are trying to be busy with the Grade Ones, the Grade Rs are busy making noise.

Researcher: So, how did you teach them? How did you teach two classes because that is a multi-grade class? How did you, really, present your stuff to Grade R and Grade One at the same time?

Respondent W: When I was busy with the Grade Ones, the class was full, so the Grade Rs would just sit on the mat for the whole day.

Researcher: Ok....

Respondent W: When I got busy with the Grade Rs, I would instruct the Grade Ones to sit on the mat.

Researcher: Ok. So, if you are busy with one group what does the other group do?

Respondent W: The other group would sleep.

Researcher: So, when the roles are reversed, the other group had to sleep?

Respondent W: (nods her head).

Researcher: So, did they normally sleep?

Respondent W: No. They would play...making noise.

Researcher: Now, what about planning? Did you plan for two Grades? Did you have a separate plan for Grade R and a separate plan for Grade One?

Respondent W: Yes. It was separate because the Grade Rs are using daily programs. The Grade Ones must focus on a time table.

Researcher: How long did that situation last?

Respondent W: It lasted for months. I am not quite sure...five or six months.

Researcher: This year?

Respondent W: Yes.

Researcher: Then what happened to the Grade One class?

Respondent W: M'am MM (name withheld for ethical reasons) came and took the Grade one class.

Researcher: Ok. So, she was not here at that time?

Respondent W: Yes.

Researcher: The last question for the purposes of this study. **How would you define the word “Environmental Education”?** What does the concept of Environmental Education mean to you?

Respondent W: **It means... (Several minutes pause), teaching learners about the background. Some other learners don't know enough about the background.**

Researcher: What background?

Respondent W: Some... (Once more, the respondent takes a lengthy pause. Her Non Verbal Communication suggests that she is not sure what to say.)

Researcher: (Juts in.) If it is difficult to say it say it in English, you may say it in Xhosa or Setswana.

Respondent W: (Responds in Setswana until the end of the interview). **It means teaching children about the environment. A lot of children do not know the value of the environment.**

Researcher: Actually, when we talk about the environment, what are we referring to?

Respondent W: **We are talking about, for example, buildings and trees. We are talking about natural things.**

Researcher: Only, those things?

Respondent W: Yes.

Researcher: In your view, is it important to teach young children about the environment?

Respondent W: **Yes. It is important that they should know about the environment so that they do not struggle later, when they reach higher classes. Therefore, it is important to reach them while they are still young.**

Researcher: How does teaching them about the environment help them?

Respondent W: **It helps them to know how to take care of things such as trees while they are still young.**

Researcher: We have come to the end of our interaction M'am. And, I would like to thank you for your time. Despite the dust, you were able to sit with me and interact with me. I appreciate it very much and thank you once more.

C: 3 DOCUMENT ANALYSIS: SAMPLES FROM SITE B



An analysis of the document containing the story with the titled; “BUSY ANTS, WISE ANTS”

A. Story Preparation
 Instruct each child to follow along in his **Social Studies PACE RR12, pages 23-25**

B. Story

BUSY ANTS! WISE ANTS!
 (Proverbs 6:6-8; 30:25)

(23) “Tick, tack! Tippity, tap!” The ants were marching, marching, marching! The ants were marching over warm, brown sand.
 “Tick, tack! Tippity, tap!” The ants were marching, marching, marching! The ants were marching past the tall, green grass.
 “Tick, tack! Tip . . .” Suddenly, an ant stopped! Right in front of the ant was something big and yellow! The ant looked up, up, up at the big, yellow object (thing). What could it be? Was it a balloon? Was it a ball?
 The object was not quite round. Yet it was not quite square! The object must be . . . a kernel (grain) of corn!
 “Swish, swash, swish!” All the ants swarmed around the big, yellow kernel of corn.
 “Whoosh!” The ants lifted up the big kernel of corn. All working together, the ants were VERY, VERY strong.
 “Tick, tack! Tippity, tap!” The ants began to march home. The ants wobbled from side to side as they carried the big kernel of corn.
 “Tick, tack! Tippity, tap!” The ants marched over the sand. The ants marched past the tall, green grass.
 “Tick, tack! Tippity, tap!” The ants marched right up Ant Hill. They marched to the very top.
 (24) “Tick, tack! Tippity, tap!” The ants marched to a big, dark hole on top of the hill. It was the tunnel to Ant City.
 “Tick, tack! Tippity, tap!” The ants marched down into the tunnel until they reached Ant City.
 “Tick, tack! Tippity, tap!” The ants marched into Ant City carrying the big, yellow kernel of corn. It was a special “treasure (special to you).” The big, yellow kernel of corn was a food “treasure” for Ant City!
 “Tick, tack! Tippity, tap!” The ants marched every day for many, many days. They marched in the hot sun. They marched in the wet rain. The ants marched everywhere looking for more food treasures. The ants marched in the spring. The ants marched in the summer. The ants marched in the fall.
 One day, as the ants were marching, they began to shiver! The sun no longer felt warm. The air was very, very cool!
 “Tick, tack! Tippity, tap!” The ants marched much, much faster. They were trying to stay warm.
 “Splat!” Something fell in front of the ants. It was soft. It was wet and cold!
 “Splat!” Something fell behind the ants. That “something” was also soft, wet, and cold!
 “Splat! Splat!” Those “somethings” were snowflakes. It was starting to snow!
 “Tickity, tack!” The ants hurried back to Ant Hill as fast as they could hurry!
 “Skippity, scat!” The ants scurried up Ant Hill as fast as they could scurry!
 “Zippity, zap!” The ants scooted down the tunnel until they reached Ant City. Quickly, the ants scampered into Ant City. There was no snow falling in Ant City at all! Ant City was snug and warm.

(25) "Splat! Splat!" The snow kept falling outside. It fell all day! The snow covered tiny grains of sand. The snow covered tall, green blades of grass. Finally, the snow covered Ant Hill. Even the door to the tunnel could not be seen.

The ants could not leave Ant City. They could not look for food treasures. The ants could not gather any more food.

Yet, the ants were not afraid. The ants were not afraid at all! In Ant City, there were already many, many food treasures. There were big, yellow kernels of corn. There were green leaves, purple grapes, and big, brown bread crumbs. Why, Ant City was full of yummy, yummy ant food!

Aren't you glad that the ants went marching for food treasures each day? The ants did not sit in the cool shade. The ants hunted for food in the warm spring sun. They hunted for food in the hot summer sun. They hunted for food in the cool fall sun.



God's Word tells us something very important about ants. Ants do not have someone who says, "Hurry up! Find food!" There are no ant PACE's that read, "It's going to snow!"

God made ants very special. God made ants to gather food. Ants do not even have to think about it! The ants obey. The ants obey God!

God made each one of us special, too. God made us to obey Him! God knows what we need. God knows how to take care of each one of us.

Comprehension Questions

1. In the beginning of the story, what big, yellow object made the ant stop marching? *(The big, yellow object that made the ant stop marching was a kernel of corn.)*
2. What was at the very top of Ant Hill? *(The hole opening into the ant tunnel was at the very top of Ant Hill.)*
3. What was at the very bottom of the ant tunnel? *(Ant City was at the very bottom of the ant tunnel.)*
4. What were some of the food "treasures" that the ants found? *(The ants found brown bread crumbs, yellow kernels of corn, purple grapes, and green leaves.)*
5. One cold day, what fell "splat" in front of the marching ants? *(A snowflake fell "splat" in front of the marching ants.)*
6. What fell "splat" behind the marching ants? *(A snowflake fell "splat" behind the marching ants.)*
7. Did any snow fall inside Ant City? *(No snow fell inside Ant City.)*
8. In Ant City, the ants did not have to be afraid of snow because there were many, many food _____. *(treasures)*
9. Whom do the ants obey? *(The ants obey God.)*
10. Whom must we obey? *(We must obey God.)*

C. Song

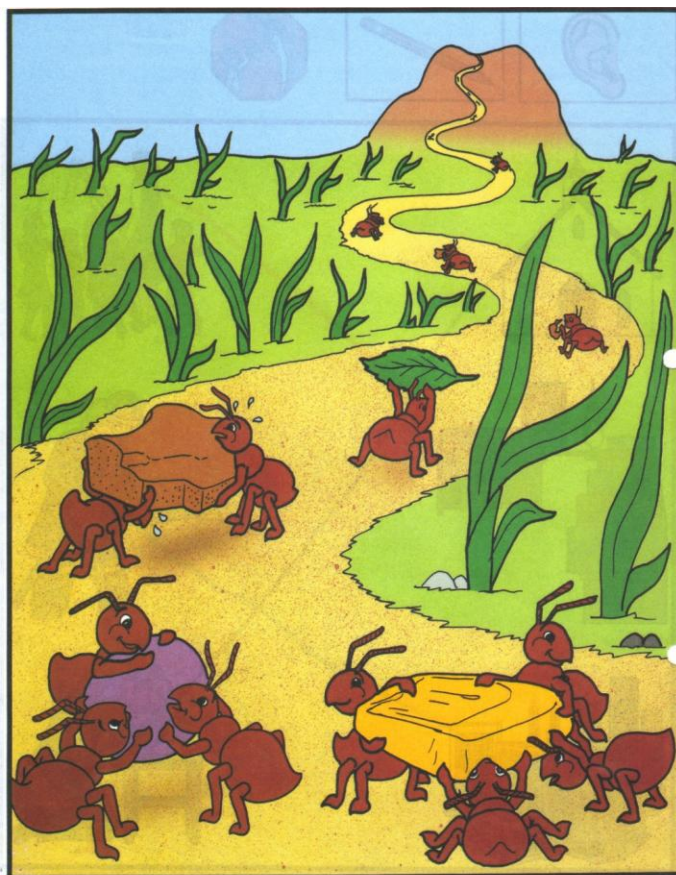
Salvation Songs (Number 3) #29, "I'm Gonna Work"

IX. SCRIPTURE MEMORY (10:20–10:30)

(Review any learned Scripture: Psalm 100, Life of Christ verses, Psalm 23, Psalm 1.)

X. BREAK (10:30–11:00)

Rest room, water fountain, and outside free play



23

Figure depicting: Busy ants

This document contains a story-reading activity based on the story *BUSY ANTS! WISE ANTS!* This document is a teacher's document which would be used to facilitate reading as well as to enable the teacher to test the learners' comprehension of the story. Based on my classroom observations at Site B, I believe that the learners would have followed the story through the pictures found on pages 23 – 25 in their workbook, *Social Studies PACE RR12*. One of the pictures that would be found on the learners' workbook is indicated herewith as page 23, above, a depiction of the "busy wise ants!" which are collecting food treasures.

The practitioner, Respondent X, would have read the story as written on the attached pages, that is, the "*D2 – Final Review*" which serves as a teacher's guide on what needs to be done when presenting the story. The practitioner would have complemented her story reading with the pictures found on pages 23 – 25 of the learner's workbook. The pictures are also drawn on the right hand top margin of the teacher's document as reflected on pages "*D2 – Final Review – 6*" and "*D2 – Final Review – 7*".

On completion of the story reading process, the practitioner would have posed the “Comprehension Questions” found on page “D2 – Final Review – 7” of the document to the learners. It is my contention that, as informed by my classroom observations, these questions are a bit above the cognitive abilities of the learners at Site B. Nevertheless, some of these questions would have been easy for the same learners to answer.

The document, just like most workbooks and texts used by the learners and the practitioner at Site B during my observation sessions, put a great deal of emphasis on the role of God in “our lives”. This is evident from some of the statements that appear on the page indicated as “D2 – Final Review – 7” of the document. The following is an example of such statement: “*God’s Word tells us something very important about us. Ants do not have someone who says ‘Hurry up! Find food’. There are no ant PACEs that read, ‘It’s going to snow! God made ants very special. God made ants to gather food. Ants do not even have to think about it. The ants obey God. God made each one of us special, too. God made us to obey Him. God know what we need. God knows how to take care of each one of us’*”. Such statements are meant to underscore the principles that underpin the education approach followed at Site B. Hence, there are numerous scriptures that are also highlighted on the document as indicated under “*SCRIPTURE MEMORY*” on page “D2 – Final Review – 7” of the document. These biblical verses have to be read in conjunction with the story that appears on the document under scrutiny.

In a nutshell the story; “*BUSY ANTS! WISE ANTS!*” reflects on the commitment displayed by the ants. They collect food treasures irrespective of the weather conditions. This is done in preparation for their future needs. The story also highlights the collaboration and discipline of the ants. This group effort is illustrated on page 23, a picture that accompanies the document under scrutiny. The picture on page 23 gives more meaning to the statement, “*all the ants swarmed around the big, yellow kernel of corn*” which appears on “D2 – Final Review – 7”. The ants work through the year irrespective of the weather conditions. This disciplined approach to food collection is discernible from the following statement which appears on page “D2 – Final Review – 6”:

“Tick, tack! Tippy, tap!” The ants marched everyday for many, many days. They marched n the hot sun. They marched in the wet rain. They marched everywhere looking for more treasures. The ants

marched in spring. The ants marched in summer. The ants marched in the fall”.

In my opinion this document is relevant in the integration of EE in Grade R at Site B. This argument is based on the view that if the story–reading lesson is conducted appropriately, it should enable the learner to know more about some of the roles of the ants in the environment. The teacher would assist the learners to make sense of the non–stop, up and down movement which characterises the regular behaviour of ants in the environment. The learners would become aware, for example, that one of the reasons for the up and down movement of ants is to forage food for a particular purpose. Hence it is my view that the story is relevant in terms of teaching about the niche of ants in the ecosystem. This is an important aspect of environmental education.

Similarly, the story would, in time, help the learners realise that each organism is important in the environment. In the same breath, the story should teach the learner about the importance of cooperation in order to accomplish a specific task. Undoubtedly, this document is valuable in the integration of EE.

C: 4 PRELIMINARY ANALYSIS SAMPLE FROM SITE B

Analysis Element	Apparent meaning	Underlying meaning	Research question	Data Source	Resp.
The six year olds are fond of playing when they are in class.	Children like to play (Pedagogical Approach that deprives children of playing time)	Learning–teaching is hindered by playfulness of some learners	RQ1 ²⁶ ; Q1T ²⁷	Interview	X ²⁸
I move around in order to check whether there are those who are experiencing difficulties	Individual attention	More assistance given to enable learners to comprehend with ease	RQ1;Q1T	Interview	X
Yes. , especially about the weather; the weather chart	Learning–teaching about weather	EE integration	RQ2;Q3T	Interview	X

²⁶RQ1 = this refers to the five research **sub-questions** which give impetus to the main research question of the study. Hence, “RQ1” is Research Question number one, “RQ2” would be Research Question number two, and so on. This refers to each interview question as it appears on the interview schedule.

²⁷ Q1T= this refers to the question on the interview schedule designed for the Grade R Teachers who participated in the study. Therefore “Q1T” is Question number one in the Teachers’ **interview schedule**, “Q2T” would be question number two on the same interview schedule.

²⁸ X = this refers to the code assigned to each respondent. Therefore, X denotes Respondent X.

they picking up papers in order to keep the ground clean; they can recycle them, they can use them in class. a container of yoghurt, they can keep...er...crayons in it.	Pick papers, “recycle” reuse	EE integration	RQ2;Q3T	Interview	X
I also teach them they should go to the tap and wash their hands, and that they should not waste water.	Wash hands in the tap Save water	Personal hygiene EE integration	RQ2;Q3T	Interview	X
We do not have Environmental Education as a specific subject, we only teach environmental education in Life Skills	EE not a “specific subject”	Implications, negative, for EE integration	RQ2;Q3T	Interview	X
Environmental Education is important to be there in the curriculum of small children. It should stand alone.	EE should stand alone	Negative implications for its integration	RQ1;Q4PT	Interview	X
we go to the workshops,	Workshops	Facilitates Improvement in pedagogy – EE integration should benefit	RQ1;Q5T	Interview	X

<p>When I'm having challenges I go to seniors and ask the seniors that, "You must know that I'm having this and that."</p>	<p>Support from seniors</p>	<p>Positive implications for pedagogy and EE integration</p>	<p>RQ1;Q5T</p>	<p>Interview</p>	<p>X</p>
<p>The ECD level learnership information. I am also using the information that I am getting from the learnership in order to develop the children.</p>	<p>ECD Level Learnership</p>	<p>Self empowerment (positive implications for pedagogy, and EE integration)</p>	<p>RQ1;Q5T</p>	<p>Interview</p>	<p>X</p>
<p>No, there is no one who came for such purposes from the department of education.</p>	<p>No visit from NWDE</p>	<p>Negative implications for quality assurance (and pedagogy)</p>	<p>RQ5;Q5T</p>	<p>Interview</p>	<p>X</p>
<p>The surroundings...the importance of our surroundings In our surroundings we have lots and lots of trees. We must teach the children the importance of the plants around our place. How to keep it clean, how to keep it safe</p>	<p>Some idea of EE</p>	<p>Positive implication for integration</p>	<p>RQ6;Q10T</p>	<p>Interview</p>	<p>X</p>

<p>Fourteen years ago.</p> <p>Ten.</p>	<p>Years since Grade R introduced</p> <p>Number of learners</p>	<p>Access to Grade R – Positive implications for lifelong learning and EE integration</p>	<p>Q1P²⁹</p> <p>Q2P</p>	<p>Interview</p>	<p>K</p>
<p>She is busy with her level five childhood development</p> <p>The manual that she is using is telling her exactly what to do and how to do it.</p> <p>But for us in our system, our teacher is qualified.</p>	<p>Practitioner still studying</p>	<p>Possible that her ability to integrate EE could be negatively affected</p>	<p>RQ3; Q4P</p>	<p>Interview</p>	<p>K</p>
<p>We have a Phase Manager, Foundation Phase Manager, who obviously controls her work on a regular basis.</p> <p>We also have our current Grade One teacher who is also a remedial teacher.</p> <p>As a principal I also go into the classroom regularly and I support her with whatever</p>	<p>Support structure for Grade R practitioner</p>	<p>Positive implications for teaching and learning and, by extension, the integration of EE</p>	<p>RQ1; Q5P</p>	<p>Interview</p>	<p>K</p>

²⁹Q1P= this refers to the question on the interview schedule designed for the School Principals who participated in the study. Therefore “Q1P” is Question number one in the Principals’ **interview schedule**, “Q2T” would be question number two on the same interview schedule.

<p>she needs.</p> <p>We also have educators' convention which she attends every year...the annual convention with workshops.</p> <p>ACE also started with some specific preschool training.</p> <p>we will also introduce our staff to that training.</p>					
<p>I think, mostly is when there are students, in her class, that display learning disabilities.</p>	<p>Challenges encountered by practitioner</p>	<p>Requires more assistance and support. If not obtained, negative implications for pedagogy and EE, likely.</p>	<p>RQ1; Q5P</p>	<p>Interview</p>	<p>K</p>
<p>Parents are paying, parents are paying school fees.</p> <p>We will apply for subsidy from the state again next year.</p> <p>State did make some money available for private schools.</p>	<p>Parents pay fees</p>	<p>Could have implications for resources/LTSM and learning-teaching activities.</p>	<p>RQ4; Q6P</p>	<p>Interview</p>	<p>K</p>

<p>Yes. It is; it is, yes, definitely. Obviously, the teacher is not working for much money.</p>	<p>Teacher not well paid (Challenge)</p>	<p>Could affect morale and commitment to duty – negative implications for EE integration.</p>	<p>RQ4; Q6P</p>	<p>Interview</p>	<p>K</p>
<p>I mean, we see a huge difference between the children that are going into Grade One and had gone through the Grade R system and those who did not. They are much stronger.</p>	<p>No apparent challenge</p>	<p>Positive implications for teaching–learning (and EE integration)</p>	<p>RQ4; Q7P</p>	<p>Interview</p>	<p>K</p>
<p>The greatest challenge is language. Because it is a high standard program</p>	<p>Language challenges</p>	<p>Implications for pedagogy – learners might find it difficult to comprehend content.</p>	<p>RQ1; Q7P</p>	<p>Interview</p>	<p>K</p>
<p>And, we have some things in place like speaking English at AC and Cruise, is a program that we have.</p>	<p>Dealing with language challenge</p>	<p>Positive implication – enables learners to comprehend presentations.</p>	<p>RQ1; Q8P</p>	<p>Interview</p>	<p>K</p>
<p>I think a lot of that is worked in, into our program. Through the stories and through the activities the children do. We do try to, in between, in terms of field</p>	<p>EE infused into existing programmes</p>	<p>Positive implications – eases the integration of EE</p>	<p>RQ2; Q9P</p>	<p>Interview</p>	<p>K</p>

trips and, maybe, outreaches or doing something at school to emphasise the importance of the environment and how it works and how to use it.					
Is to make children aware, is the one point, aware of the environment; and, the effect that environment has on them and the effect that they have on the environment.	EE is about awareness, about the effect of the environment on us and vice versa.	Positive implications flowing from the apparent awareness of what EE entails	RQ2; RQ1; Q10P	Interview	K(LSM)
Really educate them and make it practical for them as well. So...er...we have a vision of starting...like planting some vegetables and stuff...	EE is about educating and practising/doing things practically	Positive implications flowing from the apparent awareness of what EE entails	RQ2; RQ1; Q10P	Interview	K(LSM)
to incorporate that in the school as well, and maybe, make use of the children, and make them more aware and educate them. To make it practical for the children. I don't think it's always enough to tell them about it. I would like to use that to help underprivileged children and, maybe, get involved in a feeding scheme or something.	EE projects – intended	Positive implications for EE integration	RQ2; RQ1; Q10P	Interview	K(LSM)

<p>All the animals worked together to clean the poison from the field. They used water to wash the poison away.</p>	<p>Cooperation by animals in cleaning the environment (Story reading)</p>	<p>Learners could in the long run view EE as an activity-based and cooperation oriented type of learning/activity</p>	<p>RQ2</p>	<p>Participant Observation</p>	<p>Site B</p>
<p>The practitioner also made an attempt to make the story more relevant to the everyday lives of the learners. “Can you name the poisons you can see or touch at home”?</p>	<p>EE made practical – reference made to “poisons” at home</p>	<p>Positive implications for EE. Learners can relate to it.</p>	<p>RQ2</p>	<p>Participant Observation</p>	<p>Site B</p>
<p>Jesus Christ He is said to have helped his father clean a horse stable. Because He was helpful, His parents gave Him a birthday surprise.</p>	<p>Jesus Christ EE conscious</p>	<p>Learners can relate to EE since it is based on their “religion”</p>	<p>RQ2</p>	<p>Participant Observation</p>	<p>Site B</p>
<p>The story also referred to the cocoons being taken by other animals to a safer place inside a bush.</p>	<p>Cocoons taken to place of safety</p>	<p>Importance of all living organisms underscored</p>	<p>RQ2</p>	<p>Participant Observation</p>	<p>Site B</p>

C: 5 DOMAIN ANALYSIS

DOMAIN ANALYSIS

INCLUDED TERM/STATEMENT	DATA SOURCE	SEMANTIC RELATIONSHIP	ENVIRONMENTAL EDUCATION THEME (COVER TERM)
<p>1. A horse, a crocodile, a bird, a bee and a dog.</p> <p>2. Lion, jackal, owl, bat, mosquito, frog, mice, beetles, moths, porcupines, and mosquitoes.</p> <p>3. A beetle, a ladybug, ants, and a spider</p> <p>4. Houseflies, ants, spiders, a butterfly, a worm and a turtle.</p>	<p>1.Document Analysis (Site C)</p> <p>2.Participant Observation (Site D)</p> <p>3. Participant Observation(Site B)</p> <p>4. Participant Observation(Site B)</p>	<p>These are examples of...</p>	<p>Living Organisms</p>

1. Lion, jackal, owl, bat, mosquito and frog	1.Participant observation (Site D)	These are examples of....	Predators
1. A hive, a kennel, a stable, a nest and a river.	1.Document Analysis (Site C)	These are examples of.....	Habitats/Homes
1.Weather Chart 2.Birds, aeroplane and kite	1.Participant Observation Sites A,B,C and D 2.Participant Observation (Site D)	1. Deals with conditions in the..... 2. Some of the things that can be seen flying in the...	Atmosphere
1. “as daar stof is in die lug, die wolke kan ook donker wees (if there is dust in the sky then the clouds also become darker)” 2. This was as a result of the farmer having sprayed poison into the field.	1.Participant Observation(Site D) 2.Participant Observation(Site B)	1. Smoke in the sky is an example of..... 2. Poisoned sprayed in the field is an example of.....	Pollution
“Muskiete (mosquitoes)”and “motte (moths)”.	1.Document Analysis(Site D)	1. These are examples of.....	Insects active at night

<p>a church supervisor, a church pastor, a fireman, deacons, principal, ushers, policeman and doctors.</p>	<p>1.Document Analysis(Site B)</p>	<p>1. Examples of.....</p>	<p>Neighbourhood helpers/occupations</p>
<p>An Emu;</p>	<p>1.Document analysis(Site B)</p>	<p>1. An example of.....</p>	<p>A bird</p>
<p>“Stay Soft”, Handy Andy”, “oil” and “paraffin”.</p>	<p>1.Participant Observation(Site B)</p>	<p>1.Some of the..... found at home in the Grade R learner’s environment</p>	<p>“Poisons”</p>

C: 6 FINAL DATA ANALYSIS: THEMES EMERGING FROM DATA ANALYSIS³⁰

THEMES EMANATING FROM DATA ANALYSIS

Overarching Themes

Factors enabling the integration of Environmental Education

Factors hindering the infusion of Environmental Education

³⁰ Each primary theme is portrayed together with some of the concepts/statements/phrases from which it is derived as informed by data analysis.

Primary Themes

Accessibility of Grade R

- High learner–teacher ratio
- Difficulty manoeuvring in class
- Lack of accommodation
- Learner withdrawal
- Very few learners in class
- Learners turned back

Collegiality and Collaboration among teachers

- Teachers plan lessons together
- Teachers do similar work
- Shared frustrations
- Inter–school consultation among teachers
- "I copy from other teachers"
- Teachers collaborate to negotiate solutions to similar problems

Institutional power relations and support for Grade R teachers

- "I don't get support"
- No help from H.O.D.
- Principal admits too many learners
- In–school support available
- Support from ACE
- Support from SES's

The Role of Education Officials

- No one comes from the NWDE
- SES's conduct PSFs
- "We attend workshops"
- "We are able to phone them"
- Poor supply of workbooks and resources
- Insufficient play material
- LTSM insufficient
- Teacher paid by NWDE
- Grade R class not funded in 2013

Pedagogical Practices of Grade R Teachers

- Questioning
- Play-based pedagogy
- Modelling
- Experimental
- Storytelling
- Story reading

Enabling Curriculum Frameworks

- Curriculum advocates "environmental justice"
- Curriculum seek to develop environmentally responsible citizens
- EE "worked into our program"
- EE "integrated in CAPS"
- All Subjects accommodate EE

Infusion of EE: Evidence Generated from the Study

- Seasons
- Weather chart
- School garden visit
- Safety at home
- Excursions
- Nocturnal animals
- Habitats
- Pollution
- Organisms around and beyond

Funding, LTSM and other Resources

- Shortage of space in class
- Lack of furnisher
- No DVDs
- Insufficient tables and chairs
- Problem with photocopier
- Small classroom
- Charts and other resources available
- Teachers paid by SGB
- School fundraising

Definition of EE: Participants' Perspectives

- “The importance of surroundings”
- Environmental awareness
- Action-based environmental education
- Lifelong learning about the environment
- Sustainability of resources
- Heating and global warming
- Reciprocal effect between humans and environment
- Planting trees

C: 7 TRIANGULATION TABLE ONE: CONVERGENCE OF QUESTIONS

Research Questions	Interview Questions
1. What opportunities/challenges/hindrances exist in respect of the implementation of environmental education in Grade-R in the North West Province?	Q1T ³¹ , Q4T, Q2P ³² , Q5P, Q6P, Q7P, Q9P
2. What types of programmes are utilised to aid the implementation of environmental education in Grade-R?	Q3T, Q9P
3. To what extent are the ECD practitioners equipped to implement environmental education?	Q3T, Q6T, Q4P, Q9P; (Biographical Data) ³³
4. What impact does the funding of ECD centres have on the implementation of educational programmes, in general, and environmental education in particular, in the North West Province?	Q6P
5. What type of support is provided by the North West Department of Education (NWDE) to the ECD centres?	Q3T, Q5T, Q5P, Q8P

³¹“Q1T” refers to Question one in the teacher’s interview schedule, “Q2T” would be question two in the same interview schedule, etcetera.

³² “Q2P” refers to Question two of the principal’s interview schedule, “Q3P” would be question three in the same interview guide, etcetera.

³³ This refers to the biographical data provided by respondent teachers.

C: 8 TRIANGULATION TABLE TWO: THEMES AND DATA SOURCES

KEY FINDINGS AND DATA SOURCES

MAIN FINDINGS	DATA SOURCES		
	Participant Observation	Interview	Document Analysis
<p>A. <u>Theme: Accessibility of Grade R</u></p> <ol style="list-style-type: none"> Grade R is accessible but not to all deserving and/or children who qualify for inclusion in the Reception Year class. Lack of resources and accommodation pose a great challenge in terms of enabling access to Grade R. 	X X	X X	
<p>B. <u>Theme: Collegiality and Collaboration</u></p> <ol style="list-style-type: none"> Teachers collaborate in lesson planning, problem-solving and consult one another on pedagogical issues Teacher cooperation is both inter- and intra-institutional. 	X X	X X	
<p>C. <u>Theme: Institutional Power Relations: Monitoring and Support of Grade R Teachers</u></p> <ol style="list-style-type: none"> Grade R teachers in government schools feel that they are not adequately supported by the School Management Teams. Teacher support and monitoring role not entirely efficient since some of the SMT seem to lack knowledge in respect of Grade R issues. For example, institutions such as Site A and C have a challenge of this nature. 		X X	

<p>3. Apparently, lack of coherence in SMT with principal appearing to lack consultation in terms of issues that affect other members of staff such as the level of enrolment in Grade R. Site C for example, seems to be an institution where coherence seems deficient in the SMT.</p> <p>4. Strong support seems to exist for the Grade R class in non-governmental institutions.</p>		<p>X</p> <p>X</p>	
<p>D. <u>Theme: The Role of Education Officials</u></p> <p>1. Some workshops and PSFs, which include Grade R teachers, are conducted but they do not seem to cater for the needs of these teachers.</p> <p>2. SES's do conduct school support visits for Grade R teachers in certain schools.</p> <p>3. There seems to be no monitoring of non-governmental (private/independent) Grade R-offering institutions.</p>		<p>X</p> <p>X</p> <p>X</p>	
<p>E. <u>Theme: Pedagogical Practices of Grade R Teachers</u></p> <p>1. Grade R teachers do use a variety of pedagogical approaches, for example, storytelling, experiment-based teaching and play-based pedagogy, and this assists in the integration of environmental issues.</p> <p>2. Teaching that integrates EE is, mainly, <i>about</i> the environment with little or nothing on teaching <i>in/for</i> the environment</p> <p>3. The level of teacher qualification and experience impacts unfavourably on some practitioners' teaching abilities. For example, for unqualified teachers it poses a challenge which impacts negatively on pedagogical approach.</p> <p>4. Certain teachers, including those who have been in the teaching field for a long time require assistance and empowerment on "appropriate" Grade R pedagogy.</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p>	<p>X</p>

<p>F. <u>Theme: Enabling Curriculum framework</u></p> <ol style="list-style-type: none"> 1. The NCS pursued by the Department of Basic Education makes provision for the integration of EE in Grade R. 2. The ACE curriculum follows programmes which integrate the infusion of EE 	<p>X</p> <p>X</p>	<p>X</p> <p>X</p>	<p>X</p> <p>X</p>
<p>G. <u>Theme: Infusion of EE: Evidence Generated from the Study</u></p> <ol style="list-style-type: none"> 1. The integration of environmental issues in Grade R noted in both private and public institutions. 2. EE integration mainly in the form of teaching <i>about</i> the environment. 3. Some teachers feel that EE should be a standalone subject and not infused into existing subjects. 	<p>X</p> <p>X</p>	<p>X</p> <p>X</p> <p>X</p>	<p>X</p>
<p>H. <u>Theme: Funding, LTSM and other Resources</u></p> <ol style="list-style-type: none"> 1. Resources shortages, for example, in respect of tables, chairs, play equipment and LTSM pose a serious challenge in some government funded Grade R centres. 2. Grade R supply of workbooks that could benefit learning and teaching in general and the integration of EE in particular not delivered in time. 3. Funding insufficient and institutions have to augment available funds through fundraising. 	<p>X</p> <p>X</p>	<p>X</p> <p>X</p> <p>X</p>	

<p>4. Some Grade R teachers are funded by the NWDE while others are funded by the School Governing Bodies. Consequently salary disparities exist between these teachers</p> <p>5. Grade R funding not done as per the Norms and Standards in some government schools.</p>		<p>X</p> <p>X</p>	
<p><u>I. Theme: Definition of EE: Participants' Perspectives</u></p> <p>1. Respondents seemed to have some 'working' grasp of the concept of Environmental Education.</p>		<p>X</p>	

