The development of a support programme for foundation phase teachers to facilitate listening and language for numeracy

by

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In partial fulfilment of the requirements for the degree

D.Phil. Communication Pathology

in the

Department Communication Pathology and Audiology

in the

Faculty of Humanities
University of Pretoria

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Pretoria
February 2010

"…you know, we teachers have never done stories, songs and rhymes in class. We thought all of that in the RNCS - it was for nothing. I feel our children ....their minds were caged in. We have since opened the screws, and the children came flying out like… birds!"

(Participant in a semi-rural context)

Acknowledgements

I wish to thank the following institution and organizations for their financial support of the research:

- The University of Pretoria, for a study grant
- The Shuttleworth Foundation, for the development of the support programme
- The Kellogg Foundation for the Dissertation Award, which included support by the Advanced Education and Development (AED) Trust with Prof. L. Mbigi.

God, in his infinite mercy lifted me up and placed me on the shoulders of giants so that I could reach what I could only dream. I wish to express my sincere gratitude to the following people on whose shoulders I could stand in the completion of this thesis:

- Professors Brenda Louw and Irma Eloff, for their guidance and support, for being my mentors, and for believing in me
- The Department Communication Pathology, University of Pretoria, for providing support and the infrastructure to the project
- Kommunika, Centre for Early Intervention, Department Communication Pathology, University of Pretoria, with dr. Elsie Naudé, who gave me the scope and encouragement to do the work, and Ms. Lynette Meyer, who assisted me in the research
- The Faculty of Education, University of Pretoria, for inviting me to attend the programme for Masters and Ph.D. students, and exposed me to experts in the field of research
- The Department of Statistics, University of Pretoria, in particular Mrs. Rina Owen and Prof. Chris Smit, for their guidance
- The teachers who participated in this study, who provided me with a new understanding of my work, and who enriched me
- Mr. Herman Tesner, for editing and advice
- The academic information service (AIS) at the University of Pretoria, in particular Ms. Elsa Coetzer who was my subject advisor, and Ms. Annemarie Bezuidenhoudt and Mr. David Mahlangu who were always willing to go to great lengths in meeting my needs at interlibrary requests
- Ms. Tharina Hansmeyer, for her meticulous editing of the manuscript and her dedication
- In memoriam, Mrs. Catherine Hlongwane, for her immense support and help throughout the period of fieldwork and writing of the thesis, and I am saddened that she could not see the completion of the work
- My parents, family and friends, for their encouragement, prayers and support
- My children, Lizemarie, Jolene and Daniel, for their love and patience, and for being the light of my life
- My husband, Dr. Danie Wium, for his love, support and help, particularly for his help with the data analyses and technical care of the manuscript.

Abstract

TITLE: The development of a support programme for foundation phase teachers to facilitate listening and language for numeracy

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Various assessments and international studies have shown that learners in South African schools experience challenges and perform poorly with respect to literacy and numeracy. To become competitive in the global arena, there is an urgent need to raise the standards of education.

Language is required for all learning, including numeracy and mathematics. Many young learners in South Africa struggle to develop adequate language skills because of an inherent pathology and/or barriers in their learning environment. Learners who do not develop adequate listening and language skills during their early years are most likely to experience difficulty in acquiring literacy and numeracy skills, resulting in poor academic progress. By supporting learners to overcome their developmental delays as early as in the foundation phase, future learning problems may be prevented. To raise education standards, teachers need to heighten their attempts to facilitate literacy and numeracy in the foundation phase.

Teachers currently have to adapt to a new national curriculum statement (NCS) that is based on an outcomes-based education (OBE) approach (Department of Education, 1997:16). Many teachers, especially those in black townships and other previously disadvantaged areas, find this difficult as they have not been sufficiently trained or are not adequately qualified. Educational changes have necessitated the need for high quality staff development and support.

Speech-language therapists (SLTs) working within a collaborative approach in the education context can support the learners who need to acquire listening and language skills, as well as the teachers who have to facilitate these skills.

This study developed a support programme for foundation phase teachers to facilitate listening and language for numeracy. The multifaceted programme consisted of training, mentoring, and practical components, which aimed at developing the participants' competence (foundational, practical, and reflective competence). The programme integrated the principles of adult learning within an OBE approach while taking culture and diversity into consideration. The programme was evaluated within a Logic Model framework.

The research made use of a concurrent, equal status triangulation design where triangulation was obtained by transforming QUAL data into QUAN data to be compared. In the QUAN strand, data were collected from 96 teacher participants (who were selected by using a convenience sampling method) by means of questionnaires, portfolio assignments, attendance registers, and financial statements. Qualitative data were collected from eight focus group discussions (using a nested design with 12 participants at a time) as well as a research diary, testimonials, and various correspondences.

The findings indicated that all the participants have gained knowledge, skills, and

confidence, but to varying degrees. Factors that affected the outcomes included aspects related to time, the choice of venue, age, prior support and qualifications, as well as motivation related to the context. Group learning was identified as a suitable strategy for teacher support in these contexts. Provided that specific factors are considered to increase effectiveness, the outcomes indicated that the programme could be used to support foundation phase teachers in these specific contexts.

Key words: Continued professional development, listening skills, language, programme evaluation, numeracy, mixed methods, adult learning, education, foundation phase teachers, OBE, curriculum.

Opsomming

TITEL: The development of a support programme for foundation phase teachers to facilitate listening and language for numeracy

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Talle internasionale studies het getoon dat leerders in Suid-Afrikaanse skole swak presteer in geletterdheid- en syfervaardigheidstoetse. Ten einde internasionaal kompeterend te wees, is dit van kardinale belang om die onderwysstandaard te verhoog. Taal lê ten grondslag van alle geletterdheid, insluitende wiskundige geletterdheid en getalsbegrip. Onvoldoende luister- en taalvaardighede met skooltoetrede, kan tot swak skoolvordering lei. Aangesien leerders in lae sosio-ekonomiese omgewings dikwels ‘n agterstand in hierdie vaardighede toon, is dit belangrik dat leerkragte in die grondslagfase spesifiek hierdie aspekte moet fasiliteer om enige ontwikkelingsagterstand in te haal. Menigte leerkragte, veral in voorheen agtergeblewe gemeenskappe, benodig ondersteuning in hierdie verband. Daar is egter ‘n behoefte aan indiensopleidingsprogramme van goeie gehalte.

Siende dat taal- en luistervaardighede binne die spesialisgebied van spraak/taalterapeute val, is dit hulle rol om leerkragte te ondersteun met die fasilitering van sulke vaardighede vanuit ‘n samewerkingsperspektief. Hierdie studie

het ‘n ondersteuningsprogram vir grondslagfase-leerkragte ontwikkel vir die fasilitering van luister- en taalvaardighede, insluitend die taalvaardighede wat leerders benodig om getalsbegrip te ontwikkel.

Leerkragte is in werkswinkels opgelei, waarna hulle die geleentheid gebied is om die strategieë in hulle klaskamers te implementeer met die ondersteuning van ‘n mentor. Die drie komponente het gesamentlik die leerkragte se vaardigheidsvlakke aangespreek deur hulle basiese vakkennis, vaardighede, asook die vermoë om oor hulle werk te besin, te ontwikkel. Die program is gebaseer op die beginsels vir volwassene- en uitkomsgebaseerde onderrig, en het ook die rol van kultuur en diversiteit in ag geneem. Die program is binne die raamwerk van die Logiese Model geëvalueer.

Die empiriese ondersoek het van ‘n gemengde ontwerp gebruik gemaak wat beide kwantitatiewe en kwalitatiewe metodes ingesluit het. Die kwantitatiewe been het 96 leerkragte op grond van hulle beskikbaarheid ingesluit en data is met vraelysopnames, portefeuljes, teenwoordigheidsregisters, en finansiële state ingesamel. Die kwantitatiewe data is uit agt fokusgroepbesprekings, inskrywings in ‘n navorsingsdagboek, getuigskrifte, korrespondensie, en foto’s verkry. Deur die kwalitatiewe data na kwantitatiewe data oor te skakel, kon die resultate van beide tipes navorsing vergelyk word. Met die integrasie van die twee perspektiewe was dit moontlik om die waarde van die program te bepaal en ‘n begrip vir die navorsingsomgewing te ontwikkel.

Die resultate het getoon dat alhoewel al die deelnemers baat gevind het by die program en kennis, vaardighede, en selfvertroue ontwikkel het, sommige meer voordeel daaruit getrek het as ander. Dit dui daarop dat ondersteuning meer effektief kon wees indien opleiding vir spesifieke groepe ontwerp word. Die kompleksiteit van die navorsingsomgewing is uitgelig deur faktore te identifiseer wat

die uitkomste beïnvloed het, naamlik aspekte verbonde aan tyd, die keuse van die opleidingslokale, die deelnemers se ouderdomme, vorige opleiding en kwalifikasies, asook die konteks. Daar is bevind dat effektiewe leer veral in groepsverband plaasgevind het, asook deur die voltooiing van portefeuljes, en dit dus gepaste opleidingstrategieë was. Deur inagneming van die genoemde faktore tydens die ondersteuningsproses kan die effektiwiteit van die program verhoog word. Die studie het bevind dat die program geskik is vir die opleiding van grondslagfase-leerkragte in hierdie spesifieke kontekste.

Sleutelwoorde: Voortdurende professionele ontwikkeling, luistervaardigdhede, taalvaardighede, getalsbegrip, grondslagfase-leerkragte, portefeuljes, programevaluasie, getalsbegrip, gemengde navorsingsmetodes, volwasse leer, onderwys, uitkomsgebasseerde onderwys, kurrikulum

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Declaration

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and has not previously (in its entirety or in part) been submitted at any university for a degree.

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Signature Date: February 2010

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List of abbreviations

AS	Assessment standard
BICS	Basic interpersonal communication skills
CALP	Cognitive academic language proficiency
CPD	Continued professional development
ECD	Early childhood development
ELoLT	English as language of learning and teaching
GDE	Gauteng Department of Education
ITOL	Training and occupational learning
INSET	In-service education training
L1	First language (mother tongue)
LO	Learning outcomes
LoLT	Language of learning and teaching
Low SES	Low socio-economic schools
LSE	Learning support educators
NCS	National Curriculum Statement
NGO	Non-governmental organization
NLBs	National Language Bodies
NQF	National Qualification Framework
OBE	Outcomes-based education
PanSALB	Pan South African Language Board
PIRLS	Progress in International Reading Literacy Study
PRESET	Pre-service education training
RNCS	Revised National Curriculum Statement
ROI	Return on investment
SACE	South African Council of Educators
SAQA	South African Qualifications Authority
SLT	Speech-language therapist
TIMSS	Third International Mathematics and Science Study

Chapter 1 Need for and development of a support programme for foundation phase teachers

"*I don't just want to research something - I want to make a difference*"

(Zina O'Leary)

Aim of this chapter

Chapter 1 provides 'an expression of intent' for this study that was aimed at developing a continued professional development (CPD) programme for foundation phase teachers to facilitate listening and language (with specific focus on the language of numeracy). The themes discussed in this chapter are presented in Figure 1-1.

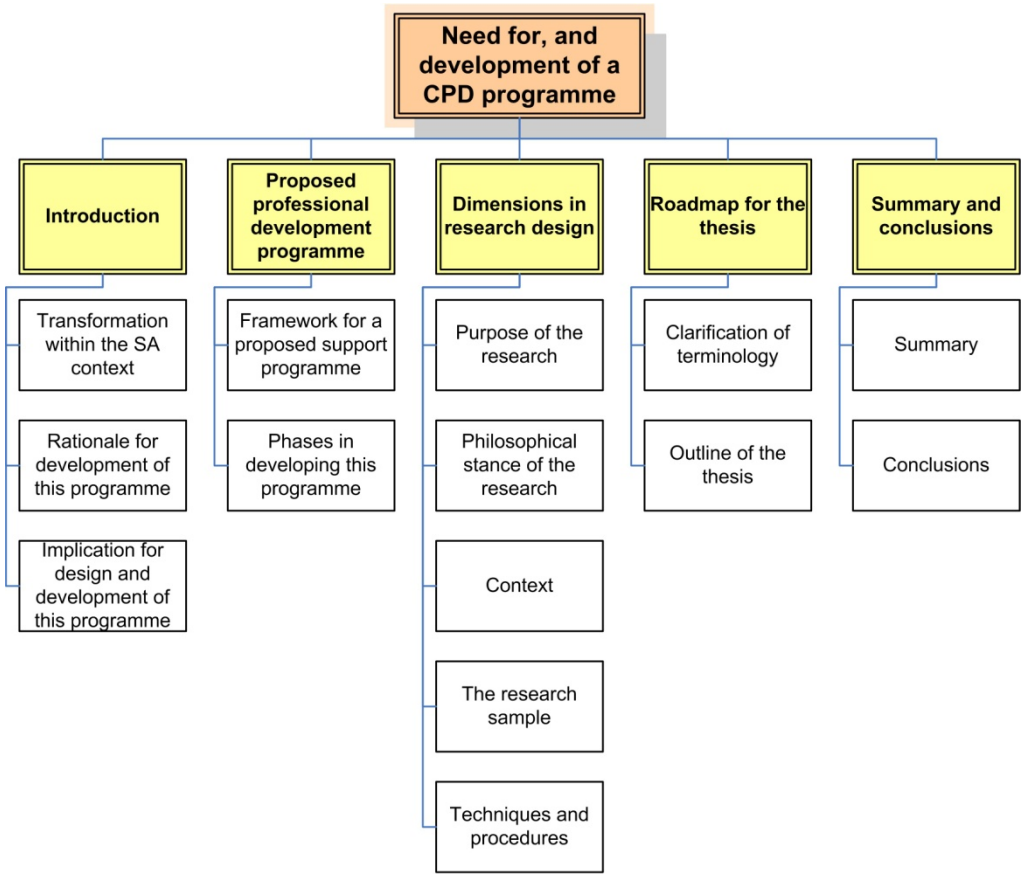

Figure 1-1: Outline of Chapter 1

1.1 Introduction

The literacy and numeracy skills of foundation phase learners in the South African education system currently receive significant attention (Department of Education Gauteng, 2007) and various programmes (Botha, Maree & de Witt, 2005:697; Khan, 2005:1; Naudé, Pretorius & Vandeyar, 2003:293) have been launched in this field. Listening and language skills are the basis for literacy and numeracy (Lerner & Kline, 2006:346): This study therefore developed a continued professional development (CPD) programme to support foundation phase teachers in facilitating these skills, with particular emphasis on the language for numeracy. In order to evaluate the CPD programme the research needs to answer the question: 'what is the value and worth of this specific programme?' Any research in the field of education in South Africa, however, cannot be conducted without taking into consideration the history (Mbigi, 2005:15) that shaped the behaviour of the participants in this research and created the context in which they work.

1.1.1 Transformation within the South African context

Universally, education is a political issue and "the language of politics reflects in the language of education" (Vally & Speen, 1998 in Lawton & Gordon, 1998:119). The pre-1961 history of education in South Africa evolved over a period of 300 years into a separate schooling system for different race groups (Cross & Chrissholm, 1990: 49 cited in Welch, 2003:18). The current education system with its systemic weaknesses has its roots in the previous dispensation's Bantu Education Act of 1953 that created a segregated education system. Since independence in 1961 until 1994, South Africa was under apartheid rule, a period characterized by an ideology of racial segregation and racial inequality (Cross & Chrissholm, 1990:49 in

Ratshitanga, 2007:15; Welch, 2003:18). 'White education'[1] benefited far more in terms of fiscal allocation, which resulted in disparities in all aspects of education (Department of Education, 1995:75). These disparities were most evident in teacher training, resources, and support in schools (African National Congress, 1995:4). The aim of 'Black education' was to prepare learners for the labour market (especially the mining industry) (Welch, 2003:19), as is evident from the following quote:

> *"There is no place for him (the black child) in European society above the level of certain forms of labour….What is the use of teaching a Bantu child mathematics when they cannot use it in practice?"* (H.F. Verwoerd, 1960 as quoted by Ratshitanga, 2007:15).

The consequences of such underutilization of human potential currently manifest in skills shortages (Monyatsi, Steyn & Kamper, 2006:216). Apart from a racially segregated education system, there were two separate components for mainstream and special education, also characterized by racial disparity. This resulted in a fragmented education system with large numbers of learners being excluded from mainstream education (Naicker, 2000:1).

The fragmented and inequitable education system adversely affected the professional training of many teachers. As a result of the struggles against apartheid, the 'culture of resistance' (Bayona, 1999:89) that developed was not conducive to learning and teaching (Thusi, 2006:20). Remnants of such a culture still prevail in some township schools and presently pose challenges to educational reform. Figure 1-2 illustrates the detrimental effects of apartheid on various aspects of education (Department of Education, 1995:6; Jansen, 1998:321; Ratshitanga, 2007:15).

Following the 1994 elections, the new democratic government made all attempts to

[1] It is acknowledged that reference in terms of 'Black education' and 'White education' is highly contested in the current context. These terms are used to explain the racial divide that was created by the apartheid system.

eradicate the devastating effects of the apartheid system. The values of human dignity, the achievement of equality, and the advancement of human rights and freedom inherent in the Constitution (*The Constitution of the Republic of South Africa*, 1996) have challenged each and all to build a humane and caring society.

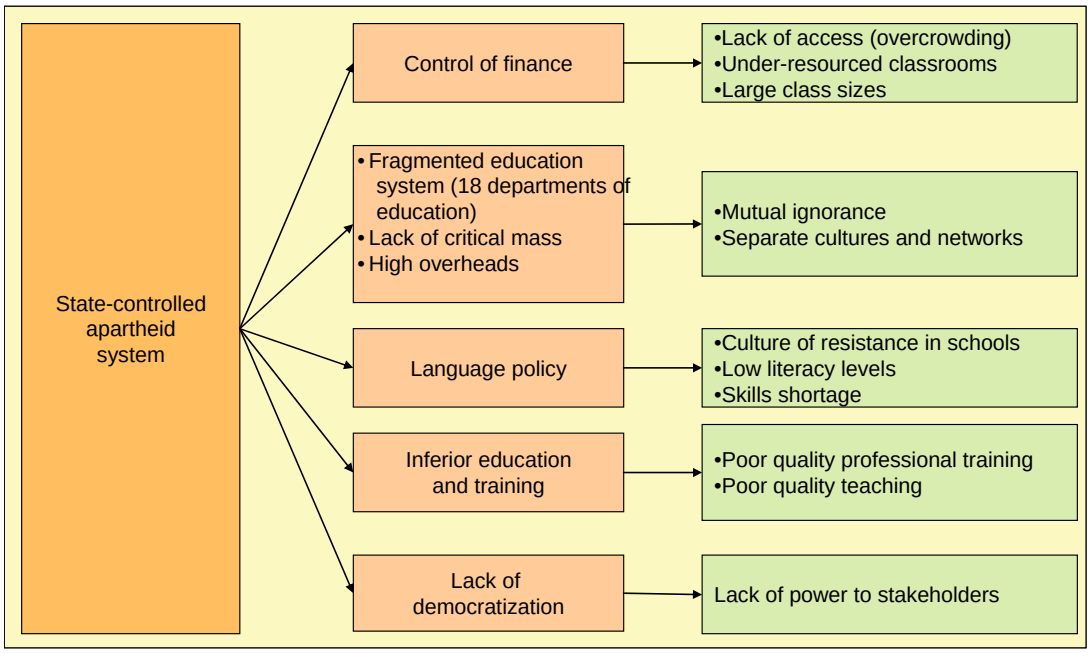

Figure 1-2: The effect of apartheid on education (1960-1994)

For education, this new democracy implicated the end of segregation policies and ensured the right to quality education for all. Political changes led to educational reform that called for a new curriculum.

The new National Curriculum Statement (NCS) had to be applied at all levels of education. The Department of Education stated that "…all learners (ages 0-9) should be provided with life skills and communication skills" (Department of Education, 1995:3). In addition, the inclusive policy based on Education White Papers 5 (Department of Education, 2001a:Section 1.1.1) and 6 (Department of Education, 2001b:Section 1.1.5) demands a paradigm shift from previous models of supporting the child (which is a deficit model) to supporting the teacher in order to prevent and eliminate learning problems in all learners (Ebersohn, 2000:2). Such

education policies therefore identify the role of the speech-language therapist (SLT) working in the educational environment in terms of support.

Support was described in Education White Paper 6 as the provision of training, mentoring, monitoring, and consultation. In a collaborative approach where the SLT is part of a support team, the focus is on the identification and management of barriers to learning at learner, teacher, curriculum, and institutional levels. SLTs are required to support teachers in the areas related to literacy and numeracy (Moodley, Chetty & Pahl, 2005:41), particularly because of their knowledge of language and phonology. There are several reasons for the development of a support programme, which are discussed in the next section.

1.1.2 Rationale for the development of this specific CPD programme

The four main reasons for developing this CPD programme are depicted in Figure 1-3 and are discussed forthwith.

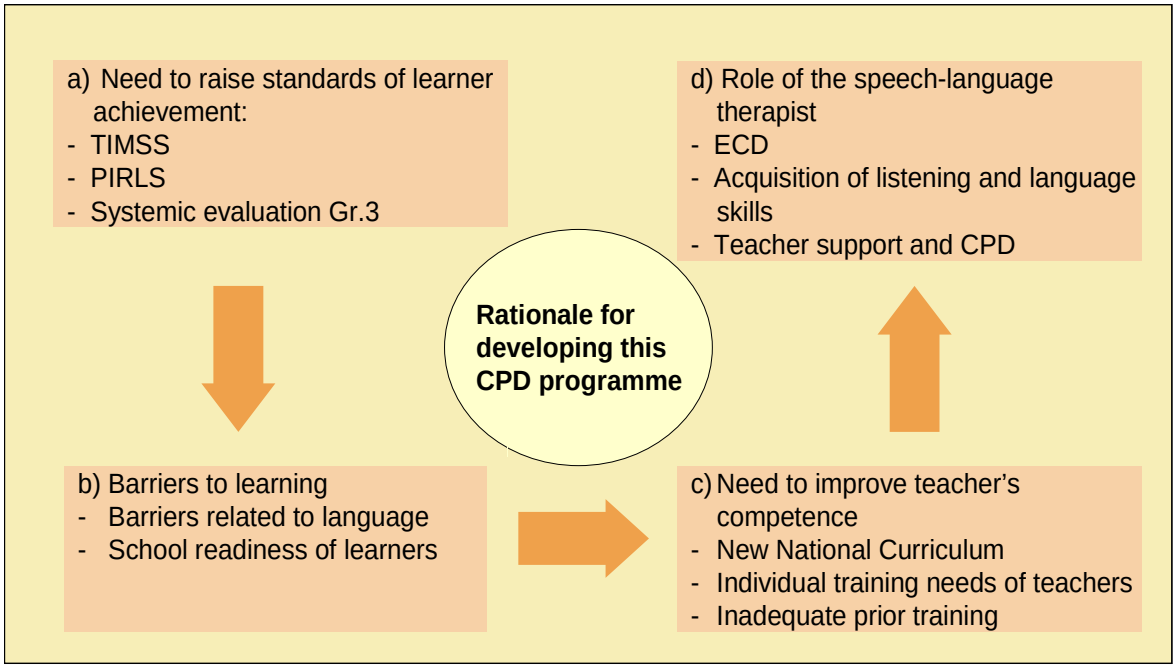

Figure 1-3: Reasons for developing this specific CPD programme

(a) Need to raise standards of learners' achievement

Disturbing statistics recently confirmed South African learners' poor performance in literacy and numeracy, and were reflected in newspaper headlines such as *"Education is failing our children!"* (SAPA, 2006:1). The standards of achievement need to be raised for South Africans to become economically competitive in the global arena (Pandor, 2006). It is therefore important to not only redress the inequities of the past, but to respond to the challenges created by globalization (Weber, 2007:279), which calls for quality education.

International benchmark studies, e.g. the 'Progress in the International Reading Literacy Study' (PIRLS) that was performed in 40 countries in 2006, revealed that 78% of Gr. 5 learners in this country "have not developed the basic reading skills required for learning" (Nel, 2007:1).Results obtained from the Third International Mathematics and Science Study (TIMSS) in 1995, as well as from the follow-up study in 1998 (TIMSS-R), indicated that South African learners performed significantly poorer than learners of any of the other 37 participating countries (including other developing countries such as Morocco and Tunisia) (Howie, 2001:18; 2004:151).

As fewer than 10% of the learners in high school study mathematics on the higher grade, and only 5% of the senior certificate candidates pass the subject, it is clear that South African learners in high school currently struggle with mathematics and that most of the learners fail mathematics in the matriculation examinations (Govender, 2007:4). Locally, the most recent systemic evaluation of Gr. 3 learners showed that the mean scores for literacy was 36%, and for numeracy 35%. The results also suggested that learners who study in an indigenous language lack the necessary language skills for numeracy (Department of Education, 2007:13).

In a local study conducted in the Western Cape (one of the top-performing provinces in South Africa) it was reported that only 15.6% of the learners passed the numeracy test in the assessment of Gr. 6 learners in 2003 (Dugmore in Kassiem, 2004:1). This finding confirmed the results obtained from the Systemic Evaluations by the Department of Education (2002:vii). This phenomenon has a severe impact on human resource development, resulting in a scarcity of skills in certain professions such as engineering, accounting, medicine or professions related to the fields of science and technology (Bernstein, 2007:7).

Schools in previously disadvantaged areas have traditionally produced poor results (HSRC, 2006:3; Rembe, 2005:3). The Institute for Justice and Reconciliation reported that nearly 80% of the schools in South Africa were providing education of such poor quality that they actually constituted barriers to social and economic development (The Shuttleworth Foundation, 2006:2). Such statistics imply that the majority of learners in South Africa are not receiving quality education (South African Human Rights Commission, SAPA, 2006:1), which can be considered a violation of their Constitutional rights.

The low levels of learner achievement have been attributed to teachers' poor conceptual and content knowledge (Department of Education, 2006:3; Van der Sandt & Nieuwoudt, 2005:110), which makes CPD of teachers, particularly in the literacy and numeracy learning areas, a matter of national priority (Chief Directorate: Quality Assurance, 2002:1; Creecy, 2009:3; Department of Education, 2006:20; Department of Education Gauteng, 2007).

(b) Barriers to learning

Several barriers to learning that impact on learning outcomes have been identified. It is a matter of great concern that estimated figures for learners who experience

barriers to learning in South Africa (refer to Figure 1-3) (including HIV/AIDS, poverty, and violence) may be as high as 50% of the school-going population (Pickering *et al.*, 1998:5). In addition, many young learners in South Africa struggle to develop adequate language skills because of an inherent pathology and/or barriers in their learning environment, leading to poor academic progress. Two specific barriers related to this field of study are highlighted below.

(i) Language-related issues

A critical factor affecting education outcomes is language, and includes issues such as language policy as it is applied to the language of learning and teaching (LoLT) in schools, multilingualism, individual cognitive academic language proficiency (CALP), and language practices in schools (Du Plessis, 2005:30; Vermaak, 2006:19). Learners with speech and language problems are at a disadvantage as such problems have been associated with problems in developing literacy (Dockrell & Lindsay, 1998:132). Language is required to develop concepts of learning (Owens, 2001:2), and knowledge of mathematics is gained through language (Howie, 2004:51). Speech and language difficulties have also been linked to difficulties in social behaviour and self esteem (Botting & Conti-Ramsden, 2000:118), as well as emotional and behavioural problems, and potential psychiatric problems later in life (Cohen et al., 1998 in Paradice, Bailey-Wood & Davies, 2007:224). Therefore, insufficient development of language during the early years causes learners to fall behind and eventually drop out, which cannot be afforded by a country where scientific and technological expertise and skills are needed.

An escalating number of learners learn in a language which is not their home language (L1) (Gules, 2005:15). In Gauteng 33% of the learners receive instruction in their second or third language (Chief Directorate: Quality Assurance, 2002:20), implying a need for additional support. Since the new dispensation has come into

power, there has also been a shift in the demographic, cultural, and linguistic composition of classrooms. Teachers now have to deal with diversity and language issues (Department of Education, 2006:3), which they had not necessarily been trained to do. In addition, in many classrooms the home language (L1) of the teacher is not the same as the L1 of the learners, and therefore such learners have only home support of their mother tongue causing them to lag behind in the acquisition of literacy (Du Plessis, 2005:39; O'Connor & Geiger, 2009:254). The LoLT in classrooms is a contentious issue as it has an effect on the quality of learning and teaching.

It is therefore important to address the language needs of learners, and in the education environment this calls for a collaborative approach where SLTs and teachers work together to facilitate learning. SLTs are expected to provide the necessary support to teachers by providing them with suitable workshops to facilitate language and literacy related skills.

(ii) School readiness and the need for ECD

In South Africa, 40% of all children come from extremely impoverished backgrounds with limited access to learner support materials in their homes, and where low literacy levels prevail (Howie, 2007, as quoted by Bateman, 2007b:1; Botha *et al.*, 2005:697; Howie, 2004:160). Such learners may not receive the stimulation and learning experiences that promote school readiness (Chief Directorate: Quality Assurance, 2002:15; Department of Education, 1995:6; Winkler, 1998:55). Learners from low socio-economic schools (SES) may, therefore, need more support than their counterparts from more affluent communities. Teachers therefore need to radically change their attempts to facilitate literacy and numeracy, particularly in the early grades (Dawber & Jordaan, 1999:2).

Learners are admitted to school at an increasingly younger age when a significant

number of them are not ready to benefit from formal education and learning (Winkler, 1998:55). Reddy (as quoted by Govender, 2007:4) stated that "…the key for government's increase in the quality of our education is to start interventions at the foundation phase"[2]. If teachers do not help learners to overcome disparities in early learning experiences, it may lead to learning difficulties in the first two or three years at school. These learners are then at risk of developing more serious learning problems later in life, with subsequent detrimental effects (Winkler, 1998:55). However, if learners can be supported to overcome their developmental delays in the foundation phase, future learning problems may be prevented, which emphasizes the importance of ECD (Mantzicopoulos, 2004:51).

Research suggests that reinforcing numeracy skills in the foundation phase will in the long term benefit the learning of mathematics (Young-Loveridge, 2004:82). As mathematics has a significant effect on personal income later in life (Dougherty, 2003:98), the strengthening of numeracy skills in the foundation phase holds a potential advantage for the national economy (Hazelhurst, 2008:18). The long-term benefits of ECD only become evident during later years when learners achieve academic success and eventually gain financial independence (Chief Directorate: Quality Assurance, 2002:25; Department of Education, 2001a:3; Rosetti, 2001:281).

(c) Need to improve teachers' competence

With reference to Figure 1-3 there are three reasons for improving teachers' competence, namely inadequate prior training, a new curriculum, and the individual needs of teachers to become competent.

(i) New National Curriculum Statement

Teachers currently have to adapt to a new national curriculum statement (NCS) that

[2] Dr. Vijay Reddy was author of the South African report of TIMSS 2003, and acting executive director of the education, science and skills development research programme at the Human Sciences Research Council.

is based on an outcomes-based education (OBE) approach (Department of Education, 1997:202). Many teachers, especially those in black townships and other previously disadvantaged areas, find it difficult to implement the NCS (Motseke, 2005:119; Taylor & Vinjevold, 1999c:43) as they are not necessarily equipped to deal with these changes (Gouws & Dicker, 2006:417; Maree, 2006 as quoted by Nthite, 2006:10). Educational changes have necessitated the need for high quality staff development and training.

The new curriculum gives teachers much more autonomy in their lesson planning and curriculum development and therefore provides less structure of what to teach and how to teach than the previous didactic approach, which makes many teachers feel uncertain and ill-equipped to teach (Maree & Fraser, 2004:706; SAPA, 2006:1). Such feelings are further exacerbated by the many challenges brought about by the legacy of apartheid (e.g. teaching large classes, being undertrained and underqualified, as well as coping with insufficient facilities and resources) (refer to Figure 1-2), which raise concerns about teacher morale.

Low morale has been attributed to inadequate training and support (The Herold, 29 December 2004:3), although teacher unions were of the opinion that such a situation can be reversed by the provision of additional training and support. It is important to counteract low morale by providing additional support as the general attitude of teachers may have a significant impact on learners' performance (Department of Education, 2001b:48). Teachers are therefore encouraged to attend CPD activities (e.g. workshops) whenever possible (Ebersohn, 2000:2).

(ii) Training needs of teachers

It is estimated that 50% of mathematics teachers need to be included in in-service training programmes because of "the lack of subject knowledge" (Van der Sandt & Nieuwoudt, 2005:109). International literature (Girolametto *et al.*, 2007:72, 268)

indicates that many teachers have little or no special training to effectively teach learners who experience (or who are at risk of developing) barriers to learning. The poor performance in mathematics and physical science of high school learners in District 3 of the Tshwane North Region (Mji & Makgato, 2006:253) was, among others, directly attributed to teaching strategies and teachers' limited content knowledge, which reflect poorly on the professional training of these teachers.

Research in South Africa has shown that many teachers require CPD to acquire both subject-content knowledge and pedagogical content knowledge (Julie, 1998 in Lebeta, 2006:23; Taylor & Vinjevold, 1999b:14, 227). By increasing teachers' content knowledge, it is possible to create a change to classroom practices (Ormrod & Cole, 1996:5)

Sufficient subject knowledge builds confidence in teachers, but is of limited value without pedagogic knowledge (Barlex, 2007:154). The combination of these two knowledge bases enables teachers to fulfil their roles as teachers as required by the National Norms and Standards for Teachers (Department of Education, 2000). The "…upgrading and scaffolding of teachers' conceptual knowledge and skills" (Taylor & Vinjevold, 1999c:160) are critical in the determination of competence and professionalism (Adler, Slonimsky & Reed, 2003b:135), and therefore also in the improvement of learners' performance. In an effort to improve learners' performance Creecy (2009:7), the MEC of the Gauteng Department of Education, has recently announced that 73% of the annual education budget will be spent on teachers. This expenditure will include the development and support of teachers in ECD and foundation phase.

(iii) Inadequate prior training

The National Teacher Education Audit in 1995 (Department of Education, 2006:3) reported that 66% of the teachers are in the 35-50 year old band, and 21% are

younger than 40 years. Therefore, most of the teachers currently in the workforce were trained when professional training at tertiary level was still racially and ethnically segregated (Hindle, 1998:5; Monyatsi *et al.*, 2006:216; Rembe, 2005:109). As mentioned earlier (refer to Section 1.1.1) such training may have been inadequate to equip teachers for the current demands in education (Department of Education, 2006:3).

Many teachers also find themselves teaching the foundation phase without being appropriately and adequately qualified to teach at this level (Department of Education, 2002:35). Reports (Roberts, 2002:3) estimated that 86,000 teachers in public schools in South Africa are underqualified. This number excludes teachers who qualified more than 10 years ago and whose knowledge and skills also need to be updated. Inadequate quality and depth of teachers' knowledge of subject matter has been cited as "…the most important inhibitor of change in education quality measured in student achievement terms" (Taylor & Vinjevold, 1999b:14). These limitations in teacher training have a detrimental effect on learning (Department of Education, 2002:35).

The National Department of Education has prioritized CPD for foundation phase teachers (Bateman, 2007a:2; Department of Education, 2001a:7; Pandor, 2008) because they consider it to be '…the key to education of high quality" (Riley & Roach, 2006:363). The effect of CPD of teachers on learner achievement has been found to be significant, particularly for learners in low-achieving, low-income urban and rural schools (Johnson, Mims-Cox & Doyle-Nichols, 2006:9). There is therefore an urgent need for CPD programmes for teachers (Ebersohn, 2000:2), which this particular programme aimed to meet.

(d) Role of speech-language therapists

The role of speech-language therapists (SLTs) in the education context is two-fold (refer to Figure 1-3): to support learners who need to acquire listening and language skills, and to support teachers who have to facilitate these skills.

(i) Support of learners

Communication is central to the social, emotional, and academic development of young children (Owens, 2001:1). Adequate competence in language and communication skills are essential in education, as both receptive and expressive skills (spoken and written) are the basis for learning and the entire curriculum (Paradice *et al.*, 2007:224). Young children need to acquire listening skills in order to develop language (Bellis, 2002:3) and need to become competent in the use of language to be able to acquire literacy skills. Numeracy is linguistically based (Rothman & Cohen, 1989:133) and therefore the acquisition of language is critical to numeracy development. Children who do not develop adequate listening and language skills during their early years are most likely to experience difficulty in learning to read, write, and calculate at a later stage (Crowe, 2003:16; Department of Education, 2003:1; Winkler, 1998:53). This, in turn, may cause problems such as low self-esteem, social maladjustment, and the inability to sustain themselves financially (Mamum, 2000:10). It is therefore important to prevent academic failure by ensuring that learners acquire listening skills and become competent in language as early as possible.

(ii) Support of foundation phase teachers

Recent research (Girolametto *et al.*, 2007:73) indicated that many teachers lack the knowledge of how to facilitate emergent literacy skills. Botha, Maree and De Wit (2005:706) reported similar findings for numeracy skills, which indicate a need for support in both these learning areas. The importance of such support and

development of teachers in the facilitation of language for numeracy was described by Botha, Maree *et al. (Ibid)* as "…one of the most crucial factors to include in a programme for young learners".

In accordance with the White Paper on Education and Training (Department of Education, 1995:75), speech-language therapists (SLTs) who are trained in the field of language and communication can support teachers in facilitating learning (Naudé, 2005:10). Such support can be provided within a collaborative approach to service delivery in the education context (Du Plessis & Louw, 2008:55; SASLHA ethics and standards committee, 2003:1). SLTs working in education are responsible for CPD activities to support teachers in aspects related to literacy and communication (ASHA, 2001:2), as well as for the provision of developmentally appropriate language enhancement activities and strategies in the classroom curricula (Roth & Baden, 2001:164).

All primary schools in South Africa are currently phasing in the preschool year (Gr. R). As formal qualifications were not required from Gr. R teachers in the past, many who currently teach in the system do not have formal qualifications, but are required to implement the NCS. Riley and Roach (2006:363) singled out CPD of teachers as the key to high quality early childhood development programmes, which has implications for the extension and growth of teachers on a national level (Chief Directorate: Quality Assurance, 2002:; Department of Education, 2006:4). In addition, CPD of teachers also contributes to a school culture and ethos that make teachers feel valued and motivated (Earley & Bubb, 2004:14). The provision of CPD activities may not only update teachers' knowledge but also renew their enthusiasm, thus preventing teachers' burnout.

1.1.3 Implication for design and development of this CPD programme

The current need for CPD programmes for foundation phase teachers provided the rationale for developing this specific CPD programme. In rationalizing the development of such a CPD programme it was deduced that such support would improve teachers' competences (foundational, practical and reflective), which in turn would have a positive effect on learners' achievement. The underlying assumption of this research was that if foundation phase teachers undergo this specific programme ('the product' developed by this study), they would benefit in terms of acquiring knowledge, skills, and confidence that would help them become more competent in facilitating listening, language, and numeracy. If the CPD programme was of sufficient quality it could be used for future in-service training and professional development.

1.2 Proposed professional development programme

A national intervention programme has been launched to develop and enhance the competencies of foundation phase teachers in all schools in the country (Department of Education Gauteng, 2007:19). This consists of various support programmes addressing a range of different topics. This particular study focuses on the development of such a support programme to facilitate listening and language, with specific emphasis on the language for numeracy. A model of teacher support is proposed in this study (refer to Figure 1-4) that provides teachers with content knowledge and skills to facilitate learning (Van der Sandt & Nieuwoudt, 2005:110). This also provides teachers the opportunity to reflect on their practices and thus engenders professional growth.

1.2.1 *Framework for a proposed support programme*

The proposed programme consisted of a training; practical and mentoring component. The three components illustrated in Figure 1-4 were intended to augment each other in empowering foundation phase teachers to facilitate specific skills in learners. The combination of the three components aimed at improving the three competencies stipulated by the Norms and Standards for Teachers (Department of Education, 2000:2), and are similar to the different kinds of knowledge required for effective teachers. The support provided by the training component (refer to Figure 1-4) was aimed at the acquisition of foundational competence and consisted of three full-day workshops that focused on subject knowledge related to 'why?', 'what?' and 'how?' of facilitating listening and language (with specific emphasis on the language for numeracy) as stipulated in the NCS.

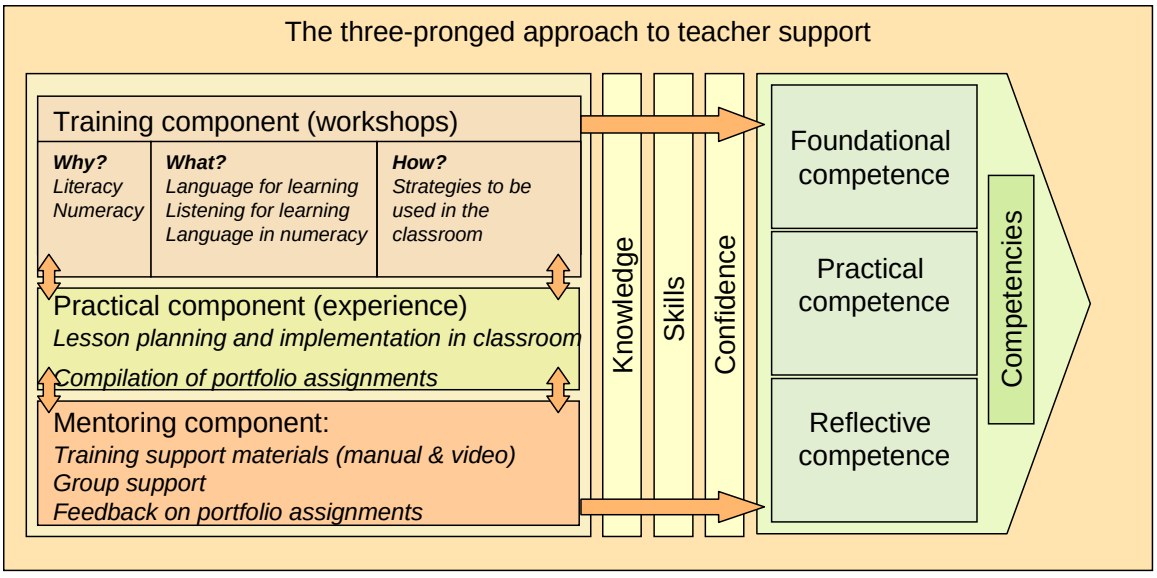

Figure 1-4: A model for a proposed CPD programme for foundation phase teachers

In view of the fact that limited effect can be expected from one-day workshops (Massel and Goertz in Roberts, 2002:23), this model also includes a practical and mentoring component with reflective elements to support the training component (Figure 1-4) (Binstead, 1980:30; Sowden, 2007:305).

The practical component required of participants to implement strategies in the classroom, and was directed at skills acquisition to develop the teachers' practical competence in the facilitation of listening and language. Throughout the process of engagement the teachers were supported by a mentoring component (consisting of portfolio development) that aimed at developing their reflective competence where attitudes and values were at stake. Furthermore, ongoing support provided by the district facilitators at school level enhanced the effect of the training. Collaboration between the speech-language therapists, the district facilitators, as well as the teachers and their schools, contribute to meeting the special educational needs of learners (O'Toole & Kirkpatrick, 2007:325; Paradice *et al.*, 2007:223) and is required of SLTs working in South African educational contexts (Moodley *et al.*, 2005:40), and therefore was an integral part of the entire programme. The development of this CPD programme consisted of various phases that are discussed in the next section.

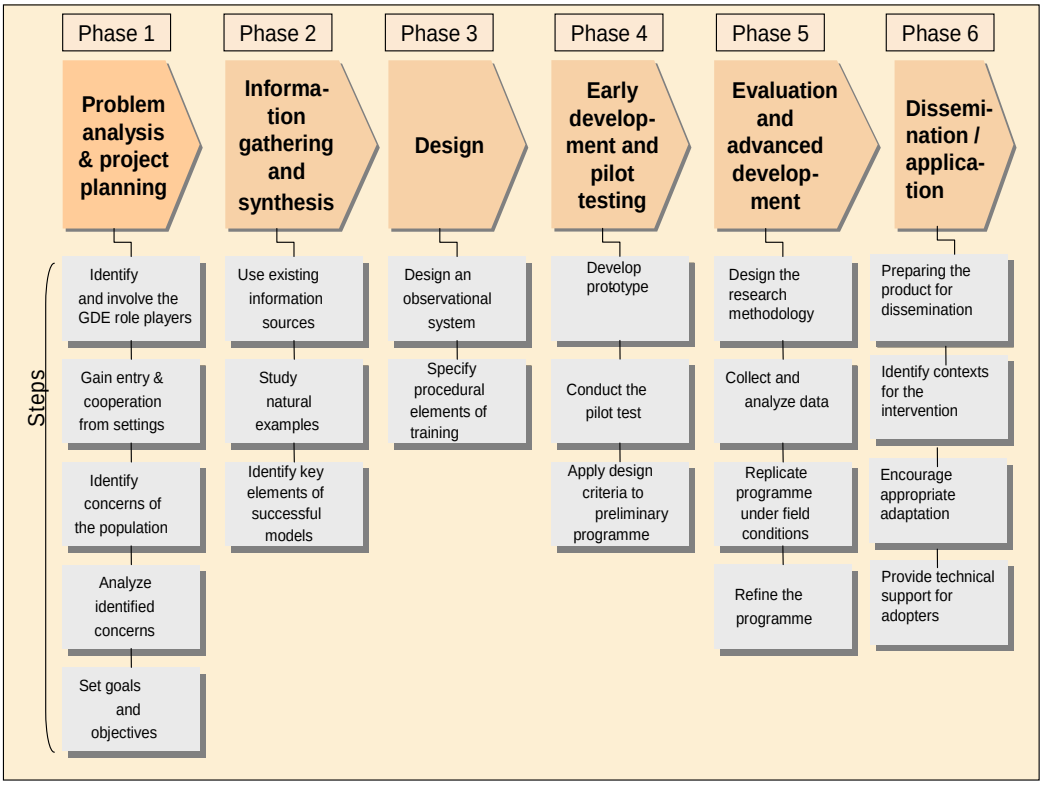

Figure 1-5: Phases in the development of the CPD programme

1.2.2 Phases in developing the professional development programme

The development of this CPD programme was based on a framework provided by Thomas and Rothman (1994:27) as it consisted of various phases (with steps in these phases), and therefore provided valuable guidelines for sequencing the events (refer to Figure 1-5). The methodology of the advanced development and evaluation phase (refer to Figure 1-5) of this programme is presented in the following section that describes the various dimensions included in the research.

1.3 Dimensions in the design of the research

The framework of the research is illustrated in Figure 1-6 and includes a statement of the purpose, the paradigm, the context, and the techniques (Terreblanche & Durrheim, 1999:12).

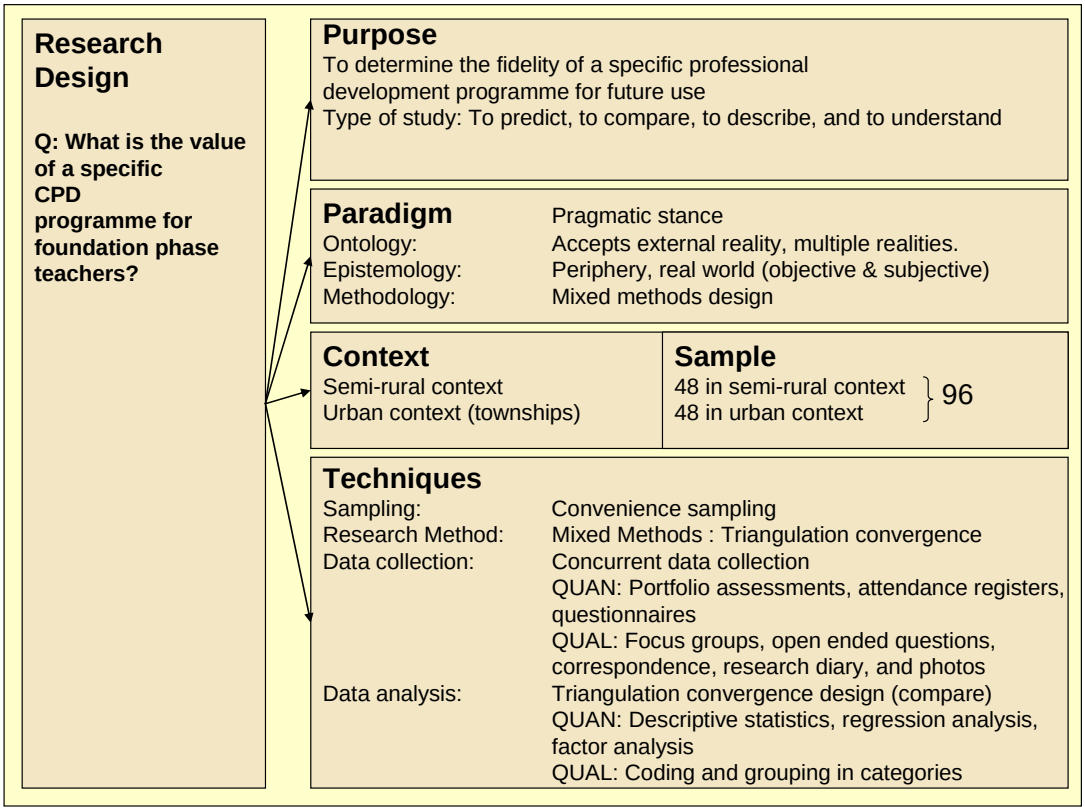

Figure 1-6: A framework of the dimensions in the research design

1.3.1 Purpose of the research

The purpose of the research is described with reference to the three focus areas of the research as presented in Figure 1-7. Whenever a problem is experienced in learners' performance in the classroom (Level 1) the question that arises is: *What is wrong that learners perform poorly?* Several reasons for poor performance have already been cited in the rationale for this research (refer to Section 1.1.2) and appear on Level 1 of Figure 1-7. In an effort to solve the problem on Level 1, a CPD programme was proposed to train the teachers (Level 2). On Level 2 (refer to Figure 1-7) the question posed was: *How effective was the CPD programme?* This referred to how well the training was conducted and how much the trainees gained from it (output). The ultimate value of the programme, however, only became evident once the strategies were implemented in class (Level 3) (refer to Figure 1-7).

The key research question to be answered on Level 3 was: *What was the value of the CPD programme?* This question was answered by evaluating the outcomes of the proposed intervention.

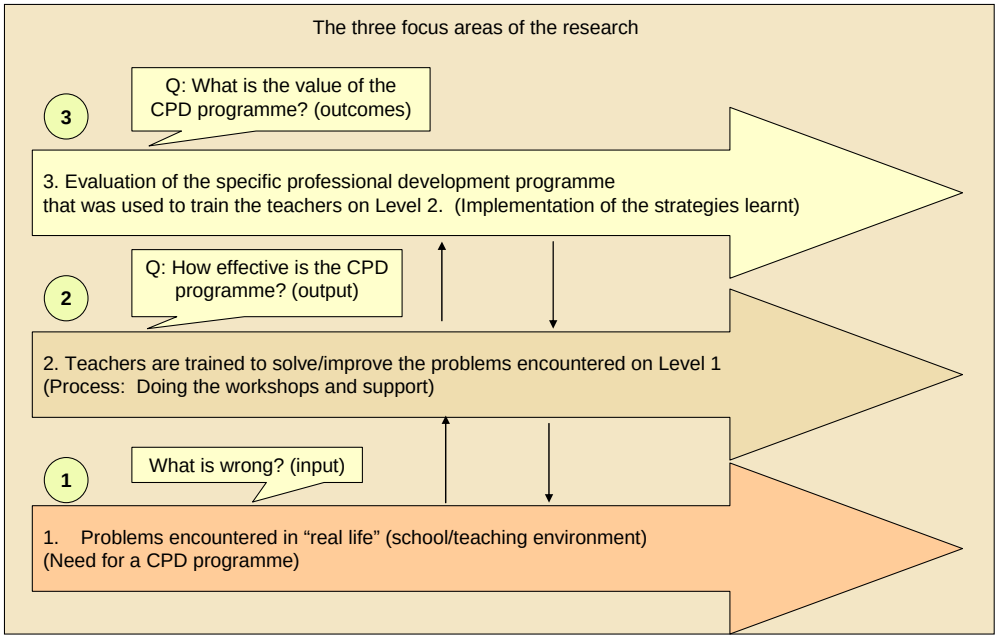

Figure 1-7: Focus of the research

Programme development includes the evaluation thereof as development and evaluation are closely linked and cannot be separated (Potter, 2002:212). The value of this particular support programme was determined by addressing the effectiveness of the three components (training, practical, and mentoring components, which were the process and output) as well as the effect (outcomes) of the support that was provided. The 'effectiveness of this programme' was described in terms of its usefulness and helpfulness to the teachers (Greene, 1994:531), whereas the 'effect of the programme' was related to its consequences or outcomes and was determined by questions such as *'what was brought about?'* or *'what was achieved?'* The term 'effect of the programme' refers to a change that was brought about by an action or the result of an action. In this case the 'action' was the implementation of a CPD programme (Hawkins, 1994:166). Once the focus of the research has been explained, the next step for the research is to take a specific philosophical stance or be placed within an epistemological base.

1.3.2 Philosophical stance of the research

The evaluation of any programme is a complex, multilayered undertaking with many questions that need to be answered. Information needs to be obtained from several sources, which requires multiple methods representing several paradigms. The value of this support programme was determined by three frames of reference of the research (refer to Figure 1-8) as described by Mouton (2006:141).

In the quantitative strand the changes in the participants' knowledge and skills were measured. Simultaneously, attendance and cost-effectiveness were calculated to describe the output and outcomes of the programme, which grounded the research in a positivist tradition. The separateness of these three frames of references is mainly an analytical distinction to clarify the various modes of reflection on the

scientific process, which is inherent to meta-science. These frames of reference are interdependent and therefore should be regarded as an integrated whole.

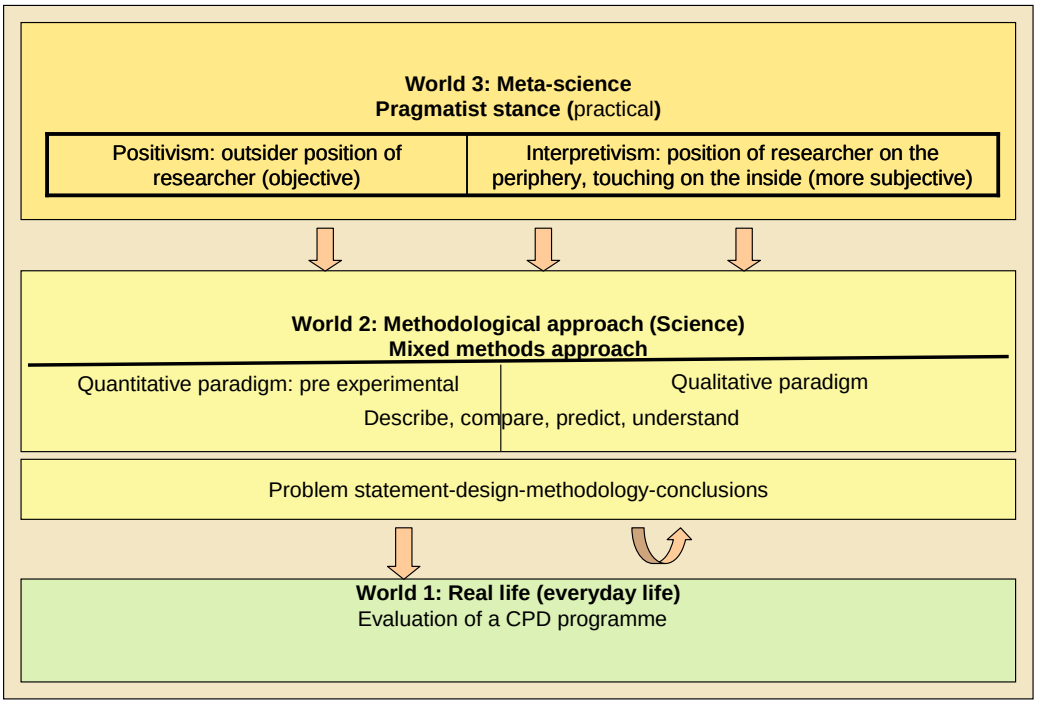

Figure 1-8: The three frames of reference of the research

The multiplicity of the study grounded it in a pragmatic philosophy (Maxcy, 2003:51) as it linked theory and praxis. A practical approach allowed the researcher to study that which was of interest and of value to her, to do so in a way that was deemed appropriate, and to use the results to bring about positive consequences within her own value system (Tashakkori & Teddlie, 1998:30).

When research is conducted from a practical perspective the problem usually is more important than the methods (Tashakkori & Teddlie, 1998:29) and therefore this research was guided by the various research questions. Such a pragmatic stance advocated the use of any philosophical and/or methodological approach that could address the particular research problem (Denzin & Lincoln, 2005c:5; Tashakkori & Teddlie, 1998 in Rocco *et al.*, 2003:21; Tashakkori & Teddlie, 2003b:x). This research therefore supported a compatibility thesis where quantitative and qualitative methods were considered compatible and potentially useful (Denzin & Lincoln,

2005c:7).t is, however, also necessary to understand the context of the participants' work, and how the programme affected the outcomes. This understanding is based on an interpretive approach and is related to the qualitative strand.

As a philosophy, pragmatism stems from works developed by Peirce, James, Mead, and Dewy (Cherryholmes, 1992:14; Habernas, 1972:115). In such a philosophy knowledge claims are consequence oriented, arise from actions, are problem centred, and pluralistic (Cherryholmes, 1992:13; Creswell, 2003:12). As pragmatists generally believe that the world view has little prominence because there is no clear relationship between philosophical beliefs and practice (Niglas, 1999, in Greene & Caracelli, 2003:105), this researcher preferred to take a positioning stance to the research rather than assign it to any specific paradigm (Rocco *et al.*, 2003:21). Nonetheless, it is believed that all research is steered by 'crude mental models' (Greene & Caracelli, 2003:95) and therefore Figure 1-9 depicts a 'basic set of beliefs and assumptions' (Creswell, 1998:74; Mouton, 2006:141) as lenses through which the social world of this study was viewed.

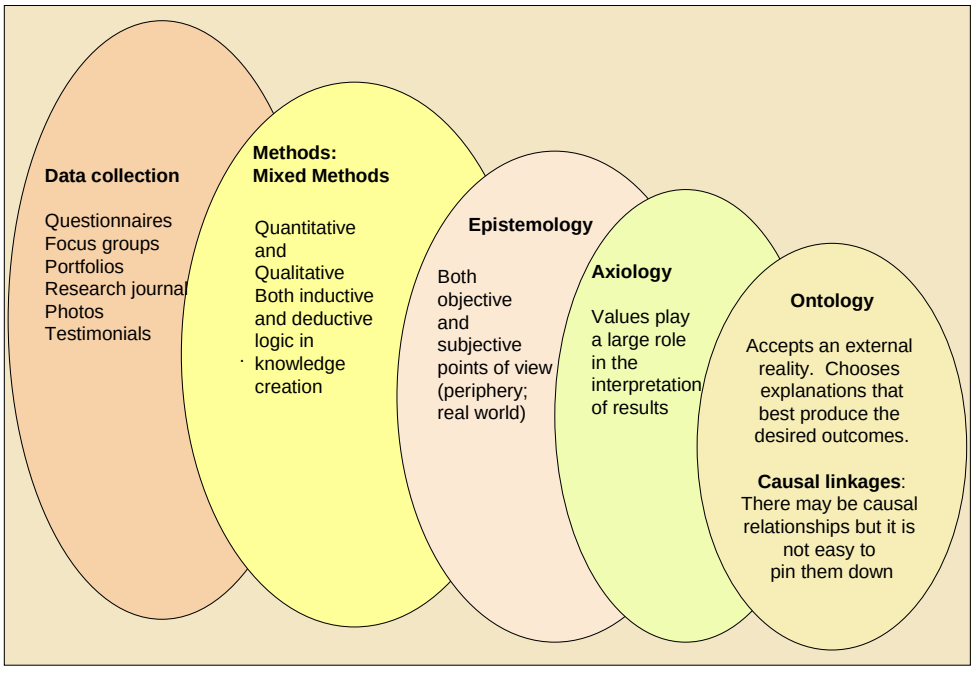

Figure 1-9: The various lenses that steered the research

With reference to Figure 1-9 the view through an *ontological lens* (Creswell, 1994:74) in this study was one where the existence of an external reality was accepted. It was also accepted that 'truth' cannot be proved without doubt. In this case, for example, many factors could impact on the outcomes which made it difficult to determine causal linkages. In terms of causality, it was assumed that no single choice of an explanation was better than another, but rather that "…one specific approach was better than another at producing anticipated or desired outcomes" (Cherryholmes, 1992:14).

When looking through an *axiological lens* (Creswell, 1994:74) (refer to Figure 1-9) the results were interpreted from a values perspective. This research was congruent with the researcher's own value system, and included the variables and units of analysis that were most appropriate for finding the answers to the research questions. The researcher deemed the evaluation of this CPD programme as an interactive process that required the acknowledgement of her own personal history, biography, gender, social class, race and ethnicity in relation to those of the participants and other role players.

The *epistemological lens* (Creswell, 1994:74) in Figure 1-9 provided a view on the purpose of the study, which in this case was two-fold: It was partly technical in nature, but the study also had a practical interest that sought to understand. Because of the multiplicity of programme evaluation (which is to describe, compare, and predict) the research called for the use of multiple approaches to understand the problem (Creswell, 2003:11; Tashakkori & Teddlie, 1998:21). The study was conducted in a real-life context that rendered the choice of practice pragmatic, strategic, self-reflexive, and dependent on the context (Denzin & Lincoln, 2005c:5). In this case knowledge was socially constructed and relied on multiple perspectives and therefore was of an interpretative nature (Habernas, 1972:313-315).

With reference to Figure 1-9 the *methodological lens* (Creswell, 1994:74) provided the pragmatist view, which is a paradigm that philosophically embrace the use of the mixed methods approach, as neither quantitative nor qualitative methods could conclusively address the various research questions (Tashakkori & Teddlie, 2003b:x). Such a methodology demanded the use of both inductive and deductive forms of reasoning to develop an understanding of the data (Rallis & Rossman, 2003:501) with the two strands of the research supporting and augmenting each other. The design decisions that were taken in the evaluation of the programme were therefore "…*practical, contextually responsive, and consequential*" (Datta, 1997:33; Datta, 1994 in Greene & Caracelli, 2003:101).

The pragmatist view considered *'practical'* as referring to the researcher's reliance on her own experience of what was successful, and what needed to be abandoned. When the trainer/researcher had to respond to the demands, opportunities, and constraints of the situation in which the inquiry was conducted, she became *'contextually responsive'.* In addition, *'consequential'* referred to practical consequences *(Ibid.)* (original in italics). The implication was that whenever circumstances so required (considering the context of the research) the researcher had to make the necessary adjustments 'to make things work'.

The *data collection lens* in Figure 1-9 shows that several data sources from both strands of the research were employed because each shed light on the problem from a different angle and contributed to a corroboration of findings in answer to each of the research questions (Creswell, 1994:74). The quantitative strand included questionnaires, portfolio assessments, attendance registers, and financial statements, whereas the focus groups, a research diary, and testimonials represented the qualitative strand. During the quantitative strand of the research, the position of the researcher initially was on the outside as an objective observer,

but became more subjective for the qualitative strand when the trainer/researcher hovered on the periphery, and at times almost touched the inside. Considering the close contact and level of interaction between the researcher and the participants in this study, it was impossible for the researcher not be touched by the lives and the stories of the people in the research.

The researcher's role in this specific study was seen as an *interpretative bricoleur* ('quilt maker'), who produced a *'bricolage'* ('quilt') by piecing together different sets of representations within the specifics of a given situation (Denzin & Lincoln, 2005c:6). As *bricoleur*, the researcher moved between and within competing and overlapping perspectives which seemed less developed than paradigms. The solution *(bricolage)* took on different forms when the researcher added different tools and techniques of representation and interpretation to fit together the different pieces of the fabric.

In summary, the philosophical basis of the research was based on two assumptions: it acknowledged the existence of an external independent (social) reality; and realized that this reality had multiple characteristics (Miller, 2003:423). Such mixing of perspectives, theories, and research methods generally is considered to be a strength in educational research, as each compensates for the weaknesses of the other (McMillan & Schumacher, 2006:316). With reference to Figure 1-6 the context of the research is discussed next.

1.3.3 Context

The study was conducted in two contexts: A semi-rural context, and an urban context consisting of townships and informal settlements. A specific sample was trained in each context, which is discussed in the following section.

1.3.4 The research sample

With reference to Figure 1-6 there were 96 participants included in this study over a two-year period, of which 48 were trained in each of the two contexts for a period of one year. Twelve schools were included per year, of which each was represented by four participants. The participants from each school represented each grade level of the foundation phase (Gr. R, 1, 2, and 3). The trainer/researcher was a qualified speech-language therapist with interests in ECD and teacher support. District facilitators were not included in the study, but were trained. They assisted the trainer/researcher with the implementation of the programme. With reference to Figure 1-6 the following dimension to be discussed is the techniques.

1.3.5 Techniques and procedures

Figure 1-6 shows that the data collection for the two strands of the research occurred concurrently. Data analysis for the two strands was done separately according to the seven-step model devised by Onwuegbuzie and Teddlie (2003:373), and was conducted within a component design where results were offered in a parallel fashion (Greene & Caracelli, 2003:94, 99). The purpose of mixing methods was triangulation, where the two strands of the data were compared and corroborated where possible (Onwuegbuzie & Teddlie, 2003:376). In order to compare and integrate the results obtained from the two strands, the qualitative data were quantitized whenever possible. The interpretation of the inferences was subjected to a validation process before the final conclusion. Such a combination of strategies provided a holistic view of the value and worth of this specific professional development programme (Datta, 1994 in Greene & Caracelli, 2003:105). The next section guides the reader through the thesis.

1.4 Roadmap for the thesis

This section clarifies the relevant terminology and provides an outline of the chapters. All appendixes to chapters are presented on the Compact Disk included in this thesis.

1.4.1 Clarification of terminology

The terminology used in this thesis is grouped according to (a) terms related to teaching and learning, and (b) terms related to the evaluation of the programme.

(a) Terminology: Teaching and learning

(i) 'Learners' vs. 'children'

Throughout the text the term *'learners'* is used whenever reference is made to school pupils (Department of Education, 2002:35) and the term *'children'* is used for young children who are not yet in school and are therefore in the pre-Gr. R phase (<6yrs). In the specific context of the research this does not imply that such children necessarily attend early childhood development (ECD) centres, or even Gr. R, as not all the families can afford it (Winkler, 1998:3).

(ii) 'Teacher' vs. 'trainer/researcher'

The term *'teacher'* is used to refer to school teachers (also known as 'educators') (Department of Education, 1995:75) of foundation phase learners (Gr. R to Gr. 3) because it relates to terminology used in international literature in this regard. The term *'trainer'* is used for the 'instructor of the training' (Annon, 2007), or presenter of the workshops, and refers to the individual who developed the programme and conducted the research. For this reason the combined term *'trainer/researcher'* is used throughout the thesis.

(iii) 'Teacher training' and 'continued professional development' (CPD)

This study uses the term *'teacher training'* to refer to pre-service training, whereas *'teacher development'* and *'teacher support'* refer to ongoing support of teachers who are already in the field (Adler, 2003:xii). In this specific context these teachers were either professionally qualified, underqualified, or inappropriately qualified (Rembe, 2005:109; Welch, 2003:19). 'Teacher development' and 'teacher support' imply in-service training (e.g. workshops) (Adler, 2003:xii) and in this case also includes supportive school visits and the provision of support materials that inform and equip teachers.

CPD includes all the education, training, and support activities that teachers engage in following their initial teachers' qualification (Day & Sachs, 2004:3). It is an ongoing process linked to in-service training that enhances teachers' knowledge and skills. It further enables teachers to consider their attitudes and approaches with a view to improve the quality of teaching and learning (Bolam, 1993 in Earley & Bubb, 2004:4). Self-exploration is therefore a central element of CPD programmes, as it helps to "…unpeel the various personal and cultural layers that they have accumulated" (Sowden, 2007:305). It is a complex intellectual and emotional undertaking.

(iv) Continued professional development (CPD)

CPD has been described by various terms, e.g. 'in-service training', 'staff development', 'professional training', 'professional support', and more (Bolam, 1993 in Earley & Bubb, 2004:4). With reference to Figure 1.4 (Chapter 1), this specific programme can be considered as both *professional training* - because it provides a series of workshops - and *professional support* - since it combines workshops with both mentoring and practical components. Such activities aim to add to the trainees' professional knowledge, to improve their professional skills, and to assist in defining their professional values, and may therefore be of value to classroom learning.

CPD has been described as "…the ongoing professional development of teaching professionals" (Mothata, 2000:85). It refers to a process of education combined with experience that enables teachers and trainers to enquire into and reflect upon their work and roles, deepen their specialized knowledge, improve their effectiveness as facilitators of their students' learning, and prepare themselves for positions of greater responsibility and leadership. This process is also referred to as the in-service education of teachers (INSET). In-service education of teachers should be a continual process and linked to curriculum development (Taylor & Vinjevold, 1999a:230). Whilst most definitions of CPD emphasize the acquisition of content knowledge and teaching skills as its main purpose, professional growth or improvement is only part of what is required to bring about educational change and improvement in quality.

A distinction also needs to be made between the terms *'continued professional development programme'* (CPD) and *'programme/training programme'*: When the term 'CPD *programme'* is used, it refers to the specific support programme consisting of three components (training, mentoring and practical components).

The terms *'programme'* and *'training programme'* refer to the content-specific knowledge which is related to the disciplinary field and to the NCS. This information was included in the training component of the CPD programme by means of each of the three workshops in which the participants were trained to facilitate listening skills, language skills, or the language for numeracy.

(v) 'Curriculum' and 'outcomes-based education' (OBE)

Lawton and Gordon (1998:10) described *'curriculum'* as a selection from a culture within a society, but questioned the basis for deciding on what to include from a specific culture, as various subcultures exist within a given culture. In this study reference is made to the curriculum used to teach the learners in school, and the

curriculum used to train the teachers in this specific professional development programme. The former refers to the national curriculum statement (NCS) which is regarded as the grade-specific content, method, and method of instruction in South African schools (Thusi, 2006:6). In this study reference is made to the foundation phase curriculum (Gr. R to Gr. 3), particularly in the literacy and numeracy learning areas, which is further explained in Chapter 3 of this study. The NCS is based on an 'outcomes-based education' (OBE) approach that stipulates outcomes/competencies that the learners need to achieve at the end of the educational process in order to create the kind of citizens required in the transformation of this country (Granville *et al.*, 1997). With an OBE approach the process of learning is as important as the content being learnt (Department of Education, 2002:1) and also allows for the measurement of a learner's progress against these outcomes (Department of Education, 1997:3). It is defined as a way of designing and developing learning and documenting instruction in terms of outcomes (Department of Education, 1997:29-40). A learner-centred, activity-based approach is central to the process of teaching.

When reference is made to the *'curriculum design of the programme'* it implies the curriculum designed for the training of the participants in this specific study. It addresses the requirements of the NCS, but differs from the NCS in the sense that it is aimed at training the participants. It focuses on the necessary conceptual knowledge and skills to facilitate the NCS with regard to listening, language, and the language required for numeracy.

(vi) Numeracy

Similar to literacy, numeracy is a cornerstone of learning and therefore an essential component of the National Curriculum Statement. The Australian Association of Mathematics Teachers (AAMT) (Australian Association of Mathematics Teachers Inc., 1997:62) defined numeracy as "…the disposition to use underpinning

mathematical concepts and skills from across the discipline (numerical, spatial, graphical, statistical and algebraic), mathematical thinking and strategies, general thinking skills, and grounded appreciation of context". It involves the use of mathematical ideas efficiently to make sense of the world. Numeracy draws on knowledge of particular contexts and circumstances in deciding when to use mathematics, choosing the mathematics to use and critically evaluating its use. The world is interpreted in terms of an understanding of number, measurement, probability, data and spatial sense combined with critical mathematical thinking.

Numeracy and mathematics differ in terms of mathematics being "...abstract and platonic and based on absolute truths about relations among ideal objects", whereas numeracy is described as "… concrete and contextual, offering contingent solution to problems about real situations" (Steen, 2001:11). With a focus on the language for numeracy a description of numeracy as "…the *language* or system of *thought*" seems most appropriate (Bullock, 1994:735). This author *(Ibid)* distinguishes numeracy from mathematics on grounds that a too narrow focus when working with numbers may disregard abstract reasoning.

In the process of becoming numerate, the 'language of thought' develops through a process of mastering four levels of discourse: the language of social interaction, the language of the classroom, specific components of numeracy, and ultimately the construction of meaning(Gawned, 1993:27). These discourses consists of several components, will are discussed in Chapter 3.

(b) Terminology: Evaluation of the programme

(i) 'Assessment' vs. 'programme evaluation'

The terms *'assessment',* and *'programme evaluation'* are related but each has distinctly different roles. Programme evaluation is "…the use of social research

procedures to systematically investigate the effectiveness of social intervention programmes". When *'assessment'* is used in programme evaluation, it considers the outcomes of individual participants, and the previous experiences that have led to those outcomes (Kouwenhoven, Howie & Plomp, 2003:135). Assessment is included in the evaluation of a programme.

Evaluation will not be able to change anything in the programme, but can originate recommendations to be made for changes in future programmes. *'Programme evaluation'* therefore adds a reflective dimension to the overall process and is suitable to describe the process used to evaluate the value and worth of a specific programme. The goal in programme evaluation, therefore, is not a precise numerical figure, but a global assessment with specific narrative feedback (Wilkes & Bligh, 1999:1270).

(ii) 'Programme evaluation' vs. 'programme effectiveness'

The terms *'programme evaluation'* and *'programme effectiveness'* provide different angles from which a programme can be assessed (refer to Table 1-1) (adapted from Holton, 1996 in Alvarez, Salas & Garofano, 2004:389; Kraiger, 1993 in Cannon-Bowers *et al.*, 1995:311, 490).

Table 1-1: Difference between 'programme evaluation' and 'programme effectiveness'

Programme evaluation	Programme effectiveness
Evaluation provides the micro-view that focuses on measurement. It considers the learning at each level and is therefore the basis for determining the effectiveness of a particular intervention (Salas & Cannon-Bowers, 2001:491).	Provides a macro-view of training outcomes because it focuses on the learning system as a whole. Seeks to benefit the organization by determining why individuals did, or did not, learn. Training effectiveness looks at training from a systems perspective where the success thereof depends not only on the methods used, but also on how training, as well as learning, is regarded by, and supported by the organization. It also looks at the motivation of the trainees, and what mechanisms are in place to facilitate transfer of the newly acquired knowledge, skills, and attitudes to the work environment.
Methodological approach	Theoretical approach

Programme evaluation	Programme effectiveness
Determines the benefits to individuals in the form of learning and enhanced 'on-the-job' performance	Studies the individual, training, and organizational characteristics that have an effect on the training process prior to, during, and after the training.
Measures learning outcomes	Tries to understand the training outcomes by using post-training attitude and transfer measurements. Training effectiveness focuses on the variables that could affect the training outcomes.

Programme effectiveness is determined through research, while programme evaluation provides information to the stakeholders on a programme's value and worth (Thomas, Hovenberg & Edgren, 2006:172). Nevertheless, these two processes should ideally be integrated (Holton, 1996 in Alvarez *et al.*, 2004:385).

(iii) 'Programme evaluation' vs. 'evaluation research'

A distinction is also made between *'programme evaluation'* and *'research*', as they are intricately linked to the evaluation and effectiveness of a programme. Patton (2002:10) views *'programme evaluation'* as the examination and judgement of accomplishments and effectiveness, and *'evaluation research'* as the process by which evaluation is done systematically and empirically through careful data collection and thoughtful analysis. Although these two terms imply similar methods and approaches, they differ in their motivation, objectives, generalizability, tools, and criteria (Winberg, 1997:82).

- The motivation for research is to find answers to questions (Leedy & Ormrod, 2005:14), whereas an evaluation seeks to report to a client or funding agency on the value of its investment (Agochyia, 2002:45) or "…to improve, rather than to prove" (Stufflebeam, McKee & McKee, 2003:8). This may imply that defective efforts be terminated in an effort to assist organizations to make better use of their available resources and time.
- The two terms also differ in their objectives - research seeks to provide knowledge and understanding about a specific topic (Leedy & Ormrod, 2005:14),

whereas evaluation aims at making decisions and recommendations for improvements (Salas & Cannon-Bowers, 2001:491). The focus in research is more on the application of findings to other contexts (Wilkes & Bligh, 1999:1296) in contrast to evaluation where generalizability is limited by time, context, and other specifics (Babbie & Mouton, 2002:56; Winberg, 1997:82).

- Although both educational research and educational evaluation use similar tools and methods, the research results can be better generalized, while the interpretation of the results in programme evaluation is of more value to stakeholders.
- Good research is measured by internal and external validity (Leedy & Ormrod, 2005:84), accuracy, as well as appropriateness. Programme evaluation values external validity, but also accuracy and feasibility (Winberg, 1997:82).

(iv) 'Trustworthiness'

'Trustworthiness' is the common term used in mixed methods research for validity, and includes both quantitative and qualitative validity (Onwuegbuzie & Johnson, 2006). In the quantitative strand it is necessary to construct sufficient controls to warrant trustworthy conclusions to be drawn from the data (Leedy & Ormrod, 2005:97) (internal validity) and to make generalizations to other contexts (external validity). To obtain internal validity the researcher has to take precautions to eliminate any possible bias or effects on the results. In this case, triangulation was used to answer the research questions, and the researcher relied on the judgement of experts in all aspects related to the research.

In the qualitative strand validity is determined by the degree to which the participants and the researcher can agree on the descriptions and the composition of the events, as well as how they can concur in terms of the meaning of the event (McMillan & Schumacher, 2006:324). Qualitative validity is determined by the data collection and

analysis techniques. In this study it included prolonged and persistent fieldwork, the use of multimethod strategies that permitted triangulation of data, verbatim accounts (participants' own language), an external reviewer to agree (or disagree) on the interpretations, recorded data (tape recorder and camera), and member checking of focus group data.

1.4.2 Outline of the thesis

The layout of the thesis and summary of each chapter are summarized in Table 1-2, whereas Figure 1-10 provides a bird's eye view of how the different chapters relate to each other in meeting the aim of the research. The outline of the thesis provides a structure within which a scientific argument develops in answer to the various questions.

Table 1-2: Layout of the thesis

Chapter	Content of the chapter
Chapter 1: The design and development of a CPD programme	Various assessments have shown that South African learners experience challenges with respect to literacy and numeracy. This study therefore focused on the development of a support programme for teachers (to be used as part of their continuous professional development) to empower them in their role of teaching the principles of listening and language (with particular emphasis on the language for numeracy). The introductory chapter formulates the objectives of the study and focuses on the context and background, the problem statement, and the rationale for the study. This is used to define the scope of the proposed professional development programme.
Chapter 2: CPD within the education environment of South Africa	In this chapter the context in which the study is to be conducted is described in terms of key policies which affect CPD programmes in the education environment in South Africa. The process of CPD is explained, and brief reference is made to the factors that need to be considered in the development thereof, which includes the principles of adult learning, learning styles, motivational factors, and the role of culture.
Chapter 3: Design of the CPD programme	This chapter builds on the previously identified need for this specific support programme (identified in Chapter 1), and the principles to be addressed in CPD (presented in Chapter 2) by proposing the components used for development, and the learning areas covered by the support programme. It describes the three components of the proposed CPD programme, namely theoretical training, practical implementation, and mentoring. The relationships between these three components are explained in terms of the National Norms and Standards (Department of Education, 2000). The three components are used to address the key learning areas, i.e. listening, language, and the language for numeracy, as required by the NCS (Department of Education, 2002:1).

Chapter	Content of the chapter
Chapter 4: Programme evaluation	Chapter 4 provides a framework for assessing the proposed module. A critical overview is provided of the various approaches, and models of evaluating such a module, before a suitable model is selected. The Logic Model approach to evaluation is discussed in terms of its framework, components, and the evaluation methods. The key aspects included in evaluation (with reference to assumptions and prerequisites, factors to affect the process, the stages/phases, and the challenges) are reviewed.
Chapter 5: Research design and method	The fifth chapter provides the research design and method. The methodology of the research is presented as various phases, i.e. formulation, planning and design, early development, and implementation. The formulation phase addresses the aims of the study, and reasons for mixing methods. The planning phase addresses the sampling and research designs, followed by the early development phase that focuses on the development of materials and apparatus, as well as the pilot study. The implementation phase describes the process of doing mixed methods research with reference to the research procedures, data collection, and analysis, and lastly focuses on the process of legitimizing the research.
Chapters 6, Chapter 7, Chapter 8, and Chapter 9: Results and interpretation	The results of the research are discussed in four chapters, each focussing on a specific component of the Logic Model framework. Chapter 6 relates to the Input Component, Chapter 7 to the Process Component, Chapter 8 to the Output of the programme, and Chapter 9 to the Outcomes Component. Each component of the Logic Model is introduced by specific research questions to be answered. The research questions lead the presentation of the results, and both quantitative and qualitative inferences are discussed before a corroboration of inferences answers the particular research question within a triangulation design. Each of the results chapters is concluded with a critical assessment thereof.
Chapter 10: Conclusion to the study	Chapter 10 provides the conclusion and a critical review of the study. The implications and limitations are discussed, and suitable recommendations are made for future programmes and research.

From Figure 1-10 it can be seen that each chapter is initiated by a problem statement, which is then formulated as a question to be answered by the chapter.

1.5 Summary and conclusions

1.5.1 Summary

This chapter provided an introduction to the study by briefly discussing the South African context and reasons for the development of a CPD programme for foundation phase teachers. A model was proposed for a specific CPD programme, and a plan provided for its development. The development of the programme included a phase for the advanced development and evaluation thereof, the evaluation of the CPD programme being the focus of the research. The dimensions

of the research were discussed in terms of purpose, philosophical stance, context, and techniques (data collection and data analysis). Lastly, the terminology to be used was clarified, and an outline of the chapters to be included in the thesis was provided.

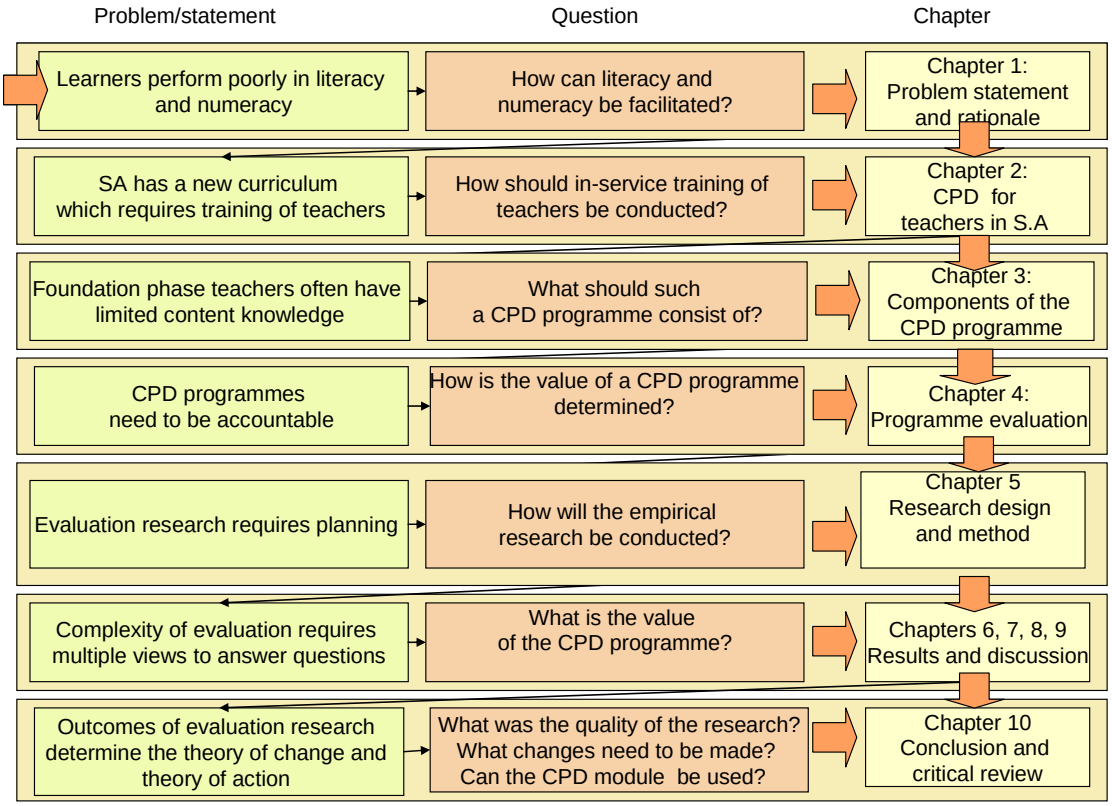

Figure 1-10: A bird's eye view of the thesis

1.5.2 Conclusions

The need for support of foundation phase teachers is clearly indicated (Daniels, 2007:7; Department of Education, 2006:3; Maree, 2006, in Nthite, 2006:10; Pandor, 2006). The development of this CPD programme for foundation phase teachers to facilitate listening and language for the learning of numeracy is relevant and timely.

The challenge, however, is to develop a CPD programme that links the participants' current levels of competence (knowledge, skills, and attitudes) with the requirements of the NCS and OBE (Killen, 2007:105) and to simultaneously align the programme

with the roles described in the Norms and Standards for Teachers (Department of Education, 2000).

The CPD programme should create an environment that allows teachers (as adult learners) to learn, develop and grow. Such a programme needs to be accountable and of high quality (Belzer, 2005:33; Harrison, Edwards & Brown, 2001:200; Salas & Cannon-Bowers, 2001:471) and therefore requires to be evaluated. The evaluation of the CPD programme will be conducted as research, and therefore needs to be carefully planned and structured. Based on this expression of intent for the study and by proposing a model of support, the focus in the next two chapters moves to continued professional development and the components of this particular CPD programme.

Chapter 2 Continued professional development for teachers

"The most important investment we can make (to increase quality) is to provide teachers with academically rigorous, credible and useful learning opportunities that will build their confidence and understanding in the subject matter they teach. In pursuing these opportunities, they must have sufficient time to read and think and write and to reflect on their practice"

(Metcalfe, 2008:10)

Aim of Chapter 2

This chapter focuses on continued professional development (CPD) for teachers in South Africa and provides guidelines for the planning of such activities. Figure 2-1 depicts a schematic outline of topics covered in this chapter.

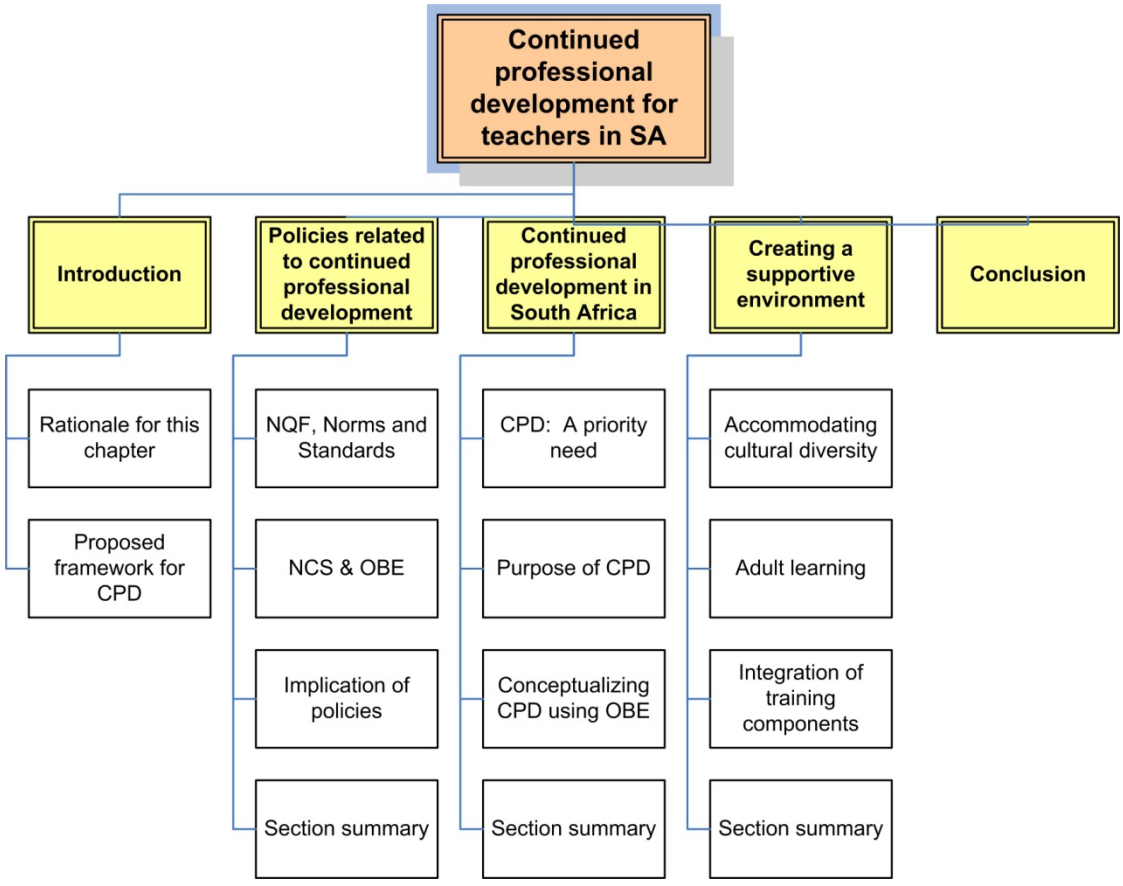

Figure 2-1: Framework of Chapter 2

2.1 Introduction

2.1.1 Rationale for this chapter

The political transformation in South Africa calls for new approaches to teaching and learning, and continued professional development (CPD) of teachers may provide in this need. There appears to be limited information on effective CPD programmes, specifically for foundation phase teachers and in the areas of listening and language for learning (or the language for numeracy). The reason may be that past CPD programmes were mainly dependent on donor aid from outside the country, which resulted in poor documentation regarding these programmes and few reports being published (Christie, Harley & Penny, 2004:169; Roberts, 2002:2).

There is a need for more evidence on effective CPD programmes in order to contribute to the local knowledge base (Daniels, 2007:7; Department of Education, 2006:3; Pandor, 2006). Considering the intent of this study (refer to Section 1.1.2) this chapter aims to create guidelines for the implementation of a continued professional development programme in a manner that is relevant for the local context.

2.1.2 Proposed framework for continued professional development

This section proposes a strategic framework for CPD for foundation phase teachers in this study (refer to Figure 2-2) whereby the various factors to be considered are delineated. The issues to be addressed within this framework are the following:

- Education policies in South Africa (including OBE) (Department of Education, 1997:2; 2002:1) (refer to Section 2.2). Political reform cannot be divorced from transformation in education, and several new policies need to be considered when planning teacher support programmes.

- CPD, with reference to the definition and the process (see Section 2.3). A new national curriculum statement (NCS) based on an OBE approach requires CPD of teachers.
- Workshops need to create an optimum learning environment for adult learners (Smith & Kolb, 1986 in Bowles, 2004:2; Knowles, Holgotn & Swanson, 1998:2) (see Section 2.4), each with their individual learning styles (Silberman, 1996:ix), and also need to consider diversity in teaching and learning (Butler, Lind & KcKoy, 2007:241) (refer to Section 2.4.1).

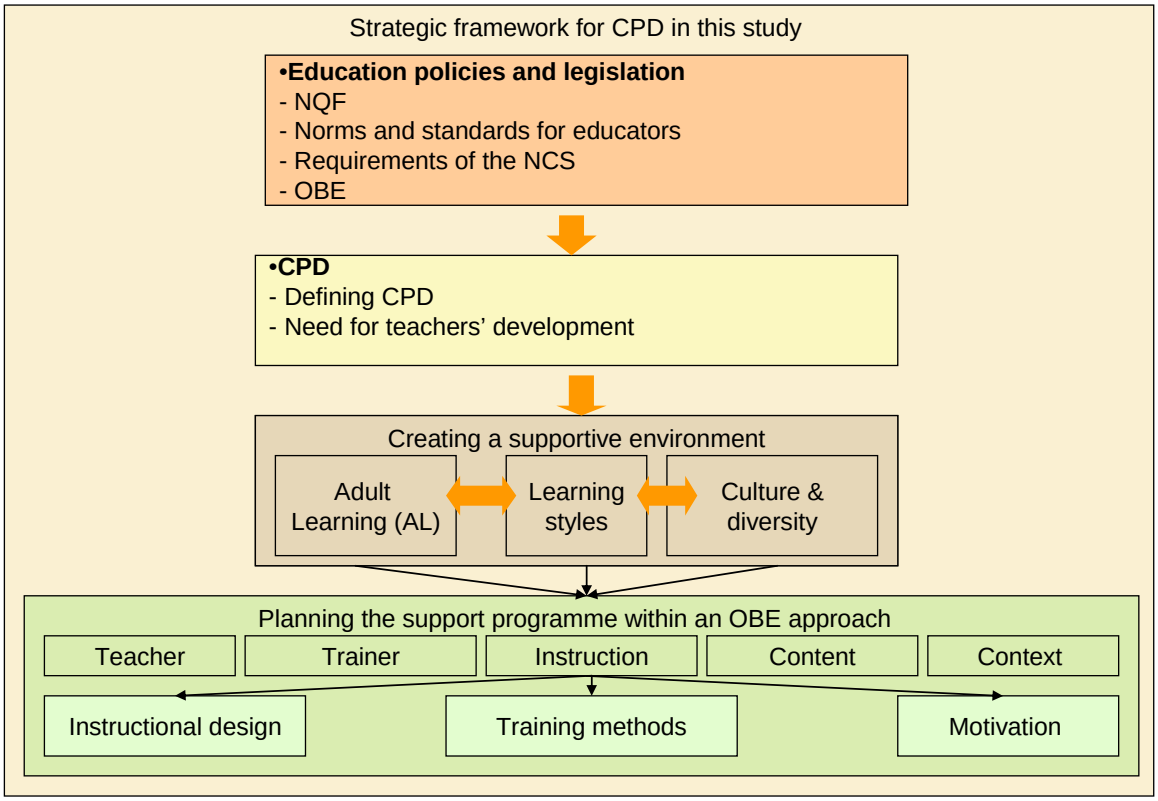

Figure 2-2: Integration map of key factors to be considered in the development of this CPD programme

2.2 Policies related to continued professional development

Political reform aimed at ridding the country of historical deficits and redressing past inequities. Policies that provided the broad fundamentals and structure for CPD (Christie *et al.*, 2004:182; Jansen, 2006) include: *The National Qualification*

Framework (NQF) (South African Qualifications Authority, 1995), *The Norms and Standards for Educators* (Department of Education, 2000:2), and *The Duties and Responsibilities of Educators* (Department of Education, 1998). The first two policies provided the framework and motivation for the development of the current CPD programme and are discussed further in the following section.

2.2.1 National Qualifications Framework

The *National Qualification Framework* (NQF) (National Department of Education, 2000:1) was originally established in order to transform education and training. Stemming from the roots of discontent with the quality in education, this framework provided an appropriate means to commit teachers to lifelong learning by placing pre-service education training (PRESET) and in-service education training (INSET) on a continuum, whilst the *Norms and Standards for Educators* (Department of Education, 2000:2) provided a flexible and generative basis for the professional development of educators who are required to register with the South African Council of Educators (SACE).

The exit-level outcomes required by the South African Qualifications Authority (SAQA) (1995:5) and the NQF (National Department of Education, 2000:1) refer to applied competencies that assures that teachers are knowledgeable in terms of the principles that underlie good teaching practices (Killen, 2000:vi).

The Norms and Standards for Educators (Department of Education, 2000:1) and the *National Curriculum Statement* (NCS) (Department of Education, 2002:3) envisage teachers to be qualified, competent, dedicated, and caring. The implication is that foundation phase teachers are required to be specialists in this phase, specialists in teaching and learning, and specialists in assessment. Not only are they expected to be masters of the content of their subjects, and understand how children learn (Du

Toit, Froneman & Maree, 2002:158), but also to be curriculum developers, leaders, administrators, managers, assessors, good citizens and community members, and to provide pastoral care in a context characterized by poverty, lack of employment, illiteracy, violence, and HIV/AIDS (Department of Education, 2002:3). Teachers are required to provide a positive learning environment that is conducive to successful learning in these adverse circumstances.

To meet the requirements defined in the *National Norms and Standards for Educators* (Department of Education, 2000:1) (see Figure.1.3) teachers have a lifelong obligation to learn in order to improve their teaching, which encompasses all of their other roles. The significance of lifelong learning is that when teachers learn, so will their learners. Therefore teachers' learning contributes to the creation and establishment of an entire learning community (Dennison & Kirk, 1990:9). Although the expectations set out above represent a daunting challenge that requires competent, well-trained teachers, the reality is that in the local context teachers do not necessarily conform to these standards (Maree & Fraser, 2004:706; SAPA, 2006:1).

2.2.2 The new curriculum and outcomes-based education

Since the inception of *Curriculum 2005* in 1998, and later the *Revised National Curriculum* (NCS) (Department of Education, 2002:1), teachers have been expected to make a paradigm shift with regard to their teaching and learning practices in the classroom. The OBE approach requires teachers to be 'facilitators of knowledge' (Department of Education, 2006:5), who assist their learners to construct their own meaning of the material learnt (Killen, 2007:7; Rubin & Spady, 1984:38).

The NCS and OBE require a learner-centred approach to teaching that is based on the principles of OBE and is aligned with the roles of teachers stipulated in the

Norms and Standards for Educators (Department of Education, 2000:2). The teacher's main role is to facilitate learning rather than to be a source of knowledge (Spady, 1994b:18). Instead of memorizing knowledge, learners are helped to construct their own knowledge where learning is facilitated through a range of experiences (Killen, 2000:vii). By experimenting with a range of teaching strategies, teachers need to reflect on their training and its effect on their learners' achievements (Spady, 1994a:1). Such reflection on their own practices will also help them to understand the rationale for teaching. This specific programme further had to support teachers in fulfilling their roles, and help them to become true facilitators of learning (in this case, listening and language skills).

When planning a learning activity the teacher firstly has to set the outcomes and then plan the instructional design (Miller & Watts, 1990:54). The instructional design has to match the learner's prior knowledge, motivation, and level of interest (Rubin & Spady, 1984:38). Although the teacher has to set the agenda for learning in such an approach, she/he has much less control over what and how the learners learn (Department of Education, 2006:3). Learners also may need to first learn basic skills and specific procedures before they will be able to apply the strategies taught. Cooperative learning is one of several strategies (Killen, 2007:190) of such an approach where trainees learn through group investigations.

To successfully implement the new education system, teachers need to be motivated and equipped with the necessary skills and knowledge (McDonald & Van der Horst, 2001:1 in Gouws & Dicker, 2006:419). If teachers perceive that they lack the required skills because of the high expectations, they may feel vulnerable and threatened (Gouws & Dicker, 2006:416), and therefore they may benefit from additional support provided by CPD activities.

2.2.3 Implication of policies for the development of this programme

The National Qualifications Framework (South African Qualifications Authority, 1995:5) and the *Norms and Standards for Educators* (Department of Education, 2000:2) require teachers to play specific roles in the education of learners, and to contribute significantly to their intellectual, moral, and cultural development (Department of Education, 2006:3). Teachers are therefore regarded as the key role players in the transformation process of education (Du Toit *et al.*, 2002:158) and are expected to implement the NCS within the OBE approach. It does not imply that all teachers are necessarily competent or trained to implement the NCS, and therefore these policies affirm the necessity of CPD to renew and refresh their knowledge and skills.

Although many more teachers have recently become more involved in the implementation of OBE and the NCS (Gouws & Dicker, 2006:417), Schlebusch and Thobedi (2004:46) caution trainers to be realistic in their expectations as change may require time before any significant transformation can be expected. These authors (*ibid*.) found that teachers persisted in using outdated teaching approaches despite forty hours of in-service training in OBE and the curriculum because they were familiar with their previous practices and found it difficult to change.

New CPD programmes need to correct the mistakes made in previous in-service training programmes of OBE and Curriculum 2005 (Department of Education, 2002:1), specifically in 'black[3] schools' (Jansen, 1998:318; Motseke, 2005:116; Schlebusch & Thobedi, 2004:46). These mistakes include inconsistencies regarding concepts, principles, procedures, terminology, and lesson plans, which have

[3] Reference to 'black schools' is made to identify schools which were most affected by apartheid and where all the learners are African (e.g. in semi-rural areas, townships and informal settlements).

changed since earlier applications (Coetzer, 2001 in Motseke, 2005:115). Jansen (1998:18) criticized previous programmes as being too theoretical in nature. Even though such criticism may appear to be over-generalized, it does emphasize the importance of programmes to also focus on skills development. Teachers also need opportunities to observe the application of knowledge and to practice and apply this new knowledge in real-life contexts (Adler *et al.*, 2003b:135). By observing the implementation of strategies, learning is facilitated as it not only familiarizes teachers with such strategies, but they also learn from what they see and from practical experience (Dennison & Kirk, 1990:6). Because OBE is applicable on many educational levels (Rubin & Spady, 1984:38), it was an appropriate training approach in this particular CPD programme.

2.2.4 Section summary

The education policies related to CPD of teachers set clear expectations of teachers' roles. Because of the high demands placed on teachers in the new education system, many teachers require support. CPD programmes need to provide teachers with content knowledge and the opportunity to observe and practice new skills.

2.3 Continued professional development in South Africa

2.3.1 Continued professional development: A priority need

The National Policy Framework for Teacher Education and Development (Department of Education, 2006:16) confirms the importance of CPD in raising the standard of education. As 'once-off training' does not equip any individual for changes in circumstances, and/or the various demands placed upon them throughout their careers, CPD is a professional responsibility and entitlement. The Department of Education has committed each teacher to 80 hours in-service

education (INSET) per annum (Hindle, 1998:5; Roberts, 2002:40) to become trained in the NCS and the implementation of an OBE approach. To meet this need, formal teacher education institutions, non-governmental organizations (NGOs), and provincial departments of education are encouraged to contribute to CPD and teacher support.

In an effort to raise the quality of education, the Minister of Education (Daniels, 2007:26; Department of Education, 2006:3; Pandor, 2006) announced accreditation measures for teachers, which presently are being negotiated with teacher unions. Such measures, together with the *National Qualifications Framework* (*NQF)* (SAQA, 1997:1) create a demand for CPD and short courses that enable teachers to acquire or maintain professional status, and advance their career paths (Welch, 2003:32). This is of particular significance to the development of foundation phase educators (including Gr. R teachers) who are not necessarily adequately qualified. By enrolling in such courses they are provided the opportunity to improve their competence and qualifications.

The importance of supporting teachers in terms of content knowledge – as well as the effect of the absence thereof – has been emphasized repeatedly by previous studies (Adler *et al.*, 2003b:113; Taylor & Vinjevold, 1999a:227). However, content knowledge on its own is not sufficient to develop competence in teachers. Effective support/training also requires knowledge of how to engage the trainees in the training activity, and how to organize the information for the purposes of learning (Killen, 2000:xiv). The information to be trained needs to be relevant to the NCS, and needs to include both theoretical and practical components. These issues require careful consideration of the manner in which training is to be conducted within an OBE approach, and how teacher training should be viewed.

2.3.2 Purpose of continued professional development

If the purpose of CPD is to improve quality of teaching, it has to be aligned with both individual and systemic drivers, which are illustrated in Figure 2-3 (Jones, 2003:37, in Earley & Bubb, 2004:9).

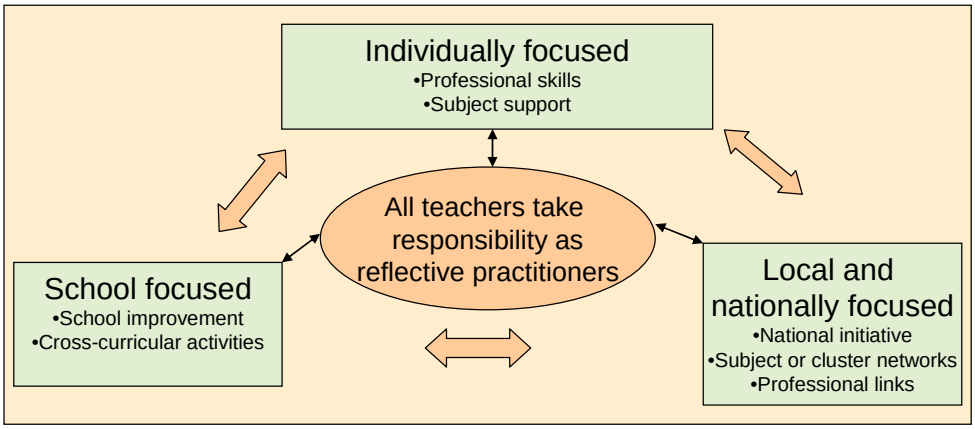

Figure 2-3: The purpose of CPD

With reference to Figure 2-3, the purpose of CPD should firstly be to support the teacher, that is to say the personal motivation and need of the individual to sustain or improve his/her competence should be considered (Grundy & Robinson, 2004:161). As adult learners they are internally motivated to learn (Wlodkowski, 2003:40). CPD therefore serves an *extension function* (Grundy & Robinson, 2004:147) by extending teachers' knowledge and skills through educational innovation, as well as a *renewal function* by updating and extending the teachers' knowledge and skills, to ensure continuing competence in the classroom. Through CPD teachers become cognizant of new practices and new developments in their professional field *(Ibid.)*.

On the other hand, because of the current challenges that exist in education and the high demands that are placed on them, many teachers have become despondent and lack the motivation to teach. These teachers need to be revitalized with new knowledge and skills in order to re-establish enthusiasm for their work (Pandor as quoted by Daniels, 2007:7). In this case CPD can also serve a *renewal* function

(Grundy & Robinson, 2004:147) that is focused on restoring enthusiasm and commitment (Department of Education, 2006:3). In both instances CPD activities form part of the *growth* and development cycle of any teacher's professional career as they are intended to *"…rejuvenate practice, to expand our professional repertoire, increase our self esteem, self-confidence and enthusiasm for teaching or, for example, our level of criticality and, thereby, achieve enhanced job satisfaction"* (Pacher & Field, 2004: 2 in Earley & Bubb, 2004:14).

Day (1999:4) is of the opinion that, in order to improve the quality of education in the classroom, the focus of training should go beyond the training of knowledge and skills of the individual to include also the school. The conditions in schools affect classroom learning and therefore the school and systemic context (Killen, 2007:2) also need to be included in CPD programmes, either directly or indirectly in order to eventually improve the quality of teaching and learning in the classroom. The teachers' current knowledge should be linked to curriculum reform, which represents the priorities of the government. This implies that there should be a balance between individual, school, and national needs (Bolam, 2002 in Earley & Bubb, 2004:2) (refer to Figure 2-3).

2.3.3 Continued professional development for teachers using OBE

The reform movement in education requires that a constructivist approach to *learning* needs to be applied in formulating a constructivist form of *training* (Killen, 2007:7). As indicated above, the underlying principles of OBE require the trainer to become a 'facilitator of knowledge' (Department of Education, 2000:2) by structuring the learning environments and activities in such a way that trainees are assisted in constructing their own knowledge, rather than to passively receive it. The implementation of OBE creates a different approach to teacher support, as teachers

may either be viewed as 'technicians' or as 'reflective practitioners' (Stuart & Kunje, 2000: 5 in Christie *et al.*, 2004:171; Gilbert, 1994:512; Killen, 2007:94).

The '*technician*' typology is aligned with the traditional in-service training models which follow a deficit approach where the teacher is viewed as a passive receiver of information (Killen, 2007:94). In this typology, teachers are viewed as inefficient and obsolete, having limited training, and not being up to date in terms of their knowledge and skills. The assumption is that teachers have little knowledge of their own, and because they are not regarded as active participants in their own professional growth, require help from people in authority (e.g. authorities within the Department of Education, service providers, or academics) (Lieberman & Miller, 1990:105). Such a view does not provide for school contexts in which reflection takes place, and generally restricts the prospect for CPD and/or personal growth. CPD activities within such a framework of thought are typically directed at institutions and systems (Stuart & Kunje, 2000: 5 in Christie *et al.*, 2004:171). This is in direct contrast with the principles of adult learning, which suggest that adult learners should be considered experts in their own right, and that their prior experiences should be acknowledged and valued (Cyr, 1999:2; Knowles, 1977:55). It also concurs with the OBE approach which requires that previous experiences be acknowledged, and that new knowledge be built on these experiences (Killen, 2007:78).

Contrary to the 'technician' view, the viewpoint of the 'teacher as 'reflective practitioner' values the development of sensitivity to the context (Jackson, 1971 in Christie *et al.*, 2004:171), and therefore reflection is essential to a 'learner-centred approach' (Killen, 2007:78). Such sensitivity to the context also accommodates cultural diversity (Butler *et al.*, 2007:243). Consequently, CPD of teachers within an OBE approach requires a shift in practice from viewing the 'teacher as a technician', which is a 'deficit model', towards 'the teacher as reflective practitioner', which is a

'growth model'. When applied to CPD the latter view of teacher training is specifically directed at the trainee as person and professional, and considers teaching a complex activity that requires teachers to develop creative responses to challenging circumstances (Jackson, 1971 in Christie *et al.*, 2004:171).

The key elements in professional development activities should include engagement, self-reflection, and behaviour modelling (Wilson, 2004 in Girolametto *et al.*, 2007:73). The challenge in teacher support lies in the conflict between the traditional view of teachers as technicians, as opposed to teachers becoming reflective practitioners with extended roles. In order to meet this challenge of creating reflective practitioners, it is necessary for CPD programmes to include the reflective-affective dimension.

2.3.4 Section summary

This section emphasized CPD as a priority to raise the quality of education. CPD was described with reference to the various terminologies used, and also as an ongoing process. The purpose of CPD was described as the teaching of knowledge and skills of the individual, but was also extended to address the needs at school and national level, aligning it with a systems approach. This section confirmed the need for CPD in meeting the challenges of education reform within the local context. The next step is to develop an understanding of how the knowledge can be effectively transferred within a supportive environment.

2.4 Creating a supportive environment

A supportive environment that facilitates learning is required to establish a successful partnership between the trainer and the trainees (Imel, 1995:3; Killen, 2000:xvi; 2007:79; Rogers, 1994:2). The trainer should recognize those factors that

motivate (or de-motivate) adult learners to participate in learning experiences, such as shown in Figure 2-4.

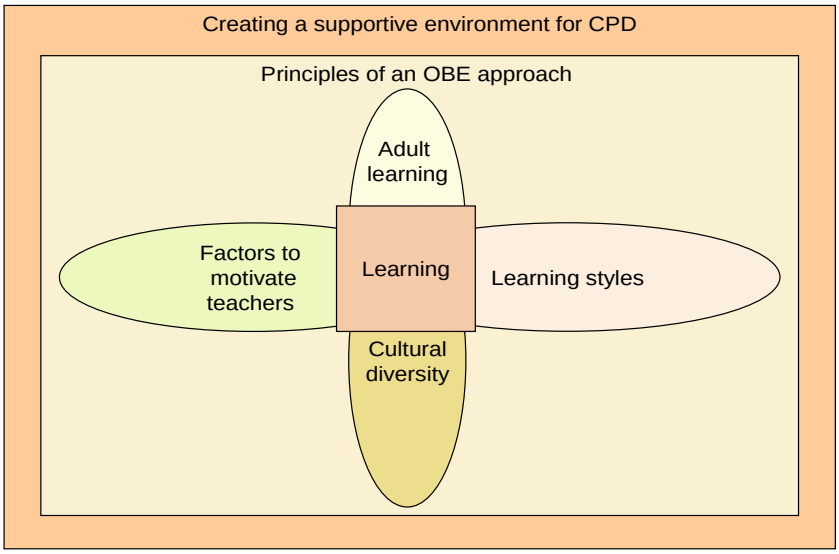

Figure 2-4: Considerations in the creation of a supportive environment for CPD

In order to create a supportive environment the trainer has to acknowledge teachers as adult learners who come from diverse cultures and who have different individual preferences in learning.

2.4.1 Accommodating cultural diversity

Since the shift in emphasis away from teaching towards learning (which developed into the learner-centred approach), the role played by culture in classrooms (which includes CPD classrooms) received more prominence (Sowden, 2007:304). Although culture is acquired externally, it influences the internal nature of individuals (e.g. the way in which a group of people views the world, how the self is experienced, how people view reality, and how expectations are created), and therefore creates a blueprint for personal and social existence (Brown in Finkbeiner & Koplin, 2002:28). Culture therefore affects the emotional and cognitive aspects of learning (Bruner, 1966:43; Janse van Rensburg, 1998:35; Snowman & Biehler,

1996:139) and should therefore be taken into account in any instructional design (Kramer, 2001:26). A culturally responsive and sensitive learning environment will induce a feeling of comfort, safety, and belonging in the trainees, and will therefore enhance learning.

Even with the best of intentions, individuals are not always aware of behaviours and customs that are culturally based (Althen, 1988 in Lynch, 1998:50) and such ignorance may cause friction and misunderstanding with detrimental effects for learning. The trainer should not only create an environment where participants feel safe and comfortable (both physically and psychologically), but one that also challenges them. This requires the trainer to embark on a process of developing cross-cultural competence, implying that the trainer *"…thinks, feels, and acts in ways that acknowledge, respect, and build upon ethnic, (socio)cultural, and linguistic diversity"* (Lynch, 1998:49).

When planning a CPD programme the development of cross-cultural competence should be seen as a continuum, starting with the trainer's awareness of his/her own culture, followed by obtaining general information about the ways in which values, beliefs, and behaviours may differ across cultures (Sowden, 2007:305). It is not enough to be cognizant of the differences between Western and African perspectives when planning new educational programmes – the real challenge is to translate such differences into practices that will create a learning environment to suit all cultures.

Successful multicultural programmes aim to promote respect for diversity, reduction of ethnocentrism and stereotypes, and to improve learning (Lynch, 1998:55). It is firstly necessary for the trainer to acknowledge that cultural pluralism exists. Multiculturalism needs to be considered from two perspectives, i.e. the "other" relevant culture/s, and that of the trainer/developer of the programme (Snowman &

Biehler, 1996:139). Programmes are multidimensional and therefore the effect of culture on all components of the educational experience need to be considered (Butler *et al.*, 2007:243) in order to increase the probability of effective learning. Ignoring any of the cultural components may hamper learning. It is clear that trainers should become aware of cultural influences in order to design programmes that will accommodate all trainees. Figure 2-5 shows the constructs related to CPD programmes, each of which could be affected by culture and hence become potential barriers to training success when working with diverse populations.

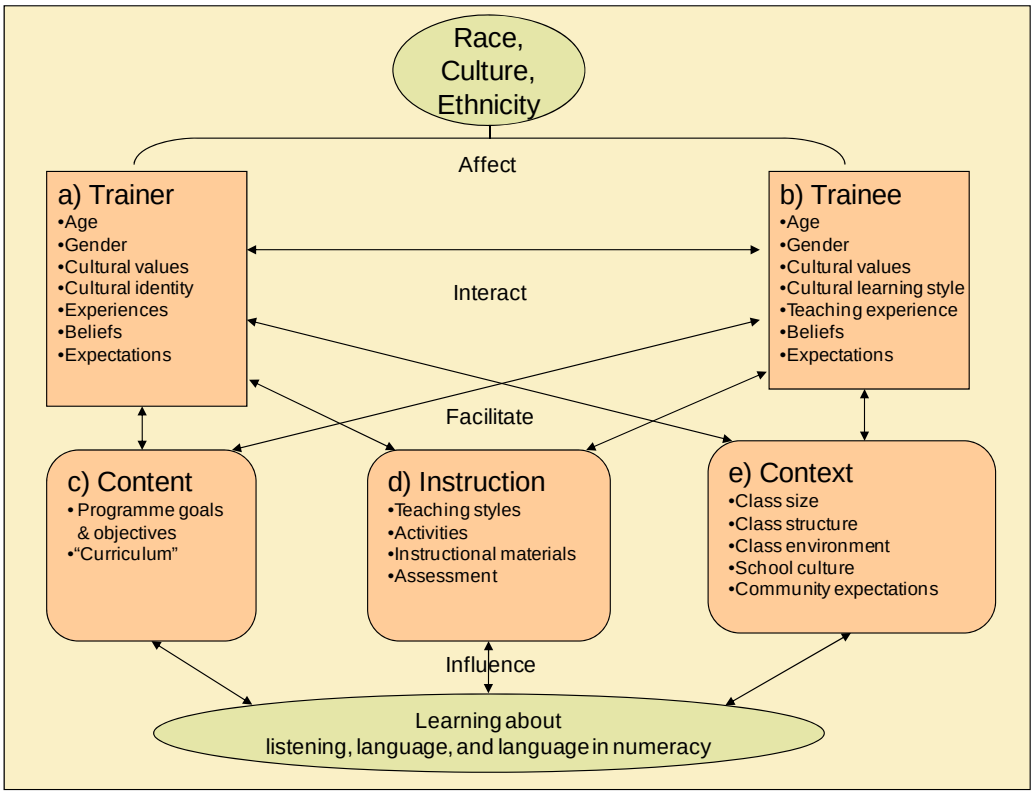

Figure 2-5: A multidimensional model for diversity training as applied to this programme

Cultural diversity, however, should not be viewed in isolation from other factors, as they are interrelated in many ways. The trainees/participants in this study were adult learners, with very particular preferences in terms of learning.

(a) The trainer

Villegas and Lucas (in Butler *et al.*, 2007:244) described culturally responsive trainers as being socio-culturally conscious, having affirming views of students from diverse backgrounds, rather than viewing differences as problems that should be overcome. They also hold themselves responsible for educational change, and understand that trainees construct meaning in various and overlapping ways. In addition, they have knowledge of the trainees' backgrounds. These trainer characteristics are in accord with the underlying principles of OBE (Killen, 2000:vii). Sowden (2007:305) was of the opinion that appropriate personal qualities (e.g. "…the ability to relate to trainees, the role of enthusiasm for the subject and the interaction of these, together with a sense of purpose and organization") are what count most in developing intercultural communicative competence. A well-rounded, confident, and experienced individual is also a good trainer *(Ibid.),* which emphasizes the importance of holistic trainer development. Reflection on training practices involves reflecting on the self, which is the first step in developing cross-cultural competence. Education in a multicultural context needs to be based on the assumption that there are multiple points of view from which people, events, concepts, and themes may be understood (Butler *et al.*, 2007:243). In order to provide culture-friendly learning experiences, trainers of multicultural workshops have to continuously expand their own knowledge based on culture-specific information in order to understand and explain cultural values, beliefs, and behaviours that may be encountered in interactions of a multicultural nature (Lynch, 1998:55). Furthermore, it is important for trainers to continually work at deepening their own understanding of their trainees and their world. In essence, it appears that successful multicultural trainers need to have a high level of dedication, and show a strong affinity for trainees.

(b) The trainees

Some trainees may develop negative attitudes owing to issues related to race, ethnicity, gender, and culture (Butler *et al.*, 2007:246). These attitudes may impact on effective learning, and therefore need to be taken into account when planning training events (Weaver, 1993: 160 quoted by Finkbeiner & Koplin, 2002:28; Louw, 2004:259). Knowledge of such issues may assist trainers in designing learning experiences that meet the trainees' needs. Attitudes and values may also affect interactions and/or relationships, and could affect motivation to participate in training activities. To facilitate learning and promote healthy relations within a group, it is therefore necessary to include a component of personal development in a training programme (Agochyia, 2002:87). This implies that the trainer has to allow for sufficient time for such activities, and as a result will become less trainer-directed and more trainee-directed in delivering the curriculum (Killen, 2000:25).

(c) Content component

Congruent with the OBE approach to training, the goals and objectives of the teaching programme determines the content of the teaching material (Killen, 2000:viii). Content knowledge relates to the "…concepts, principles, relationships, processes, and applications a student should know within a given academic subject, appropriate for his/her and organization of the knowledge" (Ozden, 2008:634) Decisions in terms of the content may either include or exclude certain populations, and therefore need to be considered in the conceptual model/phase of the training design. To include all trainees/participants it is important for trainers to allocate assignments/projects and activities that allow learners to demonstrate culture-specific knowledge and skills (Butler *et al.*, 2007:246). If an individual/learner is given the opportunity to uphold his/her language and culture in an educational

situation, he/she is most likely to attain better academic achievements (Goduka & Swadener, 1999). The trainer therefore has to appreciate work compiled from cultural and linguistic resources that trainees bring to the training (Cochran-Smith in Butler *et al.*, 2007:248). Failing to do so, or a lack of trainer interest, will alienate trainees.

(d) Instructional component

Apart from the content of the curriculum, adult learners' participation depends on how the instruction is presented, that is the kind of learning activities in combination with the trainer's instructional style. Trainees from African cultures usually come from community settings in which collaborative relationships are valued; they function within close-knit family groups, and therefore prefer learning in groups rather than to participate competitively (Snowman & Biehler, 1996:143). Research on programmes directed at trainees from Afro-American descent reported higher participation rates when they did not emphasize rules, order, and organization, as opposed to those that did (Lind & Butler in Butler *et al.*, 2007:248).

The instructional design should be sensitive towards the specific profiles of the trainees and their learning preferences, such as applied in this study (refer to Appendix 2A). In some instances, e.g. in African cultures, strategies such as oral learning or emphasis on creative arts with a kinaesthetic and affective orientation (singing and dancing) may add a positive dimension to the learning experience (Hale, 2001 in Butler *et al.*, 2007:247; Mbigi, 2005:7). The particular instructional design for this CPD programme is discussed in Chapter 3.

One of the challenges in the development of multicultural and multilingual programmes is to acknowledge the various languages and cultures represented whilst appreciating the diversity as a resource rather than a barrier in the training

situation. It is therefore important to address such challenges (by making use of interpreters to assist in the transfer of information or by allowing more time for the completion of questionnaires) (Goldstein, 2000 in Louw, 2004:264).

Differences *in language and culture* may cause trainers to misunderstand their learners' aptitudes, intent, or abilities, and therefore trainers need to be aware of and accommodate such differences in their instructional designs. To avoid misunderstanding and communication breakdown, trainers have to be aware of cultural differences beforehand (e.g. in terms of communication patterns and preferences, time orientation, values, as well as the language used in training) (Lynch, 1998:48, 60; Snowman & Biehler, 1996:143).

Different cultures use body language and non-verbal communication differently (Lynch, 1998:72) and trainers need to familiarize themselves with these differences and become sensitized so as not to embarrass or confuse the trainees. Cultures also differ in terms of their orientation to time: Western cultures are generally highly time-orientated, whilst African cultures may find a rigid approach too restrictive (Lynch, 1998:60; Snowman & Biehler, 1996:143). In practice, a trainer who was raised in a culture that values punctuality may find it unacceptable when participants arrive late for workshops and his/her response to such behaviour may in turn trigger an adverse reaction from the learners. This may require the entire group to negotiate rules and expectations prior to the onset of the programme. In this way a comfortable middle ground may be found, as well as some space on both sides for mutual accommodation.

In the local context English is the preferred language of instruction on tertiary level and in professional training (Naudé, 2005:34). Many teachers in previously disadvantaged areas in South Africa have a poor command of English, which leads to uncertainty and failure to master OBE (Motseke, 2005:114). Most of the teachers

in South Africa received their professional training and teaching support in English, but this does not imply that they are proficient enough to use English for academic purposes.

Although participants in training programmes may be able to use English as basic interpersonal communication skill (BICS) (Cummins, 2000:56), programme developers should be aware that cultural insensitivity and over-reliance on certain familiar cultural capital may be a stumbling block in trainees' learning (Centre for Higher Education Development, 2003:5). Programmes aimed at teachers' development need to take this factor into account and provide the necessary support to accommodate trainees' limited proficiency in English (Goldstein, 2000 in Louw, 2004:264).

Instructional strategies which proved to be well suited for culturally responsive teaching and which are also used in an OBE approach (Killen, 2007:6) include peer tutoring, cooperative learning, and mastery learning (Wlodkowsi and Ginsberg, 1995 in Snowman & Biehler, 1996:154). Peer tutoring has been reported (Yuen Loke & Chow, 2007:243) to create positive learning outcomes, i.e. cognitive gains, improved communication, self-confidence, and social support among trainees.

Cooperative learning (Killen, 2007:7), which is closely related to peer tutoring, has been found to be particularly effective in cultures with extended families that emphasize cooperation and sharing, such as African cultures (Sadker and Sadker, 1991 in Snowman & Biehler, 1996:156). This is because collaboration between peers provides a forum for discovery learning and facilitates cognitive processes, e.g. verification and criticism (Slavin in Kramarski & Mevarech, 2003:282).

Adult training is usually done in groups (Rogers, 1994:5) as it contributes to the development of a collaborative, participative learning environment. Small group

activities foster peer relationships, and informal spontaneous groups are ideal for short-term activities such as brainstorming (Rogers, 1989 in Imel, 1995:3). Group work also provides support to self-directed learners who rely on peer instruction (Brookfield, 1992:83).

The instructional strategies that are reportedly most effective in cross-cultural training include the setting of clear objectives, the communication of high expectations, the monitoring of progress with immediate feedback, and making lessons meaningful (Garcia 1994 in Snowman & Biehler, 1996:157). Such strategies are also in accord with the principles of an outcomes-based approach (Killen, 2000:vii).

(e) Contextual component

Adult learners are independent and self-directed and need to feel in control of their own learning (Knowles, 1975:1). Participation in CPD programmes therefore needs to be voluntary and not coerced and contexts need to be of such a nature to support learning and participation in CPD programmes.

Factors such as class size, support facilities (e.g. photocopiers, fax machines, internet), and suitable teaching material can affect participation. Schools with sufficient support structures in place (e.g. a mentoring programme for inexperienced teachers, staff development programmes, multimedia equipment) create a supportive environment for teachers, resulting in positive outcomes for teaching and learning (Butler *et al.*, 2007:242).

Although such support may be the ideal, reality proves differently as past inequities have not yet been eradicated across contexts. It is therefore important to address the needs of schools where there is limited evidence of a supportive environment by providing support on institutional (school) level. With reference to Figure 2-4 the

next factor to be considered in the creation of a supportive environment is the fact that the trainees in this CPD programme are adult learners and therefore require a particular training approach.

2.4.2 Adult learning

The theory of adult learning is based on the principle that adults want to feel in charge and be active participants in their own learning (Knowles, 1973:3; Pike, 1989). They also bring a wide range of experience with them to the training situation which should be acknowledged (Knowles, 1977:28). Adults become motivated to learn when they see the relevance of the learning objectives and activities for their own work (Cyr, 1999:2). They have strong learning preferences, as well as varying aptitudes and abilities (Ference & Vockell, 1994:25). The complexity of adult learning (Rogers, 1994:32), and the various factors that can influence the effectiveness of thereof (Honey & Mumford, 2000:8; Killen, 2000:xi) are shown in Figure 2-6.

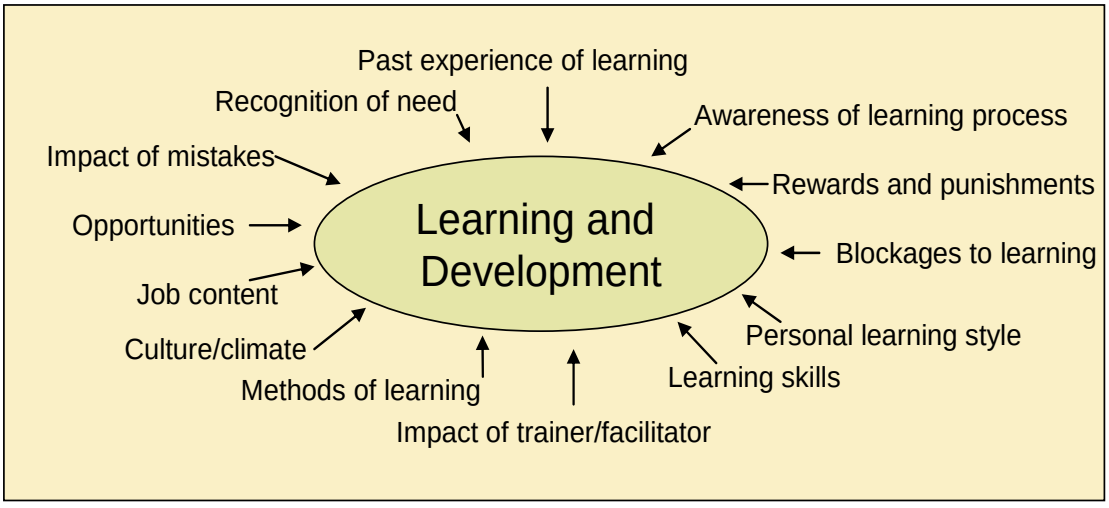

Figure 2-6: Factors which can have an effect on learning

In order to create meaningful learning experiences, trainers of adult learners have to provide opportunities for the trainees to use what they already know, and to apply

what they are learning in the educational/classroom setting. Such practices are also in accordance with an OBE approach to learning (Killen, 2007:11). A summary of adult learning principles and how they were applied in this CPD programme is presented in Appendix 2B. The aforementioned factors that may affect these phenomena need to be minimized when planning CPD programmes.

(a) Factors that affect learning

Many of the factors depicted in Figure 2-6 are of such a nature that not much can be done to decrease or limit their effect on the learning process; nonetheless they have to be acknowledged in the outcomes.

Adults are motivated to learn in different ways than younger learners and therefore learning experiences should be specifically suited to their needs (Lieb, 2002:1; Merriam, 2001:4; Wlodkowski, 2003:40). Trainers have to be cognizant of the specific preferences that are demonstrated in Figure 2-7, as they may affect the responsiveness of the trainees in the session. Such preferences are related to physical, emotional, and learning factors.

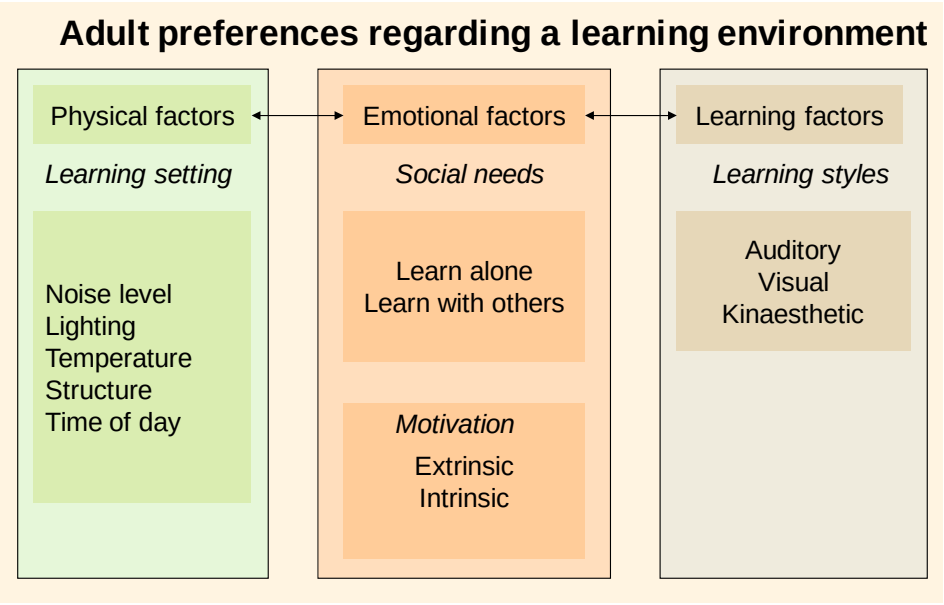

Figure 2-7: Adult preferences related to the learning environment

(i) Physical factors

Trainers (and not the trainees themselves) control most of the factors that determine whether trainees learn and therefore have to give some thought to specific preferences regarding the learning environment. When considering the physical factors (refer to Figure 2-7), the noise levels should be limited as far as possible, the room should be adequately lighted, and the temperature should be comfortable (although this may not necessarily be possible in all training venues).

The interior design of the training venue may contribute to creating an atmosphere that will facilitate communication and participation and should be suited to the specific objectives of every training situation (Pike, 1989:63; Silberman, 1996:10-12). Specific seating arrangements need to be considered to optimally accommodate smaller and larger groups, and potential restrictions of the venue need to be identified and addressed.

Smaller groups may benefit from half-round and rectangular seating arrangements as they allow trainees to have adequate visual access to the trainer, while providing a good reading and writing surface, as well as good face-to-face contact with each other (Rogers, 1989 in Imel, 1995:3). When larger groups are trained the traditional classroom seating arrangements could be adjusted to a chevron design (De Beer & Swanepoel, 1996:26).

(ii) Emotional factors

When considering the emotional factors (Figure 2-7) various activities should be utilized to create the opportunity for trainees to sometimes learn individually, and at other times in groups. It is important for the trainer to first create a safe environment where the trainees/participants have the confidence to ask questions that allow for open responses (Rogers, 1989 in Imel, 1995:3).

The trainer should strive to create an ideal learning climate characterized by a non-

threatening, non-judgmental atmosphere in which trainees are expected to share in the responsibility of their learning (Rogers, 1989 in Imel, 1995:3).

(iii) Learning factors

Each individual has a preference for the way in which he/she takes in and processes information (Bowles, 2004:2) and each person reacts differently to learning depending on his/her learning preferences. Within an OBE approach (Department of Education, 2000:3) trainers need to cater for all the different learning styles and preferences, which require adjustments to their teaching strategies. The application of action learning strategies to this CPD programme is presented in Appendix 2D. The use of such strategies will ensure that all the trainees will be included in the learning activity (Killen, 2000:xxv). Much has been published in this regard and a summary of the various learning styles and how they were accommodated in the development of this proposed programme is presented in Appendix 2A.

Professional development activities need not necessarily provide teachers with new information for professional growth, but can also *review, renew, and extend* their knowledge (Grundy & Robinson, 2004:146). It is necessary for trainees to once again commit themselves as teachers, and to take up their roles as agents of change (Bolam, 1993 in Earley & Bubb, 2004:4). Such activities for professional development provide them with the means to acquire and develop the critical knowledge, skills, and emotional intelligence that will enable them to become competent teachers, and to demonstrate "good professional thinking, planning and practices with children and colleagues through each phase of their teaching lives" (*ibid.*). Apart from considering learning styles ('how' they learn) when planning a professional development programme, trainers of adult learners also need to be cognizant of the reasons why adults learn and consider factors which motivate/de-motivate them.

(b) Reasons for participation in adult learning experiences

Adult learners are internally motivated to learn when they become aware of the purpose of the task, or can see the relevance of the learning experience (Kidd in Cyr, 1999:4). Table 2-1 depicts the reasons why adults learn and the implications for this specific professional development programme (adapted from (Mbigi, 2005:27; Pike, 1989:24; Wlodkowski, 2003:27).

Table 2-1: Reasons for adult learning and implications for this programme

Reasons for adult learning	Application to this specific programme
Learning for personal improvement and value of internal motives	Adults learn for professional growth or rise in social prestige. Hence, they have a need to gain new skills and knowledge. In this case personal progress was monitored by portfolio assignments. Adults need to see the results of their learning involvement (e.g. feedback on portfolio assignments, and a certificate that recognizes efforts).
Learning because of a cognitive interest: Learning to create and maintain interest	To improve knowledge about a certain topic in the field of interest, it is necessary to structure experiences and to apply content to life. It is important to give recognition, encouragement and approval. To motivate his/her trainees, the trainer has to be inspired and enthusiastic. It is also necessary to establish long-range objectives.
Learning to meet external expectations	Trainees want to meet external demands (e.g. NCS). Training has to be relevant and useable. The trainer provided a written report on each learner to the district facilitators.
Learning for intensified social relationships: Learning is a social process	The social process is considered to be important and therefore, learning opportunities need to be created for bonding (e.g. small groups, frequent breaks, discussion groups). Song, music and dance are powerful educational tools to keep trainees enthusiastic, and to accommodate culture. Interaction with the trainer was encouraged, and the trainer provided personal contact numbers to use when trainees experienced problems.
Learning for financial gain (goal-orientated learners)	Professional development could be the key to promotion and therefore the programme has to be of high quality and aid in career enhancement.
Learning for stimulation or escape	Participants learn in order to break routine (break boredom). It is also necessary to show the participants that the trainer expects them to enjoy learning and to view it as exciting.

Trainers of adult learners therefore are required to provide them with reasons for their learning to point out the relevance thereof. Adult learners have an innate desire to grow and learn, show a sense of curiosity, and enjoy learning new skills (Miller & Watts, 1990:31). Adults are also more likely to participate in learning programmes

when these are provided close to their homes or work, and scheduled at times which they find convenient (KiddCyr, 1999:4). The emphasis on accountability (Belzer, 2005:33; Harrison *et al.*, 2001:200; Salas & Cannon-Bowers, 2001:471) requires training activities to be cost-effective. Attrition should therefore be prevented as much as possible, and trainers need to employ strategies that ensure positive outcomes and keep trainees motivated to perform to the best of their abilities (refer to Appendix 2C) (Miller & Watts, 1990:146; Pike, 1989:24). To limit the loss of interest it is important to consider the reasons why adult learners would want to participate in a learning experience.

Several of the principles underlying each of the factors listed in Table 2-1 coincide and therefore require similar actions to be taken in the training. The trainer/researcher cannot motivate the participants, but can create an environment in which the trainees/participants can motivate themselves. In this particular programme the trainer/researcher created a need for learning by explaining why the participants need to participate in the specific learning activities, the rationale for the training programme, as well as why they need to learn these particular skills at a briefing interview. The role of culture and the accommodation of the principles of adult learning, as well as OBE, are important considerations when planning the training.

2.4.3 Integration of training components

The training of adult learners is a multidimensional endeavour that requires five components to be considered (refer to Figure 2-5): The trainer, the trainee, the content to be trained, the instruction, and the context. Effective learning however requires an optimal learning environment, and therefore specific consideration should be awarded to cultural diversity and the principles of adult learning and OBE.

It is necessary to integrate these factors within the five components related to learning (refer to Tables 2 to Table 6 in Appendix 2B) to provide the guidelines for this CPD programme.

2.4.4 Section summary

Effective learning requires a supportive environment and therefore cultural diversity, various learning styles, the principles of adult learning and the factors which motivate adult learners need to be considered. In this section the principles of OBE, adult learning, as well as culture were applied to the five components of the training environment (the trainer, the trainee, the content of training, the context, and the instruction) and practical guidelines were provided for this particular CPD programme.

2.5 Conclusion

The education transformation process addressed equity and equality and aimed to provide skilled citizens who can be globally competitive (De Waal, 2004:i). However, educational changes require professional development of teachers and therefore trainers have an obligation to ensure that their training is accountable and of a high standard (Spady, 1994b:20). The challenge to the trainer of this specific CPD programme was therefore to train the trainees in this study in the most effective manner that was based on sound training principles informed by empirical research.

In the development of this particular programme the training had to take into account those principles of adult learning that would help the participants in this study to learn (Peterson, 2001), but at the same time also had to provide for the effect of diversity in the learning context (Butler *et al.*, 2007:241). The latter required considerable reflection and in the process contributed to the personal growth of the trainer.

Considering the many commonalities that exist between the principles of OBE and adult learning, the OBE approach appeared to be most appropriate for training adult learners (e.g. teachers) in the local context. In practice it implied that the trainer had to conceptualize the principles of OBE and to customize it for the training situation (Killen, 2007:69).

The challenge of training teachers in this programme was to develop a specific sensitivity to the stark realities of the context, but to simultaneously motivate teachers to implement new teaching strategies. This required the creation of a supportive environment in which teachers as adult learners could feel comfortable to learn (Imel, 1995:3; Killen, 2000:xvi; Rogers, 1994:2).

The implementation of this CPD programme therefore required an initial preparation of the trainer to adopt a positive attitude before the planning of the programme and to maintain a positive attitude throughout the process of support in this specific context. It required that trainees be viewed as experienced and knowledgeable in their own right (Knowles, 1977:29) and be respected as professionals which is an important aspect for collaboration (Forbes, 2008:141; Moodley *et al.*, 2005:40). SLTs and teachers are required to share their knowledge and learn from each other. In this case the trainer could learn about the particular context and the current teaching practices in the implementation of the curriculum, and in turn, the teachers could acquire knowledge and skills.

Whereas this chapter explored the most effective manner in which training should be conducted to facilitate the process of learning, the focus in the following chapter shifts to the components of the specific CPD programme and the information to be trained to provide teachers with sufficient content knowledge and skills to improve their competence.

2.6 Appendices

Refer to the separate Compact Disk for the content of all appendices.

Appendix 2A *Instructional activities to accommodate learning styles*

Appendix 2B *Principles of adult learning and OBE*

Appendix 2C *Motivation and implications for training*

Appendix 2D *Action learning strategies applied to this programme*

Chapter 3 Components of the support programme

"Language is a tool for learning"

(Owens, 2001:4)

Aim of the chapter

The aim of this chapter is to describe the three components included in the continued professional development (CPD) programme for foundation phase teachers developed by this study, i.e. the training component (with specific focus on the areas of listening, language, and the language for numeracy), the mentoring component, and the practical component. The various topics addressed in this chapter are portrayed in Figure 3-1.

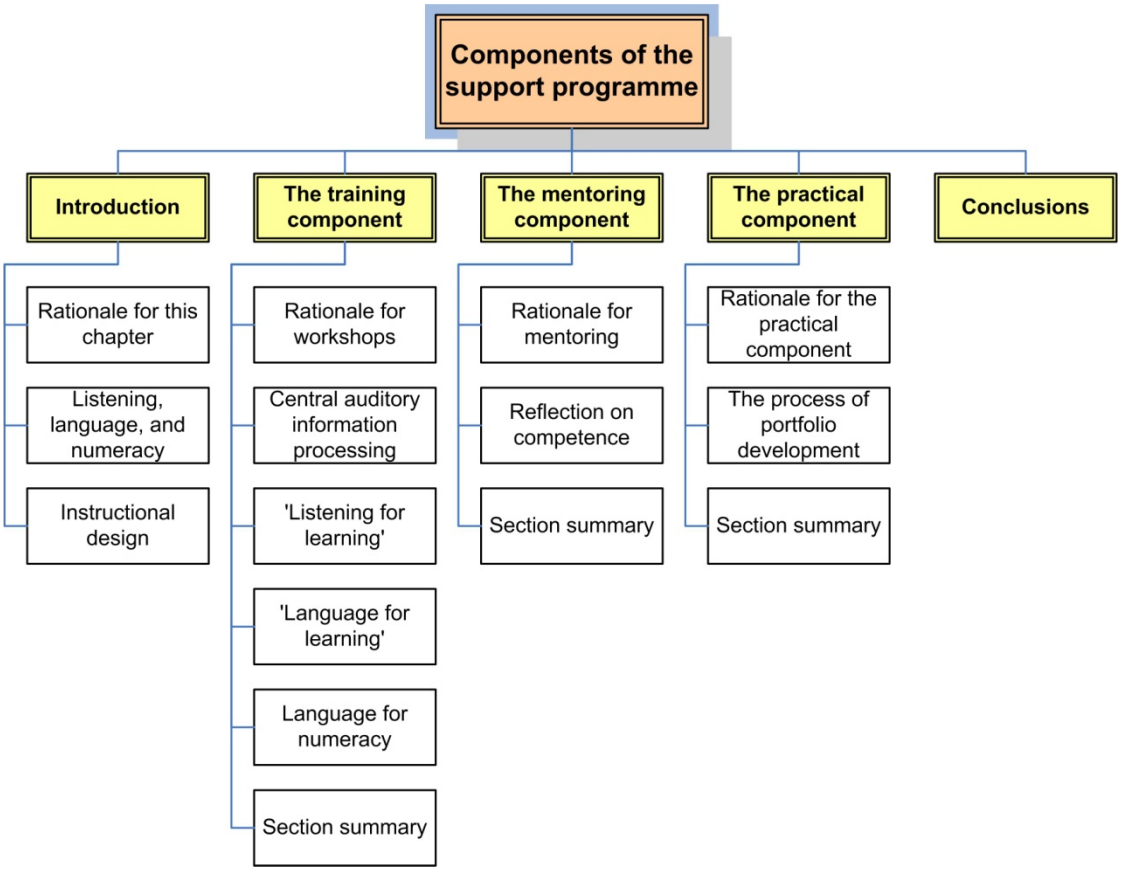

Figure 3-1: Outline of Chapter 3

3.1 Introduction

3.1.1 Rationale for this chapter

Language is an interdisciplinary field of knowledge that is shared by teachers and speech language therapists (SLTs) working in the school context. This common interest stems from language being the foundation for developing competence in reading, writing, listening, and speaking (Cummins, 2000:129; Owens, 2001:4). Teachers are primarily responsible for the teaching of reading and writing, whereas SLTs attend to the cross-modal literacy-language connection between all four modes of language, as they may affect one another. Language deficits may delay the acquisition of these four modes of communication, resulting in learning difficulties (Owens, 2004:382).

Internationally, professional bodies e.g. ASHA (2001:1) recommend that SLTs play a preventative role by providing preschool and foundation phase learners with suitable intervention for literacy development and address reading and writing skills in older learners. Locally, White Paper 6 (Department of Education, 2001b) specifies that SLTs play a consultative and collaborative role in district and school-based support teams that provide training, mentoring, monitoring, and consultation to teachers in order to equip them with skills to facilitate literacy and numeracy. The emphasis in such a collaborative model of support has shifted from supporting the child to supporting the teachers.

The collaborative model of support encourages team members to share their disciplinary knowledge with each other (Engelbrecht, 2001:18), which in this particular case implies a two-way process: SLTs can contribute their disciplinary knowledge in facilitating language development (Gerber, 1987:119), whereas teachers can provide insight into the context. Support to teachers includes the

provision of continued professional development (CPD) activities, which implies SLTs interpreting the NCS for the foundation phase "…as it is pertinent to their redefined role in curriculum delivery" (Moodley *et al.*, 2005:40). Since SLTs focus on the acquisition of listening skills and the development of language, their expertise is best applied to the Literacy and Numeracy Learning Programmes.

General language acquisition programmes in schools require a systems approach, as young learners are members of a whole system (Nelson, 1981:1). According to a systems approach the language acquisition process is an integrated whole, which includes various subsystems that are either internal or external to the child. Language intervention in schools calls for strategies to be implemented for the whole classroom as a group (Wolf-Nelson, 1998:16).

The programme for language development that was compiled for this particular CPD programme integrated various theoretical positions (e.g. principles of biological maturation, linguistic rule induction, behaviourism, information processing, cognitivism and social interactionism) (Kamhi, 1996:56; Wolf-Nelson, 1998:41). Such an eclectic approach did not allow for any one of these theoretical positions to be favoured because all were considered useful to some extent. The continued professional development programme (CPD) that was developed to facilitate listening and language for learning had to provide teachers with strategies and activities that would reflect the integration of these theoretical positions.

In addition to the aforementioned approach to language development, the CPD programme had to consider that the trainees in this case were adult learners and therefore required a specific approach to training and learning. The information to be trained also had to meet the requirements of the National Curriculum Statement (NCS). In considering all of the aforementioned requirements this CPD programme had to balance theory with praxis and provide the trainees with sufficient knowledge

to understand the rationale for teaching learners the NCS, but also provide them with skills and strategies to do so. The specific relationship between the skill areas addressed in the CPD programme is discussed next.

3.1.2 Relationship between listening, language, and numeracy

This support programme was based on the underlying relationship between listening and language for learning, with specific focus on the language required for numeracy, which is explained with reference to Figure 3-2.

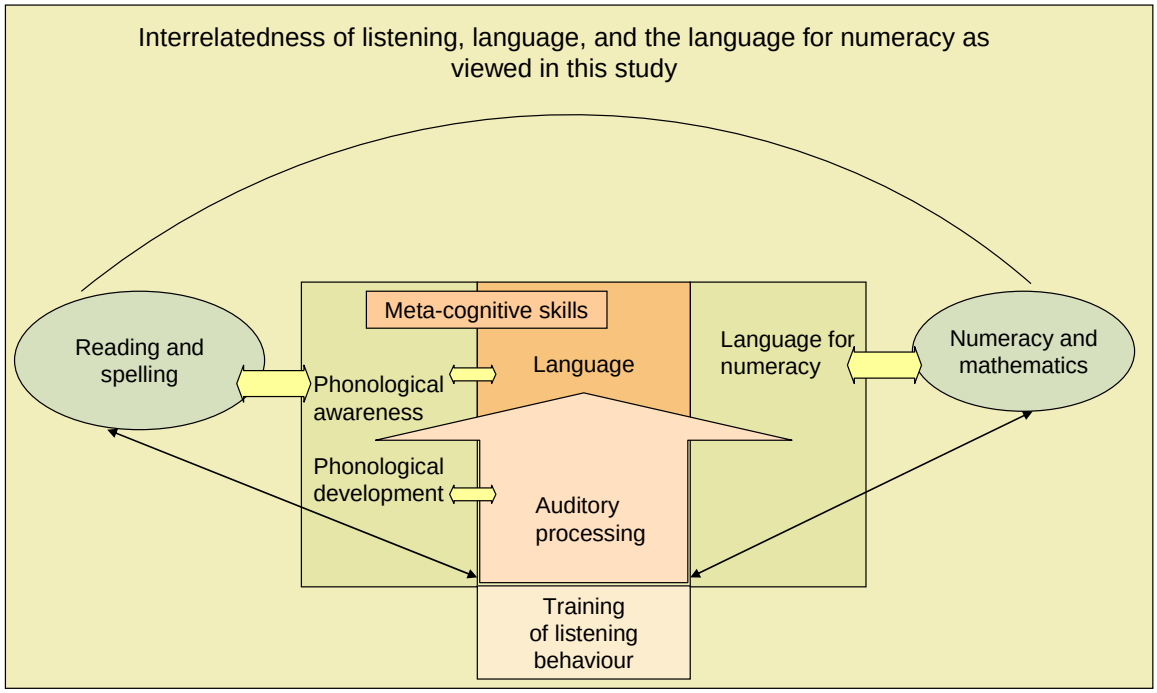

Figure 3-2: The relationship between listening, language, and numeracy

With reference to Figure 3-2 the ability to listen to sound and to attach meaning to it is the basis for developing spoken language (Bellis, 2002:3) and communication (Williams, 1995:v). Language, in turn, is essential for the acquisition of literacy and numeracy because it is the foundation for speaking, reading, writing, and spelling (Beukelman & Mirenda, 2005:359). It is important that young children acquire adequate language skills from early on to allow them to become academically

competitive when going to school. Phonological development (including phonological awareness) (refer to Figure 3-2) provides the bridge between language and literacy (Cline, 1989:367) whereas higher level phonological skills (e.g. sound manipulation and substitution) facilitate written language development in terms of reading and spelling (Adams *et al.*, 1998:10; Gilliam, McFadden & Van Kleeck, 1995:145; Johnson & Roseman, 2003:5; Van Kleeck, Gillam & McFadden, 1998:65).

Learners who do not have adequate and age-appropriate listening and language skills when entering formal education may be at risk for academic failure (Justice & Kaderavek, 2004:201). It is therefore important to address the development of these skills in the foundation phase curriculum.

Language is further required for the development of numeracy and mathematical skills (Rothman & Cohen, 1989:133; Thompson & Rubinstein, 2000:568) and to connect these to other areas of knowledge in the social sciences (Department of Education, 2002:6). Mathematics consists of problem solving, which relies on underlying auditory processing skills and language competencies (Bellis, 2002:3; MacMillan, 2002:9) (view Figure 3-2). Learners have to be able to read in order to understand numeracy and mathematic concepts. However, learners' mathematical thinking is to a large extent determined externally by their teacher's own mathematical understanding, the language the teacher uses, and the nature of the class discourse (Naudé, 2004:121). It is important that teachers are made aware of both the internal and external factors related to language that may affect learning. The planning of a CPD activity is not restricted to the training material, but also includes the instructional design.

3.1.3 Planning the instructional design of a CPD programme

Bruner (1966:14, 40) depicted the structure of any domain of knowledge as

progressing through identifiable stages (refer to Figure 3-3), namely the enactive stage where knowledge is created by concrete actions, to an iconic stage where knowledge is created from observing action, to the stages of concrete and formal operations where knowledge is created in symbolic terms that are independent of experiential reality. `

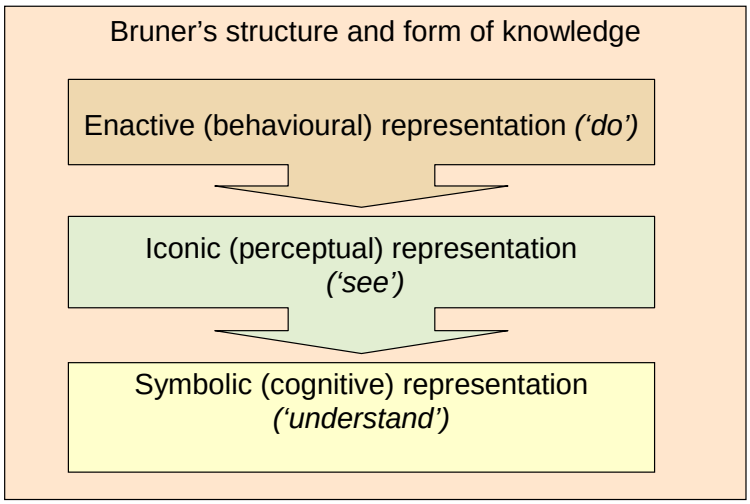

Figure 3-3: The structure and form of knowledge (Bruner, 1966:14)

These three levels of representation (Figure 3-3) follow a developmental sequence. It is important that trainees are afforded the opportunities to 'do, hear and see.' Programmes that aim to provide basic skills and knowledge firstly need to provide background information to facilitate the understanding of principles. Direct instruction through lecturing (*symbolic/cognitive level)* requires trainees to listen and read and is deemed effective in teacher training programmes (Haupt, Larsen, Robinson, & Hart, 1995 in Riley & Roach, 2006:364).

Learning also needs to take place on the *iconic level* where trainees observe practical demonstrations and engage in role play in the workshops. Learning on the *enactive* level can be facilitated by providing trainees with opportunities to practise these skills in role-play situations or in small groups. When trainees apply their skills in the real-life context of their classrooms, learning on this level is reinforced. The

enactive level is suitable for the training of simple skills that have to be physically demonstrated (Bruner, 1966:14, 40).

Neither activity nor experience is possible without reflection (Silberman, 1996:2). The Lancaster model (Binstead, 1980:25) included these three aspects (refer to Figure 3-4).

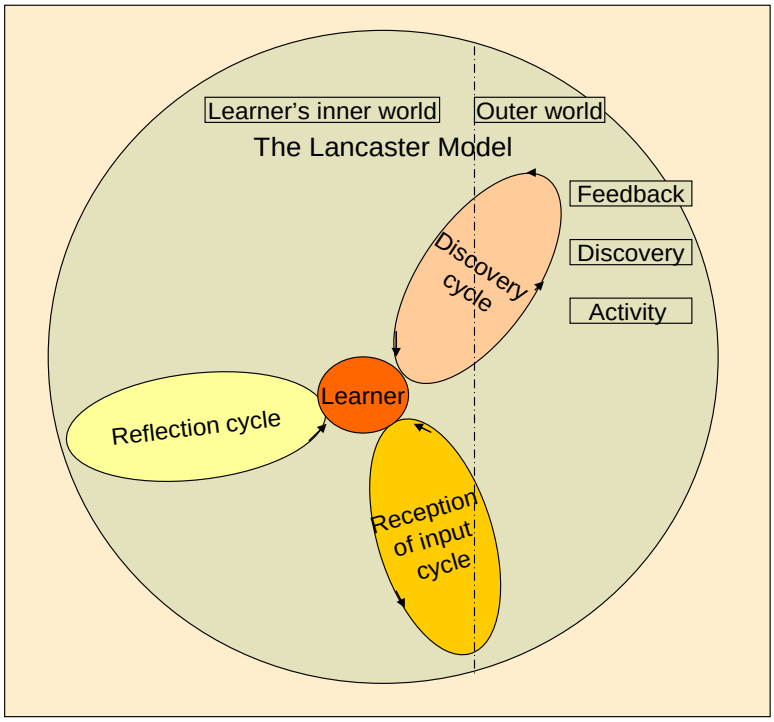

Figure 3-4: The Lancaster model of learning (Binstead, 1980:21)

In this model (refer to Figure 3-4) learning is described as a cyclical process consisting of three different forms, namely the *input level and generation of output* (reception of information in a written or verbal form), a *discovery level* (obtained through written pro forma's, peer supervision, or by interview), and *reflection* (e.g. where the learner is encouraged to try out new strategies in practice) (see Figure 3-4). In order to create effective learning experiences it is necessary for trainers to combine all three of these cycles in various forms. Such a combination of learning cycles (Binstead, 1980:1, 30; Bruner, 1966:14) is comprehensive and accommodates most learning styles, which made it suitable for use in this study.

This CPD programme included a training component, a practical component and a mentoring component. The workshops (*training component*) consisted of direct instruction as basic knowledge had to be provided first, but allowed for discussion and practice sessions in small groups where participants could reflect. Role play sessions allowed the pairing of discovery and reflective cycles together, which resembled an experiential cycle of learning (Dennison & Kirk, 1990:2; Kolb, 1984:12). The process of concrete experience, reflective observation, reflective conceptualization, and active experience is thus emphasized (Binstead, 1980:22; Du Toit, 2004:153).

Miller and Watts (1990:139) were of the opinion that one-day training events (such as the workshops conducted in this CPD programme) at most allow for raising awareness on a specific topic and recommended that additional time be scheduled outside the learning event to obtain significant change in behaviour. Following the workshops, the participants had to apply the newly acquired strategies in their classrooms. This implementation period was the *practical component* of the programme and required the completion of a portfolio assignment.

The portfolio assignments were individually assessed and personalized feedback was provided. Such feedback, together with the small group support teams located at each participating school and the provision of a training support materials (a manual with prepared examples of lessons, and video material of how strategies can be applied in the classroom), constituted the *mentoring component* of the programme. The training support materials were intended to aid in the implementation of the strategies learnt in the workshops as an additional input cycle. Focusing on the training component first, the three topics of the training workshops are discussed in the following section.

Planning the curriculum for a workshop is dependent on what the students need to

learn and therefore the outcomes need to be defined before teaching strategies can be developed. In setting training objectives, it is firstly necessary to consider the trainee and his/her previous training experiences (Killen, 2007:11, 73; Rubin & Spady, 1984:38). In addition, taxonomies (Anderson & Krathwohl, 2001:232; Bloom *et al.*, 1956:1; 1964 in Dennison & Kirk, 1990:12; Miller & Watts, 1990:139) provide useful frameworks for planning learning events and assessments. The curriculum design for the training component is presented in Appendix 3A.

3.2 The training component

3.2.1 Rationale for including workshops in the programme

Literature reports indicated that teachers have expressed a preference for training through workshops rather than lectures (Earley & Bubb, 2004:1). Workshops have also been identified as important 'confidence boosters' (Baxen & Green, 1999:264). Considering that confidence is an important component of competence, this CPD programme presented a series of three workshops - 'Listening for learning' (see Appendix 3B), 'Language for learning' (Appendix 3C), and 'Language for numeracy' (Appendix 3D). These three skill areas form an integrated whole and should be facilitated as such in the classroom.

Each workshop was designed as scaffold for the next, and together the three workshops addressed the specific skill areas included in the Literacy and Numeracy Learning Programmes of the NCS (Department of Education, 2002:1). These three workshops therefore demonstrated to teachers how to present and explain new information in their classrooms, and provided them with the opportunity to first observe the strategies before they were required to apply them and to reflect on them (Bruner, 1966:2).

3.2.2 Central auditory information processing

Information processing theory (Massaro, 1975 in Bellis, 2003:3) proposes that comprehension relies on the extraction of information at various stages of processing but that complex interactions between sensory and higher-order cognitive/linguistic operations occur both simultaneously and sequentially throughout the central nervous system. Information processing is a complex process (Hamman and Squire, 1996, 1997 in Owens, 2004:22) that involves sensory input on many levels. The integration of the input is regulated by meta-cognition and requires selective attention, inhibition, and the coordination of stimuli and concepts (Kuder, 2003:31).

Auditory input integration (refer to Figure 3-5) requires two processes. Firstly, it necessitates the neuro-physiological encoding of auditory signals from the auditory nerve to the brain, which occurs in the auditory system prior to higher-order cognitive and linguistic operations at the cortical level (Bellis, 2003:3). Such processes can be influenced by higher-order factors (e.g. attention, memory, and linguistic competence) with complex feedback and feedforward mechanisms.

Secondly, auditory processing includes the higher-level neuro-cognitive processes relating to cognition, language, attention, and memory (Bellis, 2003:54). Both encoding and neuro-cognitive competencies are required for processing incoming information and are of vital importance for learning when the child enters school (Bellis, 2002:3). For the purpose of teachers facilitating listening and language in the classroom, auditory processing is viewed from a psycholinguistic perspective (Richards, 2004:21) consisting of three levels which each has a different effect on learning (Figure 3-5). The first level, the 'signal reception' level, and the second level which refers to the 'signal manipulation' level or to the perception of speech (Gillon, 2002:3-4), were addressed in the workshop "Listening for learning'.

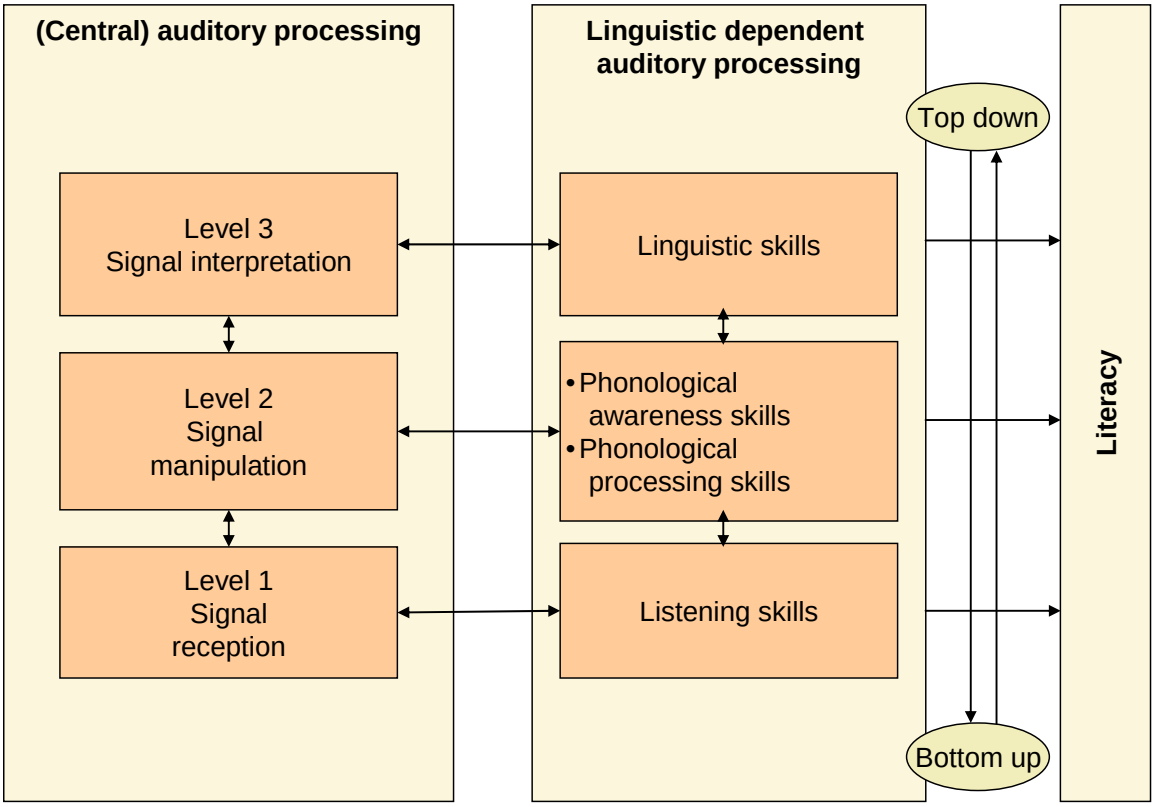

Figure 3-5: Central auditory processing (psycholinguistic perspective)

According to Figure 3-5 the third level is the 'signal interpretation level' where meaning is extracted from the auditory input. At this level the focus is more on linguistic skills than on auditory skills (Richards, 2004:21). The workshops 'Language for learning' and 'Language for numeracy' focussed on the third level of auditory processing because both workshops related to language.

As not all learners have mastered auditory processing skills by school-going age (Bellis, 2003:48), it is necessary to address this aspect at school entry. Facilitation of auditory processing may improve language comprehension and learning. Such information therefore needs to be conveyed to foundation phase teachers and was therefore included in the CPD programme.

3.2.3 'Listening for learning'

The workshop 'Listening for learning' was aimed at facilitating Level 1 ('Signal

reception') (Figure 3-5) as learners need to learn the art of listening actively, attentively, and analytically in order to learn (Adams *et al.*, 1998:15). Listening is therefore an important first step in the processing of auditory input and also the first step in acquiring phonological awareness. Listening is included in the literacy programme of the NCS for Grades R to 3 as Learning Outcome 1 (LO1) (Department of Education, 1997:6). As listening and language are interrelated, the facilitation of auditory processing skills needs to be included as part of an integrated approach in the classroom.

(a) Facilitating listening

Listening is an active process that involves an awareness and localization of sounds, as well as the behaviour (characteristics) of a good listener (Bellis, 2003:336; Truesdale, 1990:9). Facilitating listening requires teachers to firstly make learners aware of sound and to provide them with positive reinforcement for active attention to sound (Bellis, 2003:331). Such facilitation of listening may imply a shift from the didactic approach to listening where learners are instructed to listen, to a whole body listening approach that focuses on active *attending* in class (Bellis, 2002:3). In order to facilitate listening, it is necessary to create an optimal listening environment and limit all interfering factors (Catts, 1991:196; Goldberg, Niehl & Metropoulous, 1989:327; Goldsworthy, 1998:1).

Acoustic and teacher-based environmental modifications are necessary in order to enhance listening in the classroom. Information regarding such modifications should therefore be included in a CPD programme for teachers (Bellis, 2003:333). Teachers need to be aware of how to minimize signal disruptions and how to teach listening behaviour that facilitates auditory attention (e.g. whole body listening strategies).

(b) Phonological awareness

With reference to Figure 3-5 the second level of auditory processing is 'signal manipulation', which relates to the 'perception of speech' (Gillon, 2002:3-4). According to Bellis (2003:95), "…it is not easy to separate acoustic and phonemic processing from one another or from higher-order linguistic influences". Consequently, an integrated intervention approach is required. This level includes both phonological awareness and phonemic processing. Phonemic processing refers to the ability to categorize speech sounds, and phonological awareness is related to the identification and manipulation of phonemic elements of spoken language (Richards, 2004:7).

Apart from listening skills, the skills to be addressed in phonological awareness training are the following: rhyming, alliteration, segmentation, sound blending, and sound manipulation. Other skills include auditory closure, auditory association, and phonemic analysis skills linked to phoneme identification, grapheme-phoneme identification, and grapheme-phoneme correspondence (Richards, 2004:7).

Phonological awareness is critical for the ability to analyze (segment) speech units and to synthesize (blend) speech sounds into words, which makes it a strong predictor of success in reading and writing (Blachman *et al.*, 1999:260; Goldsworthy, 1998:1; Muter & Diethelm, 2001:187; Van Kleeck *et al.*, 1998:65). Poor phonological awareness, in turn, negatively affects the acquisition of reading and spelling (Ehri *et al.*, 2001:251; Johnson & Roseman, 2003:5; Rvachew, Chiang & Evans, 2007:61). Learners need to develop phonological awareness skills to an age-appropriate level at school entry. Those learners who are unable to read by the end of Gr. 1 tend to lag behind and may develop learning problems as they are unable to use language, reading, and writing to access or express their knowledge (Crouch, 2008).

Many learners from low socio-economic schools[4] (SES) have not developed adequate phonological awareness skills when entering school (Nancollis, Lawrie & Dodd, 2005:326). Torgeson *et al.* (1995, in Johnson & Roseman, 2003:39) ascribed limited phonological awareness in learners from low SES to limited or no prior literacy experience or structured pre-school education. Phonological awareness training in the foundation phase curriculum is a preventative strategy that enhances literacy development. It is of particular importance for learners from low SES, as they are at risk of experiencing difficulties in developing literacy learning (Nancollis *et al.*, 2005:326).

Central auditory processing difficulties (Jerger & Musiek, 2000:467), in particular poor development of the skills on the second level i.e. phonological awareness (Ehri *et al.*, 2001:251; Johnson & Roseman, 2003:5; Rvachew *et al.*, 2007:61), can cause problems with reading and spelling, which points to a common ground between these two processes (refer to Figure 3-5). To prevent problems with reading and spelling it is necessary to address both these skills, which justifies the inclusion of such information in teacher training programmes.

Problems with central auditory processing affect listening, comprehension, language, and learning (Jerger & Musiek, 2000:467). Deficits in auditory processing resemble a deficit in language competence (specifically in comprehension abilities), which raises the question as to what the exact relationship is between language and auditory processing. It has yet to be determined incontrovertibly where central information processing ends and where language processing begins (Bellis, 2003:93) (refer to Figure 3-5), but there is currently general agreement that these two processes are not interchangeable.

[4] Demographic data obtained from the 2001 national population census (StatsSA, 2001) indicate that a significant proportion of schools in South Africa could be classified as low SES, being situated in communities with household incomes of less than R38 400 per annum.

Apart from inadequate listening skills many learners from low SES also demonstrate poorly developed or disordered language skills, which places them at risk for inadequate literacy development (Justice & Ezell, 2001:133; Justice, Skibbe & Ezell, 2006:400). Limited language proficiency impacts on meta-linguistic ability, resulting in poor phonological awareness (see Figure 3-2). It was therefore essential that the CPD programme included strategies for facilitating language development.

Several teachers in the current education system feel unsure about the facilitation of phonological awareness and have a need for support. Less than 5% of the teachers in Lessing and De Wit's (2008:48) study in Mpumalanga and Limpopo Province reported that they had confidence in teaching the subskills for literacy acquisition. This may be attributed to the fact that the role of phonological awareness in the development of literacy only became fully known in the early 1990's (Lessing & De Wit, 2008:48) and therefore was not included in the professional training of teachers until much later. Many teachers currently in the system have not been trained in this aspect, which warranted its inclusion in this CPD programme.

3.2.4 'Language for learning'

With reference to Figure 3-5 the third level in the process of auditory processing ('signal interpretation' level) is located in the language domain rather than in the auditory domain. This level focuses on the development of vocabulary, conceptual terminology, expressive language retrieval and organization, word meanings, and semantic relationships (Richards, 2004:7). The second and third workshops in this programme aimed at providing teachers with strategies for facilitating development in these areas. According to Vygotsky (1998:23, 243), learners need a 'knowledgeable other' (e.g. the teacher or parent) to provide them with the relevant insights within cultural and social exchange. Language is an integral part of the literacy programme

for the foundation phase and teachers need knowledge about the complex nature of language as well as strategies to facilitate comprehensive language development across subject lines.

Inadequate oral language skills are the reason why many learners, especially those in previously disadvantaged areas with low SES (Justice, Meier & Walpole, 2005:18), experience difficulty in making the shift from the language used at home to the abstract and de-contextualized language used in the classroom (Justice & Kaderavek, 2004:212). Inadequate oral language development may result in poor academic performance (McDonald, 1991 in Snow, Burns & Griffin, 1998:47; Taylor & Vinjevold, 1999c:134) (refer to Figure 3-6), which points to a link between language and literacy.

(a) The link between language and literacy

As shown in Figure 3-6 emergent literacy involves both written language awareness and phonological awareness (Justice & Ezell, 2001:20), which are both based on normal oral language (particularly vocabulary development) (The National Reading Panel, 2000 in Justice *et al.*, 2005:18). Figure 3-6 shows that age-appropriate oral language development is required for the development of reading competence (National Reading Panel, 2000 in Justice *et al.*, 2005:18), and therefore oral language proficiency is regarded as predictive of reading achievements as well as other written language achievements at a later stage (Catts *et al.*, 2002:1142).

Figure 3-6 shows that adequate print-related language (e.g. familiarity with books and visual symbols) is required for continued oral language development (Bishop & Adams, 1990:1027; Justice *et al.*, 2006:401). A similar reciprocal relationship exists between phonological awareness and reading, as each facilitates and is facilitated by the other *(Ibid.)*. Learners' language learning is a crucial precursor to literacy.

Poor literacy development contributes to later problems in language (Snowling, Bishop, Chipchase, & Kaplan, 1998 in Justice *et al.*, 2006:401).

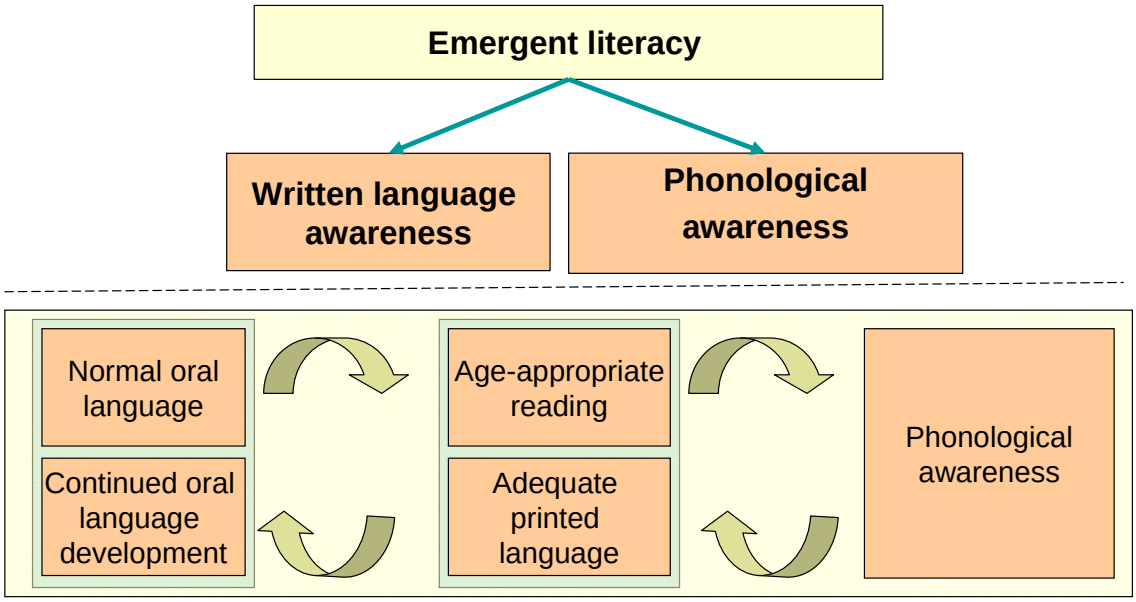

Figure 3-6: The link between language and literacy development

Locke *et al.* (2002:3) reported that pre-school children who were raised in impoverished environments performed on lower levels in oral language assessments than the general population, which put them at risk for delayed written language skills. Access to printed material in shared reading experiences, as well as parental beliefs about literacy, have been identified as having an effect on writing (Wolf-Nelson, 1998:380). Learners raised in poor communities mostly have limited exposure to printed material and subsequently may have very different attitudes to and experiences of the printed text than their peers from more affluent contexts (Nancollis *et al.*, 2005:326).

Considering that the study was conducted in a semi-rural context and townships where low SES are prevalent, it is possible that there was a high incidence of learners with poorly developed language and limited phonological awareness skills. Such contexts require a variety of experiences to facilitate the natural transition from oral language used at home to functional literate language used in school (Snowling,

Bishop, Chipchase, & Kaplan, 1998 in Justice *et al.*, 2006:401). This specific programme aimed to increase teachers' knowledge of what language entails and how it can be facilitated through a variety of relevant activities and strategies (Owens, 2004:173, 180, 187).

(b) Facilitating language for literacy

In order to facilitate language for literacy teachers need to be aware of the following aspects:

(i) A 'balanced approach'

Language develops along a continuum, from oral language learnt in the home through concrete operations, to the de-contextualized language required for written language used in school (Justice & Kaderavek, 2004:212). ASHA's position statement (2001:16) advocates that *"children need to experience reading, spelling, and writing for authentic communication purposes in which vocabulary, grammar, and discourse skills converge".* Current evidence (Justice & Kaderavek, 2004:212) regarding the acquisition of literacy skills suggests a balance of both contextualized and de-contextualized (discrete) skill intervention as best practice. This specific programme supported a 'balanced approach' to the facilitation of literacy (Justice & Kaderavek, 2004:201), which creates opportunities to develop an understanding of the language (Goodman, 1986:7) and then uses this understanding as basis to teach discrete skills within a phonics-oriented, code-based approach (Justice *et al.*, 2006:403). Such a balanced approach to literacy encompasses both the top-down and bottom-up approaches illustrated in Figure 3-5, and is most appropriate in the foundation phase where the focus is on facilitating emergent literacy. Teachers need to be able to create suitable contexts in which such skills can be facilitated in the classroom.

(ii) The use of a theme

The use of a central theme creates several language-rich experiences and allows the learners to develop the vocabulary related to a specific topic (Department of Education, 2002:8), as well as to integrate skills across the curriculum. A central theme is instrumental in the creation of a meaningful context that facilitates understanding and allows for the use of a variation of intervention activities. Figure 3-7 shows an example of a slide used in the workshop to train teachers in the use of a theme.

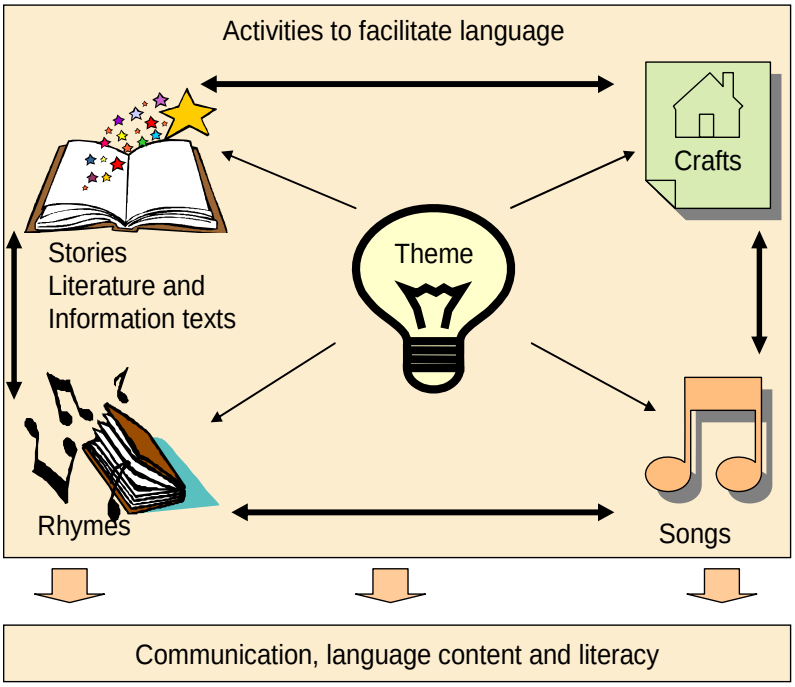

Figure 3-7: The role of a theme in creating a meaningful context for language

When activities such as those shown in Figure 3-7 are provided, language learning, auditory processing, and phonological awareness are supported synchronously as these skills are interrelated. Such activities have been found not only to be fun for learners, but also to foster the use of language for interaction and problem solving (Van Kleeck *et al.*, 1998:74). Themes allow the learner to incorporate new learning into existing frameworks and to gain familiarity with concepts (allowing them to express these in language), as well as to develop understanding. Apart from

providing activities for listening and speaking, teachers are required to encourage reading and writing within the general theme of the week. The use of themes integrates the thread of language throughout the curriculum in all classroom activities.

Songs and nursery rhymes support and expand vocabulary pertaining to the original theme of the story, and highlight semantic and syntactic forms (Paul, 2001:72). When songs and rhymes are acted out or are accompanied by movements, they not only allow for repetition of vocabulary, but also provide the opportunity for multimodal experiences that facilitate learning. This allows for participation of all learners until they have sufficiently internalized the language to eventually participate through the verbal medium. Such strategies provide a 'script' for learning language, as learners are encouraged to fill in parts that have purposefully been left out once the learners have become familiarized with the story, song, or rhyme. Other advantages of using themes are that the careful selection of stories, songs, rhymes, and craft activities allows for cultural diversity (Goodman, 1986:18) and various learning styles (Gardner, 2004:3), which are both required to create an optimum learning environment. By creating a variety of experiences (refer to Figure 3-7) teachers can provide valuable opportunities for learning in class.

(iii) Facilitating the four language systems required by the NCS

The CPD programme was further guided by the National Curriculum Statement (NCS) (Department of Education, 2002:6) and the skills that learners require for learning, namely listening, speaking, reading, and writing (Johnson & Roseman, 2003:13; Williams & Snipper, 1990:132). Table 3-1 shows that each of these language systems is associated with either receptive or expressive modes of communication (Johnson & Roseman, 2003:13).

The four language systems shown in Table 3-1 are integrated in the NCS as

listening, speaking, reading, viewing, writing, thinking, and reasoning, as well as language structure and use (Department of Education, 2002:6).

Table 3-1: The four language systems that children have to acquire

Aural system (Language by ear)	Oral system (Language by mouth)	Print system (Language by eye)	Written system (Language by hand)
Receptive Heard words	Expressive Spoken words	Receptive Printed words	Expressive Written words

Language is not restricted to the oral modality, but also includes the visual modality (Johnson & Roseman, 2003:13). Learners developing written language awareness discover that print is a highly organized system that reflects oral language and guides them to an understanding of the alphabetic principle (Justice & Ezell, 2002:28). Learners need the opportunity to develop all four modes of language.

Many teachers who are inadequately qualified (Monyatsi *et al.*, 2006:216; Rembe, 2005:109) may feel unsure of their own knowledge base and as a result rely on rote-learning methods in facilitating language and literacy. A study by MacDonald (1991, in Taylor & Vinjevold, 1999c:134) reported that black learners (generally from the most disadvantaged homes) spent limited time on reading and writing activities as they were mostly exposed to oral input by their teachers, who occasionally required chanting in response. Lessing and de Witt (2008:9) were of the opinion that the teachers' own lack of conceptual knowledge of language and the subskills required for literacy acquisition were at the root of this phenomenon. It appears that learners from the most disadvantaged homes may be further challenged by the inadequate teaching practices prevalent in their classrooms.

Outdated teaching practices (e.g. rote learning) do not facilitate the development of meta-linguistic skills (Johnson & Roseman, 2003:13) required for learners to identify and analyze specific sounds to allow them to read or write. It is the researcher's

opinion that every attempt should be made to remedy this situation by equipping teachers with an understanding of the underlying concepts of language for learning, and by equipping them with strategies and skills to implement the NCS. The workshop 'Language for learning' (Appendix 3C) further addressed the two types of language required in the classroom, namely basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP) (Cummins, 2000:59).

(iv) BICS and CALP

Despite education policies (Department of Education, 2002) which stipulate that foundation phase learning should be in the first language (L1) (mother tongue), many learners in South Africa have to learn in a language other than their own (O'Connor & Geiger, 2009:254; Setati *et al.*, 2003:73). Teachers often fail to differentiate between a learner's language proficiency when expressing him/her socially and his/her ability to use the language required for academic success. This specific programme addressed the two kinds of language which are used in classrooms, namely basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP) (Cummins, 2000:59; Dawber & Jordaan, 1999:12). BICS refers to the social language which is mainly used for daily personal and emotional needs, such as interacting with peers and adults, and may take 2-3 years to develop as an additional language (Dawber & Jordaan, 1999:14; Roseberry-McKibbin & Brice, 2000:5).

CALP (Cummins, 2000:59; Naudé, 2004:123) refers to vocabulary, concept knowledge (to understand language), meta-linguistic insights (e.g. the hidden meaning of words), and the ability to process de-contextualized academic language. It takes approximately 5-7 years to develop to the required grade level (Dawber & Jordaan, 1999:14) as it includes reasoning, problem solving, and other cognitive processes required for academic success, and is crucial for numeracy and

satisfactory performance in mathematics. Young learners who have to learn in a language other than their L1, often lack competence in CALP because they have not necessarily been exposed to the LoLT prior to starting school.

Teachers need to be aware that linguistically diverse learners may make errors in expression and comprehension, and also have difficulties in processing information presented in the language of learning and teaching (LOLT) (Du Plessis, 2005:4). These learners process academic information at a slower rate. Some learners (especially in low SES) may also demonstrate poor language development in L1 (Justice & Ezell, 2001:133; Justice *et al.*, 2006:400). Learners with a weak oral language in their L1 are at a disadvantage when learning in an additional language. This variability between learners needs to be accommodated by creating opportunities and experiences to facilitate the development of informal (BICS) and formal language (CALP). Information regarding the facilitation of language may be of value to teachers who have to implement the NCS, and was included in this CPD programme. This specific CPD programme aimed to be an introductory skills training course that focused on strategies for teachers to also facilitate the language required for numeracy and mathematics.

3.2.5 Language for numeracy

Teaching of numeracy often tends to focus on mathematical computation rather than on the linguistic base of numeracy because teachers may not be aware of the important role that language plays in numeracy development (Brown, 1953 in Rothman & Cohen, 1989:133). The aim of the workshop 'Language for numeracy' was to alert teachers to the importance of language use in numeracy and to empower them to facilitate the acquisition of the language required for numeracy development.

(a) Development of numeracy concepts and vocabulary

It is generally accepted that children display informal mathematical knowledge and skills before the commencement of formal mathematics education. Young children acquire mathematical concepts of grouping, ordering, and transforming through play (Donovan *et al.*, 1993:60). By the age of five normally developing children have acquired the emergent numeracy concepts and skills of comparison, classification, and one-to-one correspondence, as well as seriation, the use of number words, structured counting, resultative counting, and a general understanding of numbers (Torbeyns, Van den Noortgate & Ghesquirer, 2002:250).

At the onset of Gr. R many children have acquired an understanding of the language of measurement, position in space, selection criteria for sorting, exploring, building, and matching with shapes (Kuder, 2003:60). Of particular importance is the vocabulary that develops from this emergent phase of numeracy. Emergent numeracy skills and the associated vocabulary (Torbeyns *et al.*, 2002:252) are summarized in Table 3-2. Learners who are proficient in language acquire the language of mathematics as one component of a complex symbolic communication function (Pound, 2003:17).

Exposure to books and stories encourages learners' exploration of reality and unreality and reinforces the vital vocabulary necessary to describe quantities, patterns, shapes, and amounts (Torbeyns *et al.*, 2002:252). Learners from disadvantaged communities where poverty is prevalent may not have had access to books or experiences that would allow them to develop appropriate concepts and vocabulary for numeracy. Foundation phase teachers (especially in Gr. R and Gr 1) need to implement strategies and provide various activities to facilitate developmental growth through the stages shown in Table 3-2.

Table 3-2: Emergent numeracy skills with required matching vocabulary

Concept	Vocabulary
Concept of comparison: Ability to compare objects in terms of quantitative and qualitative properties	- Same/different - More than/less than - Number words: one, two, three, four, etc. - Smallest/biggest; longest/shortest, tallest/shortest, lots; many/few; most/least; the same (equal)
Classification: The pre-requisite is that learners must be able to sort.	- Comparative words, e.g. same/different; long/short; more/less; too many/not enough; none
One-to-one correspondence:	- Also includes comparative words, e.g. same/different; long/short; more/less; too many/not enough; none; degrees of comparison (e.g. short, shorter, shortest)
General understanding of numbers	- Counting plus all of the above

(b) Role of language in numeracy

The most recent report of the Third International Maths and Science Study (TIMSS) (Mullis *et al.*, 2003:2) ascribed the poor performance of learners in numeracy and mathematics in South Africa to inadequate language capabilities as many learners did not understand what was expected of them when they were assessed. It can be very confusing for a learner when the teacher states a problem in one way whilst the text presents the same problem in a different manner with different vocabulary (Raiker, 2002:58). Although the majority of learners may have a natural ability to eventually come to terms with such multimeanings, others may remain confused. However, the language required for numeracy is complex and requires knowledge of various kinds of discourses, including specific vocabulary and terminology.

(c) Numeracy discourse

Figure 3-8 illustrates that the language for numeracy requires competence on four different levels (Gawned, 1993:27). The focus of this study is specifically on levels three and four concerning the specific vocabulary and terminology used for numeracy, as shown in Figure 3-8. With reference to Level 3 four different

discourses (Gawned, 1993:35) need to be considered, namely the language of reasoning (problem solving), the language of the mathematics curriculum, the language of activities, and the language of mathematics literacy.

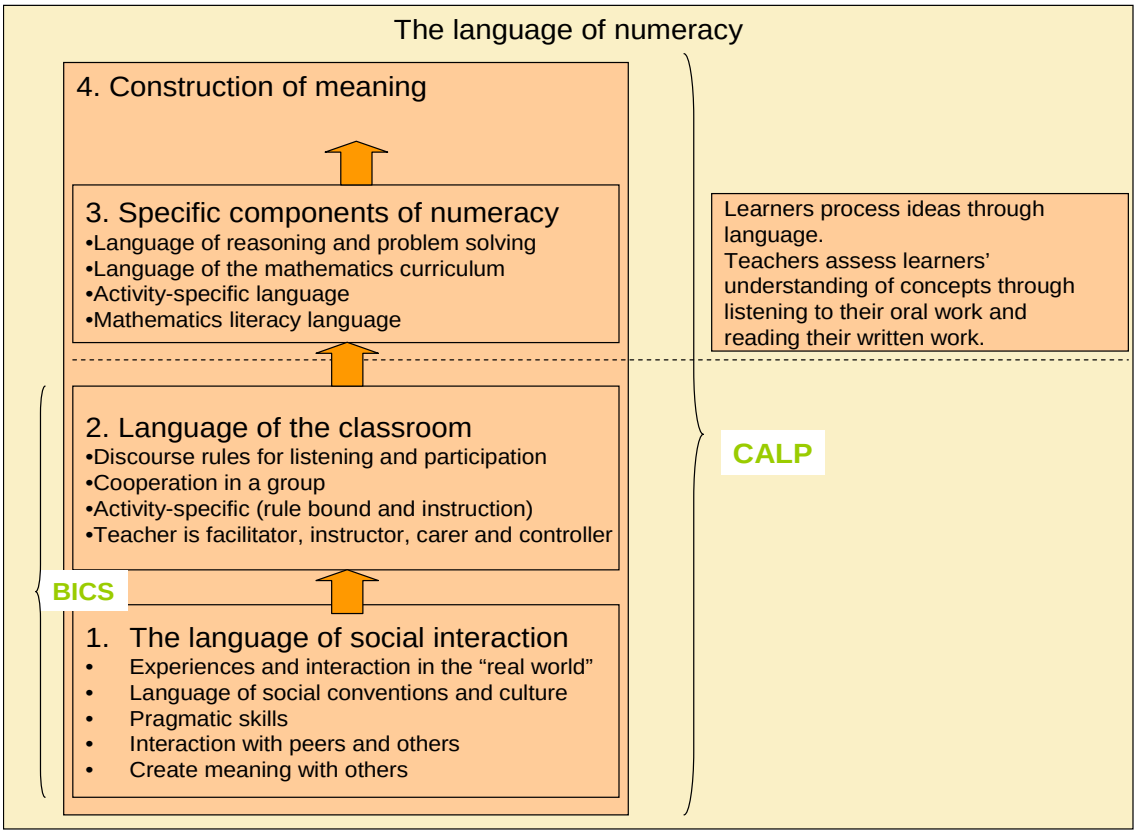

Figure 3-8: The language required for numeracy

These domains of language use relate to the CALP required in the numeracy skill area, which can only develop once competence is developed in BICS (refer to Section Figure 3-8). These four types of mathematical discourses were the focus of the third workshop and are discussed below.

(i) The language required for numeracy: Level 3

Teachers need to be aware that although learners have to acquire the terminology and vocabulary included in the subject material, the language they use to teach and to discuss numeracy also warrants careful consideration. It is important to pay attention to conceptual confusion when everyday metaphors are used in the classroom. Studies by Reeves and Long (1998:322) conducted in the Western Cape

and by Setati (1999:146) in Mamelodi (Gauteng) reported that incorrect use of mathematical language in classrooms had a negative effect on learning. Teachers use both formal and informal language when teaching (Reeves, 1993:95). Formal language in itself consists of procedural, calculative, and conceptual language that provides the reasons for proceeding or calculating in particular ways. Setati (1999:146) found lessons to be dominated by procedural discourse and that conceptual discourse was limited. Before teachers can effect any changes in practice they need to be cognizant of their own use of language and, if necessary, make purposeful modifications.

- The language of reasoning

The language of reasoning (problem-solving language) (Gawned, 1993:35) (Figure 3-8) is used by teachers and learners in problem-solving contexts and includes complex sentences used for inferences, justifications, comparisons and predictions. This type of language is determined by the language used for description, comparison, and reflection.

The best way to facilitate this type of discourse is through 'discussion' that clarifies meaning and helps learners to absorb terminology and understand the concepts (Department of Education, 2002:6). Teachers need to create opportunities for talking about learners' ideas in relation to their experiences. Classroom discourses need to be of a meta-cognitive nature to create an awareness of thought, e.g. to encourage, predict, and hypothesize, as well as to create opportunities in terms of questions and situations for the use of 'if/then', 'what if?', 'why?', 'what would happen?', 'what did happen?' and 'how did you know?' (Reeves, 1993:91).

- Language of the mathematics curriculum

Language of the numeracy curriculum (Figure 3-8) includes terminology which has to

be explicitly taught and learnt (Botha *et al.*, 2005:697) as it is essential for developing higher level thinking skills such as analysis, discussion, problem solving and design in relation to the subject matter (Galusha, 1998:8). Fluency in the use of terminology will increase learners' performance in numeracy.

However, much of the terminology used in the classroom is unfamiliar to young learners of school-going age. Their teachers may assume differently, which creates unrealistic expectations on the part of the teacher. In addition, many of the mathematical terms cannot be translated directly into the indigenous African languages and need to be described. Even though attempts have been made to create technical and scientific terminology lists in the indigenous languages of South Africa, they have not yet been standardized or penetrated the system (M. Alberts[5], personal communication, November 29, 2007). More specifically, they have not been turned to account in developing learner material at foundation phase level. According to V. Ramsingh[6] (personal communication, September 27, 2007) teachers at grass-roots level have to improvize to the best of their knowledge by using terminology that has not been standardized. The use of non-standardized terminology may cause confusion and lead to miscommunication (M. Alberts, personal communication, November 29, 2007). In addition, indigenous languages have distinctive grammatical and morphological structures that differ considerably from English, which makes the use of English workbooks in classes where the LoLT is an indigenous language undesirable.

The learning of the language of the mathematics curriculum requires that learners firstly develop an understanding of the underlying concepts through their own experiences, problem-solving solutions, and strategies (Du Toit *et al.*, 2002:156).

[5] PanSALB (Pan South African Language Board)

[6] Ms. Valerie Ramsingh is the numeracy coordinator at the Gauteng Department of Education (GDE)

The development of relevant vocabulary can be facilitated with manipulatives, shapes, and collections of objects through play. Such a constructivist viewpoint is in accordance with the NCS (Botha *et al.*, 2005:697; Windschitl, 1999:752). Teachers need to be aware of possible ambiguity in word meaning, and be empowered to actively teach unfamiliar terms.

- Activity-specific language

Tasks/activities serve as medium through which numeracy/mathematics can be learnt (Gawned, 1993:33) (Figure 3-8). Such tasks require both *descriptive language* and *procedural language*. Descriptive language allows the user to participate in an activity (e.g. labels, attribute terms and noun phrase constructions to discuss relationships between numbers, concepts, etc.), whereas *procedural language* is used to explain how procedures need to be conducted and provide reasons for classifying or grouping items in a particular manner. Learners need to be encouraged to talk about procedures when working in groups and to engage actively with real objects.

- The language of mathematics literacy

The language of mathematics literacy (Figure 3-8) refers to the representation and recording of mathematics (e.g. graph construction, diagramming, mapping, writing the digits accurately, etc.) and can be described pictorially, or can be depicted in signs and symbols in any other language (Gawned, 1993:33). This type of mathematic language therefore becomes a language in its own right. Syntax is very important, and teachers need to match the sentence structures used for writing mathematical problems with the learners' levels of comprehension. Accordingly, learners' written language needs to be practised in the classroom. The teaching of language for numeracy is an integrated process that cannot be taught in isolation.

(ii) Construction of meaning in mathematics (Level 4)

With reference to Level 4 of language for numeracy in Figure 3-8 (Gawned, 1993:30) learners ultimately have to derive meaning from the language of numeracy and mathematics. Learners learn when they are able to understand. When foundation phase teachers teach young learners the vocabulary for simple arithmetic within a meaningful context, they provide them with the tools for mathematics. Learners with a well-developed vocabulary can devote all their attention to the new concepts and the next step and do not experience difficulties in understanding the meaning of the words used. Teachers therefore need to ensure that learners acquire the necessary vocabulary and language competence to enable them to understand the mathematical concepts being taught. Rothman and Cohen (1989:137) suggested that the teaching of terminology and vocabulary for numeracy should commence when the learner is being taught the vocabulary necessary to start reading.

Learners need to be presented with several opportunities to discuss and share ideas about mathematical concepts and processes. According to a study by Reeves and Long (1998:324) a lack of such opportunities was one of the reasons why learners performed poorly in the Third International Mathematics and Science Study (TIMMS 1995) (Howie, 2007, as quoted by Bateman, 2007b:1; Botha *et al.*, 2005:697; Howie, 2004:160).

Teachers need to purposefully allow more opportunity for dialogue about these concepts and processes and encourage learners to apply them to their lives in small groups. Group work where learners interact and discuss concepts and procedures, and during which teachers can listen to discussions and reinforce correct usage, has been prescribed within the NCS (Setati *et al.*, 2003:90). Monitoring such small group work should be approached with caution as the discourses may be diluted in comparison to the teacher-led discourses used in the subject-specific matter.

Contrary to this view where group work is advocated, the most recent TIMMS study (Mullis *et al.*, 2003:4) reported that teachers in countries with the highest scores in mathematics opted for whole class teaching and not for small group teaching. As both these approaches can be recommended it is preferable to use whole class teaching to lay a foundation for understanding, but to also allow for small group work to discuss and reflect on the information. In order to support the workshops of the training component this CPD programme included a mentoring and practical component, as discussed next.

3.2.6 Section summary

This section discussed the three workshop topics in the training component of the CPD programme. The section on 'Listening for learning' explained the importance of facilitating listening skills as a first step in acquiring auditory processing and phonological awareness skills. The section on 'Language for learning' explained the integration of contextualized and de-contextualized language in the acquisition of literacy skills, whereas the section on 'Language for numeracy' outlined four levels of numeracy vocabulary that learners need to acquire in the process of becoming competent in numeracy. The next component of the CPD programme to be discussed is the mentoring component.

3.3 The mentoring component

3.3.1 Rationale for including mentoring in the CPD programme

There has been a marked change in perspectives on knowledge and learning over the past three decades. This shift can be traced from individual cognitive processing to a more 'situated' learning/cognition, and from individual cognition to groups and learning cultures (Lave & Wenger, 1991 in Sundli, 2007:201). Such a shift creates a

niche for mentoring in the process of professional development. Mentoring is viewed to be crucial in linking theory and practice, and has become an important component of teacher education. It aims to enhance reflective practices and professional development of teachers. Mentoring programmes that focus on training, support, and retention help create an environment that fosters psychological and cognitive growth (Feaster, 2002). Furthermore, a culture of mentoring is thought to encourage teachers to pursue continuing professional growth and self-inquiry, which they are required to engage in for the duration of their professional careers (Campbell & Brummett, 2007:50).

Although a significant body of literature exists on the role of mentoring in CPD programmes in developed countries (Cunningham, 2005:60), limited information is available for developing countries (Halai, 2006:700), particularly regarding the application and generalization of information to the prevalent conditions (Weber, 2007:279). The lack of local knowledge on mentoring calls for fieldwork and more qualitative methodologies (Campbell & Brummett, 2007:50) to contribute to the conceptualization of the process. This programme adopted the 'Do, Review, Learn, Apply' model (DRLA), which was described by Dennison and Kirk (1990:4) (refer to Figure 3-9).

The DRLA model shown in Figure 3-9 was used to organize experiences (e.g. monitoring the participation of various participants when applying a particular set of strategies) that provide opportunities for colleagues to discuss their professional learning deriving from these experiences and to encourage the 'mentees' to record their reflections on the experience (e.g. self-evaluation). The mentoring component supported the training component in the CPD programme and served as link between the theoretical and practical components of the capacity building process (refer to Figure 1.4).

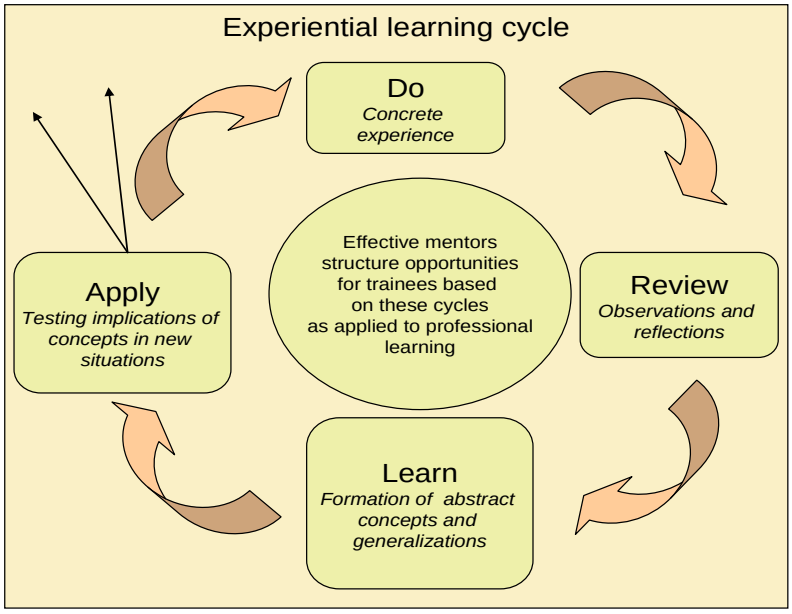

Figure 3-9: The DRLA model of learning

3.3.2 Reflection on competence

The objective of mentoring is to have the mentee progressing through various stages of self-knowledge about his/her competencies. A summary of a theoretical dichotomy of competence (Dubin, 1961 as derived from Cunningham, 2005:61; Dennison & Kirk, 1990:22) is depicted in Figure 3-10.

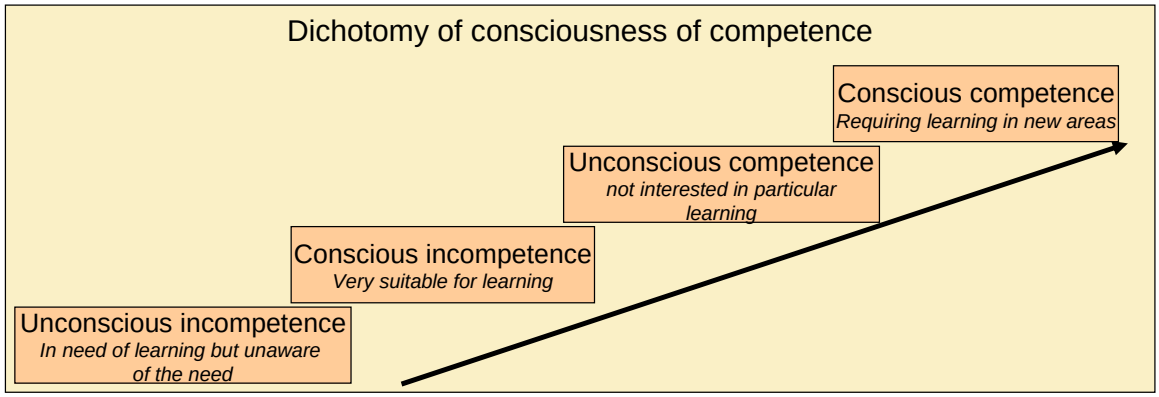

Figure 3-10: Dichotomy of consciousness of competence

The dichotomy of competence shown in Figure 3-10 provides multiple levels of competence and therefore provides an opportunity for progression. Once mentees achieve the ultimate level of competence (conscious competence) they become

ready to acquire learning in new areas. In addition to making mentees aware of their level of competence, mentors also need to guide trainees through several stages of skills acquisition (Dreyfus and Dreyfus, 1986 in Cunningham, 2005:63) ranging from novice, advanced beginner, competent, proficient, to expert levels. Mentors need to support the mentees through the first three levels.

Despite the recent emphasis on reflective thinking in teacher support (Cunningham, 2005:58) the traditional role of the teacher as technician remains to be dominant in schools today (Sundli, 2007:203). Mentoring may be applied to assist teachers to critically examine their beliefs about teaching and learning and to connect their learning to the self-inquiry that is expected of them throughout their professional lives (Campbell & Brummett, 2007:50).

Due to time constraints and limited resources the mentoring component in this study deviated from traditional mentoring in that the mentor (trainer) did not observe individuals in the classroom. Instead, peer reviews were employed for constructive feedback on the participants' implementation of strategies in the classroom. The participants therefore were provided the opportunity to mentor each other, but also to become the mentee.

The trainer took on a more conventional role as mentor by providing individual written feedback (Sundli, 2007:203) on practical assignments which included lesson plans. The critical analysis and evaluation of lesson plans are considered a key mentoring strategy (Campbell & Brummett, 2007:53). Such feedback is considered to be the most prominent feature of mentoring in the professional development of teachers (Kwan & Lopez-Real, 2005:275). Although the combination of these two forms of mentoring addressed both components of true mentoring, it was not guaranteed that they would be equally effective for the mentees.

In this CPD programme the practical component consisted of written lesson plans and the implementation of strategies in the classroom. In addition, small groups in each participating school were required to meet once a week for a collaborative planning session (Cunningham, 2005:94). They were also required to observe one another's classroom implementation which created the opportunity to mentor each other and to learn from each other. The district facilitators were required to monitor the implementation of strategies in the classrooms over time.

Mentees were furthermore provided with training support materials consisting of examples of lesson plans on five different themes, as well as a CD of the video material used in the training to demonstrate specific strategies. In this case, the mentees were encouraged to reflect on their own practice. Participants were required to implement their strategies and were given the freedom for trial-and-error learning as it provided them the opportunity to construct their own meaning.

3.3.3 Section summary

The application of mentoring in this particular programme was discussed in terms of group learning, peer learning, and personalized feedback provided by the trainer in order to develop the reflective competence of teachers. The third component in this particular programme was the practical component, which was integrated with the training and mentoring components.

3.4 The practical component

Participation in the practical component of the programme required the trainees/participants to implement the strategies learnt in the workshops (training component) in their classrooms. The practical components required of them to compile a portfolio assignment that was assessed by the trainer/researcher.

3.4.1 Rationale for including the practical component

Support programmes need to include factors that enhance the learning process (e.g. accommodate individual learning styles and strengthen interpersonal relationships), and restrict those that may affect it negatively. Contrary to traditional learning approaches where teachers have to digest information passively, portfolios based on experiential learning (Dennison & Kirk, 1990:4; Kolb, 1984:4; Smith, 2001) bring together theory (conceptualization and reflection) and practice (experience).

A portfolio is a focused, purposeful collection of traditional and non-traditional work that represents a student's learning, progress, and achievement over a period of time (Wenzel et al. 1998 and Karlowicz, 2000 in Liu, 2007:1117; McMullan *et al.*, 2003:288). Portfolio development provides the opportunity for trainees to become actively involved in the learning process.

The process of portfolio development has been reported (Pitts, Coles & Thomas, 2001:354) to install confidence in trainees and to contribute to the professional growth and development of teachers (Wray, 2007:1). It is an appropriate method of teaching and learning in a context where teachers may feel ill-equipped and uncertain about implementing the new curriculum.

The usefulness of portfolios depends on the stage of learning the trainees have reached (Niemi, 1997, and Al-Shehri, 1995 in Pitts *et al.*, 2001:354) and may have less value in the earlier stages of learning when trainees do not know enough about the subject, or lack appropriate experience to allow them to ask meaningful questions.

Price (1994:35) differentiates between the product role, the proof of achievement, and the process-orientated role which signifies personal and professional growth. It is a collection of evidence of both the products and processes of learning. The

portfolio serves as a vehicle to learning, where the process is more important than the product (Glen and Hight, 1992 in Pitts *et al.*, 2001:354).

In this CPD programme portfolio development firstly created an opportunity for learning as it aimed to stimulate trainees to engage in higher levels of thinking through inquiry and reflection. Secondly, the portfolios were used in the evaluation of the programme to provide information about what was learned, but also about programme strengths, weaknesses and levels of implementation to enable the trainer to gain insight in the efficacy of the instruction and of the programme (Johnson *et al.*, 2006:9; Wray, 2007:1139).

The portfolio as an assessment method is considered to be highly subjective and not suitable to be used on its own (Johnson *et al.*, 2006:6). In this study it was used in addition to other more traditional assessment methods. The use of a rubric was particularly useful as a means of formative evaluation of this programme (Pitts *et al.*, 2001:354) as it quantified levels of performance over a continuum (ranging from ineffective or low levels, to high or expert levels). This rubric measured performance, behaviour, skills, and quality to allow for more consistent scoring that increased the reliability as an assessment procedure.

3.4.2 The process of portfolio development

With reference to Figure 3-11 it is evident that the development of the portfolio is cyclical in nature. According to Figure 3-11 the process of portfolio development consists of problem identification, action planning, implementation, evaluation, reflection, and self-evaluation, and can be achieved collaboratively as it forces trainees to a deeper level of self-examination, and allows the trainer to understand the reasoning behind it (Johnson *et al.*, 2006:22). The compilation of a portfolio requires some form of questioning because the trainees are constantly trying to

perfect their skills and to document these skills and knowledge. Reflection is therefore an integral part of the process.

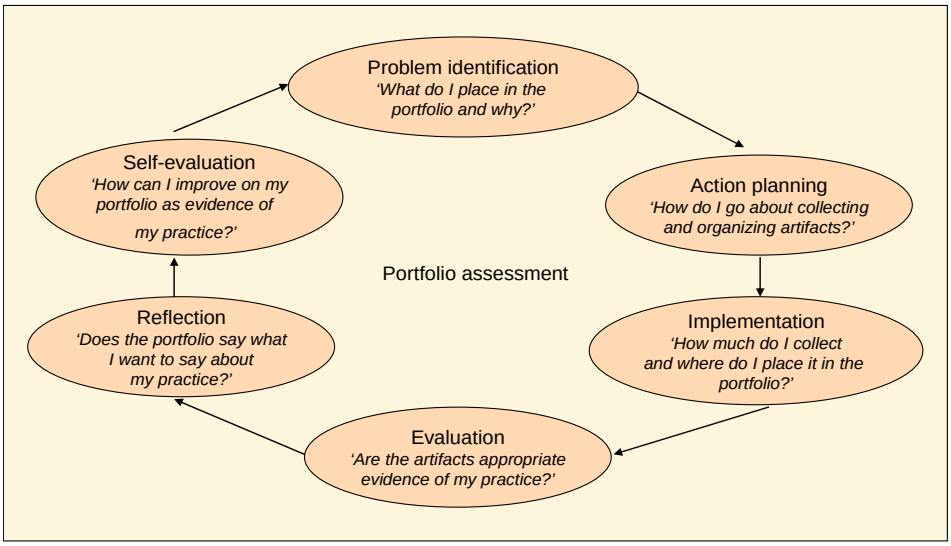

Figure 3-11: The action research cycle as applied to the portfolio

The participants in this study were required to implement the strategies learnt in the workshops for a specified period following the training, and to submit portfolio assignments with samples of learners' work and integrated lesson plans. In order to support each other in their lesson planning, trainees were required to work in groups of four in their schools (Killen, 2007:168). Such collaborative learning entailed the sharing of ideas and resources, which was linked to the theoretical framework of social constructivism (Wray, 2007:1146). The support created by the small group created a safe environment where the participants could support and mentor each other.

The portfolio assignments in this study consisted of specific items such as lesson plans and artefacts, monitoring sheets for three learners' participation in the strategies, peer evaluation, and a self-evaluation (refer to Appendix 5E), which facilitated ownership and self-assessment. Portfolio development required the participants to reflect on the reasons for developing the portfolio and on what they have achieved in the process. This also determined the types of classroom teaching

examples that were collected. Furthermore, portfolio development fostered a more interpersonal approach to teaching and learning as it facilitated collaboration and more dynamic interaction between the trainees/participants, the trainer/mentor, and the learners.

The portfolio assignments encouraged the trainees/participants to become more active in the learning process, and required engagement in more complex thinking and self-evaluation in choosing samples of what they had learnt in the workshops. Skills such as sorting, selecting, describing, analyzing, and evaluating served as evidence of accomplishment, indicating how he/she could improve in personal practice (McMullan *et al.*, 2003:290). Although portfolios may have many benefits as tools for authentic assessment, they require careful guidelines for reflection to become truly meaningful as a learning experience. It is generally understood that portfolios are complicated and time consuming, and that they require sufficient discussion to explain their purpose (Wray, 2007:3).

3.4.3 Section summary

The inclusion of a practical component in the CPD programme reinforced the information trained. The portfolio assignments provided opportunities for reflection and practice-based learning. Rubrics were used to ensure higher degrees of objectivity, consistency, and reliability of scoring.

3.5 Conclusions

Many learners in South Africa are at risk of developing learning problems and therefore it is important that CPD programmes for foundation phase teachers include information regarding the facilitation of listening and language for learning. As the process of learning is as important as the outcomes, a constructivist approach is well

suited for teacher support (Killen, 2007:368). The design of this particular programme encapsulates training, mentoring, and practical, to develop foundational, practical, and reflective competencies. Thus, the design of the CPD programme was not only comprehensive, but also aligned with OBE. This programme, however, needs to be evaluated for future use. It is therefore necessary to explore the process of programme evaluation in the next chapter.

3.6 Appendices

Refer to the separate Compact Disk for all appendices.

Appendix 3A	*Curriculum design for the training component*
Appendix 3B	*Handout for "Listening for learning" – workshop 1*
Appendix 3C	*Handout for "Language for learning" – workshop 2*
Appendix 3D	*Handout for "Language for numeracy" – workshop 3*
Appendix 3E	*Portfolio assignments*

Chapter 4 Programme evaluation

"Not everything that can be counted counts and not everything that counts can be counted."

(Albert Einstein)

Aim of this chapter

The development of a programme is not complete without proper evaluation. The aim of Chapter 4 is to explore literature that describes the process of programme evaluation to serve as the theoretical underpinning for developing an evaluation model for this study. Figure 4-1 provides a schematic outline of topics covered in this chapter.

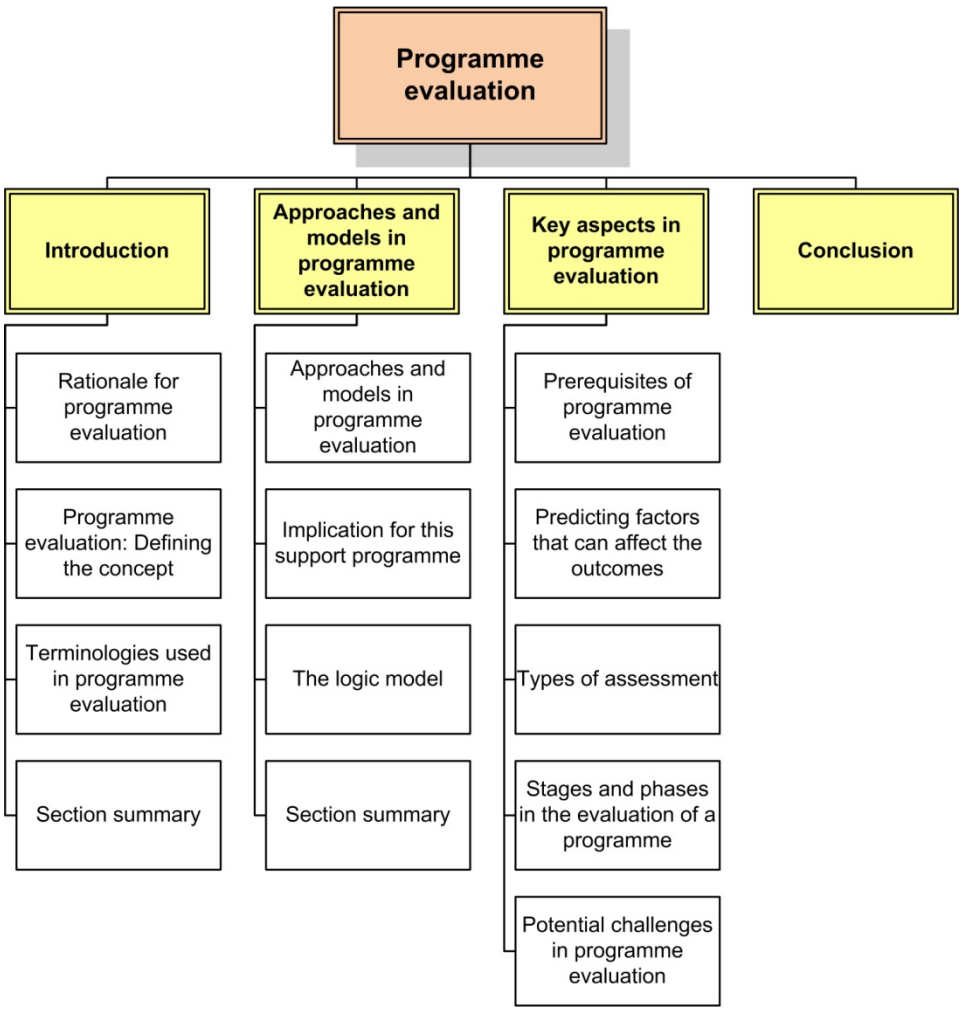

Figure 4-1: Outline of Chapter 4

4.1 Introduction

4.1.1 Rationale for programme evaluation

The support of teachers in South Africa requires a national effort, both from inside the education departments, as well as from private initiatives (e.g. NGOs, universities, service providers, etc.) (Department of Education, 2006:1; Hindle, 2009:9). The increased emphasis on human resources and professional development necessitates the credible evaluation of training practices to allow their future use (Salas & Cannon-Bowers, 2001:471). This renewed interest in accountability, continuous programme improvement, learner outcomes, and the importance of training and professional development in the field of education (Denzin & Lincoln, 2005c:913; Winberg, 1997:81) requires resources in education to be effective and efficient (Belzer, 2005:33; Harrison *et al.*, 2001:200). Therefore educational activities need to be evaluated to ensure that participants will professionally benefit from them (Guskey, 2002:38). Patton (2002:10) described the criterion for judging programmes as the extent to which it can be used to make decisions that improve the programme, which implies that the intended user must be able to value the findings and find them credible.

In the course of time, changes have occurred in educational programme development. Earlier practices in educational programme evaluation focused mainly on learner testing, whereas later efforts consider outcomes (knowledge, skills, and attitudes), alternative programme designs, and the effectiveness of operations (Kellaghan, Stufflebeam & Wingate, 2003:2). This development eventually led to an improvement in the effectiveness of teaching and learning, and ultimately to the quality of education (Lam, 2001: 2 in Beerens, 2000:6; Monyatsi *et al.*, 2006:217). It is important to recognize this shift in emphasis when establishing the value of a

programme. Programmes no longer aim only at providing educators with increased skills, but also at ensuring increased opportunities for ongoing collegial networking, student learning, and at promoting organizational goals (Beerens, 2000:5; Dixon & Scott, 2003:289).

Because much can be gained from cross-fertilization from other disciplines in the field of evaluation (e.g. health, social work, welfare, and the criminal justice system), evaluators of educational programmes should learn from and contribute to the general community of evaluation researchers (Kellaghan *et al.*, 2003:3). However, programme evaluators also need to remain sensitive to the unique features of their own particular area in order to serve the needs of education and its components within a broader systemic approach. Although programme evaluation is mostly done with specific external audiences in mind (Kraiger, 2002:336), it can also be employed by the researcher to understand the programme (Patton, 2002:11). In the latter case, the researcher/evaluator performs the evaluation as part of the development process, but with the intent to share the findings with several stakeholders. As programme evaluation is a complex procedure consisting of various aspects, it needs to be defined before further exploration of the topic.

4.1.2 Programme evaluation: Defining the concept

Definitions draw the attention to the various terminologies used to describe the aspects involved in programme evaluation, and terms such as evaluation research, programme evaluation, and evaluation are used interchangeably as if they are synonymous. Although programme developers (Monyatsi *et al.*, 2006:215; Patton, 2002:10; Patton, 2003:34; Rae, 2002:2) each emphasize different aspects to be included in the evaluation of programmes, they concur that in essence it is focussed on describing the 'value and worth' of the programme.

Rossi et al (2004:3) defined programme evaluation as the "…use of social research procedures to systematically investigate the effectiveness of social intervention". Emphasis on being 'systematic investigation' was also evident in the definitions from the Joint Committee on Standards for Educational Evaluation (1994: 3 in Guskey, 2002:38) and well as Patton (2002:10), which implies careful planning in terms of data collection procedures and appropriate use of methods and techniques in the analysis (Scriven, 2004).

Patton (2002:10) described programme evaluation as the "…systematic collection of information about the activities, characteristics, and outcomes of programs to make judgments about the program, improve program effectiveness, and/or inform decisions about future programming". This definition is comprehensive as it addresses both the purpose of the evaluation, the process, and the outcomes. The systematic evaluation of a programme is crucial for quality control and reliability.

When educational programmes are evaluated it should be professionally conducted to provide reliable and authentic results with regard to the "…merit, worth, and value of things" (Scriven, 2004) which can aid in decision making. The steps followed when conducting a programme evaluation comprise the selection of criteria of merit, the standards of performances (assessment criteria), the gathering of data and, finally, the integration of the results, which implies the judgement of its value *(Ibid.)*.

Such an investigation provides feedback on the effects of the training programme (Hamblin, in Rae, 2002:3) and includes both the processes of validation and evaluation. It implies that more than one source of information have been consulted and that several types of data have been collected/generated.

The Institute of Training and Occupational Learning (ITOL) (in Rae, 2002:2) specifies validation as the process that determines whether the training achieved what it set

out to achieve. This implies that the outcomes need to be compared to the initial objectives of the programme and involves both internal and external measurements (Tredoux, 2002:3, 9). When considering the total value of a programme it includes cost-effectiveness and the overall benefit of the complete training programme (Rae, 2002:2). Evaluation of a programme therefore differs from validation in that it is concerned with the overall benefit of the complete training programme and its implementation ('outcomes'), and not just the achievement of the laid-down learning objectives ('output'). The aforementioned definitions of programme evaluation identified relevant terminologies, which are discussed next.

4.1.3 Terminologies used in programme evaluation

The terms 'evaluation research' and 'programme effectiveness' were already addressed in Chapter 1, but terms such as '*assessment',* and *'evaluation'* continually appear in discussions on programme evaluation and although semantically related, each of these terms has distinctly different roles. When the term 'a*ssessment'* is applied to programme evaluation, it requires attention to individual outcomes and also previous experiences that have led to these outcomes (Kouwenhoven *et al.*, 2003:135). It seeks to measure a learner's skills, performance or knowledge in a subject area, and occurs either prior to, during, or following the learning (ITOL, 2002 in Rae, 2002).

When '*evaluating'* a programme, the entire process is described and judged (Wood, 2001:10), including cost and time factors that can be expressed numerically. Programme evaluation requires an institutional shift in thinking where the goal is not a precise numerical figure, but a global assessment with specific narrative feedback (Wilkes & Bligh, 1999:1270). The term programme '*evaluation'* thus adds a reflective dimension to the overall process and is suitable to describe the process used to

evaluate the value and worth of a programme. Evaluation cannot change anything in the programme, but can only make recommendations for changes in future programmes.

4.1.4 Section summary

This section provided a rationale for programme evaluation, which emphasized not only the need for professional development programmes, but also the need to evaluate such programmes for the sake of accountability. Programme evaluation was defined and a distinction was made between the terms 'assessment' and 'evaluation', 'Programme evaluation' is regarded as a comprehensive description of the total value of a training programme and therefore requires the evaluation of the input, process, output and outcomes, as well as cost-effectiveness.

4.2 Approaches and models in programme evaluation

4.2.1 Overview of approaches to programme evaluation

The approaches to programme evaluation and models of procedures are reviewed to discover their specific focus areas as these allow for tailoring the evaluation of the programme developed in this specific study. It is accepted that the socio-political environment has a strong influence on methodologies, which in turn are intricately linked to individual behaviour, attitudes, and context. Since the early 1900s programme evaluation has evolved through several stages that were described as various *moments* (also referred to as *generations* in some texts*)* (Denzin & Lincoln, 2005d:20; Guba & Lincoln, 1989:12). Figure 4-2 provides a summary of the various moments and illustrates the changes in the roles of evaluators that have occurred over time.

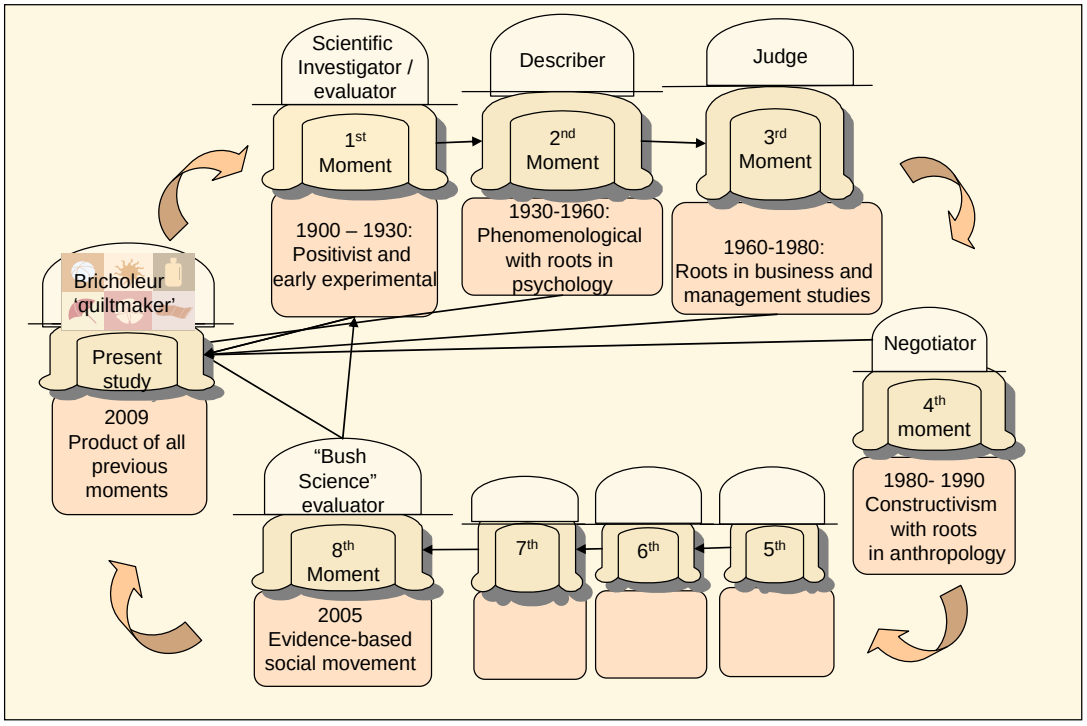

Figure 4-2: The various moments in programme evaluation

With reference to Figure 4-2, it is clear that each moment built on its predecessor and therefore this study can be regarded as a product of all of these moments. The present evaluation draws from the first moment, which has its roots in a positivist philosophical approach. Such an evaluation provides information obtained from experimental designs, linking it to pure 'science' (Denzin & Lincoln, 2005c:913).

Experimental designs rely on established criteria and methods, e.g. measuring, testing, statistically analyzing, and listing attributes. An advantage of experimental designs is their relative ease of administration, but they can be subject to personal bias, or conflicting interests, and a reliance on technology (Denzin & Lincoln, 2005c:913; Winberg, 1997:84). Designs of this nature seek causal links between input and output, and consider the participants included in the study as 'objects' of study. Positivism is criticized for not allowing for an in-depth inquiry into human behaviour and therefore presenting a superficial view on the investigation (Bond,

1993, Moccia, 1988, Payle, 1995 in Crossan, 2003:51). It also disregards the environment in which the programme is implemented. The approach measures achievement against objectives and is therefore suited for quantitative inquiry. This specific programme is rooted in positivism as the gains made in knowledge in each of the workshops are determined with pre- and post-training questionnaires. The role of the evaluator/researcher in this type of evaluation is more of a technical nature where he/she is distanced from the subjects under investigation, posing as an *investigator* (Winberg, 1997:86).

The evaluation of the programme in the current study also relates strongly to the second moment (1930-1960) depicted in Figure 4-2, that stemmed from a phenomenological philosophical approach with roots in the field of psychology. The purpose of such evaluations is to determine whether objectives have been met (Jacobs, 2003:63). Although this type of approach provides information on the number of outcomes achieved, the focus is mainly on the product and as a result presents an oversimplification of the matter. Such quasi-evaluation models aim at supporting decision-making in the sense that they are mainly about success in management terms (e.g. determine whether the programme is on time, on target, and on budget). Programme evaluations that are based on a phenomenological approach serve a monitoring role rather than an evaluative one.

In this study where the CPD programme has to be evaluated against the previously agreed learning outcomes, results need to be explained in an interpretive manner. The evaluation report has to focus on recommendations for the improvement of future programmes. Although the roles of the participants will vary, the evaluator's role is that of a *describer* (Winberg, 1997:86).

To a much lesser extent, the study is also aligned with the third moment (1960) in

Figure 4-2, i.e. programme evaluation that is based on business and management studies and has an economical interest in the value of the programme (Guba & Lincoln, 1989:8). This type of information is important to funding agencies who wish to see a return on their investment, and therefore judgement regarding the worth of the programme is made in terms of costs and benefits (Jacobs, 2003:64). Programme evaluation based on management studies is required for rational decision-making and relies on all stages of the development of the programme.

A summative process produces a final evaluation report. The benefit of this type of evaluation is its concern with productivity and cost-effectiveness, both of which are currently of major importance to organizations and funding agencies. However, it does not allow for cross-examination of the findings. Participants do not play any role in this type of evaluation and the evaluator's role is that of *a judge* (Winberg, 1997:86) in determining whether the programme has provided value for money *(Ibid.).* In this study, this type of evaluation is part of basic project management, as costs have to stay within a stipulated budget and feedback has to be provided in terms of cost-effectiveness in determining the value of the programme.

The previous three moments of evaluation can provide all the necessary answers to stakeholders with measurable statistics (Denzin & Lincoln, 2005c:913), but does not explain human behaviour. People experience life in different ways and develop unique values and roles as a result. Experiences allow for many constructions of reality, and it is for this reason that a fourth moment of programme evaluation emerged (Guba & Lincoln, 1989:8). This fourth moment in evaluation (see Figure 4-2) requires a paradigm shift from behaviourism to constructivism and has a disciplinary base in sociology and anthropology. This movement identifies *the crisis of representation* (Denzin & Lincoln, 2005d:19), which remains to be relevant in the present time.

Evaluators aligned with the fourth moment acknowledge that there are several stakeholders in the evaluation process, and in an effort to describe the programme holistically, they attempt to include as many of their views as possible. As constructivists they reflect on multiple realities and make use of inductive reasoning and inquiry after experiencing these realities firsthand and using methods such as interviews and triangulation (Dirx, 2006:283). In this type of enquiry, the variables evolve over the course of the evaluation during the evaluator's interaction with the participants.

The focus of fourth-moment programme evaluations is on the context and not only on the output or outcomes. It makes use of a wide variety of information to create understanding or 'meaning'. Both quantitative and qualitative approaches are used realistically to explain not only the physical, but also the metaphysical (Letrourneau & Allen, 1999:623), a process which was explained by Guba and Lincoln (1989:8) as 'critical multiplism'. It therefore includes approaches previously advocated by the positivists, but also those aspects that cannot be observed to explain behaviour.

Post-positivist approaches are criticized for their close proximity of the evaluator to the participants, which could cause bias. This personal nature of the research also makes it difficult to replicate or generalize, and it tends to avoid closure, which makes it labour intensive and non-directive (Winberg, 1997:86). In order to conduct such an evaluation, the evaluator has to become a *negotiator* (Winberg, 1997:86). In this particular study, the evaluation report has to be holistic and has to use a descriptive approach to derive at recommendations for future programmes.

The fourth-moment approaches served as basis for the collaborative and empowerment approach (Fetterman, 2002:89) that does not greatly emphasize issues such as confidentiality, credibility, cost, or time, and may at times require distancing between the evaluator and the evaluated. In ideal conditions, and if

strictly controlled, this type of approach can "…improve consumer sample representativeness, the ethical mandate, the quality and span of relevant data gathering, the probability of implementing recommendations, the avoidance of factual errors or other aspects of the quality of the evaluation" (Scriven, 2003:23).

Although these first four moments in Figure 4-2 built on the experiences of their predecessors, they gave rise to many questions and created the need for qualitative research, which resulted in much debate and polarization (Denzin & Lincoln, 2005c:913). Quantitative and qualitative methods, however, need not be used in juxtaposition to each other as it is possible to use them in concurrence, and hence obtain a better understanding of the problem being investigated (Leech & Onwuegbuzie, 2005:267).

Because educational programmes are complex and teaching is spread across varied disciplines in the field, it is not possible to adhere to just one approach. As this would limit the evaluation and create many problems, the ideal appears to be to implement diverse methods. In addition, the use of reflection and narrative with one's own practice could contribute to the quality of the evaluation (Dirx, 2006:285).

Recent international political changes evolved in what is called an *eighth moment* (Denzin & Lincoln, 2005a:15). Programme evaluators influenced by neo-conservatism in the United States, view the approaches that were advocated by fourth-moment evaluators with scepticism (Denzin & Lincoln, 2005c:913). Currently accountability is highlighted, which favours evidence-based practices. The influence of the socio-political environment on programme evaluation is once again emphasized (Datta, 2003:345).

Although cost-effectiveness plays a part in the evaluation of this study and will contribute to the final judgement of whether the programme was a success or not,

this particular programme cannot rely on such information only, as it can potentially suppress creativity or innovation (Winberg, 1997:86).

When reflecting on these moments, it appears that programme evaluation has come full circle (R.E. Owens, personal communication, June 26, 2006). There is renewed interest in earlier positivist approaches with policy-makers and funding agencies now demanding scientific proof of the effectiveness of programmes (NCSALL, 2003:2). Nevertheless, earlier criticism of the positivist approach remains relevant and whether this approach points the way to the future remains to be seen.

4.2.2 Implication for this support programme

As a developing country with a new democracy in a post-apartheid era, South Africa faces challenges that differ from those experienced by developed countries in terms of poverty, HIV and AIDS, language issues, and literacy levels. In this particular context, there is an urgent need to understand how people think and make sense of their own reality, and their ability to adapt to change. Notwithstanding the changes made by the new dispensation in South Africa to governance and policy, attitudinal changes are required to develop an organized, coherent society. It is questionable whether such a state of complete homeostasis is entirely possible, seeing that many complex adaptive systems rarely establish equilibrium (Hudson, 2000:217). Nevertheless, the learning system is known to allow self-organization, rather than attempt to control bifurcation through planned change. Haynes (1995:3), for instance, was of the opinion that the use of chaos theory would strengthen multidimensional assessments that depend on time sampling, longitudinal, and ideographic approaches to assess and evaluate.

The need for multidimensional assessments steers the study towards the eighth moment in programme evaluation with a call to provide evidence of success, and in

part finds common ground with the first moment that provides scientific 'proof' (Muller, 1999:47) of how much knowledge was gained. In addition, the present study resonates with an interprevist-constructivist view of reality (second and fourth moments) (Lincoln, 2003:69). Even though the evaluation of this study does not have strong alliances with the fifth, sixth, or seventh moments, they all contribute to the entire process of programme evaluation as each of these approaches has built on the contribution of the previous one. Just as the present (the eighth) moment is the result of all its predecessors, the evaluation of this CPD programme is influenced by all previous approaches (Denzin & Lincoln, 2005c:914).

The evaluation of this CPD programme has to piece together the parts from each moment to corroborate both quantitative and qualitative information in order to form a comprehensive understanding of its 'value and worth' (Johnson & Onwuegbuzie, 2004:15).

However, as the researcher aimed to provide information to various stakeholders, the evaluation of this programme leans towards what Payne (1994) described as 'management approaches', rather than the judicial, anthropological or consumer models (Payne, 1994:3). The current evaluation considered all but the judicial models for the evaluation of this particular programme.

(a) Management approaches

Management models that were consulted included Patton's (2003:223) 'Utilization focused evaluation', the 'CIPP model' (Stufflebeam *et al.*, 2003), multi-level taxonomies and the 'Programme Logic Model' (Coffman, 1999) among others.

(i) Utilization focused evaluation model

The utilization focused evaluation model (Patton, 2003:223) focuses on 'intended use by intended users' in order to meet the intended users' needs. This type of

evaluation requires intended users to be involved in the interpretation of the findings and the dissemination of such findings for future use. In this case the evaluation was conducted as part of the programme development process as a pilot study and was therefore not intended as a large-scale evaluation that had to be implemented in a wider context.

(ii) CIPP model

Stufflebeam's CIPP model (2003:31) specifically addressed the variables that educational administrators have control over. In the CIPP model, data is gathered to describe the "Context, Input, Process, and Product;" but data analyses relates to the immediate management of the program. This approach was criticized for being biased towards the concerns and values of the educational establishment (Scriven in Stake, 1973) and fell out of favour because programme managers were unable or unwilling to examine their own operations as part of the evaluation.

(iii) Multi-level taxonomies

The four-level Kirkpatrick model for programme evaluation considered *participants' reactions, learning, behaviour*, and *results*. Despite being widely used till this day, the Kirkpatrick model has been also criticized as being a 'flawed four-level approach' (Holton, 1996:643) because it was built on three assumptions (Alliger & Jannack, 1989 in Kraiger, 2002:334). Firstly, it assumed that each level depended on the successful completion of a lower level in the hierarchy. Secondly, it cannot be regarded as a model but rather a taxonomy as it lacks the rigour of a true scientific model. Kirkpatrick's approach is not theoretically based, and has roots in the behavioural perspective that originated in the 50s. More valid models currently used are rooted in an understanding of how people learn, and are in accordance with the more recent cognitively based information-processing theories (Kraiger, 2002:334).

Thirdly, the Kirkpatrick model (Holton, 1996:643) implied that linkages exist between

most of the levels, but failed to specify the relationships between linkages because it does not clarify the constructs at most of the levels. The purpose of the evaluation that steered the methods used was not considered. The model also lacks a financial assessment (Rae, 2002:4) required by stakeholders.

Several followers of the Kirkpatrick approach tried to improve on the original model. Hamblin (Rae, 2002:4) as well as Alvarez *et al.* (2004:392) added a fifth level where the ultimate value of the programme is evaluated, which brought programme evaluation and programme effectiveness closer together. Tannenbaum *et al.* (Cannon-Bowers *et al.*, 1995:141) added post-training attitudes as outcomes and divided behaviour into training performance and transfer performance as outcomes.

Warr, Bird and Rackham (in Rae, 2002:2) took the Kirkpatrick model further by identifying training needs, by evaluating the current conditions of the operational context of the event, by describing the performance problems to overcome in ultimate objectives, as well as the changes in operational performance at an intermediate stage and immediate objectives and their achievement. When compared with the Kirkpatrick (Holton, 1996:643) and Hamblin models (in Rae, 2002:4), the Warr, Bird and Rackham model (in Rae, 2002:2) added to the process of evaluation by specifically focusing on the evaluation of input, but also evaluated the reaction of the participants as part of the output, which makes it a holistic overview of the entire process.

Although these models contributed to the conceptual thinking of evaluation, they remain taxonomies or simple classification themes, which have been incompletely implemented with little empirical testing (Holton, 1996:643). Taxonomies are difficult to validate, as they do not fully identify all constructs underlying the phenomena of interest such as the intervening variables (e.g. trainee readiness and motivation, training design, and reinforcement of in-service training). The aforementioned

models appear to assume that a group of trainees is homogeneous, which is not the case in the current context where education and language levels vary. Programme evaluation models built on the four-level Kirkpatrick model failed to provide adequate information to make decisions regarding interventions, and therefore were not suitable as diagnostic tools or for use in this study.

(iv) Goal achievement approach

The latest trend in the evaluation of educational programmes is to move away from classifications driven by the content of a domain, and to move toward a format of agreed-upon competencies (which is an outcomes-based approach) (The American Council for Graduate Medical Education, 2006). Miller's pyramid model (1990:63) proposed different levels of competencies, presented as tiers of a pyramid, as depicted in Figure 4-3 (Melnick, 2004:7).

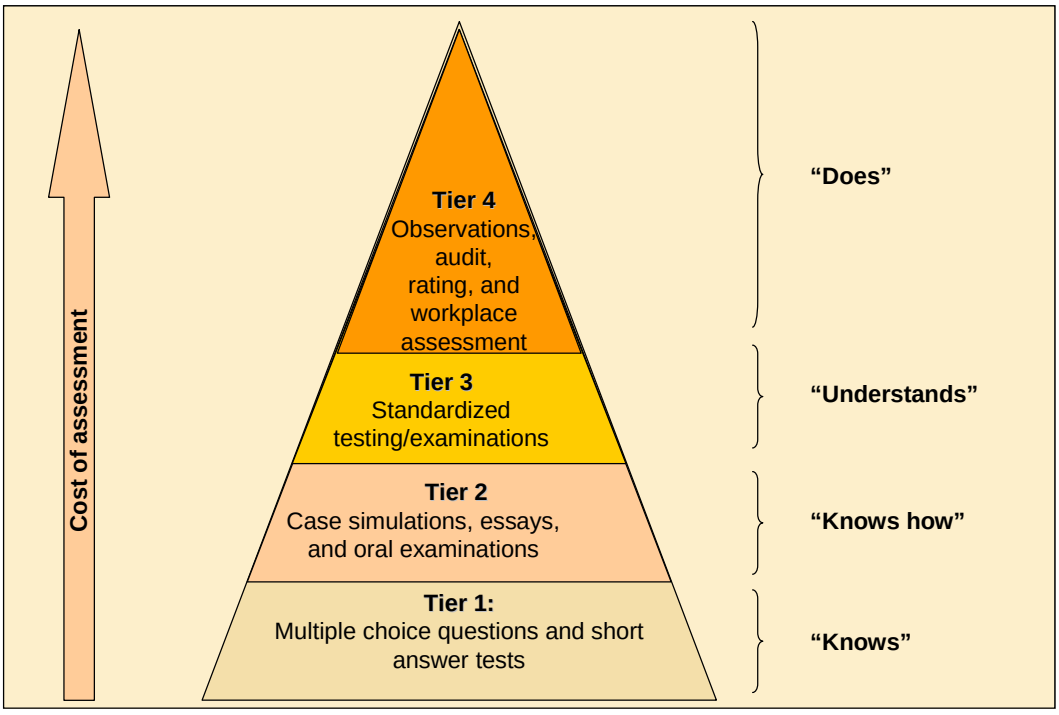

Figure 4-3: Miller's pyramid model for evaluating CPD programmes

Although helpful in describing the evaluation of the output and outcomes of the programme, it appears to ignore the importance of the variables considered as input

(e.g. the organizational culture, or motivation) and the process of training, which are required for describing the effectiveness of training. Figure 4-3 shows that the complexity of assessment increases as one ascends the tiers of the pyramid.The model shows a correlation between complexity and cost, with cost rising as the level of complexity increases. Ideally, the lowest level to provide a valid result for the intended purpose should be selected by simultaneously weighing it up against factors such as cost, efficiency, and reliability (Miller & Watts, 1990:70).

(v) Discrepancy evaluation

The approaches referred to above developed into another group of procedures which supports the 'goal-achievement' approaches (Scriven, 2003:20). This is called 'discrepancy evaluation' because it determines the discrepancy between the programme goals and the programme use (Agyris, 1978 in Patton, 2002:163). These evaluations collect data by using objective measuring instruments and hence describe inconsistencies between data and accomplishments. The main advantage of such a model is that it reduces problems to the most simplified form in order to be understood, and therefore this study adopted the model to inform stakeholders. However, information on whether an objective is met does not contribute to programme improvement, and therefore it was necessary to also consider other models for use in this study. The South African context requires special consideration because participants enter the training situation with different educational backgrounds, demographic statistics, and terms of reference.

(vi) The Logic Model approach

A similar systems approach as the CIPP model is the Logic Model, which is *"…a reasonable, defensible, and sequential order from inputs through activities (process), to outputs, outcomes, and impacts"* (Patton, 2002:163). Logic Models are particularly useful in identifying causal connections (e.g. 'if…then…' statements that

underlie decision making). Because they provide conceptual frameworks they are considered valuable tools for systems level planning and evaluation (Julian, 1997:251). Such models are most suitable for the evaluation of educational programmes (Coffman, 1999:30). The Logic Model was selected for the evaluation of this programme because of its ability to organize and condense information within a logical framework in which needs are also considered. This particular programme evaluation, however, does not exclude the anthropological models which rely on qualitative research, or any of the consumer models (Scriven, 2003:15).

(b) Anthropological models

The 'Responsive evaluation' model (Stake, 1973) emphasizes the importance of evaluators being flexible and responsive to stakeholders' issues and needs. Stake's use of the term 'preordinate evaluation' (which means the evaluation relies solely on formal plans and measurement of pre-specified programme objectives) when referring to traditional models of evaluation appears to be somewhat derogatory. Qualitative methods seem to be most suitable as they are more flexible in responding to the needs of the stakeholders. The anthropological approaches require the researcher to enter the field in order to observe and to collect additional data for the purpose of triangulation. As flexibility is the key, the various evaluation activities need not be done in a linear order. This kind of evaluation is a responsive approach as the findings are presented as narrative or case study, although they are also discussed informally with stakeholders to increase their input and participation.

(c) Consumer model

This model adopts the 'consumer approach' with Scriven (2003:15) as the primary evaluation theorist. The evaluations are mainly summative and depict the 'merit or worth' of a particular product without considering the process or the context. The

goal is to determine whether a product is acceptable or not and how well it compares to similar products. This approach cannot easily be transferred to the education context as educational programmes are complex (many elements and factors may affect them) and much more difficult to evaluate than consumer products.

This researcher's theory of evaluation was therefore not based on any particular model of evaluation, as an eclectic approach was considered to be most appropriate for the needs and requirements of the context. However, the framework of the Logic Model was used to structure this particular evaluation, as discussed in detail below.

4.2.3 The logic model

(a) Describing the term

The Logic Model is an expansion on the basic behaviouristic input-output approach (also referred to as the 'black-box approach'), where the components and functions of each are unknown (Snowman & Biehler, 1996:251). The limitations of the input-output approach created the need for considering both the *input* and the *process* so that the underlying structure, mechanisms, and dynamics of the learning process could also be included (Julian, 1997:251).

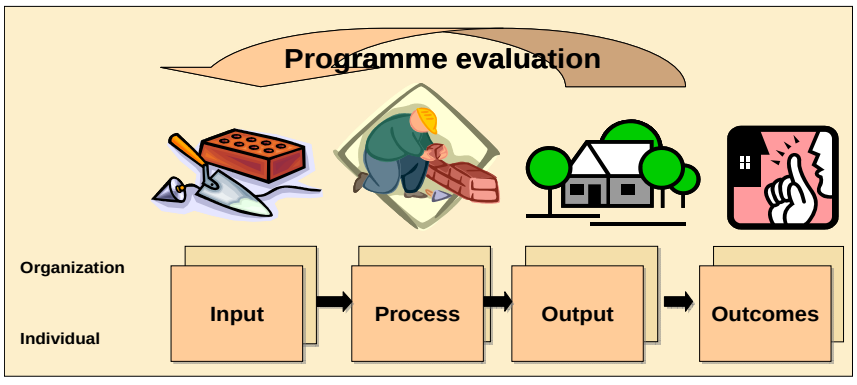

Figure 4-4: Simile of a Logic Model applied to programme evaluation

The framework created by the Logic Model supports a paradigm of human learning

proposed by cognitive psychology (Snowman & Biehler, 1996:251; Sternberg, 1999:56) and enhances the process of learning through evaluation. The Logic Model defines concepts such as components, relationships, and the environment, and is explained as follows (refer to Figure 4-4):

The Logic Model approach to programme evaluation can be explained by comparing it to the building of a house, as depicted in Figure 4-4. The goal of the family is to build a house to live in. The 'input' can be regarded as the building materials, the site, and the architectural plans as well as sufficient funds to pay for building a house (e.g. bricks, cement, sand, wood, etc.), whereas the 'process' represents the actual building of the house from the foundation up to completion.

The 'output' is the completed house that is delivered to the owners, and what they make from it. The output should, however, not be confused with the 'outcomes'; the house should become a home for the family to live in.

The outcomes are measured in terms of how the family feels about the house and whether they enjoy living in it, or how they adapt to the neighbourhood. Some external factors could potentially affect their happiness and the homeliness of the house (e.g. crime, economic situation, political environment, social/cultural context, geographic constraints, etc.), and need to be taken into consideration throughout the process.

In assessing any training programme, it is therefore necessary to take cognizance of the inputs, the outputs, how it is done (i.e. the process), and the outcomes. The evaluation of a programme can be conducted on an individual level or on an organizational level (Figure 4-4). With the current emphasis on evidence-based practice (Forbes, 2008:141; Nail-Chiwetalu & Ratner, 2006:157), the Logic Model enables the evaluator to become accountable and aids him/her in collecting,

organizing, and interpreting both qualitative and quantitative data before, during, and after training (Coffman, 1999:39). This model is a valuable tool that not only guides the evaluation processes, but also facilitates partnerships.

Since this model has been associated with a *theory of change* and *theory of action* in the past, Scriven (2003:24) considers the Logic Model not only as being effective in answering key questions, but also as being theory driven. Where Logic Models are descriptive, *theories of change* and *theories of action* are explanatory and predictive. Patton (2002:163), however, distinguishes between these three concepts in that *theory of change or theory of action* are required to specify and explain assumed, hypothesized, or tested causal linkages. Theory of change is research based and scholarly, whereas theory of action is practitioner derived and practice based. According to this delineation, the evaluation of this specific programme as formalized research therefore suggests it being a theory of change, which is informed by descriptions provided by the Logic Model.

By comparing the *espoused theory* (the official version of operation or what people say they do) with the *theory in use* (what actually happens within the programme) (Argyris, 1982 in Patton, 2002:163) of a specific programme, it is possible to determine the extent to which a specific programme meets the hypothesized and desired outcomes. This can only be done after a realistic description of the programme, for which qualitative evaluation is particularly appropriate and which makes the Logic Model (W. K. Kellogg Foundation) most useful. The Logic Model consists of a specific framework that merits discussion because it contains several constructs and variables that need to be assessed.

(b) The structural framework of the Logic Model

Yu (2006) describes the Logic Model in terms of the four levels of abstraction

presented in Table 4-1, i.e. paradigm, theory, model, and measurement. The paradigm level is viewed as the structure of the model, whereas the theory level is the implementation of a paradigm. The 'model' is the specification of theory, whilst measurement is the quantification of empirical representation. The Logic Model (refer to Table 4-1) accommodates boundaries of programme evaluation that could change over time. The education environment, however, consists of several non-quantifiable aspects that also require description. The Logic Model is ideally suited to include both quantitative and qualitative findings within its framework.

As the evaluation of a programme includes many variables between the input and outcomes, it is necessary to first clarify the various components of the Logic Model, i.e. input, process, output (short-term goals), and outcomes (long-term goals). The aforementioned models of programme evaluation identified several variables to be included in the process (Alvarez *et al.*, 2004:387; Dixon & Scott, 2003:289; Fetterman, 2002:89; Guskey & Sparks, 1991:73; Kirkpatrick, 1976 in Holton, 1996:73; Latham, Crumpler & Moss, 2005:147; Patton, 2002:10; Rae, 2002:2; Stufflebeam, 2003:31) from which several delineators (refer to Figure 4-5) are summarized within the Logic Model framework in Table 4-1.

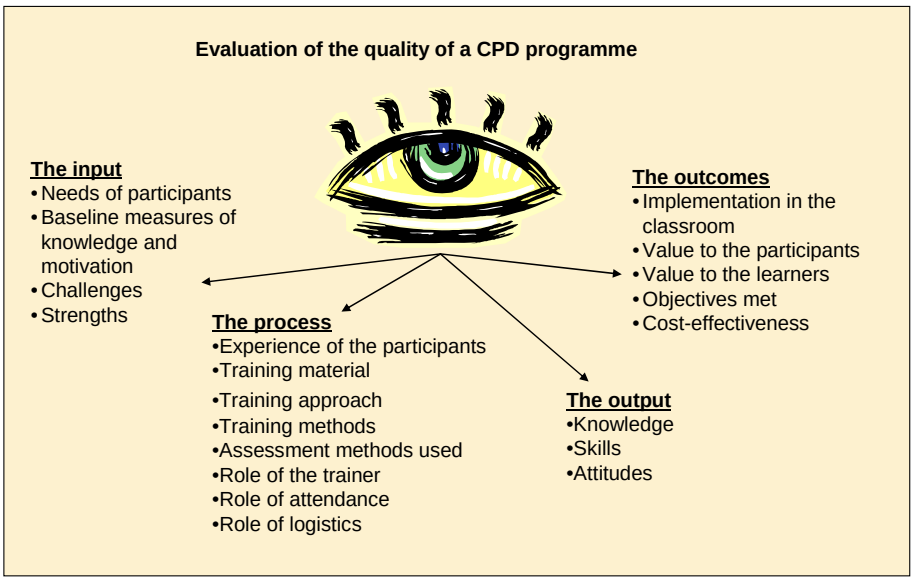

Figure 4-5: Focus areas within the Logic Model framework.

Table 4-1: The structural framework of the Logic Model

Paradigm	Input	Process/activities	Output	Outcomes
	Untrained teachers	Workshop 1 Workshop 2 Workshop 3	Benefits of programme	Changes in individuals and organization
Theory		• Listening • Language • Numeracy • Adult learning and teaching • Diversity • Learning styles • Characteristics of the learners	•Individual outcomes •Community outcomes •Systemic outcomes •Organization outcomes •Application of knowledge •Motivation •Attitudes	• Theory of change
Model (Variables)	Strengths: • Funding • GDE Support • Infrastructure Challenges • Context • Language use • Prior learning • School readiness	• Workshop material • Training approach • Training method • Assessment methods • Competence of the trainer • Factors which impacted on the programme	Changes in: • Knowledge • Skills • Motivation • Confidence	• Implementation of strategies • Benefit to the teachers • Perceived benefit to learners • Objectives met • Cost-effectiveness
Measurements (Instruments)	• Questionnaires • Focus groups	• Questionnaires • Portfolios • Focus groups • Informal information • Diary entries • Attendance registers	• Questionnaires • Portfolios • Focus groups • Research diary • Testimonials	• Focus groups • Attendance registers • Financial statements

4.2.4 Section summary

An overview of various programme evaluation models highlighted the various aspects that need to be evaluated. The Logic Model (W. K. Kellogg Foundation) appears to be most suitable to evaluate this programme because it is holistic and the components (input, process, output, and outcomes) provide a structure for planning and implementation.

4.3 Key aspects in programme evaluation

The complexity of programme evaluation requires careful planning which include considering specific prerequisites, as well as factors that can affect the outcomes.

4.3.1 Prerequisites of programme evaluation

Specific prerequisites need to be in place prior to the evaluation of the programme (refer to 0). Mervin (1992:iv) suggested that the evaluation system should be developed before the programme is implemented. It is also important that time should be allocated for a pilot programme (Agochyia, 2002:312) and that this should be considered part of the design process. The programme developer should also be cognizant of predicting factors which could potentially affect the outcomes and either plan ahead to limit their impact, or acknowledge their existence in the interpretation of results (1989, as quoted by Mervin, 1992:iv).

4.3.2 Predicting factors that can affect the outcomes

An in-depth literature review revealed several predicting factors for programme evaluation, as depicted in Table 4-2 (Salas & Cannon-Bowers, 2001:472; Shufflebeam, 2001:21; Tannenbaum, 1997:439; Warr, Allan & Birdi, 1999:371).

Table 4-2: Predicting factors in programme evaluation

Factors	Specific factor
Learning environment	- The *learning environment* can impact on motivation for learning and cause reduced self-efficacy (Mathieu, Martineau & Tannenbaum 1993 in Tannenbaum, 1997:440). Learning is facilitated when participants are aware of 'the bigger picture because it can help trainees to align their personal goals with that of the school/organization, and to generate ideas and suggestions that are organizationally relevant and which may be rewarded (Tannenbaum, 1997:439). High-performance expectations, supportive policies and practices, and tolerance of initial mistakes during the learning period also contribute to learning. A supportive environment provides individuals the opportunity to apply what they have learnt, and identifies and eliminates situational constraints to learning and performance (e.g. unclear task assignments, lack of tools and supplies, insufficient personnel, poorly skilled co-workers, and unrealistic time pressures). - The *training context* is important as it sets motivations, expectations, and attitudes for transfer. The participants' background characteristics need to be taken into account, as well as resources and administrative support (Shufflebeam, 2001:21). - Training style: Warr *et al.* (1999:371) reported that practical activities create positive results in the acquisition of procedural knowledge. This aspect is not entirely clear, as it can be due to a causal influence that has an indirect effect (e.g. the more competent trainees/teachers are prior to the training, the more likely they are to do better in the course). - The *transfer climate* in which a participant works after training predicts the extent to which the course material will be applied on the job (Tannenbaum, & Kavanagh, 1995 in Tannenbaum, 1997:347; Rouiller & Goldstein, 1993 in Warr *et al.*, 1999:372). The transfer of training is "…the extent to which knowledge, skills and change in attitude acquired in a training programme is applied, generalized, and maintained over time in the job-environment" (Salas & Cannon-Bowers, 2001:488). Furthermore, the working context could also be the cause of delayed learning (Warr *et al.*, 1999:372). - *Environmental support*: If supervisors in the work situation encourage trainees to apply the training material, it can be a predictor of training effectiveness (Tannenbaum, 1997:437). Social, peer, subordinate, and supervisor support play a central part in training transfer (Facteau et al, 1995, Tracey et al 1995 in Salas & Cannon-Bowers, 2001:489; Tannenbaum, 1997:440) and contribute to increased training effectiveness (Rouiller & Goldstein 1993 in Tannenbaum, 1997:440). - *Opportunity to apply their skills*: Trainees need the opportunity to apply their skills after training or else they loose it due to "skill decay"(Salas & Cannon-Bowers, 2001:489).
Organization and socio-political context	- The *organizational environment* determines effective training transfer (Tannenbaum, 1997:441). - *Policies and practices* could enhance continuous learning. Tannenbaum (1997:447) found that policies and practices also contribute to post-training commitment, self-efficacy and motivation, which are important for sustainability of the training. - *Factors over which one has no control*: Outcomes can be affected by factors such as the political environment, economic situation, social/cultural context, geographic constraints, and organizational capacity (Cannon-Bowers *et al.*, 1995:142; Israel, in Innovation Network).
Individual factors	*Ages of the participants:* The workforce has become older and more diverse (Salas & Cannon-Bowers, 2001:472), which requires t the age factor to be accommodated as it is known to be predictive of poorer learning performance (Kubick, 1996 in Warr *et al.*, 1999:351). More practical activities should be used to compensate. *Learning strategies:* The lack of self-regulation (the inability to maintain motivation and ward off anxiety) seems to have a negative effect on learning (Warr *et al.*, 1999:371). *Individual characteristics* partly determine participation and motivation and therefore also play a part in programme evaluation (Tannenbaum, 1997:441).

Although some factors can be purposefully manipulated to obtain better results, others cannot, and therefore need to be taken into account in the interpretation of the results to clarify the outcomes. Evaluation of educational programmes includes the assessment of output and outcomes, which is determined by two types of assessment.

4.3.3 Types of assessment

The gains made by the trainees can be assessed by either formative or summative assessments, which each should be implemented at a different time in the process of teaching and learning (Guskey & Sparks, 1991:73). *Formative assessment* refers to the assessment that takes place during the process of teaching and learning (South African Qualifications Authority, 2001:26). It identifies those areas within the entire process where training can be improved and is also indicative of the suitability of the training approach and the effectiveness of particular training methods (Guskey & Sparks, 1991:73). According to the SAQA policy document (2001:26) the formative assessment supports the process of teaching and learning and assists in the planning of future learning. It not only provides feedback to the learners on their progress, but also provides an indication of the readiness of the learners to be summatively assessed. Formative assessments usually are developmental in nature and are not awarded any credits.

The summative assessment is used to judge achievement and is performed at the end of the programme of learning (qualification, unit standard, or part qualification). It determines whether the learners are competent or not yet competent (South African Qualifications Authority, 2001:26). Ideally, these two types of assessment should be interrelated and also mutually dependent and supplementary to each other (Agochyia, 2002:311). These types of assessment are conducted at various stages

of the learning programme and each contributes particular information for different purposes. It is, however, possible to conduct a summative assessment on a continuous basis throughout the learning experience (and therefore is not confined to a written test/examination). Both formative and summative assessments allow for use of a range of assessment methods using a variety of sources (South African Qualifications Authority, 2001:27). Programme evaluation is done at various stages and phases of the educational programme.

4.3.4 Stages and phases in the evaluation of a programme

The various stages in the evaluation of an educational programme (Guskey & Sparks, 1991:73; Rae, 2002:95) are portrayed in Table 4-3, but they may not necessarily occur in neatly specified phases, nor do these phases follow each other in a sequential order as they may overlap.

Evaluation of the outcomes offers suggestions of how future programmes could be improved. The application of knowledge and skills can be determined either by observing individual teachers in their classrooms, or by obtaining information from the trainees. The first option imitates the traditional practices of the 'accountability/inspection model' (Monyatsi *et al.*, 2006:218), which teachers may tend to perceive negatively as it may remind them of inspection and control, and of being judgmental (Beerens, 2000:10).

The second option is in accordance with the professional development model (Monyatsi *et al.*, 2006:218), which refers to the effectiveness and relevance of the programme in terms of its application to the work of the participants, and therefore was deemed to be more appropriate for this study. It involves a complex analysis of key elements of the training programme, such as the work environment at the schools and an in-depth understanding of the factors that may either support or

obstruct the transfer of the training to the real-life situation. Such results are indicative of whether the training programme was well conducted and whether it was cost-effective (Rae, 2002:171).

Table 4-3: Stages in programme evaluation

Stage	Description
Pre-training programme evaluation	The pre-training evaluation provides the baseline data that are to be compared with the post-training data to demonstrate the learning that has been accumulated from training (Rae, 2002:95). This type of evaluation is relevant and valuable when programmes focus on the development of knowledge and competencies to improve performance (Agochyia, 2002:311). Such information provides the trainer with insight into the trainees' level of competence in the areas earmarked for inclusion in the training so that inputs can be properly planned. The pre-training programme evaluation identifies trainees' training needs and guides the trainer to the appropriate level of input. Useful information on the participants' backgrounds is also collected for future inferences. The preferred method of data collection in this phase is a structured questionnaire that is both practical and cost-effective.
Post-training evaluation	The post-training evaluation is the second validation (Rae, 2002:95). Reactionaries and questionnaires each have a role in the validation process - reactionaries seek information on the participants' feelings, views and opinions, whereas questionnaires provide a more objective assessment of the achieved learning. Multiple choice questionnaires do not necessarily capture the goals of the training and therefore self-assessment, peer assessment, and written essays are regarded as valuable methods of evaluation (Wilkes & Bligh, 1999:1270).
The end-of-programme evaluation	A summative report is required at the conclusion of a programme to evaluate the total impact (Guskey & Sparks, 1991:73). It provides an overall effect of the process, as well as the product, by summarizing the achievements and the limitations (Winberg, 1997:82). It judges the effectiveness of teaching (Wilkes & Bligh, 1999:1269) and therefore has an evaluative feel to it. At the end of the programme ('end-of-term'), the summative report seeks to bring together the conclusions about the values of, and lessons learned by the trainee that was evaluated. It provides information about why the programme was implemented and about its locality. The end-of-programme evaluation is regarded as the most descriptive of programme implementation (e.g. overview, programme beneficiaries, financing, governance, staff, facilities, operations) and should be directed to those who may be interested in replicating the programme. It should also include a comprehensive appraisal of the programme, of which the outcomes are of interest to all members of the audience.

The end-of-programme evaluation is concerned with the total benefits rather than the benefits of the training programme itself. Training is often measured by its activities, rather than by results (Purcell, 2000:30), and therefore requires thorough descriptions of the process ("…the impact of training can only be fully understood once it is described and judged") (Stake, 1977 in Wood, 2001). It is not always

possible to determine the cost benefits of a programme, even though cost is related to the charges for the training and therefore easy to calculate. The problem lies in judging the benefits to the organization, as this is often done through subjective measures and therefore cannot be quantified (e.g. development of interpersonal relationships) (Purcell, 2000:30). The programme evaluator is usually required to compile a final report to stakeholders by conducting an end-of-programme evaluation. Stufflebeam (2003:44) made valuable suggestions in this regard, which include the use of photographs as it makes the report more convincing by providing a testimony of the events.

Direct quotations from trainees are helpful to capture the interest of the audience, whereas an executive summary is useful for policy briefing sessions. In addition, an adequate appendix with all the evidence of the evaluation materials used for documenting and establishing credibility of the research procedures should be included. The writing of end-of-term reports requires the evaluator/researcher to be cognizant of specific limitations to the evaluation, which are discussed in the following section.

4.3.5 Potential challenges in programme evaluation

Programme evaluators need to acknowledge certain limitations when evaluating the effect of a programme to put certain outcomes into perspective. Firstly, it is often difficult to assess the extent to which the knowledge gained in the workshops is in fact applied in practice. Agochyia (2002:315) is of the opinion that it is not possible to determine whether the trainees internalize the training through continued practice. All that may become evident is that, after training, trainees go back to their classrooms more sensitized and better equipped to face the challenges of their work

and life in general. Secondly, trainers do not have control over all the factors that can affect transfer to the workplace as some of these may be beyond their control (*Ibid:* 316).

As the evaluation exercise itself (e.g. questionnaires before and after training) affects the nature of the situations to be examined, true objectivity regarding the results of training may not be possible (House, 2003:11; Stake & Thrumbull, 1982:1). It is also not possible to quantify every aspect of learning, as not all learning takes place at the conscious level. A significant amount of learning occurs at a subconscious level (Agochyia, 2002:316) and therefore cannot be assessed. Programmes are conducted in real-world settings that are influenced by several factors (e.g. attendance, motivation of trainees, diversity in language and culture, as well as varying levels of education backgrounds and qualifications). It may therefore be difficult to establish causal and correlating links in the interpretation of the evaluation results, as it cannot be assumed that high scores imply effective programmes and low scores imply poor programmes (Cannon-Bowers *et al.*, 1995:142).

In determining the outcomes of a programme it may be more useful for the evaluator to answer certain questions, as answers to these questions would provide a more holistic view of the effect of the training (e.g. “how did the participants benefit?”, “did the training achieve the objectives?”, or “did the training obtain the desired response from the group and could they implement the strategies in class”?).

4.3.6 Section summary

This section discussed the key aspects to be considered in the evaluation of a programme. The two types of assessment used to assess learning were identified as formative and summative assessments. The pre-training, post-training and end-of-programme evaluation are required to provide a comprehensive view of the

programme. In addition, attention was drawn to specific evaluation challenges (e.g. knowledge transfer and reliability) and potential pitfalls were emphasized.

4.4 Conclusion

It is important that programme evaluators are informed of local and global trends and adapt such knowledge to local contexts and needs (Bhola, 2003:389). This information can aid in building capacity and expertise in the local context, and can be transferred to education system assessment where similar skills are required (Omolewa & Kellaghan, 2003:479).

Several approaches were used in the evaluation of this particular programme: positivism (Scriven, 2003:20), the interprevist-constructivist approach (Lincoln, 2003:69), and the accountability approach. Each of these approaches in isolation could only provide a partial view of the programme's value (House, 2003:10), but when used together, a more practical perspective was obtained. Such a holistic view called for both quantitative and qualitative methods to describe the value of the programme, which concurs with international trends in programme evaluation (Creswell, 2008:1; Kellaghan *et al.*, 2003:4).

4.5 Appendix

Refer to the separate Compact Disk (CD) for contents of this appendix.

Appendix 4A *Prerequisites for effective programme evaluation*

Chapter 5 Research design and method

Scientific method includes, in short, all the processes by which the observing and amassing of data are regulated with a view to facilitating the formation of explanatory conceptions and theories

John Dewey, 1933 (From: "How we think")

Aim of the chapter

The aim of Chapter 5 is to provide the research design and methodology used in the research. The structure of the chapter and the topics covered are depicted in Figure 5-1.

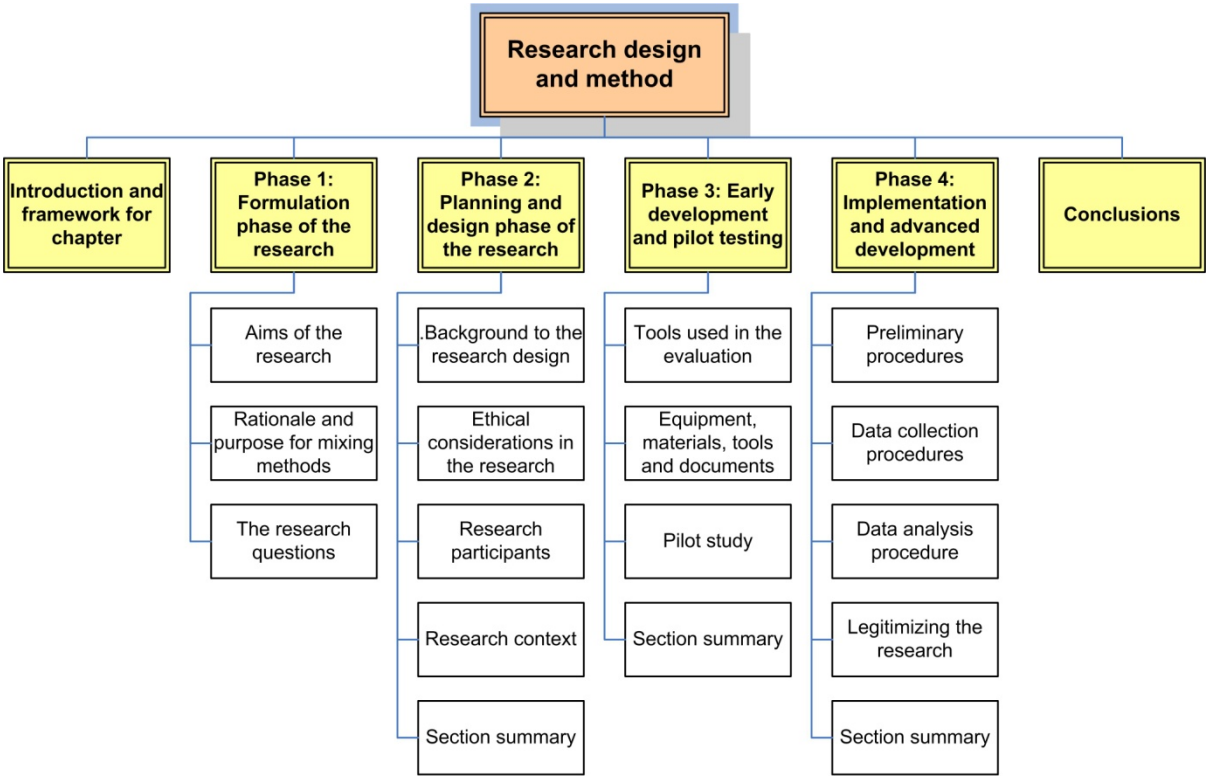

Figure 5-1: Outline of Chapter 5

5.1 Introduction and framework for chapter

Teachers cannot afford to invest their time in CPD programmes that are of little value or poor quality. The quality of a support programme is determined by judgement and appraisal of its value (Rae, 2002:3), and whether it can be used in future teacher development initiatives (Stufflebeam, 2003:31). This study developed a continuous professional development programme for foundation phase teachers built on the model for programme development previously discussed in Chapter 1 (Thomas & Rothman, 1994:28). However, the evaluation phase of the programme (refer to Figure 1.2) required both quantitative and qualitative data to answer the many research questions, for which the model for mixed methods (Leech & Onwuegbuzie, 2005:476; Onwuegbuzie & Dickinson, 2007) was selected (refer to Figure 5-2).

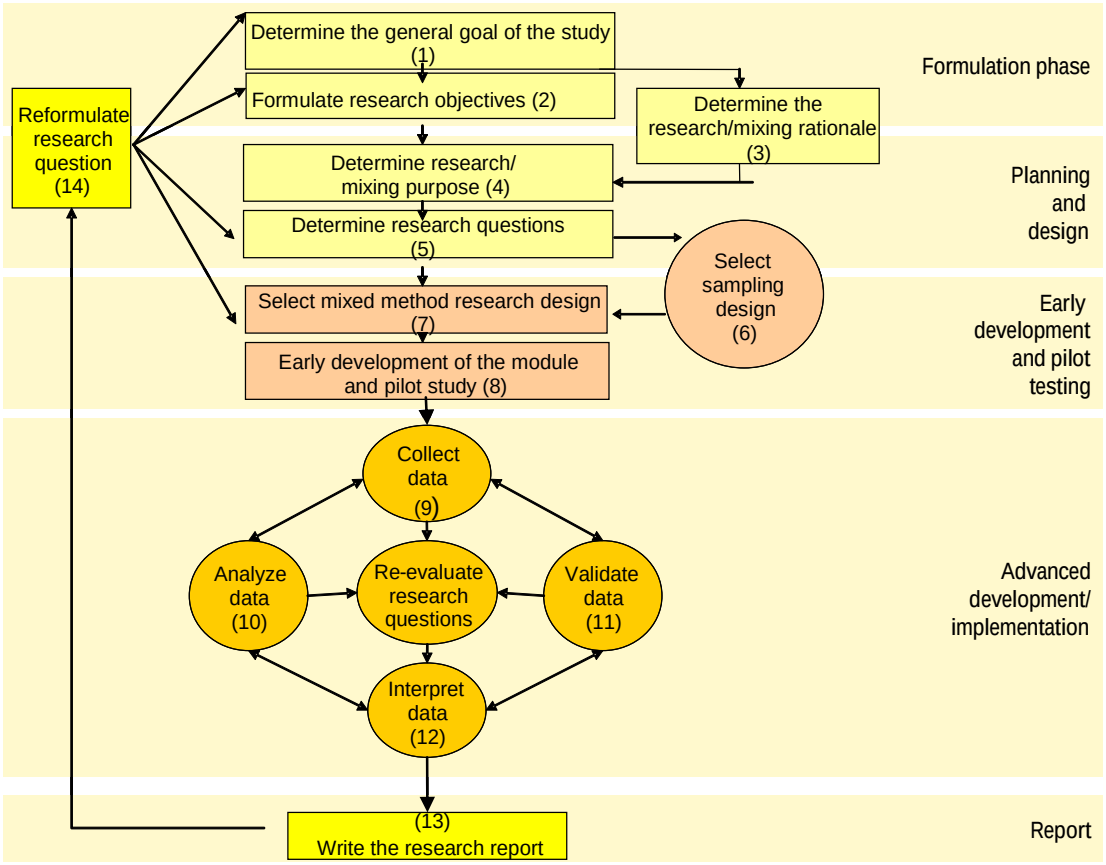

Figure 5-2: Framework for conducting mixed methods research

The mixed methods methodology for research is "…the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language in a single or set of related studies" (Johnson & Onwuegbuzie et al., 2005 in Collins, Onwuegbuzie & Sutton, 2006:69). When quantitative and qualitative methods are used together they both contribute to a common understanding (Patton, 2002:585) and increase reliability and trustworthiness of the data, as well as expand the breadth and depth of the findings (Greene & Caracelli, 1997a:23; Greene, Caracelli & Graham, 1989:255). The model for doing mixed methods research (Figure 5-2) (Leech & Onwuegbuzie, 2005:476; Onwuegbuzie & Dickinson, 2007) specifically delineates phases and steps for the evaluation of the CPD programme and therefore provides a framework that guides the discussion of this chapter. A discussion of the formulation phase therefore is the first to be discussed.

5.2 Phase 1: Formulation phase of the research

The formulation phase (Phase 1 as depicted in Figure 5-2) refers to the conceptualization of the design and method of the research. The first step is the formulation of the aim and sub-aims of the research.

5.2.1 Aim and sub-aims of the research

The main aim of the study was to develop a specific CPD programme for foundation phase teachers to facilitate listening and language for learning (with specific emphasis on the language for numeracy) (refer to Step 1 in Figure 5-2). The proposed support programme was then presented in two previously disadvantaged areas in the Tshwane region.

The focus of the research was on the 'Early development of the programme and pilot testing' (Phase 3) and the 'Advanced development and evaluation' (Phase 4) described earlier in the model for the development of the support programme (Thomas & Rothman, 1994:28) (refer to Figure 1-5). Aims and sub-aims were formulated for each of these phases (refer to Step 2 in Figure 1-5).

(a) Aims of early development and pilot testing of the programme

The aim of early development and pilot testing was to design and develop a prototype of the specific CPD programme. The following sub-aims were formulated to achieve this aim:

- To develop the workshop material and training support materials
- To design the training procedure
- To develop and pilot test the evaluation procedures.

(b) Aim of evaluation and advanced development

The ultimate aim of the research was to determine the value and worth of the specific CPD programme. In this study the framework provided by the Logic Model (W. K. Kellogg Foundation, 2004) allowed for various research questions to be answered in an ordered manner (Scriven, 2003:24) (refer to Table 5-1).

Table 5-1: Sub-aims of the research and aspects assessed

Sub-aim	Aspects addressed
To describe the 'Input component' of the CPD programme to clarify the specific training needs and demographics of the participants, and the context in which the support programme was implemented.	- Training needs of the participants - The demographic profile of the participants - Input strengths in support of the CPD programme - Input challenges that might impact upon the CPD programme
To assess the 'Process component' of the CPD programme in order to determine the effectiveness. The evaluation of the 'Process component' emphasized factors	- The workshop material in terms of relevance and use of workshop material and whether information was omitted or unnecessarily included)

Sub-aim	Aspects addressed
that had an effect on the outcomes. These factors had to be considered in the interpretation of results.	- The method of training - The trainer's skills - The overall duration and pace of training - Identification of factors that impacted on the process
To assess the 'Output component' of the CPD programme to determine whether the participants gained from the programme.	- Knowledge - Skills - Attitudes
To evaluate the 'Outcomes' of the CPD programme in order to determine the value and worth.	- The implementation of the strategies in the classroom - The value of the training to the teachers - The value of the strategies for the learners as perceived by the participants - The cost-effectiveness of the programme

By describing and assessing each of the four components (refer to Table 5-1), a comprehensive view of the value of the programme was obtained. Steps 3 and 4 in the mixed methods model (refer to Figure 5-2) (Collins *et al.*, 2006:90) consist of the rationale and purpose for mixing methods, which are discussed next.

5.2.2 Rationale and purpose for mixing methods

The rationale of mixing methods was to bring together the different strengths and non-overlapping weaknesses of quantitative and qualitative methods in order to determine the integrity of the research. The purpose for mixing methods was to "obtain different but complementary data on the same topic" (Morse, 1991: 122 in Creswell & Plano Clark, 2007:62) for triangulation. The relationship between the rationale and purpose of mixing methods is shown in Figure 5-3.

The purpose of mixing methods is linked with the research questions (Collins *et al.*, 2006:67; Newman *et al.*, 2003:167), which in this case required both quantitative and qualitative data to determine the value of a specific CPD programme. The quantitative data were statistically analyzed to assess whether the participants had gained from the programme.

The qualitative data were also used to understand the circumstances within the context in order to explain the results obtained from the quantitative data. Such mixing of methods provided a more holistic view of the CPD programme. The research questions to be discussed next therefore guided the research as they determined the research design in terms of the stages and sequence of collecting the data.

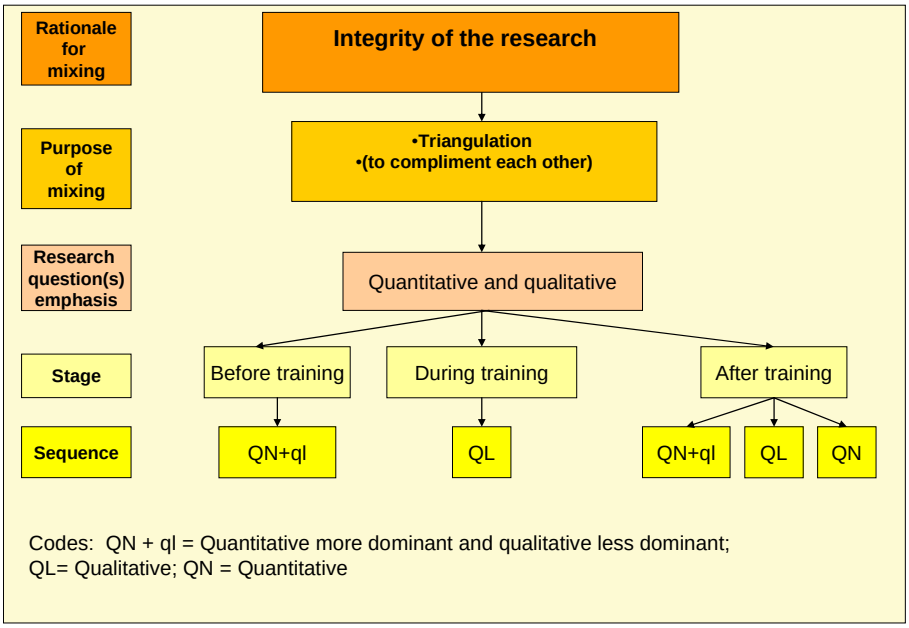

Figure 5-3: Purpose and rational for mixingg methods in this study

5.2.3 The research questions

The research question in this research was formulated as follows: *'What was the value and worth of the CPD programme?'* Several sub-questions were then formulated and placed within the components of the Logic Model framework to provide a holistic view of the value of the programme (refer to Table 5-2). The dualistic (quantitative-qualitative) nature of the research questions (refer to Table 5-1) gave rise to the selection of the research design (Reichardt & Cook, 1997 in Collins *et al.*, 2006:74) in the following phase.

Table 5-2: The research questions within the Logic Model framework and relevant data sources

Component	No	Research Question	Quantitative data sources	Qualitative data sources
Input	1	What were the participants' training needs?	Questionnaires	Research diary
	2	What support was provided previously to the participants by the school and GDE?		
	3	What were the input strengths of the programme?		
	4	What were the input challenges of the programme?		
Process	1	a. Was the information useful and relevant for classroom use?	Questionnaires (evaluation of the workshops)	Research diary Focus groups Testimonials Questionnaires with open-ended questions
		b. Was the information new or did it confirm previous knowledge?		
		c. Was any information unnecessarily included or was any necessary information omitted?		
	2	a. How relevant was the training approach?	Post-training questionnaires consisting of closed-ended questions	Research diary Focus groups
		b. Were the training methods used appropriate to accommodate various learning styles?		
		c. Did the trainer have the necessary attitude and skills to present the material in an encouraging way?	Post-training questionnaires	Research diary Focus groups
	3	a: How appropriate were the assessment methods used?	Questionnaires with closed-ended questions Portfolio assessments Financial statements Attendance registers	Focus groups Research diary Testimonials Correspondence
		b: Did the assessment methods provide sufficient information to draw conclusions?		

Component	No	Research Question	Quantitative data sources	Qualitative data sources
	4	a. Were the workshops of appropriate length and pace?	Post-training questionnaires Portfolios	Observation Research diary
		b. What was the effect of time?	Questionnaires	Focus group
	5	Did the trainer have the necessary attitude and skills to present the material in a way that encouraged learning?	Questionnaires (workshop evaluation)	Research diary Testimonials Focus groups
	6	How did logistics affect the programme?		Research diary Focus groups
Output	1	How did the participants benefit in terms of the following? a. Knowledge b. Skills c. Attitude	Questionnaires Portfolio assessments	Focus groups Research diary Testimonials
Outcomes	1	How did the participants implement the strategies in the classroom?	Portfolio assessments	Research diary Focus groups
	2	How did the programme help the participants to facilitate listening and language for numeracy?		
	3	How did the participants experience the effect of the strategies on their learners?		
	4	How cost-effective was the proposed support programme?	Attendance registers and cost analysis	Financial statements Attendance registers
	5	Were all the objectives met?	All of the above	All of the above

5.3 Planning and design phase of the research

5.3.1 Background to the research design

The model for the development and support of this support programme was based on three models, which each was included for a different purpose. Firstly, the model for programme development and evaluation (Thomas & Rothman, 1994) (refer to Figure 1.5 and Model A in Figure 5-4) provided several phases as framework, of which the fifth phase aimed at the evaluation and advanced development thereof. The evaluation and advanced development phase typically involves the steps of formulating the research questions and aims, the research design, early development and pilot testing, and finally the data collection, analysis, and evaluation of the support programme.

The research questions were placed within a Logic Model[7] framework (refer to Model B in Figure 5-4). The research questions required both quantitative and qualitative data and the study therefore used a combination of quantitative and qualitative strands (consisting of numerical, descriptive, and judgmental information), also referred to as a mixed methods[8] approach (refer to Model C in Figure 5-4).

The model for doing mixed methods research (Leech & Onwuegbuzie, 2005:476; Onwuegbuzie & Dickinson, 2007) consists of five phases, i.e. the formulation phase, the planning and design phase, the early development and pilot testing, advanced development/implementation phase, and final reporting. The original model for mixed methods (Leech & Onwuegbuzie, 2005:476; Onwuegbuzie & Collins, 2006) was adjusted in this study to allow for a pilot study in the early development of the programme (refer to Figure 5-2).

[7] The Logic Model was used for evaluation in Phase 5 of the model for programme development.

[8] The mixed method model combines qualitative and quantitative inferences.

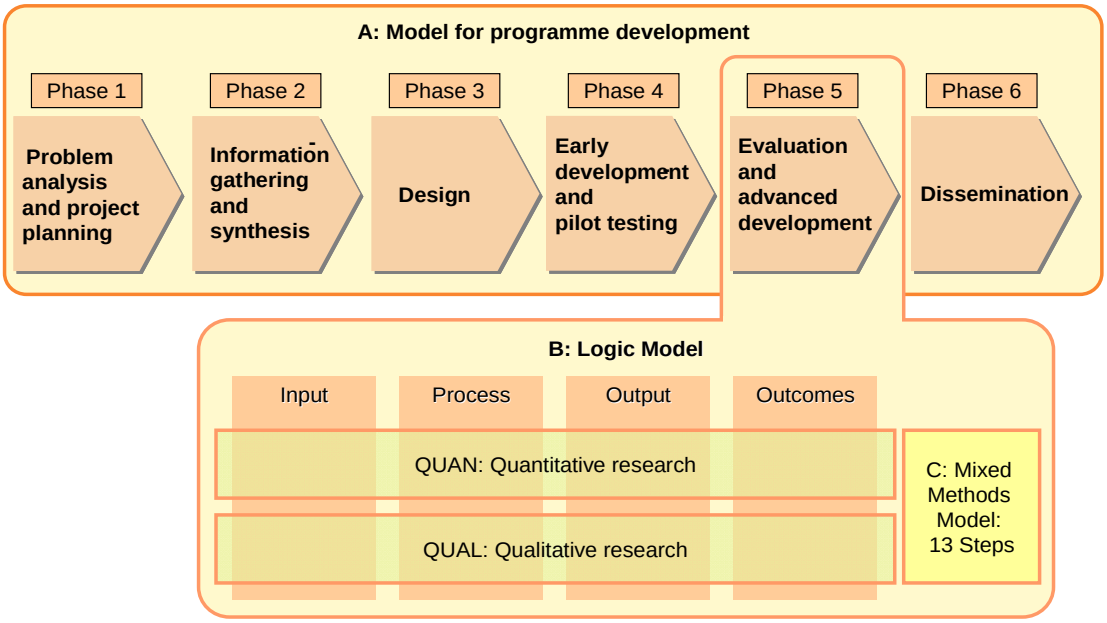

Figure 5-4: Integration of models in the development and evaluation of this CPD programme

Superimposing the model for doing mixed methods research (Onwuegbuzie & Collins, 2006) on the model for the development of this programme (refer to Figure 1-5) (Thomas & Rothman, 1994:28) shows that the different phases of the two models correspond closely (refer to Figure 5-5). Although the model for programme development consists of 6 phases and the model for mixed methods of five, the latter provides a more detailed expansion on Phases P3, P4, and P5 of the programme development model[9] through its 13 steps.

Figure 5-5 shows that the formulation phase in the model for mixed methods (Phase 1) correlates with the 'Problem analysis and project planning' (Phase 1) and 'Information gathering and synthesis' (Phase 2) of the programme development model. Phases M2 and M3 of the model for mixed methods correspond with Phases P3 and P4 of the model for programme development as they addressed the design and early development of the programme. These two phases in each model focus

[9] Note that for the sake of clarity, the phases in the programme development model are designated with a "P" (i.e. P1 through P6), and those in the mixed method model with "M" (i.e. M1 through M5).

on designing and developing the workshop and training support material, as well as the assessment procedures, the needs assessment and pilot testing, the assessment, and training procedures.

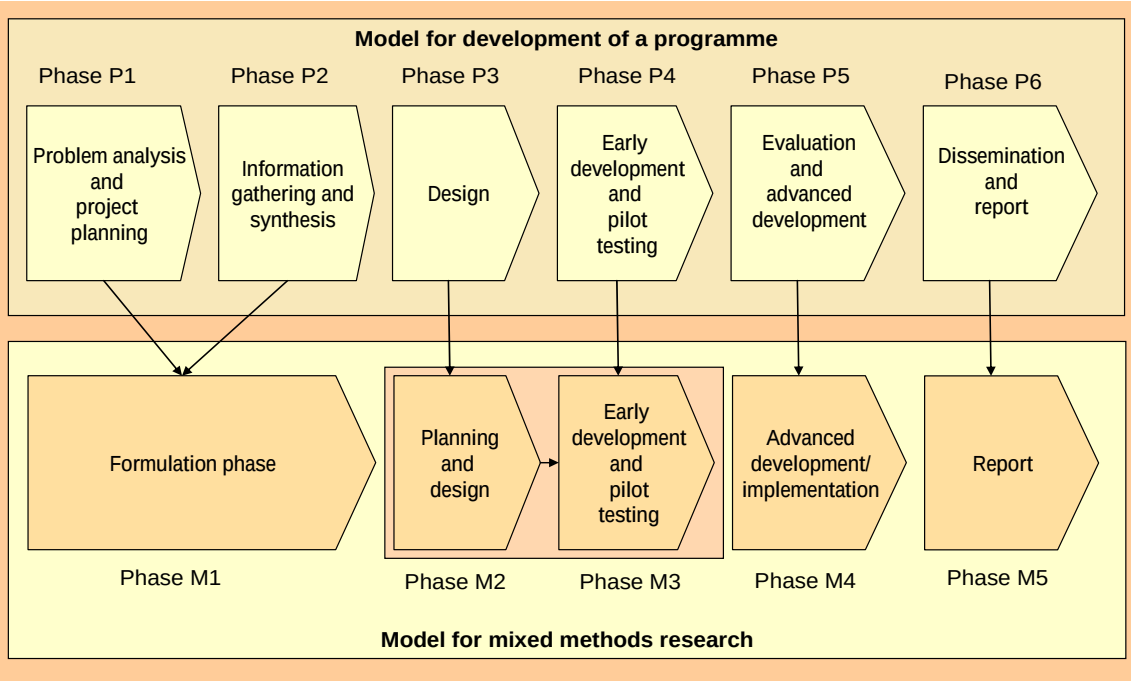

Figure 5-5: The model for mixed methods research as superimposed on the model for the development of the programme

Phase M4 corresponds with Phase P5. Figure 5-5 shows that Phase M3 ('Early development and pilot testing') and Phase M4 ('Advanced development and evaluation') have a different focus and therefore different aims.

The design and early development of the programme (Phase 3) (refer to Figure 5-5) was dependent on a literature review to inform the development of the training material, the training design, and the assessment material, as well as the tools, materials, equipment, and apparatus used. These procedures were then pilot tested prior to implementation in the actual research where the programme was presented and evaluated.

The fourth phase (refer to Figure 5-5) was concerned with the implementation, and advanced development of the programme and the evaluation thereof. This chapter

therefore focuses on the research design and method of how the support programme was evaluated, specifically with regard to how the data were collected and analyzed, and final inferences were drawn. A description of the research design is provided below.

(a) Mixed method research design

The research design selected for this study is shown in Figure 5-6 as a single phase triangulation design, in particular the data transformation model where QUAL data were transformed in QUAN[10] to compare and contrast quantitative statistical results with qualitative findings (Tashakkori & Teddlie, 2003a:717). The purpose of this single-phase triangulation design was "...to obtain different, but complementary data on the same topic" (Morse in Creswell & Plano Clark, 2007:62; Greene & Caracelli, 1997a:23; Greene *et al.*, 1989:255).

The design is also referred to as the 'concurrent triangulation design' (Creswell *et al.*, 2003:209). It was concurrent because the quantitative and qualitative methods were implemented within the same period and with equal weight. Both types of data were collected within a single phase of the research, and similar research questions were addressed by both strands. Triangulation required separate data analyses of both strands, but the results were integrated after the initial analysis of the qualitative data were quantified (Creswell *et al.*, 2003:209) to facilitate the comparison of the two data sets.

The two strands (refer to Figure 5-6) of the research were awarded equal status. The pilot study showed that the use of quantitative methods by itself was not suitable for this particular context, and therefore qualitative methods were required to create

[10] Note that in literature on Mixed Methods, the abbreviation "QUAN" is used to designate the quantitative strand of the research, while "QUAL" refers to the qualitative strand.

a better understanding of the prevailing conditions, as well as to serve as an additional assessment technique. In addition, the quantitative strand had an adequate sample size, but lacked a control group and used a non-random sampling design (imposed by circumstances beyond the control of the researcher).

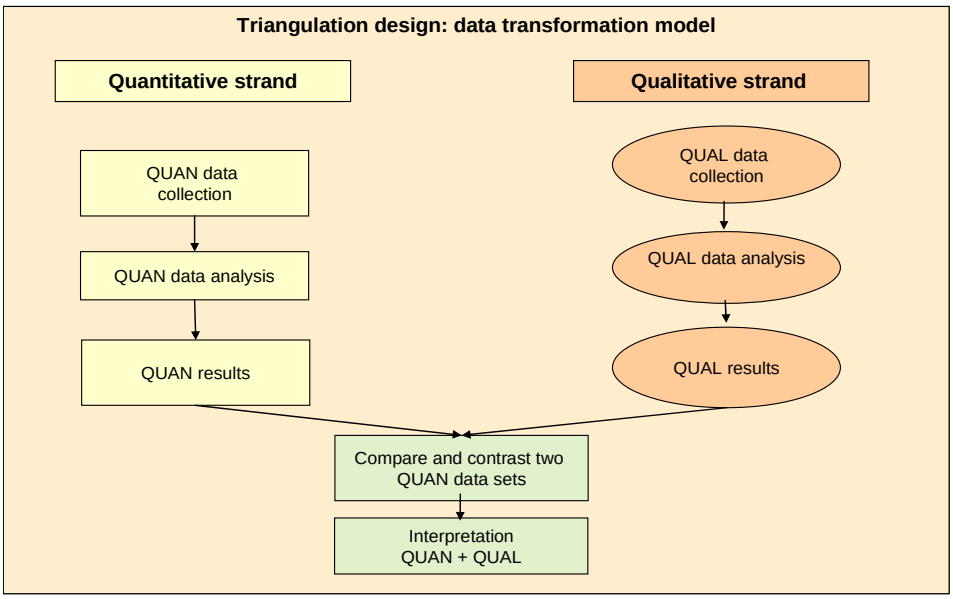

Figure 5-6: Triangulation design (data transformation model)

The qualitative strand had a relatively small sample size, but this was compensated for by a variety of ways. An adequate number of focus group discussions (8) were conducted, thick descriptions within the context were created, and rich data from several data sources (diary entries, focus groups, testimonials, and open-ended questions) were obtained. The two strands of the research could therefore be awarded equal status. The next step to be discussed is the research methods used in the research.

(b) Research methods

The evaluation of the programme consisted of both quantitative and qualitative methods:

(i) Quantitative research methods

Quantitative research is generally used to explain, predict, and control phenomena that can be generalized to other persons and places (Leedy & Ormrod, 2005:100). It does not attempt to detect cause-and-effect relationships in an effort to change or manipulate phenomena. In this case, descriptive statistics was used to describe the gains made in knowledge and skill by collecting data with questionnaires and portfolio assignments. The data from questionnaires described the participants and their needs and determined the knowledge gained. Factor analysis and regression computations were used to assess the correlation between different input parameters.

The following data were collected:

- Demographic information and needs assessment at the onset of each annual programme
- Knowledge levels prior to and after each workshop
- Attendance registers at each workshop
- Portfolio assignments 4-6 weeks after each workshop

Data collection cycles overlapped. The quantitative data collection methods and type of data required are summarized in Table 5-3.

Table 5-3: Quantitative data collection methods and type of data required

Quantitative data collection method	Type of data required
Questionnaires	Demographic information to describe the population Participants' training needs Knowledge gains
Attendance registers	Attendance (attitude/motivation)
Portfolio assignments	Applied knowledge of listening, language, and language for numeracy Skills in implementation of strategies Attitude (participation and motivation)

(ii) Qualitative research methods

The qualitative data collection methods and type of data required are summarized in Table 5-4. The descriptive approach to qualitative research describes the nature of relationships, situations, processes, systems, and people (Leedy & Ormrod, 2005). The researcher also wanted to understand the context and the participants' experiences with the strategies, and their impression of the support programme. This required various forms of qualitative data (e.g. open-ended questions and narrative data obtained from focus groups, as well as reflections in a research diary and other documents).

Table 5-4: Qualitative data collection methods and the type of data required

Qualitative data collection method	Type of data required
Open-ended questions in questionnaires	Evaluation of the programme Opinions and recommendations re future programmes
Research diary and field notes	Evaluation of programme (process and outcomes)
Photographs	Documentation of process Evaluation of portfolio assessment
Focus groups	Evaluation of the programme
Testimonials	Feedback on the value of the workshops and programme

During the data interpretation phase, the qualitative data aided in drawing inferences regarding the quality of the quantitative data, and in clarifying, describing, and validating those results (Caracelli & Greene, 1993:195; Collins *et al.*, 2006:90). Based on those findings, the research programme was modified to cater for some discrepancies and deficiencies (Sieber, 1973 in Onwuegbuzie, 2002:525).

(c) The research approach

The research focused on the value of the CPD programme developed by this study within a real-world context. It was therefore necessary throughout the research to

make practical decisions to provide the required information, which necessitated purposeful actions to arrive at the desired outcomes (Creswell, 2003:12). The practical nature of the research aligned it with the pragmatist stance, allowing the researcher to study that which was of interest and of value to her, to do so in an appropriate manner, and to use the results to effect positive changes in her value system (Tashakkori & Teddlie, 1998:30). The researcher was guided by what was believed should be achieved, and aimed to describe, compare, and to predict the value of the programme (Cherryholmes, 1992:13-14; Tashakkori & Teddlie, 1998:26).

The focus of the evaluation was on the description of links among programme activities, comparisons of programme goals and other standards, as well as hypothesized causal links between attributes and outcomes (Rallis & Rossman, 2003:494). The researcher's interest was partly of a technical nature, but it also had a practical perspective, i.e. the quest to understand. The technical view is essentially positivist/post-positivist and employs a deductive approach in describing causal laws (Neuman, 2000:64). In this study, quantitative data were used to obtain frequencies and percentages (prevalence rates) for descriptive research, where the role of the researcher was that of 'objective observer' (McMillan & Schumacher, 2006:13).

The study also implemented qualitative methods and is therefore associated with the interprevist tradition, which emphasizes multiple realities within a specific context. The researcher's role was one of disciplined subjectivity and reflexivity (critical self-examination). The study included both objective and subjective views, which required inductive (qualitative) and deductive (quantitative) rules of reasoning to be integrated in an effort to make the research more effective (McMillan & Schumacher, 2006:13).

5.3.2 Ethical considerations in conducting the research

As part of the planning and design of the research, the researcher placed strong emphasis on conducting the research in an ethical, responsible, and accountable manner (Strydom, 2002:65). These ethical considerations (view Figure 5-7) were based on two major responsibilities, i.e. a responsibility firstly towards the participants and support staff included in the research, and secondly towards the research community. Since the research involved people, it was based on the underlying principles of beneficence and non-malfeasance (Christians, 2005:146; Denzin & Lincoln, 2005b:35; Smith, 2005:112). The research was also guided by the principle of respect for others (Babbie & Mouton, 2002:528; Strydom, 2002:70), which required that cultural and individual differences be approached in a sensitive manner. The second obligation was towards the discipline of science in upholding honesty and accuracy in the research, as well as in the honest and transparent reporting of the research findings (Strydom, 2006a:56).

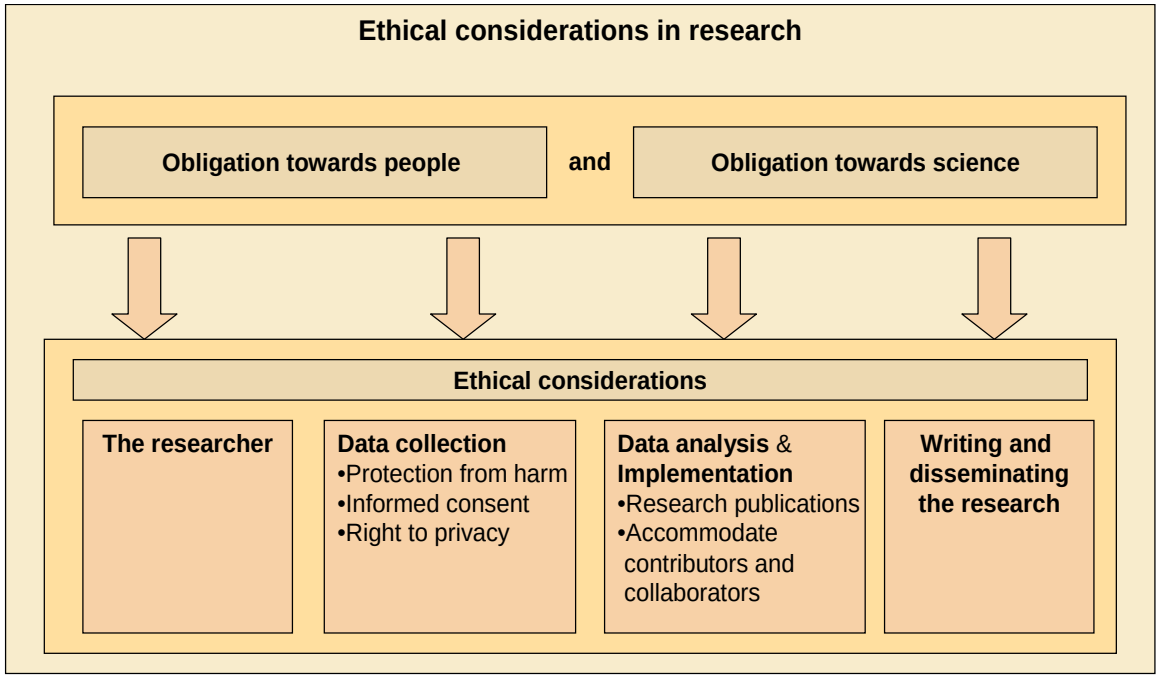

Figure 5-7: Ethical considerations in the research

The researcher accepted the responsibility that she was fully accountable for the ethical quality of the research (Henning, 2004:74), and therefore strived towards the required competency skills for undertaking the investigation (Strydom, 2002:70). Whenever in doubt, the researcher asked for advice from specialists or more experienced colleagues.

At the onset of this study, the researcher made the decision to be fair, honest, and not to deceive either the participants, the stakeholders, or the research community (Neuman, 2000:243; Struwig & Stead, 2001:67). Ethical conduct in the procedures for data collection was based on protecting the participants from harm, obtaining informed consent, and protecting their right to privacy, as discussed below. These issues are briefly reviewed below.

(a) Focus on participants

(i) Protection from harm

Considering that the principle of non-malfeasance is prioritized in ethical research (Newman & Brown, 1996:41), the researcher ensured that none of the participants in this study suffered any physical or psychological harm that the researcher was aware of (Babbie & Mouton, 2002:42, 71; Strydom, 2002:64). All attempts were made to minimize physical discomfort throughout the duration of the programme, and to create a pleasant and safe atmosphere in the classroom (Leedy & Ormrod, 2005:101).

(ii) Informed consent

The principles of voluntary participation and beneficence were realized by requesting participants' informed consent at the onset of each annual programme (Struwig & Stead, 2001:67). The participants were given the opportunity to reflect on their voluntary participation in the training on two occasions prior to training - firstly, when

the written invitation arrived at the school and secondly, in the briefing session at the onset of the programme. At the briefing meeting the participants were informed of the aim of the investigation and the intended use of obtained data, the procedures to be followed during the investigation, and the possible advantages and disadvantages to which respondents might be exposed (Creswell, 2003:64; Strydom, 2002:65). All participants who wished to continue with the programme were required to sign a form of informed consent (refer to Appendix 5C). The cover letter accompanying this request explained that they were free to withdraw at any time, without suffering any consequences (Babbie & Mouton, 2002:522). Confirmation of this commitment was repeated verbally at the onset of all contact sessions, and they were also assured that they could leave the workshops should they feel uncomfortable for any reason whatsoever (Neuman, 2000:243). School principals were specifically requested not to coerce their staff regarding participation, and to emphasize the aspect of choice (McBurney, 1994:378). Where implementation of specific strategies were videotaped in the classrooms for use as training support material, each of the student therapists who participated also granted their permission by signing forms of informed consent (refer to Appendix 5C). In addition, written consent for videotaping was granted by the specific principals on behalf of the learners (Appendix 5C).

(iii) Right to privacy

The participants' right to privacy was respected at all costs (Singleton *et al.* (1988:454) in Strydom, 2002:67). The researcher explained to participants (verbally and in writing) that anonymity was not possible, but that their personal identity would not be revealed, thus ensuring confidentiality (Babbie & Mouton, 2002:521; Creswell, 2003:46). Participants were assured that any reference to them in reports would be in terms of a group, and not in terms of identifiable individuals. Verbal consent was obtained throughout before any photographs were taken to document the training

procedures (Harper, 2005:759). Data were analyzed in terms of numbers, not names (Creswell, 2003:66) to protect the participants' identities.

(b) Transparency in research

By effectively managing the entry/contracting stage (Morris, 2003:319) any questions about possible conflict of interest with regard to the research and/or intellectual property rights were cleared (Strydom, 2002). The donor of the programme did not specify any expectations or requirements of conducting the research, which enabled the researcher to conduct the research without threat of bias.[11] It was only once ethical issues were considered to protect human beings from possible harm that the research participants could be selected.

5.3.3 Research participants

The sampling designs for both the quantitative and qualitative strands of the research were similar for some steps of the data collection, but differed slightly for others, and are therefore discussed separately.

(a) Quantitative research

The participants were selected by means of a convenience sampling strategy (McMillan & Schumacher, 2006:125), which is a non-probability sampling technique (Johnson & Christensen, 2004:215). Traditionally, the use of a non-random sampling procedure does not allow the findings to be generalized (Johnson & Christensen, 2004:255). However, with the use of mixed methods research, *rough generalizations* may be made to other people, settings, times, and treatments, provided that these delineators are similar in nature to those specified in the original

[11] The donor was informed of the researcher's intention of collecting and using data for a doctoral study (Appendix E), and that the financial support would be acknowledged in the final report.

study (Onwuegbuzie & Johnson, 2006:57; Stake & Thrumbull, 1982:1). The sample selection for the quantitative research is discussed in terms of selection criteria, selection procedure, description of participants, and sample size.

(i) Selection criteria

Table 5-5 provides a summary of the various considerations in the selection of the participants, from a provincial level to an individual participant level.

Table 5-5: Considerations in the selection of the sample

Level of selection	Aspects considered in the selection of participants
1. Provincial level (Gauteng)	Gauteng Province was the provincial base of the inquiry because it was within reasonable driving distance from the University of Pretoria. The selection of province was convenient. The GDE preferred that a cross section of the population in schools should be included in the study as they were in the process of redressing.
2. District level	The districts selected a semi-rural area and an urban/densely populated area for the programme. The selection of the specific schools was based on need.
3. School level	Children from underprivileged and low socio-economic schools (SES) are particularly at risk for developing barriers to communication and learning (Winkler, 1998:55) because they are often not exposed to the necessary experiences and stimulation during their pre-school years that should equip them with school readiness and language skills necessary for learning and academic success (Scheifelbein, 2008). The districts purposely selected these schools on grounds of priority.
4. Participant level (in the school)	At the individual level, participants were selected on grounds of availability, priority, or willingness to participate in the programme (Leedy & Ormrod, 2005:206). It was believed that participants who volunteered to participate would be motivated to learn. For practical reasons, it was necessary to limit the number of participants to four per school. The schools were given the prerogative to select the four specific teachers to be included on condition that all four grade levels were represented (Gr. R, 1, 2, and 3). Not all the schools in these areas had Gr. R classes and therefore Grade R teachers from registered nursery schools in the feeding areas were included, where possible. Only pre-schools were included to exclude caregivers from informal playgroups. The number of schools selected per annum was determined from a practical perspective; the trainer/researcher felt comfortable with training no more than fifty participants (48 and two facilitators) at a time in a single workshop, and took into account the size of available training venues.

All participants included in this study were required to meet the following criteria:

- Be appointed in teaching positions in the foundation phase at schools in the targeted contexts. The Gauteng Department of Education (GDE) specified two

particular districts for this CPD programme and therefore only teachers from the selected schools could be included. The programme was aimed at foundation phase teachers (Gr. R, 1, 2 and 3).

- Be proficient in English as the training and measuring instruments/procedures were developed in English. It was anticipated that all teachers in existing positions were able to participate in English as all GDE support is provided in English (personal communication with K. Makgada, June 23, 2005). The professional training of teachers is also in English (Dawber & Jordaan, 1999:3).
- Be motivated to improve their knowledge and skills (Ebersohn, 2000:2). For this reason, the matter of volunteerism was emphasized (Peterson, 1988:49). Teachers had to participate through their own free will and not through coercion by their superiors.

(ii) Description of the participants

There were 96 participants selected for the research across contexts. All the participants in the semi-rural context were female, whereas two of the participants in urban context were male. By using questionnaires, demographic information regarding the participants was obtained from quantitative data. It included age distribution, qualifications, experience, and previous training/support. The statistics is presented for the semi-rural and the urban/densely populated contexts, as well as for all the participants (weighted average between the mentioned groups).

It is particularly important to recognize that for various reasons the full group of participants who signed informed consent at the onset of the programme did not attend all the training sessions, and were replaced with substitutes over time. Only the group of participants who signed informed consent at the onset of the programme, attended all the sessions, and completed at least one portfolio were included in the research. This group was referred to as the 'core group' to

distinguish them from the entire group attending each workshop. The tables in this discussion include the profiles of the original group of 96, as well as the core group.

- *General age of the participants*

Table 5-6 depicts the age distribution of the participants in the two contexts. It should be noted that not all of the participants opted to complete this section in the questionnaires, possibly because it was considered as sensitive information.

Table 5-6: A comparison of the age distribution of the participants in both the contexts

Categories	Semi-rural	Urban	All	Core	Semi-rural	Urban	All	Core
20 - 25 years	0	1	1	1	0%	2%	1%	2%
26 - 30 years	1	1	2	2	2%	2%	2%	4%
31 - 35 years	7	10	17	10	16%	20%	18%	18%
36 - 40 years	13	9	22	14	29%	18%	23%	25%
41 - 50 years	17	19	36	21	38%	39%	38%	38%
51 and older	7	9	16	8	16%	18%	17%	14%
Total	45	49	94	56				

In both contexts (semi-rural and urban), the majority of the participants (77%) were older than 36 yrs, of which 38% and 39% were within the age group of 41-50 years, and therefore were experienced teachers who had most likely been trained during the previous dispensation. The sample was similar in both contexts, which suggests a possible trend.

- *Number of years teaching experience*

In agreement with the age distribution of teachers, Table 5-7 shows the majority (88%) of the participants were experienced teachers of whom those with 5-10 years' experience (33%), and 17-24 years' experience (33%) were the most prevalent groups. Only 12% had less than 4 years' experience in teaching.

Table 5-7: Years of teaching experience across the two groups

Categories	Semi-rural	Urban	All	Core	Semi-rural	Urban	All	Core
1- 4 years	6	6	12	10	13%	12%	13%	18%
5 -10 years	11	16	27	17	24%	33%	29%	30%
11 - 16 years	7	8	15	8	16%	16%	16%	14%
17 - 24 years	14	12	26	14	31%	24%	28%	25%
> 25 years	7	7	14	7	16%	14%	15%	13%
Total	45	49	94	56				

Table 5-8 shows the qualifications of the participants across contexts. Not all the participants chose to reveal their educational backgrounds. In the group from the urban/densely populated context, only 66.6% of the teachers (34 out of 49) chose to answer the question regarding qualifications. It seems possible that those who did not complete this section most probably were poorly qualified and did not want to reveal such information. From the responses obtained for the group 71% were adequately qualified (either a diploma or a degree), which implies that 29% were not suitably qualified, or received training that was not accredited by the GDE.

Table 5-8: Highest qualifications of the participants

Categories	Semi-rural	Urban	All	Core	Semi-rural	Urban	All	Core
One-year certificate	1	3	4	4	2%	6%	4%	7%
Diploma	29	24	53	30	64%	49%	56%	54%
Degree	9	5	14	11	20%	10%	15%	20%
In-service training	2	1	3	2	4%	2%	3%	4%
Others	4	0	4	2	9%	0%	4%	4%
Unknown	0	16	16	7	0%	33%	17%	13%
Total	45	49	94	56				

The majority of participants received their training at Further Education and Training (FET) colleges (refer to Table 5-9). FET colleges were known to be poorly resourced under the previous dispensation, and at the time offered inferior training compared to institutions for white students (Department of Education, 2006:2). The

majority of participants (who obtained their qualifications from former FET colleges) were therefore not as well prepared for teaching as their counterparts who obtained qualifications from accredited institutions.

Table 5-9: List of institutions where participants received training

List of training institutions where qualifications were obtained	
University of South Africa (UNISA)	Mamokgalake Chuene Training College
Tshwane University of Technology (TUT)	Thlabane Training College
Tshwane University of Technology Shoshanguve	Kopanong Training Centre
Vista University	CAN Training Centre
College of Education of South Africa	Makopane Training Centre
Hebron College of Education	South African College of Teacher Education
Ndebele College	Siseko Motheo College
Transvaal College of Education	Westminster College of Education
Saints Attridgeville College of Education	
Sekhukhune College of Education	

- *Grades taught*

In terms of the grade levels (refer to Table 5-10) the sample was well distributed according to the research design. There were four extra Grade 1 participants in the urban/densely populated area (2006), and because not all schools had Gr. R classes, there were fewer Gr. R teachers in both contexts.

Table 5-10 : Distribution of grade levels taught

Categories	Semi-rural	Urban	All	Core	Semi-rural	Urban	All	Core
Grade R	9	10	19	15	20%	20%	20%	27%
Grade 1	12	16	28	17	27%	33%	30%	30%
Grade 2	13	13	26	15	29%	27%	28%	27%
Grade 3	11	9	20	9	24%	18%	21%	16%
Others	0	2	2	0	0%	4%	2%	0%
Total	45	50	95	56				

(iii) Sample size

There were 12 schools from a semi-rural area, and 12 schools from an urban/densely populated area (including township schools and schools from informal

settlements) as illustrated in Figure 5-8. A total number of 24 low socio-economic schools (SES) in the Tshwane region were targeted for this project over a period of two consecutive years.

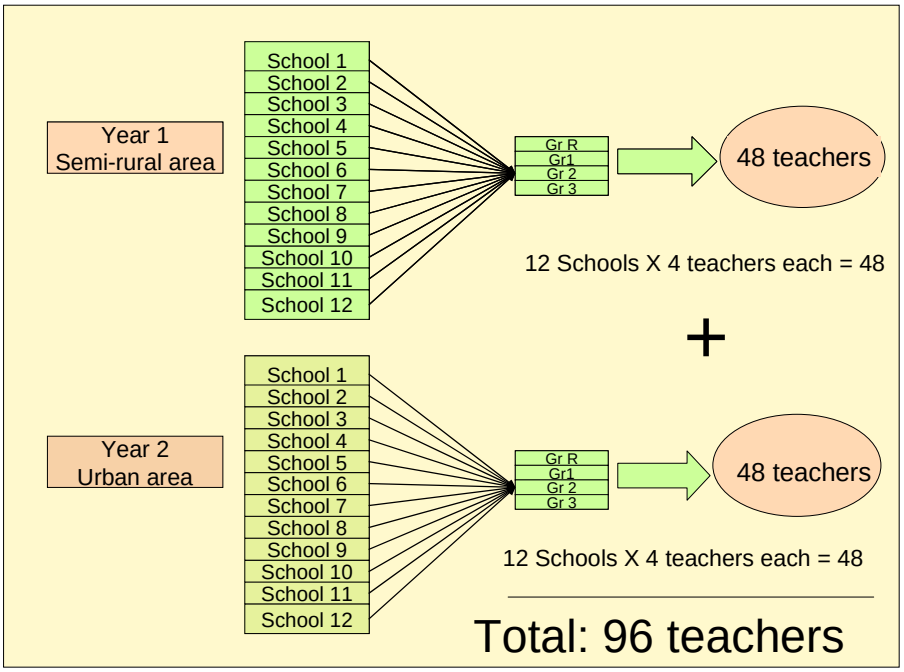

Figure 5-8: The sample size for the quantitative research

Each school that accepted the invitation to participate in the programme identified one educator in each grade level of the foundation phase (e.g. Grades R, 1, 2, and 3), so that four teachers from each school enrolled for the programme. There were 12 teachers representing each grade level included in the programme, totalling 48 teachers per annum. It was estimated that there are about three to four classes in each grade level of each school, and therefore the selection of one participant from each grade level in each school represented approximately 25% of the total number of foundation phase teachers in these selected schools.

Figure 5-8 shows that the entire sample consisted of 96 teachers, which was considered sufficient to serve the purpose of this specific study (Leedy & Ormrod, 2005:206; Struwig & Stead, 2001:111). The sample was fairly homogeneous in

terms of contexts, grade levels represented, and the teachers' experience in teaching, but not in terms of qualification and therefore is considered as a cross section of the population (Leedy & Ormrod, 2005:207). As only one primary trainer was available to conduct the workshops, groups of 48 participants were regarded as manageable. This number was also sufficient to allow for possible attrition later in the programme (Strydom, 2006b:195).

(b) Qualitative research

The qualitative strand of the research made use of the entire sample that was described in the quantitative strand (convenience sampling), but also used a nested sample design (Leech & Onwuegbuzie, 2005) for the selection of the participants in the focus group. The participants in the focus groups were drawn from the comprehensive sample (Onwuegbuzie & Collins, 2006) and therefore were similar to those in the rest of the study. The sample design for the focus group is discussed according to the criteria for selection, selection procedure, and sample size.

(i) Criteria for selection

Each participant in the focus group was required to be one of the four participants from each of the 12 schools included in the annual programme who attended the workshops. This implied that they have already met the selection criteria for the original sample.

(ii) Selection procedure

The schools were informed at the briefing meeting that one of the four participants trained in each school was required to attend the focus groups following each workshop. The participants in the focus group were either assigned by their school-based group (which consisted of four participants from a specific school), or volunteered. The participants for the focus groups were already included in the

original sample and were therefore selected by convenience (Johnson & Christensen, 2004:215).

(iii) Sample size

The focus groups consisted of 12 teachers, as it is considered to be an adequate size for a focus group (Steward & Shamdasani, 1990:10; Struwig & Stead, 2001:167). It was also a representative sample (25%) of the entire group that was trained, and allowed for the few who failed to turn up (Morgan, 1986:99; 1998:30; Steward & Shamdasani, 1990:10).

(c) Participants not included in the sample

There were participants in the study who were not included in the sample, but who took an active part in the research, namely:

- The trainer/researcher was a qualified and professionally registered speech-language therapist with considerable experience in educator support and training. She was a middle-class Caucasian female, whose first language was Afrikaans, and was registered as a D.Phil candidate at the time. There is a dearth of speech-language therapists from diverse cultures in South Africa (Naudé, 2005:135), and therefore the trainer/researcher had little choice but to conduct the training herself, which enabled her to become a practitioner researcher (Burton & Bartlett, 2005:34).
- Three district facilitators were assigned by the GDE to collaborate with the researcher. One facilitator was appointed to assist the researcher in the semi-rural context, and two in the urban context. These facilitators were of similar cultures as some of the participants, and were competent in at least one of the indigenous languages represented in the two contexts. They acted as translators and interpreters during all contact sessions, and assisted in the data collection

procedures and the workshops. In each of the districts, at least one of the facilitators had research experience, as they were enrolled for their Master's Degrees in Education at that time.

- During the second year (urban context), a group of eight Learning Support teachers attended the training as observers on invitation by the two district facilitators. Although they received handouts and participated in all workshop activities, they did not participate in the research. They provided testimonials as to the value of the CPD programme.
- An external rater validated the coding of primary documents in the qualitative database, and the scoring of the portfolio assignments. The external rater had a Master's Degree in Communication Pathology. She was experienced in portfolio evaluation, had research experience, and was proficient in English. The external rater approved the scoring procedure used in evaluating the assignments. She also attended the workshops and provided feedback on the training.

5.3.4 Research context

The contexts of the research need to be described to create a better understanding of the circumstances under which the research was conducted and which could have affected the outcomes. The schools and districts included in this study are typical of previously disadvantaged areas in South Africa but are not identified or shown to protect the identity of particular individuals. Both these contexts were under the auspices of two districts within the Gauteng Department of Education.

All schools in these two contexts were permanent structures but not all were equipped with electricity. The participants hailed from 2 areas: in the first group, they were predominantly from a semi-rural part of the Tshwane Metropolitan Municipality, while the second group was from the townships of the Tshwane Metropolitan

Municipality that included schools from two informal settlements and three township schools.

The typical education and income levels for these areas were assessed using results from the 2001 Population Census, conducted by Statistics South Africa (Statistics SA, 2001). The highest education levels of the two communities are compared in Figure 5-9. These findings were then compared with similar data for the remainder of Tshwane Metropolitan Municipality and with that of the national average.

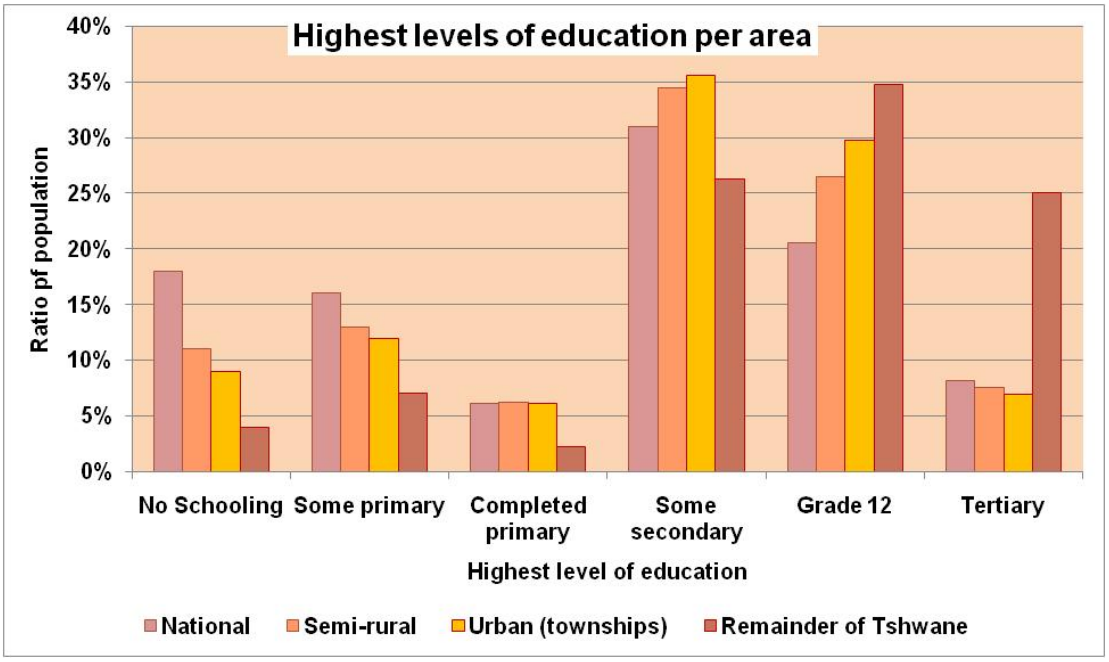

Figure 5-9: Highest levels of education

This shows that on average approximately 10% of the target communities have had no schooling. A total of 18%, 20% and 22% of the urban, semi-rural, and national sample had had some primary education, or had completed primary school. This compares to 10% for the remainder of Tshwane. It also shows that the level of tertiary education was very similar, except for the rest of Tshwane. It is therefore clear that the target communities have lower levels of qualifications than the remainder of Tshwane, but have similar levels of qualification as the rest of South

Africa. The average household income (refer to Figure 5-10), shows that income levels in these communities were lower than the rest of Tshwane, but similar to the rest of South Africa.

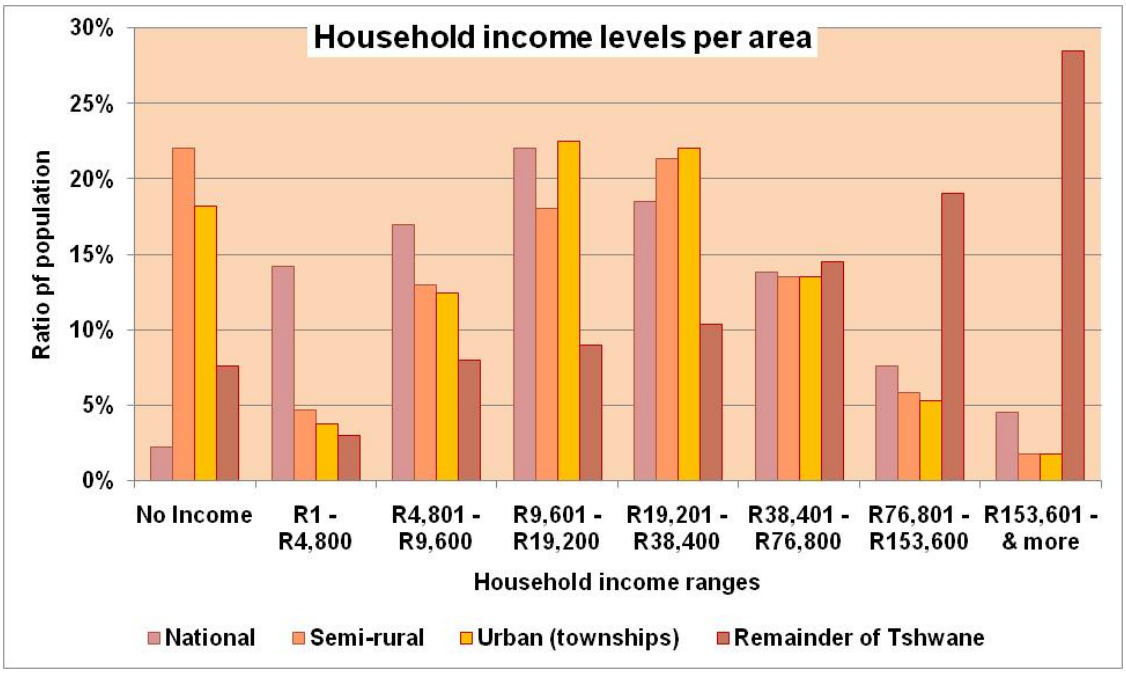

Figure 5-10: Household income levels (2001)

The informal settlements accommodate people from a variety of ethnic and cultural groups inside and outside of South Africa, and experienced ethnic and racially related violence during the past few years. Statistics on the informal settlements are unavailable at this time because these settlements were only recently established. Residents living in these settlements lived under poor conditions with limited infra-structure (e.g. no running water or electricity in their homes, and unpaved roads which were difficult to access during the rainy season).

5.3.5 Section summary

The planning and design phase included a description and justification of the mixed methods design, as well as the QUAN and QUAL research methods used. Ethical

considerations were provided and a pragmatic approach was considered suitable for the research. The sample selection for both QUAN and QUAL strands were described and the research context was explained. The following section focuses on the early development and pilot testing of the assessment materials.

5.4 Early development and pilot testing

The early development of the CPD programme aimed at compiling the workshop material (refer to Appendix 3B, Appendix 3C, Appendix 3D) and the training support material (manual and CD), based on a literature survey (refer to Appendix 5H).

5.4.1 Tools used in the evaluation of the CPD programme

The tools used to evaluate this CPD programme in the QUAN strand of the research are summarized in Table 5-11, while the tools used to collect qualitative data in the evaluation of the CPD programme are discussed in Table 5-12.

Table 5-11 Tools used to collect quantitative data in the evaluation of the CPD programme:

Tools to obtain quantitative data	Discussion of tools used to collect quantitative data in the evaluation of the programme
Self-administered questionnaires	*1. Aims of the questionnaires* The questionnaires were designed to answer the research questions and therefore stated the aims as follows: *Questionnaire no 1* -To collect demographic information for the description of the participants -To determine the participants' previous training in the specific focus areas, as it could render an indication of their content knowledge prior to the time of training -To determine the training and information needs of the participants in order to develop the workshop material -To obtain information regarding the participants' values, attitudes, and their expectations of the programme, as these are underlying factors affecting the learning process *Questionnaires no 2, 4, and 6* -To obtain baseline data of the participants' untrained knowledge prior to training -To determine the participants' expectations of the specific workshops, because positive expectations tend to yield positive learning experiences, and *vice versa* -To determine the participants' perceptions of their confidence in facilitating the specific workshop topic (e.g. listening, language, and the language for numeracy), as such information could be indicative of their pre-training competence in facilitating the specific workshop topic, and could also indicate whether there has been any change in their confidence levels as a result of the training *Questionnaires no 3, 5 and 7* -To measure change in knowledge, seeing that the post-training performance could be compared to the pre-training performance -To evaluate the participants' experience of the workshops -To determine whether the participants' expectations regarding the training of a specific topic have been met -To determine the participants' perception of gains from the training in terms of knowledge, skills, and confidence -To determine the participants' future needs of support regarding the specific workshop topic.
	2. Design and development of the questionnaires The following considerations obtained from relevant literature were taken into account in compiling the questionnaires (Leedy & Ormrod, 2005:191; McMillan & Schumacher, 2006:194; Struwig & Stead, 2001:94; Welman, Kruger & Mitchell., 2006:175): -Instructions were clear and kept to a minimum to avoid loss of interest. The questions were user-friendly and were presented in a polite manner. The questionnaires were neatly presented, and had a professional appearance, which improved the face validity (even though subjective). The questionnaires were organized in logical sections by topic and subject, and the administrative format was easy to use

Table 5-11: *(Continued)*

Tools to obtain quantitative data	Discussion of tools used to collect quantitative data in the evaluation of the programme
Questionnaires (cont.)	-Conventional language was used to obtain accurate information. Care was taken to use complete sentences, and the use of abbreviations, slang, colloquial expressions, and technical jargon was avoided. Considering that English was an additional language for all participants, care was taken to avoid negative phrasing which could cause confusion. Furthermore, leading or loaded questions were avoided. Care was taken to avoid giving offence and using biased words and phrases with reference to race or gender. -Questions were related to the aims of the questionnaires. Complex or abstract concepts were simplified by breaking them down into several simple, consecutive questions. The format of questions was judiciously chosen to include mostly closed-ended questions, but also included a limited number of open-ended questions that allowed the respondents to express themselves freely. As open-ended questions require more competence in expression and usually a higher level of education, these were limited. When multiple-choice questions were asked and there were too many responses to list, the option 'Other' allowed for items not listed. Most of the questions required the respondents to choose one or more options from a list, which minimized bias and simplified administration. The questionnaires started with questions that were easy to answer, and proceeded from general to specific questions. The demographic information was obtained before the knowledge questions were presented. Questions included only one idea at a time to enhance completion time. -A language editor reviewed and edited the questions, and two experts in the professional field, as well as a statistical advisor, scrutinized the various questionnaires to ascertain its validity as a measuring instrument, and to identify any potentially imprecise or ambiguous terms. Pre-testing determined the clarity of instructions as well as questions, and the time for completion. Three foundation phase teachers at a local school that was not included in the programme were requested to each complete the entire set of questionnaires over a period of two days. After two days, these volunteers were met during a break and asked to complete a semi-structured questionnaire in order to obtain their opinions with regard to the clarity of instructions and the questions, the appearance of the questionnaires, the ease of use, and length of time for completion. In all three cases, the time for completion was less than 15 minutes, the instructions were found to be clear, and questions were judged as easy to understand. These three respondents ensured the researcher that the questions were meaningful, and were understood by all in the same way. Although responses were not scored, minor changes were made to the layout for easy administration. *3. Compilation of questionnaires* *Types of questions included in the questionnaires:* The questionnaires used in this study consisted of both closed-ended and open-ended questions. The use of closed-ended questions had the benefit of producing data than could be statistically analyzed (Bornman, 2001:4-49). The closed-ended questions were presented as multiple choice questions, checklists, Likert-type scales, and dichotomous questions ('No'/'Yes'/'Unsure') (Leaf, 1997:128; Popich, 2003:259; Struwig & Stead, 2001).

Table 5-11: *(Continued)*

Tools to obtain quantitative data	Discussion of tools used to collect quantitative data in the evaluation of the programme
Questionnaires (cont.)	*Response types used in the questionnaires:* A literature search provided useful guidelines in designing the response types (Babbie & Mouton, 2002:76; Bornman, 2001:4049; Leaf, 1997:128; Moodley, 1999:124). The questionnaires were self-explanatory and included the following response types: 'No'/'Yes'/'Don't know', as well as 'True'/'False/'Don't know' responses. These were categorical or nominal measures, which divided the data into discrete categories that could be compared. Scaled items that obtain nominal data are preferred to all other forms of questions (Struwig & Stead, 2001:94). In this study they provided fairly accurate assessments of beliefs and opinions (McMillan & Schumacher, 2006:198). The two ends represented the opposites of each other, with a more neutral response category in the middle. Checklists provided a number of options from which to choose. The respondents had to select one from the list, or check all appropriate options. Checklists are also categorical measures. The category 'Specify other' was included where more options were available, in order to increase the flexibility of answer categories. Open questions at the end of each questionnaire allowed respondents to express themselves freely and to make suggestions (Babbie & Mouton, 2002:233). Although open-ended questions were useful to obtain additional information that could add to the understanding of phenomena, they were kept to a minimum as they take longer to complete and therefore could be the cause of non-response.
	4. Components of the questionnaires Each of the questionnaires is described according to its various components, and the individual questions that each contains (see Appendix 5A. All but one of the questionnaires contained some sections with generic questions. In addition, each questionnaire had three sections with questions pertaining to the specific content trained in a particular workshop, thereby increasing the content validity of the questionnaire (Leedy & Ormrod, 2005:92). Questionnaires no 2 – 7 (Appendix 5B) were all related to Workshops 1, 2, and 3. In all of these questionnaires, Sections A and B were generic, and are therefore explained only once (see Appendix 5A). Q2 and Q3 were administered for pre- and post-training in Workshop 1, Q4 and Q5 were used similarly in Workshop 2, and Q6 and Q7 were used for Workshop 3. Each pre- and post-training pair shared similar questions for Sections A-E. However, for each workshop, Section F in the pre-training questionnaire differed from Section F in the post-training questionnaire. The post-training Sections F and G are presented at the end of the discussion on Q2 and Q4 (which were used in Workshop 1), but because they are similar in all three post-training questionnaires, they are described only once. The specific content-related questions are discussed according to topics in each workshop (see Appendix 5A)).

Table 5-11: *(Continued)*

Tools to obtain quantitative data	Discussion of tools used to collect quantitative data in the evaluation of the programme
Portfolio assessments	*1. Aims* The portfolio assessments were used to evaluate the participants' applied knowledge and to monitor the implementation of strategies (Van Niekerk, 1998:82). The assumption was that the implementation of the strategies learnt would increase the participants' competence in planning their lessons and facilitate listening and language for learning. *2. Compilation of the portfolio assignments* The four participants in each school were required to meet once a week as a school-based support group to plan their lessons for the following week around a central theme. They were required to implement the strategies in the classrooms for a period of at least 3 weeks following the workshops (see Appendix 5E). During the implementation period, they were required to monitor the participation of three learners (a poor performer, an average performer, and a strong performer) on a monitoring sheet provided for each week. They were also required to conduct a peer evaluation by observing a colleague (one of the group of four trained) implement the strategies in the classroom, and complete a peer evaluation form that was provided. At the end of the implementation period, they were required to do a self-evaluation on a provided form. To enrich the data, the participants were encouraged to submit practical examples of learners' work, activities, and/or teaching resources used when facilitating listening and language skills. *3. Use and assessment of the portfolio assignments* Each individual portfolio was scored with the use of a rubric (see Appendix 5F), which specified a set of values for each item and provided a means to evaluate all assignments in a similar manner, thereby increasing the likelihood of validity of the portfolio as measuring instrument (Leedy & Ormrod, 2005:93). The assignments were scored for comprehensiveness and quality. The assessment scoring sheet (which was designed as a spreadsheet in Microsoft Office 2003 Excel) was programmed to automatically calculate an individual score (by using a weighting procedure for the various components) and was presented as a percentage on the summary sheet (Researcher's copy, Appendix 5F). These numerical results were used for descriptive statistics and could be compared to those obtained from the closed-ended questionnaires. The trainer then provided written feedback to each participant on a report form. The programme designed for providing the summary sheet (Microsoft Office 2003 Excel) was also programmed to simultaneously present the feedback report (Appendix 5F). The feedback report provided a descriptive evaluation of the assignments in three categories: 'Very good', 'Satisfactory', 'Require assistance'. Those who obtained results <50% required additional assistance, whereas those who obtained >50% were regarded as satisfactory, and those who obtained >70% were acknowledged for doing more than was requested. This descriptive measure was to acknowledge those participants who excelled in their effort. Although these feedback reports (Appendix 5F) did not include the individual percentages, the trainer/researcher did provide detailed written feedback to each participant with emphasis on the positive elements in the portfolio, and provided guidelines for elements that required change or future attention.

Table 5-11: *(Continued)*

Tools to obtain quantitative data	Discussion of tools used to collect quantitative data in the evaluation of the programme
Portfolio assignments *(cont.)*	*3. Use and assessment of the portfolio assignments (continued)* The feedback was intended to motivate the participants to continue with the implementation of the strategies in future, and not to discourage them, or break down their confidence in trying to complete the portfolio. These individual feedback reports were considered confidential and were sealed in individual envelopes and distributed by the district facilitators during school visits.
Attendance registers	*1. Aim* Attendance registers were used to address the following: -to keep record of participation in the programme -to draw relationships between the number of workshops attended and performance in terms of gained knowledge -to calculate the cost-benefit of the investment -to compare the two contexts (semi-rural and urban/densely populated area).
	2. Use Attendance registers were completed at all contact sessions (briefing meetings, workshops, and focus groups) and were used to indicate the relationship between participation and performance.
Budget estimates	*1. Aim* The budget estimates provided an estimation of the cost-effectiveness.
	2. Use Costs were carefully documented to monitor the programme. A financial report was provided at the completion of each research unit (formative report) and also at the end-of-term evaluation.

Table 5-12: Tools used to collect qualitative data in the evaluation of the CPD

Tools to create qualitative data	Discussion
Focus groups	*Aim:* Focus groups were used to evaluate the workshops and mentoring component of the programme in terms of the participants' impressions/feelings about the workshop, their experiences in implementing the strategies, the value of the support (e.g. contribution to knowledge and skills base, and increase in confidence levels), procedures, content, and use of strategies. Problems in implementation were addressed; future needs were identified; and the researcher could obtain a better understanding of attitudes, values, and confidence levels. The focus groups provided information regarding the strengths and weaknesses of the programme, and changes required. They also provided a better understanding of the context, and the school-based support groups' ability to support each other in compiling the portfolio and implementing the strategies. In addition, information was obtained on how the participants regarded their own individual levels of skill in implementing the strategies at the end of the three-week implementation period.
	Rationale for use of focus groups: The semi-structured focus group meeting was selected as a data source because it allowed the researcher "…to gather a substantial amount of carefully targeted data within a relatively short period" (Morgan, 1998:32). The focus group provided breadth (if not depth) of the range of experiences and opinions of the group regarding the phenomena under study. It provided the collective views of the participants, and yielded data on the uncertainties, ambiguities, and group processes, which afforded insight into the normative understandings that these groups' collective judgments were built upon (Bloor *et al.*, 2001:1). The focus groups provided access to covert group meanings, processes, and norms that were not obvious from the questionnaire data. They were also used to generate data on the meanings that were hidden behind the group assessments, to explore the group processes and normative understandings that groups drew upon. In this study, focus groups were used for triangulation purposes where focus group data were compared to other data (yielded by other methods) on the same topic. When findings from the focus groups were confirmed by findings from other methods, the possibility of measurement biases was minimized. However, the focus group data were not necessarily directly comparable with those obtained from the structured questionnaires, and neither could they (focus groups) serve as validation measures (Bloor *et al.*, 2001:13). The use of focus groups extended the range of methods, and therefore deepened and enriched the understanding of the topic to aid interpretation. *Use:* Focus group discussions used focus group schedules to provide structure to the discussions (Appendix 5G). These schedules used open-ended questions to evaluate the workshops and mentorship programme. In this study, the focus groups were used as an adjunct to other methods. The observation schedule was compiled according to specific criteria obtained from the literature (Krueger, 1998b:19-55; Morgan, 1986:33; Steward & Shamdasani, 1990). Categories of questions included opening questions, introductory questions, and transition questions, key questions, ending questions, and putting the parts together. The focus group plan was reviewed with experts and then pilot tested prior to use (Krueger, 1998b:57).

Table 5-12: *(Continued)*

Tools to create qualitative data	Discussion
Focus groups *(cont.)*	Two experts in this professional field judged whether the schedules would obtain the required responses by scrutinizing it prior to use, which increased the likelihood of both content and constructs validity of the meeting schedule.
Photos	*Aim:* The aim of using photographs as data collection tool was to produce evidence of the context and the procedures.
	Rationale for use: Photographs were taken throughout the process and used as evidence of 'something to be seen', and were therefore considered as data because they were both empirical and constructed (Harper, 2005:748). They depicted the 'truth' (e.g. the procedures, participants, and context of the training), but were also constructed by the various selections that are required in image making (e.g. technical, formalistic), and therefore were not different from any other quantitative and qualitative data. The visual documentation of the procedures supported and confirmed theories obtained from other forms of data used within the multi-method approach in triangulation. The photographs adequately described the studied phenomena. The images were important to the text as they put a face to the statistical data, and could subjectively connect the audience to the argument.
	Use: The trainer/researcher obtained verbal permission from the participants to take photographs of the procedures. A digital camera was always at hand and activities and procedures were photographed when convenient and without disrupting the flow of events.
Research diary	*Aim:* The aim was to document the process of developing the in-service training/CPD programme.
	Rationale for use: The research diary explained the process, and traced the researcher's ideas and reactions throughout the process. Apart from documenting the events as a field log, it also kept record of the decisions made during the emergent design, and had a reflexive purpose (McMillan & Schumacher, 2006:329).
	Use: Throughout the entire research process, the researcher kept a diary to document her impressions and feelings, as well as the procedures. The researcher reflected on events after every contact session, or when significant events occurred, and noted her impressions. These diary entries were subjected to text analysis, and were used for triangulation.
Testimonials and correspondence	*Aim:* The aim of these additional documents was to use them in triangulation to shed more light on the studied phenomena.
	Rationale for use: The motivation for using these additional data sources was to support or refute findings obtained by other data sources.
	Use: Correspondence and testimonials were collected throughout the process, and were qualitatively analyzed. The themes obtained from them were verified in the interpretation of the results.

Table 5-12: *(Continued)*

Tools to create qualitative data	Discussion of tools used to collect qualitative data in the evaluation of the CPD
Field notes	*Aim:* The aim of the field notes was to document all additional information (e.g. facial expressions, impressions, non-verbal interactions) that could shed more light on the discussions in the focus groups (Bloor *et al.*, 2001:1).
	Rationale for use: The assistant moderator made field notes during the focus group meetings and therefore provided an insider's view of the discussions. Verbal and non-verbal incidents were reported and the focus groups were summarized from the assistant moderator's perspective.
	Use: Field notes were documented during the focus group discussions and were qualitatively analyzed. Summaries of focus group discussions were read to the group and verified. Field notes also documented additional information, e.g. non-verbal interactions between participants which were not necessarily visible to the moderator/researcher..

In addition to the various tools/assessment procedures used to obtain information, the study also used specific equipment in the process.

5.4.2 Equipment, materials, tools and documents used in the research

The equipment, materials, tools, and documents used for the workshops, mentoring programme, and focus groups are listed below.

(a) Equipment

The following equipment was used:

- Dell Celeron laptop computer, with a Dell digital projector.
- Images were projected on a white wall, but when a white wall was not available, several sheets of white paper from the flip chart were fixed with 'Prestik' to a wall.
- The discussions were recorded by two TCM-400DV cassette recorders, of which one was used as a backup for the other; a total of 16 x 90 minute Sony audio cassettes were used.

The following equipment was used in preparing the CDs with presentation material:

- Sony DVCAM camera
- 2 x Sony Mini DV 60 minute tapes
- Microsoft Imagemaker for editing
- IBM workstation Pentium III
- 24 compact discs with labels.
- A Canon Ixus V digital camera was used to take photographs.
- The equipment used for the data analysis procedures included the following:
- A dual Pentium 5 computer with 1Gb Ram
- Microsoft Office Excel (2007), which allowed the data to be manipulated on a spreadsheet
- ATLAS-ti software (Thomas Muir Scientific Software Development, 2003-2004) for coding and to search and retrieve texts associated by codes
- A TCM-400DV cassette recorder with earphones and audio cassettes.

(b) Materials and tools

The following materials and tools were used:

- A flip chart and felt-tip pens were used for explaining concepts.
- Coloured felt-tip pens and index cards.
- The training material was presented as Microsoft PowerPoint slides and these were printed as handouts with six slides per A4 sheet (see Appendix 3B, Appendix 3C, and Appendix 3D).
- The trainer/researcher used commonly available objects for demonstration purposes. Counters (e.g. bottle caps); shakers, drums, children's books, and construction material, e.g. scissors, crayons, coloured paper, plastic geometrical shapes, beads and thread, etc. to demonstrate strategies .

(c) Documents and manuals

The following documents and manuals were used:

- Manuals were developed for use in the classrooms. Each participating school received a manual consisting of examples of lessons based on six themes commonly used in the foundation phase. Each theme consisted of four or five examples of integrated lessons to facilitate listening and language for learning (Appendix 5H). The manuals required 24 lever arch files with compact discs containing video material (discussed next) attached in a plastic compartment in the file.
- Each manual was supported by custom-made compact discs (CDs) containing video material to demonstrate specific strategies (see Appendix 5H). These video clips were also used in the workshops. The compact discs were compiled by videotaping the implementation of strategies by third-year B. Communication Pathology students as part of their practical training in foundation phase classrooms.
- A focus group summary sheet (in Appendix 5G) was developed for the documentation of observations, interpretations, and comments from the trainer/researcher and district facilitator as moderator and assistant moderator respectively.
- The researcher used a focus group schedule to guide discussions (refer to Appendix 5G).

The use of the assessment materials was pilot tested prior to its use in the research, as discussed below.

5.4.3 Pilot study

Step eight (Phase 3) consisted of the pilot study where the assessment materials were designed and pilot tested. The pilot study is considered a prerequisite for the successful completion of a research project as it provides the opportunity "…to try out particular procedures, measurement instruments, or methods of analysis" (Leedy & Ormrod, 2005:110). The various activities included in the pilot study occurred sequentially. The pilot study is described in Table 5-13 and the outcomes of the pilot testing and the adjustments required are summarized in Table 5-14.

Table 5-13: Description of the pilot study

Aspect of the pilot study	Discussion
Aim and objectives	- The aim of the pilot study was to test the assessment procedures. This aim was realized by the following objectives: - To familiarize the researcher with the procedures included in the research and the context (Strydom, 2006c:208). - To identify potential logistical and practical problems related to the workshops. Aspects such as the sequence of presentation, the duration and pace, the content of the curriculum, as well as catering arrangements were assessed. - To develop the assessment procedures. The sub-objectives for each of the data collection methods were as follows: *Questionnaires* -To detect possible flaws (e.g. ambiguous instructions, inadequate time limits, etc.) prior to use in the main study *Focus group schedules and procedures* - To familiarize the researcher with the focus group procedure - To determine whether the questions in the meeting guide corresponded with the problem under study - To establish clarity of the questions in order to elicit the required information - To provide additional information to prepare the final draft of the meeting schedule *Portfolio assessments* - To develop the instructions and procedures included in the portfolio assessments - To develop the rubric for scoring the portfolio - To modify the original instructions - To assess the data collection format to obtain more meaningful data.
Context	The pilot study was conducted in a school in a semi-rural area where many of the residents were poor and unemployed. The three workshops were conducted at a specific school that was geographically central to the three schools included in the pilot study. The training venue was equipped with electricity and the necessary amenities required for hosting a workshop. The training took place in the staffroom where tables were grouped in a U-shape, each accommodating three teachers from every grade level. The staffroom lent itself to this purpose, as it was spacious and light, and was equipped with comfortable chairs.
Participants	A pilot study was conducted with 12 participants who had similar characteristics than those of the target group (Struwig & Stead, 2001:7; Strydom, 2006b:206), which were deemed an adequate number for representing the main sample (25%). Three schools were included in the pilot study (which were of similar nature to those selected for the main study), but they were not included in the main study to avoid contamination or dilution of data (Struwig & Stead, 2001:7).

Table 5-13*:* *(Continued)*

Aspect of the pilot study	Discussion of pilot study
Participants (cont.)	Some of the participants used more than one LoLT to teach. The majority (66%) of the participants in the pilot study were mature teachers (> 36 years) who were mostly (88%) suitably qualified for the foundation phase. Gr. R participants were underrepresented in this group because schools in this context did not yet include Gr. R classes. The majority (83%) were Sepedi-speaking (Northern Sotho) and 78% used this language as the LoLT. In this group, 25% used English as LoLT, which consisted mainly of the Ndebele-speaking (L1) participants.
Data collection procedure	- A briefing meeting was scheduled and Questionnaire 1 was completed (needs assessment). - The three workshops were presented with two three-month intervals in 2005. On the day of each workshop, the pre-training questionnaire (Q 2/4/6) was applied prior to the onset of each workshop, and the post-training questionnaire (Q 3/5/7) directly afterwards. - A follow-up meeting with the group was held two weeks after the first training to monitor their progress with the implementation of strategies, and the portfolio assignment. - A focus group with the 12 trained teachers was conducted 4-6 weeks after the workshops. After this focus group meeting it was decided not to continue with the intended follow-up sessions planned for later. Instead, it was decided to replace the follow-up meetings with a semi-structured focus group, as a smaller group with <12 participants could provide more in-depth information on the phenomena under study. - The semi-structured focus group procedures were also developed according to guidelines obtained from the literature (Bloor *et al.*, 2001:37; Krueger, 1998a:15; 1998b:21; 1998c:15; Morgan, 1998:59; Steward & Shamdasani, 1990:51). The meeting schedules were language edited before experts in the field approved their format and content. - The portfolio assignments were discussed during the workshops, and had to be submitted six to eight weeks following the training. The portfolio assessment procedure was based on guidelines obtained from literature (Du Toit, 2004), as well as the input from experts. These portfolios gave the researcher an indication of how the participants had applied the strategies learnt, and were composed of practical examples and several assessment documents (e.g. learner assessment, self-assessment, and peer evaluation).

Table 5-14: Outcomes of the pilot study

Objective	Problems identified	Adjustments
To familiarize the researcher with the real-world context of the research	The researcher undertook a study within a context that posed a cultural gap between her and the participants. It was therefore necessary for her to become orientated in terms of her feelings for the people and the context, in order to gain a better understanding of the process.	The pilot study enabled the researcher to spend more time in the specific contexts. The researcher spent several days with the district facilitators in visiting schools, meeting the principals, and becoming acquainted with the contexts. This allowed her to get a realistic feel for the participants, and the challenges they have to face in their classrooms.
To identify potential problems related to the workshops	- Training started too late in the morning. - Participants were grouped according to grade levels, with the result that they did not necessarily know each other, making it difficult to obtain spontaneous participation within the groups. - Too much information was included in the workshops, which resulted in the training continuing until too late in the afternoon. - There was not sufficient time available for the completion of the post-training questionnaires. - The lunch was rated negatively.	- Arrangements were double-checked to ensure that the venues were unlocked and available from 07h00. This allowed sufficient time to set up and to prepare the venues. - Arrival time for the participants was 08h00, and the training started at 08h30. The researcher started on time and did not wait for late comers. - Ice-breaking activities were introduced. - A bell (a can filled with stones) indicated when to terminate group discussions. - The information to be trained was reviewed and unnecessary information was cut out of the presentations. - The pace was adjusted so that the training could be completed before the lunch break. Activities of a more practical nature were scheduled for after the lunch break.

5.4.4 Section summary

This ‘Early development’ section described the tools, materials, equipment, and documents used in the research and addressed the development of the assessment material. This phase also included the pilot study.

5.5 Implementation and advanced development

With reference to Figure 5-2, the implementation and advanced development phase (Steps 9 – 12) addressed the procedures for data collection and data analysis, as well as the interpretation and validation processes. Prior to embarking on the actual research, it was necessary to perform preliminary procedures as groundwork to the workshops and the actual data collection.

5.5.1 Preliminary procedures

The timeline for each programme and data collection schedule are presented in Table 5-15.

Table 5-15: Time line and data collection schedule during the two years of implementation

Workshop	Date	Focus group	Portfolio assessment
Semi-rural areas			
Information briefing session and needs assessment	21 July (Year 1)		
Workshop 1 (Pilot)	23 July (Year 1)	10 August (Year 1)	
Main study	13 August (Year 1)	23 August (Year 1)	
Workshop 2 (Pilot)	3 September (Year 1)	20 September (Year 1)	30 September (Year 1)
Main study	17 September (Year 1)	27 September (Year 1)	15 October (Year 1)
Workshop 3 (Pilot)	8 October (Year 1)	27 October (Year 1)	25 November (Year 1)
Main study	22 October (Year 1)	10 November (Year 1)	30 November (Year 1)
Urban/densely populated areas			
Information briefing session and needs assessments	23 February (Year 2)		
Workshop 1	21 March (Year 2)	24 April (Year 2)	30 June (Year 2)
Workshop 2	22 March (Year 2)	25 April (Year 2)	
Workshop 3	27 April (Year 2)	(a) 25 May (Year 2) (b) 30 May (Year 2)	30 August (Year 2)

The development of the CPD programme commenced with an application for funding by writing and submitting a proposal in order to gain entry into the field (with reference to Figure 1-5). This specific in-service training programme was implemented in two previously disadvantaged contexts with low socio-economic schools (SES) for a period of one year in each context. The programme spanned a period of two years, of which the second year was a duplication of the first, only in a different context.

It was necessary to obtain permission and ethical clearance to conduct the research and to gain entry to the contexts, as well as to obtain the cooperation from the two contexts.

(a) Obtaining permission for the study

The Gauteng Department of Education was contacted to explain the proposed project. Departmental officials expressed their interest and invited the researcher to the GDE head offices to present the project to specific officials in decision-making positions. These officials approved of the project in concept and made recommendations in support of the project. The topic of investigation was of interest to the National Department of Education as both literacy and numeracy were prioritized as areas of improvement in performance (Department of Education, 2007:2; Gauteng Department of Education and Gauteng Institute for Curriculum Development, 1999). Furthermore, the national imperative was capacity building in the implementation of the NCS. Final approval for the research was provided within three months. During this time, the researcher prepared and submitted a formal research proposal to the Research Proposal and Ethics Committee, Faculty of Humanities, University of Pretoria, and obtained ethical clearance and approval to proceed with the research. These preliminary procedures required the development

of the assessment procedures and the training materials, which were part of the 'Design phase' (refer to Figure 5-3).

Specific district facilitators were appointed by the GDE to assist with the logistics of the programme implementation. The district facilitators contacted the principals of the selected schools and explained the purpose of the proposed training to obtain their approval. The trainer/researcher also visited several of these schools with the district facilitators to develop a better understanding of the context. This was an important step for the researcher to become culturally sensitized, and prepared her to conduct the research in a culturally competent manner.

The planning and design phase determined the participants' training and information needs with a questionnaire that was completed at the onset of the programme at the briefing meeting. This information allowed the trainer/researcher to develop the training and assessment material.

(b) Briefing meeting

The programme was formally introduced by a briefing meeting at the beginning of each year. In the semi-rural context, this briefing meeting was held at a school, and in the following year (urban context), it was held at the Department Communication Pathology, University of Pretoria. The district facilitators scheduled this meeting three weeks prior to the first workshop with the aim of informing the participants about the programme (what it would require of them, the potential benefits) to obtain informed consent and to determine their information and training needs.

After the initial introductions and an ice-breaking activity in small groups of four, the trainer/researcher presented all the relevant information regarding participation in the programme in a Microsoft Office PowerPoint presentation (PPT) (Appendix 3B, Appendix 3C, Appendix 3D).

Logistics in terms of the training venues and dates for training differed for the two contexts:

- The district facilitator of the semi-rural context selected the training venue and training dates according to the specific district's schedule. The Teachers' Training Centre was accessible to the schools in the semi-rural area, and the district facilitator notified the schools in advance (in writing) of the specific dates of the briefing meetings. The determination of dates was therefore a top-down decision.
- In the urban/densely populated area, an attempt was made to select the venue and dates for training in a democratic manner by mutual consensus. Although the participants selected the University of Pretoria as a venue (as it was central to the various schools included in the group), it was more difficult to reach consensus regarding the training dates, and the district facilitators eventually opted for the preferences of the majority of participants.

5.5.2 Data collection procedures

(a) Procedures in Phase 4: Evaluation of the programme and advanced development

Three one-day workshops were scheduled for each year. Because three topics were trained per year (3 research units), and repeated in the second year (in another context), there were six research units over a two-year period (apart from the three research units of the pilot study), as shown in Figure 5-12. In the semi-rural area, the workshops were conducted on Saturdays, and in the urban area, two workshops were held on public holidays, and one during the school holidays.

The duration of each workshop was scheduled to be between 5-6 hours long. The

data collection procedure of each research unit consisted of a sequence of five steps, schematically presented in Figure 5-11.

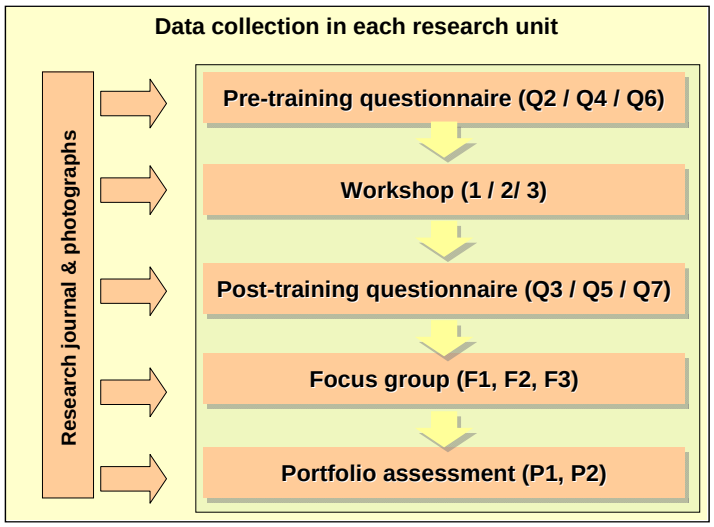

Figure 5-11: Data collection procedure for each research unit

The data collection procedures were developed as three research units in each of the two years (refer to Figure 5-12).

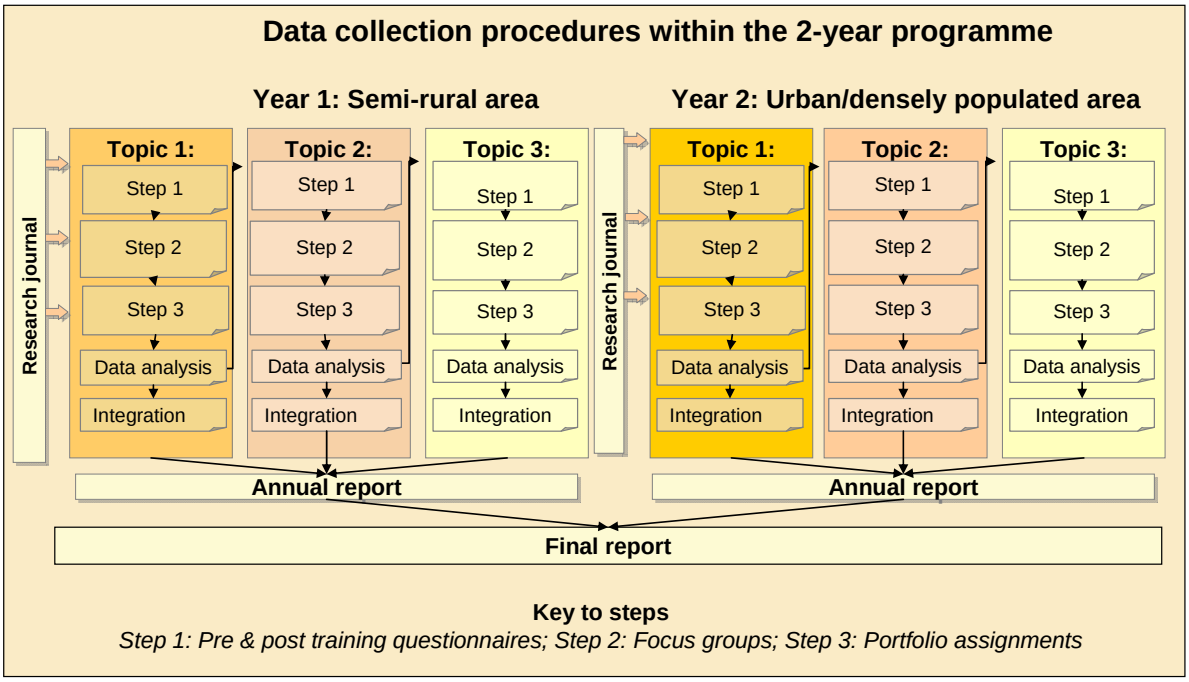

Figure 5-12: Data collection in six research units over a two-year period

At the onset of each annual programme, an information meeting/briefing meeting was scheduled where data were collected for a needs assessment by means of a

questionnaire (refer to Q1 in Appendix 5B). Participants were requested to complete the questionnaire upon arrival, prior to the presentation. The researcher collected these questionnaires prior to the presentation to minimize bias. After the presentation, the participants were requested to sign informed consent forms if they wished to continue with the programme. Participants deposited these documents in a box when exiting the room. This step was separate from the evaluation procedure as it formed part of the design and development phase in the overall process (Phase 1, Figure 5-3). The two strands of data collection are described below.

(i) Data collection procedures in the quantitative strand

Data collection in the quantitative strand included the use of questionnaires, portfolio assessments, financial statements, and attendance registers (refer to Appendix 5A). These procedures are described as follows.

(ii) Procedures regarding questionnaires

The following procedures were adhered to in each of the three workshops of each year:

- The participants in each workshop were selected according to the procedures described in Section 5.3.3. Pre-training questionnaires (Q2/Q4/Q6) (refer to Appendix 5B) were completed prior to training. The researcher collected the completed questionnaires in person prior to training.
- After the training the post-training questionnaires were completed (Q3/Q5/Q7) (refer to Appendix 5B) and placed in a box at the door when the participants left the room.
- An exception was made in the aforementioned procedures for Workshop 2 of 2005, where pre- and post-training questionnaires were not completed. At that time, initial results became available from focus groups and from Workshop 1 indicating that questionnaires were unsuitable as measuring instruments to

assess knowledge gains in that particular context. From a practical perspective, a decision was made (in consultation with two experts) to discontinue the use of questionnaires, and to include portfolio assessments to assess applied knowledge in stead. The participants, however, evaluated the workshop by completing questionnaires consisting of closed-ended questions directly after the workshop. Two weeks following workshop 2, the statistical advisor to the programme recommended continuing with the pre- and post-training questionnaires to allow for comparison. The individual schools were telephoned to request their cooperation in the completion of the post-training questionnaires, which were then faxed to the participating schools and returned by fax. All consecutive workshops included the completion of pre- and post-training questionnaires.

(iii) Procedures regarding portfolio assignments

At the conclusion of Workshops 2 and 3, all the participants were requested to compile portfolio assignments (refer to Appendix 5E). No portfolio assignment was completed following the first workshop in 2005 as the need for an emergent dimension in the assessment of the programme only became clear (Miller, 2003:442) after the results from pre- and post-training questionnaires were received from the pilot study of Workshop 1 (semi-rural context). For this reason, one portfolio assignment had to cover the implementation of strategies taught in Workshops 1 and 2. This was deemed to be acceptable because the first two workshops ('Listening for learning', and 'Language for learning') shared a mutual knowledge base on the process of learning, allowing the two topics to be consolidated in one portfolio assignment. Although three portfolio assignments were scheduled for the urban context, many teachers opted to combine the first two assignments as the first two workshops were, for practical reasons, conducted on two consecutive days.

District facilitators provided support with the portfolios during school visits. The trainer reviewed the procedure for the completion of the assignment with the entire group during the closing session of each workshop. The four teachers from each school were required to form a nucleus group in order to provide support to one another. Preparing the assignments, this school-based support group was required to convene once a week to discuss the theme of the week, and to plan their lessons accordingly. They were encouraged to share their ideas and resources within each theme.

The assignment required each teacher to plan a weekly lesson (according to standard GDE procedures), and to integrate the strategies learnt in the workshop within this programme. They had to use a different topic/theme each week, and the planning and implementation had to be repeated for each of the three weeks. Participants were encouraged to rely on their workshop handouts and the training support materials (e.g. manuals and CDs) in planning their lessons. In addition, the district facilitators who also attended the workshops provided support regarding the portfolios during routine school visits.

Participants were required to implement the strategies learnt in the workshops for three consecutive weeks within a given period, which allowed them the flexibility to accommodate exam periods or school holidays. The participation of three learners (a poor learner, an average learner, and a competent learner) in their classrooms had to be monitored within this implementation period.

The participants were required to submit practical examples of teaching material or learners' work with their lesson plans and classroom activities (e.g. a story, an artwork, a song, and/or a rhyme) for each theme. Every week, each participant had to be observed by a peer from the school-based support group while implementing the strategies. The observer had to complete a peer evaluation form that was

developed for this purpose. The aim of this exercise was for teachers to support each other and to learn from one another. This was thought to be particularly helpful to the Gr. R teachers who were not necessarily well qualified and had limited exposure to practical implementation.

At the end of the three-week implementation period, each participant had to complete a self-evaluation form that was provided for this purpose. All the documents were included in the file provided with the handouts, and a representative of each school submitted these at the following contact session. With the final portfolio assessment, one of the participants from each school collected the portfolio assignments and delivered them to the researcher. The trainer assessed the portfolios by using rubrics with scoring guidelines. The participants each received personalized feedback on their assignments, individually sealed in an envelope and put into one large envelope addressed to each school included in the research, to be distributed by the district facilitators.

(iv) Budget estimates

Budget estimates informed the inquiry on the cost benefit of the programme. Financial status reports were updated on an ongoing basis at the conclusion of each topic trained (research unit). The management of the project was facilitated by using Microsoft Office Manager (2003) to keep accurate count of costs and time spent. Brief descriptions of time and costs were used to expound the cost benefits of the programme (Rallis & Rossman, 2003:496).

(v) Attendance registers

Attendance and attrition were monitored and used as data in the process and output components of the evaluation. All the participants who attended a contact session (briefing meeting, workshops, or focus group meetings) signed attendance registers. Copies of these were provided to the GDE for their own record keeping of support

provided, and for documenting the professional development of individuals. The GDE was considered to be a partner in the development of this programme and was acknowledged as such, when necessary.

(vi) Data collection procedures in the qualitative strand

Multiple sources of qualitative data were used to describe the process and the outcomes of the programme, including a research diary, focus groups, digital photography, correspondence, and testimonials (refer to Table 5-4). These procedures are discussed below.

(vii) Research diary

The aim of the research diary (refer to Table 5-4) was to document the research process and to reflect on issues arising (McMillan & Schumacher, 2006:329). It also provided insight regarding the factors that could affect the outcomes. Entries were made from the initial contact sessions with GDE officials through to the end of the second year, and were qualitatively analyzed. No specific procedure or schedule was followed and entries were made whenever the programme took a specific turn, or after a specific event took place and the researcher felt the need to reflect on specific issues. The researcher would document and reflect on the session following all contact sessions with the participants, preferably within hours of the event. These entries were used to share ideas with experts and colleagues, and therefore elicited meta-reflection.

(viii) Focus groups

The aim of the focus groups was to explore the value of the training in terms of the participants' experiences in implementing the strategies, and their perceptions of the in-service programme (Rallis & Rossman, 2003:496). They also provided an indication of proposed knowledge gains. Focus groups (refer to material used in Table 5-4) were conducted with 12 participants within 4-6 weeks following each

workshop to establish the value of the learning experience, monitor the implementation of the strategies taught, and identify any problems with the portfolio assignments and the implementation of strategies.

Two focus groups were conducted at the Teachers' Training Centre following Workshops 2 and 3 in the semi-rural area (2005). In the rural context, however, all three workshops were evaluated by focus groups. The first two focus groups were conducted at the University of Pretoria, Department Communication Pathology in a conference room where teachers were seated around a table (refer to Photograph 3 in Appendix 6E).

At the request of the participants, the focus group following Workshop 3 was split into two individual sessions at opposite ends of the city. One of the focus group sessions was conducted in a school's staffroom, whereas the other was conducted in a classroom at a Teachers' Training Centre, where tables and chairs were arranged to form a circle (refer to Photograph 4 in Appendix 6E).

In order to balance the number of focus groups in each context, it was decided (in consultation with experts) to add the two focus groups conducted for the pilot study to the database for those conducted within the semi-rural context (2005). This decision was made because the sizes of the focus groups for the pilot and main study were similar, and this addition could contribute to the richness of data.

Participants for the focus groups were selected according to the specifications set out in Section 5.3.3. Incentives used for recruitment (Steward & Shamdasani, 1990:51) included the crediting of the additional hours of participation on attendance certificates, a pleasant atmosphere where participants were given the opportunity to interact with colleagues, and snacks and refreshments. The procedure was as follows:

- Participants arrived at the venue after school and were served refreshments.
- The venue was set up with all participants seated around a table, with name cards placed in front of each to allow for more informal participation on a first name basis (Krueger, 1998a:13). Bowls of sweets and small boxes of fruit juice were provided at every placement. Audio-recording equipment was used to record the discussion. Two tape recorders with external microphones were placed at central positions on the table to record each session, the one being of high quality, and the other as backup (Bloor *et al.*, 2001:4, 41) (refer to Photographs 13 and 15 in Appendix 6E).
- Participants were welcomed, introduced, informed of the goals of the meeting, and requested for permission to audiotape the session. They were also assured of confidentiality and their right to withdraw from the study at any time. Participants were given the option to answer all questions in their L1, which would be translated into English by the district facilitator. Apart from two participants who opted to participate in their first language, English was the preferred medium of communication. The district facilitators served as assistant moderators and as interpreters to those who chose to use an indigenous language.
- Focus group schedules were used to guide the discussion (Appendix 5G). Questions were structured in an indirect manner in order not to affront anyone, but these questions often had to be rephrased as parallel questions (Morgan, 1998:55) to accommodate the limited language proficiency in English of many of the participants.
- The focus group schedule was prepared to progress from general questions to more specific questions. It started with an ice-breaking question that focussed on what the participants had been doing since their previous workshop, followed by

questions to refresh their memories of the topics trained in the previous workshop. They were requested to share their own experiences in implementing the strategies. The next set of questions focussed on their impressions of the workshop, followed by questions about the value of the training. They were asked to identify the strengths and the weaknesses of the programme, as well as what they would like to have changed. The session was concluded with a summary of the meeting.

- The trainer/researcher acted as the moderator of the focus group, and the district facilitator as assistant moderator or external rater (Morgan, 1986:21), and also as interpreter when necessary. The assistant moderator documented significant quotes and summarized each question discussed on the summary sheet specifically designed for this purpose. In both contexts, the assistant moderators were familiar with research procedures, however, this was by chance and may not be the same in future programmes.
- Each focus group was planned for 60 – 90 minutes to accommodate the participants' schedules and commitments. At the conclusion of the session, the assistant moderator verbally summarized the responses to questions (from the aforementioned summary sheet). These summaries were presented to the group for approval, thereby increasing the validity of the data (Bloor *et al.*, 2001:15, 16, 18). Opportunity was provided for debriefing the participants on request (Bloor *et al.*, 2001:55), which was necessary in only one instance. The researcher/moderator took field notes to supplement the summary and transcription of the audio recording.
- After the participants had departed, the researcher and the assistant moderator met to reflect on the procedures, the participation, and outcomes of the session. They compared notes and confirmed the key ideas (Morgan, 1998:20).

- The researcher further reflected on the focus group shortly after the session by keeping a research diary.
- The audio cassettes were transcribed verbatim according to guidelines obtained from the literature (Bloor *et al.*, 2001:55). For reasons of anonymity, speakers were referred to as 'participant 1', 'participant 2', etc. These transcriptions were then qualitatively analyzed with ATLAS-ti (Thomas Muir Scientific Software Development, 2003-2004). A complete list of primary documents included in the database is presented in Appendix 6A.

(ix) Correspondence and testimonials

Relevant correspondence with stakeholders (e.g. the GDE) and testimonials obtained from participants or district facilitators were added to the database and qualitatively analyzed with ATLAS-ti (Thomas Muir Scientific Software Development, 2003-2004).

(x) Photographs

Photographs were taken at the workshops and the focus groups and examples of portfolio assignments were also photographed (Appendix 6E) to document procedures and occurrences as it could provide a view on the actual events (Harper, 2005:48).

(b) Conclusion of programme in each context

At the end of each annual programme, those participants who complied with the requirements received certificates of attendance from the University of Pretoria.

5.5.3 Data analysis procedure

The process of data analysis categorized, ordered, manipulated, and summarized the data to create a meaningful description of results (Struwig & Stead, 2001:169).

The first step was to reduce the data that were gathered through the various collection procedures (Miles & Huberman, 1994:11). The data analysis procedures to answer the various research questions are summarized for both strands of the research in Table 5-16 and explained in the following sections.

(a) Quantitative analysis

The data for the quantitative strand were obtained from portfolio assessments, attendance registers, financial statements, and closed-ended questions in the questionnaires. The data obtained from questionnaires were first coded, captured, and cleaned in a text format (Struwig & Stead, 2001:169). They were analyzed using a range of different statistical methods.

Descriptive statistics was used to describe, summarize, and make sense of the quantitative data (Johnson & Christensen, 2004:437). In this study, descriptive statistics had an exploratory function that described broad tendencies (Leedy & Ormrod, 2005:257) in terms of demographics, but also the participants' opinions of the programme and training. In addition, descriptive statistics described the gains made by the group in terms of knowledge, skills, and confidence.

Descriptive statistics (Leedy & Ormrod, 2005:258) was used to order the data to identify input parameters and describe the information needs. Numerical indexes such as averages, measures of relative standing (percentile ranks), and measures of spread (e.g. mode, median, mean, and a comparison of the mean) were calculated. The calculations also included measures of variability, for example range, variance and standard deviation, and the normal distribution.

Table 5-16: Statistical analysis implemented to answer research questions

Component	Research question	Quantitative data sources	Data analysis procedure	Qualitative data sources	Data analysis procedure
Input	What are the training needs of foundation phase teachers? What previous support was provided to the teachers by the school and GDE? What were the input strengths to the programme? What were the input challenges to the programme?	Questionnaires	Descriptive statistics	Research diary Focus groups Correspon-dence	Qualitative descriptive analysis
Process	Can the information be used in the classroom? Is the material relevant to the NCS?	Questionnaires (evaluation of the workshops)	Descriptive statistics	Research diary Focus groups Testimonials Questionnaires Observations	Qualitative descriptive analysis
	Was the material useful? Was any essential information omitted from the training? Was any unnecessary information included?	None	No statistical procedure		
	How relevant was the training approach?	Post-training questionnaires	Descriptive statistics	Research diary Focus groups Observations Feedback from external rater	Qualitative descriptive analysis
	Were the training methods used appropriate to accommodate various learning styles?	Portfolio assignments	No statistical analysis		
	Did the trainer have the necessary attitude and skills to present the material in a way that encouraged learning?	Questionnaires (workshop evaluation)	Descriptive statistics	Research diary Testimonials Focus groups Open-ended questions	
	Were the workshops of appropriate length and pace?	Post-training questionnaires	Descriptive statistics	Observation Research diary Feedback from external rater	

Table 5-16: *(Continued)*

Component	Research question	Quantitative data sources	Data analysis procedure	Qualitative data sources	Data analysis procedure
Process (continued)	How appropriate were the assessment methods used? Did the assessment methods provide sufficient information to draw conclusions?	Portfolio assignments	Descriptive statistics	Research diary Observation	
	What was the attendance?	Attendance registers	Descriptive statistics	Research diary Open-ended questions in questionnaires Focus groups	Qualitative descriptive analysis
	How did logistics affect the programme?	None	No statistical procedure	Research diary Focus groups Observation	Qualitative descriptive analysis
Output	How did the participants benefit in terms of the following? - Knowledge - Skills - Attitude	Questionnaires Portfolio assessments Attendance registers	Descriptive statistics Student-*t* test Regression analysis Exploratory factor analysis	Focus groups Research diary Testimonials	Qualitative descriptive analysis
Outcomes	How did the participants implement the strategies in the classroom? How did the participants experience the effect of the strategies on their learners?	None	No statistical procedure	Research diary Focus groups Informal discussions	Qualitative descriptive analysis
	Were the objectives met?	Compared the outcomes with the objectives. Required overview of entire programme			
	What was the cost-effectiveness of the programme?	Financial statements Attendance registers	Costs estimation	None	None

To determine the impact of the workshops the averages were calculated for the different year groups, as well as the confidence levels using the 'Students' t-statistic' (Leedy & Ormrod, 2005:274, 306), to assess the statistical significance of the difference between the two categories. These findings, together with the results obtained from the QUAL strand, were then integrated to develop a better understanding of the impact of the key parameters on the outcomes of the support programme, as well as the success thereof.

The impact of the workshops was evaluated by comparing three key findings for a range of different input parameters. The three key findings considered were the following:

- The increases in the scores for the questionnaires completed prior to and after each training session (referred to as "QuesGain" in the results tables)
- The average scores achieved in the post-training questionnaires by each teacher (referred to as "PostQues" in the tables)
- The average score awarded for the portfolios (referred to as "Portfolio" in the tables).

The variables were individually summarized in the data set. The relationship between variables (e.g. age, experience, and qualifications) was determined by correlating them with participants' performance in questionnaires and portfolios. Regression analysis and exploratory factor analysis (Montgomery, Peck & Vining, 2001:47) were employed to explore specific relationships obtained from the input parameters. The results obtained from the aforementioned key findings were assessed for different categories of the following input parameters:

- The basic qualifications of the participants
- The ages of the participants

- The years of experience of the participants
- The year of participation (which reflects the nature of the environment being semi-rural or urban)
- The number of workshop attendances.

Note that the latter parameter was personal and may be influenced by motivation and logistical arrangements, while the other parameters depended upon the selection of the group of participants.

For each workshop, knowledge gains were assessed by comparing the pre- and post-training scores. These knowledge gains were obtained for each group per workshop, but were also compared across the three workshops (per year), as well as across the two contexts to determine whether one context differed from the other. Data from different categories from pre- and post-training questionnaires were statistically analyzed to measure change in knowledge. Comparisons of mean scores between Q2 (4/6) and Q3 (5/7) and a *t*-test analysis (or analysis of variance) (Lange, Little & Taylor, 1989:881) indicated whether there was a statistically significant difference between the pre-test and post-test measures of the questionnaires. The statistically significant difference (*p*-value) implied that the changes that occurred were not due to chance factors. The *p*-value is concerned only with probability, and is not an indication of the importance of findings (clinical significance).

In the case of the portfolio data, all the scores in the portfolio assessment were calculated as a percentage, using a Microsoft Office (2003) Excel spreadsheet (Appendix 5F) (Leedy & Ormrod, 2005:274). Averages were calculated for the group and compared across portfolios and across contexts. The individual participant's performance was also related to performance in questionnaires. Results indicating the change in confidence levels were described for the group. Data sets from two

different sources (portfolio assessments and questionnaires) were also compared using regression analysis (Montgomery *et al.*, 2001:47), which sought to provide predictive values of gains made. For this purpose Microsoft (2003) Excel Add-in Tools were used to perform the linear regression technique (Montgomery *et al.*, 2001:46). For each linear regression, the regression coefficient was calculated, which provided an indication of the correlation between the two data sets: A regression coefficient close to 1 signified a strong correlation, while a value less than 0.5 showed that little, if any correlation existed. The quality of the quantitative strand of the research was determined by confidence levels that were derived statistically.

It is crucial that the cost effectiveness of the proposed intervention be assessed. Levin (2001) pointed out that every country invests huge amounts in education, and need to ensure that these investments are well-spent. A cost effectiveness analysis consists of a comparison of interventions based upon their costs and the outcomes generated by such interventions. These outcomes can be measured in a number of ways. This type of analysis should be distinguished from a cost-benefit analysis, in which both the inputs and the outcomes are measured in monetary terms.

In assessing the cost-effectiveness of the programme, it was necessary to attach a monetary value to a training event. This posed some challenges as training cannot easily be isolated from other variables (Kelly, 1993:5) and not all the outcomes were quantifiable (Levin, 2001:57). Notwithstanding, a financial model for this programme was developed to assess the cost-effectiveness of the CPD programme (Rae, 2002:176). The value of the repeated events was used to provide a standard of comparison between events.

It was necessary to assess the benefits of the programme, and then to compare that ratio with other norms used in the particular programme/organization (Weisbrod, 1962:106). In such an analysis, the cost of the different activities and inputs has to

be calculated. By implementing activity-based costing principles (Pineno, 2008:1369), the various cost drivers were identified and the costs of their contributions to the intervention was estimated. In the case of an educational programme, Issa (2006:19) suggested that the direct, indirect, setup and infrastructure costs, as well as the hidden costs, be included. Here, the direct costs reflected the actual cost of doing the work, the indirect costs reflect the overhead and operational costs of the organization, the setup costs account for the initial costs for developing the programme, the infrastructure costs include the costs of the facilities etc., and the hidden costs reflect the value of contributions in kind.

The inherent principles of the balanced scorecard model (Kaplan & Norton, 1992:71) were used to assess the outcome of the proposed programme, and considered the impact upon the clients (or learners), the processes, the human development perspective (i.e. the training of the teachers), and the financial impact of the endeavour. Measures (e.g. absenteeism, management time, and dealing with problems) were quantified and assigned an agreed value (Kelly, 1993:5).

(b) Qualitative analysis

All documents (including open-ended questions from questionnaires, focus group transcripts, diary entries, testimonials, and correspondence) were transcribed and entered in a database as 49 primary documents (PDs) within a single hermeneutic unit (HU). The HU includes all documents related to the research topic (Frieske, 2004:28) and is presented in Appendix 6A. There were 2,900 items coded with the ATLAS-ti data analysis tool (Thomas Muir Scientific Software Development, 2003-2004:28). By using Microsoft Excell as an organization tool 134 codes were grouped in 36 categories, which in turn were organized as 9 themes. These themes were

used to answer 9 of the 11 research questions[12] that were assigned to the four components of the Logic Model framework (refer to Appendix 6B re the code structure for analyzing the qualitative data). The last two questions were answered by quantitatiave data and a holistic view of all other questions).

The researcher identified units that were relevant to answering the research questions (Ryan & Bernard, 2000:781) and were coded with the ATLAS-ti software suite (Thomas Muir Scientific Software Development, 2003-2004), and categorized. After having reviewed these categories, the major themes were identified and placed within the Logic Model framework to answer the various research questions. By using ATLAS-ti (Thomas Muir Scientific Software Development, 2003-2004) it was possible to count the occurrence of the codes (enumeration) to determine the prominence of the various categories.

The parallel analysis of QUAN and QUAL data provided a richer understanding of the variables and their relationships, but limited the investigation to a single type of analysis. The data was displayed separately (QUAN and QUAL) to answer each research question.

Throughout the process it was necessary to determine to what extent the quantitative and qualitative inferences confirmed each other, as well as to determine whether similarities and differences existed across levels of analyses (Creswell & Plano Clark, 2007:106). Therefore, the data were explored further and transformed to allow the simultaneous analysis of the two data sets (Tashakkori & Teddlie, 1998). Following the initial analysis, the qualitative data (codes) were converted to quantitative data by reducing the data to numerical information consisting of three dichotomous categories (Creswell & Plano Clark, 2007:138). All coded items were

[12] Although eleven research questions were addressed in the research, only nine were assessed with the use of mixed methods. The remaining two of the eleven questions answered the questions on whether the research objectives were met and what the cost-effectiveness of the programme was.

binarized in an Excel spreadsheet according to the following values:

- 0 = not applicable;
- 1 = neutral value that referred to comments, reflections, comments;
- 2 = positive value, which confirmed the research question;
- 3 = negative value related to critique, or recommendations for improvement. The negative value could imply that the research question was refuted.

The frequencies of the various values were calculated and categorized, and were compared with those of the quantitative strand. The quantified QUAL data were summarized and presented on three levels (refer to Appendix 6B): on theme level (depicted in Table 1, Appendix 6B), category level (depicted in Table 2, Appendix 6B), and in specific cases on a code level (Table 3, Appendix 6B). Results from the two strands of the research were integrated by means of a matrix (Creswell & Plano Clark, 2007:140). The interpretation of the inferences was then subjected to a validation process (Onwuegbuzie & Teddlie, 2003:378) before final conclusions could be drawn.

(c) Integration of QUAN and QUAL

Figure 5-13 illustrates the integration strategy used for the data analysis in the study. The data (QUAN and QUAL) were displayed separately to answer each research question. Comparisons could be made by examining the similarities of the quantitative and qualitative data in the discussion of each research question (Creswell & Plano Clark, 2007:140). This implied that the statistical results were reported but simultaneously specific quotes or information about a theme that confirmed or disconfirmed the quantitative results was provided. The legitimating process is expounded in the next section.

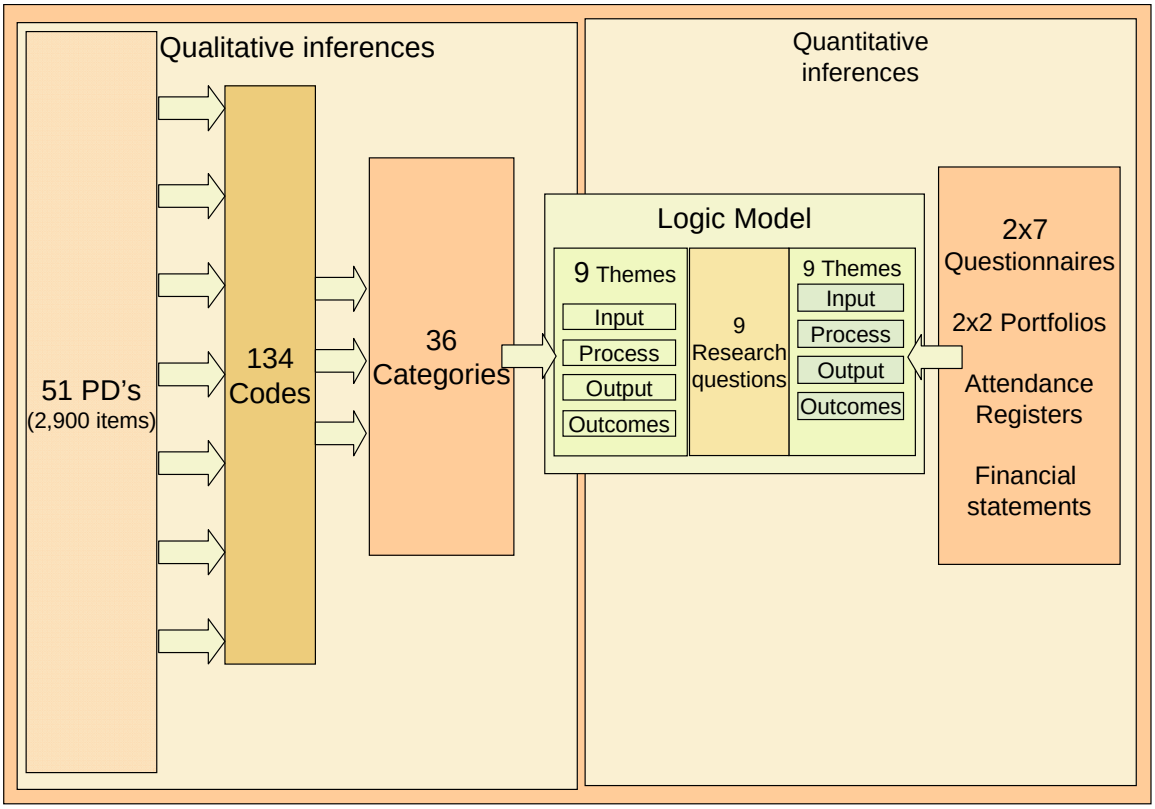

Figure 5-13: Integration of data obtained from the two strands of the research

5.5.4 Legitimizing the research

The process of legitimizing the research (which is the mixed methods nomenclature for validity, reliability, and trustworthiness) determined quality (Onwuegbuzie & Johnson, 2006:55; Stake & Thrumbull, 1982:31; Teddlie & Tashakkori, 2003:37, 42).

(a) The three processes determining the value of the research

The aspects that were considered are presented in Figure 5-14 and are discussed as follows:

(i) Methodological rigour

The methodological rigour (also know as design quality) was concerned with the application of method, and provided the standards for the assessment of this evaluation (Teddlie & Tashakkori, 2003:40).

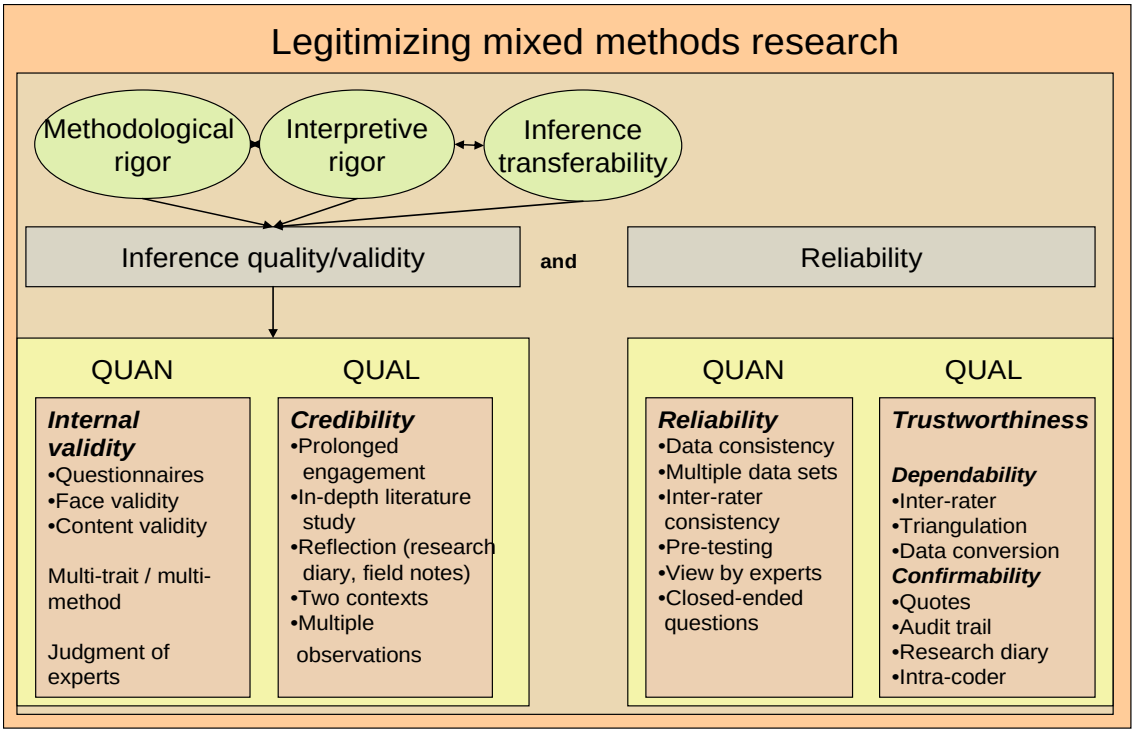

Figure 5-14: Aspects related to the legitimization of the research

Aspects such as 'within-design consistency' and 'design suitability' were considered. To determine the *reliability of the design*, the methodological rigour was also obtained through legitimating sample integration. In this study, the sample sizes of the qualitative and quantitative research were not constant throughout the data collection process. In the quantitative strand, the questionnaires were used for the full sample of 48 (96 in both contexts), but in the qualitative sample, a much smaller group of 12 participants were selected (non-randomly) from the original sample for the focus groups in a nested design. It had to be determined whether the qualitative sample, which was non-representative, had an effect on the quality of the meta-inference, as it could affect transferability.

From a statistical point of view, it is preferable to compare similar samples, and therefore the relatively small sample in the focus groups was compensated for by the data obtained from the open-ended questions in the questionnaires. In addition, a sufficient number of eight focus groups were conducted over the two years, which

created an adequate database and provided thick descriptions. The assumption is that if the inferences obtained from both the quantitative and qualitative strands are the same, then the quality of the meta-inference is high. The possibility of generalizing the findings therefore depended on the quality of the meta-inference obtained from the study (Onwuegbuzie & Johnson, 2006:53).

(ii) Interpretive rigour of the study

Interpretive rigour was ensured by conceptual consistency (consisting of both cross-inference consistency and theoretical consistency), interpretive agreement, and interpretive distinctiveness (Teddlie & Tashakkori, 2003:41). Conceptual consistency was ensured by triangulation when the inferences drawn from the two strands could be compared and converged to answer the research question. Theoretical consistency was ensured by relating the inferences to the literature. In order to ensure interpretive distinctiveness (Onwuegbuzie & Johnson, 2006:48) rival inferences had to be ruled out and, when this was not possible, the researcher had to provide plausible explanations.

The inferences obtained from both strands, as well as the integration thereof, were scrutinized by two experts (Johnson & Christensen, 2004:141) and confirmed by feedback (Leedy & Ormrod, 2005:100). Prolonged engagement and multiple measurements enhanced the inference quality (Johnson & Christensen, 2004:141) as the researcher was involved with the two contexts over a period of two years, and multiple sets of data were collected in six research units.

The combination of inferences from the qualitative and quantitative phases of the study raised the question of how the researcher could accurately present both the insiders' view ('emic' view) and the observer's objective view ('etic' view) (Johnson & Christensen, 2004:255). Following the focus group meetings, the 'etic' view of the researcher had to be justified with an 'emic' view from the assistant moderator (who

completed a summary sheet (refer to Appendix 5G) and provided quoted examples in support). This summary was presented to the group for verification at the conclusion of the focus group, and the group agreed that the information was accurate and that it could be used for the research. This method differed from conventional member checking (Creswell & Plano Clark, 2007:196) in that it was done directly after the focus group, and not as a completed final report at a much later stage. This adapted form of member checking was a practical measure to save on cost and to make it more convenient for the participants in terms of time. The completed report was discussed with the district facilitators, which was more practical at the time than convening with the participants.

To justify the meta-inference of the study, two research experts outside the study reviewed the qualitative and the quantitative findings, as well as the integration of the two strands, and agreed by feedback that it was plausible (Creswell & Plano Clark, 2007:196).

(iii) Inference transferability

Inference transferability is related to the external validity of the research, and is concerned with the extent to which the research findings can be generalized to other people, contexts, times, and outcomes (Johnson & Christensen, 2004:255). The three strategies employed to obtain external validity included conducting the research in a real-life setting, replicating the research in two different contexts (semi-rural and urban), and taking a representative sample from the schools included in this context (Leedy & Ormrod, 2005:99). From practical experience it is known that schools usually have 3 - 4 classes in each grade level. The selection of one representative from each grade level in each school provided a sample consisting of approximately 25% of foundation phase teachers from the schools included in the study. The sample was therefore selected to be representative of a limited number

of schools in a specific context.

Although the use of non-probability sampling affected the inference transferability of the results, its potential was not entirely excluded. Teddlie and Tashakkori (2003:42) believe that any inference has some degree of transferability. Mixed methods inferences are more transferable than inferences made from either QUAN or QUAL components (Onwuegbuzie & Johnson, 2006:57). Stake and Thurnbull (1982:1) described the concepts of *naturalistic generalization* as a way of making rough generalizations when non-random samples were used. They were of the opinion that it is possible to generalize to other people, settings, times, and treatments, provided that the delineators were similar to the original study. As was previously discussed in Section 5.3.4, the socio-economic profile of the research was comparable to the rest of the country, which allow rough generalizations to be made.

In order to generate a meta-inference in the study, it was necessary to first determine the inference quality of both the QUAN and QUAL strands independently (also known as *multiple validities legitimation*) (Onwuegbuzie & Johnson, 2006:59). The evaluation of inference quality in this case is internal validity (a term used in quantitative research) and credibility (a term commonly used in qualitative research).

(b) Inference quality

The three processes discussed above (within-design consistency/methodological rigour, interpretive rigour, and interpretive transferability) (Onwuegbuzie & Johnson, 2006:53) determine the design quality ('inference quality') (refer to Figure 5-14). In this thesis the term 'inference quality' is used when referring to 'validity' because it provides a common nomenclature when combining qualitative and quantitative research (Onwuegbuzie & Johnson, 2006:53; Tashakkori & Teddlie, 2003b:35).

(i) Internal validity

To determine the internal validity (quality of the quantitative strand) of this study, the "…alternative plausible explanations of the results had to be ruled out, controlled for, or eliminated" (Onwuegbuzie & Johnson, 2006:48). The quantitative strand of the research included a one-group 'pretest-posttest' design, which in itself was subject to a number of threats to the inference quality (internal validity). It was necessary to statistically analyze this threat directly in order to determine whether it actually operated in the study.

To ensure the validity of the questionnaires, the questionnaires were designed as accurately as possible to ensure that they would measure what they were supposed to measure (McMillan & Schumacher, 2006:194). Several steps were taken to ensure validity in the quantitative strand of the research. Face validity of the questionnaires was obtained from pre-testing, and the opinions of three potential participants who were not included in the study. A positive reaction to the questionnaires would ensure cooperation from the participants (Leedy & Ormrod, 2005:92), which could affect other types of validity and reliability.

To ensure content validity, two expert professionals in the field checked the phrasing of questions and the assignment of items. Furthermore, the questions asked in the questionnaires were pertinent to the study's objectives. Close consultation with a statistician at the Department of Statistics of the University of Pretoria ensured that the questionnaires were adequately compiled for statistical analysis. Although content validity is not a scientific indicator of a measuring instrument's accuracy, it does provide a good foundation for validity.

(ii) Credibility

Inference quality (internal validity) in qualitative research is considered to be research that is plausible, credible, and trustworthy, which in turn makes it defensible

(Johnson & Christensen, 2004:249). Qualitative data provided insight into the context and a better understanding of the participants' perceptions and experiences in the two contexts. A sample size of 96 for open-ended questions in the questionnaires was considered adequate to control the extraneous variables, and behaviour towards all respondents was kept constant. This sample size augmented and supported the much smaller sample size used in the focus groups. An attempt was made to limit attrition by offering certificates to those participants who cooperated fully and completed the programme (Struwig & Stead, 2001:139).

Qualitative research is vulnerable to researcher bias. This problem was minimized by consciously reflecting on potential biases and predispositions by keeping a research diary. To obtain descriptive validity of the focus group meetings (Johnson & Christensen, 2004:250), the researcher made extensive use of the assistant moderator (refer to Paragraph Q) to record and describe the participants' behaviour during the focus group meetings. Furthermore, the authenticity of the focus group summaries was verified by reading the summaries of responses to each question in the focus group schedule back to the group for confirmation (member checks) at the end of each topic.

After each focus group discussion, the two facilitators convened to correlate and compare their impressions and procedures. Agreement was reached by cross-checking the observations of the researcher (the moderator) with that of the district facilitator (the assistant moderator in the focus group). The transcripts from focus groups were subjected to inter-rater validity (Leedy & Ormrod, 2005:100) with 80% agreement of coding.

Validity and reliability were increased through triangulation where focus group data were corroborated by various other data sources (e.g. testimonials, correspondence, research diary entries, and field notes), and also by using various methods (Babbie

& Mouton, 2002:275). Triangulation required of the researcher to act as 'detective" (Johnson & Christensen, 2004:141), to carefully consider cause and effect, and to systematically eliminate alternative explanations. This was made possible by use of other data sources such as field notes, diary entries, personal communication, and correspondence (refer to Table 5-4). In addition, thick descriptions were used to explain the context, allowing the reader to draw his/her own conclusions from the data presented (Leedy & Ormrod, 2005:100). Quantifying the qualitative data (refer to Section 5.5.3(b)) enriched meaning when used in addition to the narrative description of themes (Johnson & Christensen, 2004:141).

(c) Reliability

Because validity is not possible without reliability (Leedy & Ormrod, 2005:29) (refer to Figure 5-14), this issue was addressed for both the quantitative and qualitative strands in the following manner:

(i) Reliability in the quantitative research

In order for the measuring instruments to be considered reliable, the test scores had to be accurate, consistent, and stable (Struwig & Stead, 2001:130). Measures that improved reliability in this study were consistency over time, internal consistency, and inter-rater consistency (Struwig & Stead, 2001:230).

Data were collected in three research units per year, which yielded multiple data sets for each participant over time. This in turn allowed participants to be their own control and therefore increased the reliability of the results. Internal consistency was reached through pre-testing of the questionnaire and reviewing by experts to ensure that questions were clear and not potentially confusing. Error variance was limited by ensuring that the assessment procedures were comprehensive and instructions were clearly understood. To limit the time of completion, dichotomous items (yes/no

or true/false) and checklists were included.

A sufficient number of closed-ended questions provided a way for the respondents' expectations to be clearly spelled out, which contributed to the questionnaire being more reliable and consistent (Fink, 1995:33). Consistency was maintained by using a rubric (Appendix 5F).

The participants were motivated to complete the questionnaires once they understood the purpose of the questionnaires. Certificates from the University of Pretoria were offered as an inducement to complete the programme by attending the three workshops, and to comply with all data collection procedures.

(ii) Dependability and confirmability in the qualitative strand of the research

As the constructs of *dependability* and *confirmability* (Johnson & Christensen, 2004:141) are of concern in qualitative research, the entire research process was documented in a research diary. The researcher made use of extensive quotes to confirm inferences made when writing the report. Transcriptions of primary documents are presented as an audit trail (refer to Appendix 6A) to provide a measure of internal reliability (Johnson & Christensen, 2004:141).

Dependability and conformability were also enhanced by the inter-coder and intra-coder text analysis described in the previous section. . Trustworthiness in terms of external reliability was further established by providing details of all the participants with regard to age, demographic information, and educational settings (Naudé, 2005:181).

5.5.5 Section summary

The implementation phase consisted of the data collection (Step 9), data analysis (Step 10), and validation (Step 11) of the findings. The data collection and analysis

procedures were conducted separately for each of the two strands of the research. Integration (Step 12) was obtained by transforming the qualitative data to numerical values (quantification) and by comparing the inferences.

5.6 Conclusions

The renewed emphasis on accountability of educational programmes requires that CPD programmes for teachers be evaluated for quality. This chapter formulated a research model used for the development and evaluation of a support programme for foundation phase teachers. A programme development model was used as basis to cater for the initial formulation, followed by the implementation of the programme and finally the evaluation. The complex nature of the research environment requires the use of both quantitative and qualitative research methods. A mixed method approach was therefore used for evaluating the results. The questions to be answered in the evaluation of the programme were placed within the Logic Model framework to provide a holistic view of the programme and a systematic analysis of the proposed CPD programme.

5.7 Appendixes

These appendices are available on the separate Compact Disk.

Appendix 5A *Components of the questionnaires*

Appendix 5B *Workshop questionnaires*

Appendix 5C *Letters for informed consent*

Appendix 5D *Letter to the donor*

Appendix 5E *Portfolio assignments*

Appendix 5F *Rubrics*

Appendix 5G *Focus group schedules and summary sheets*

Appendix 5H *Learning support material*

Chapter 6 Results and discussion of the input component

"…all research is a practical activity requiring the exercise of judgment in context: it is not a matter of simply following methodological rules"

(Hammersley & Atkinson, 1994: 23)

Aim of the chapter

The aim of this chapter is to describe the input component of the continued professional development (CPD) programme by answering specific research questions. The topics covered in this chapter are depicted in Figure 6-1.

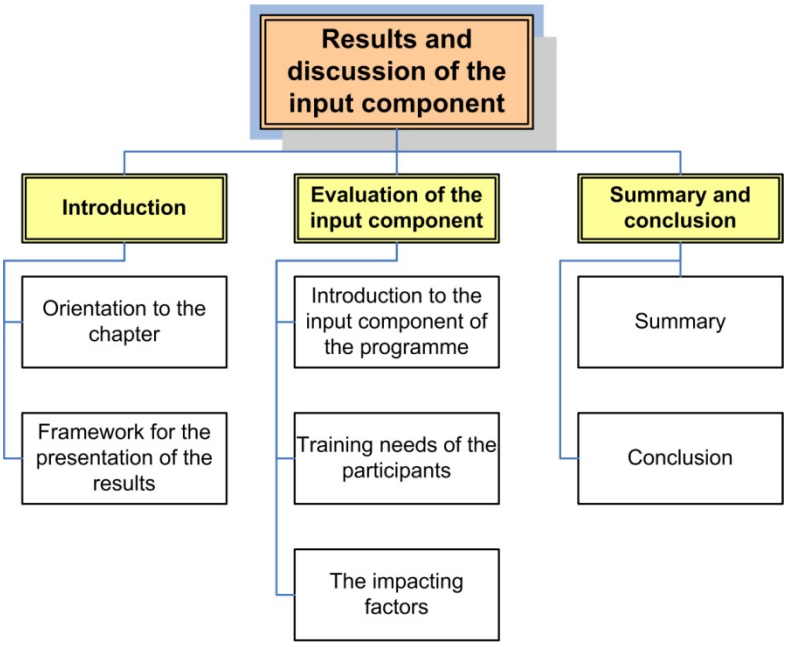

Figure 6-1: Outline of the chapter

6.1 Introduction

6.1.1 Orientation to the chapter

Evaluation of educational programmes ensures quality and strengthens educational interventions (Crouch, 2008:1). Programmes are evaluated mainly with the purpose of improvement (Patton, 2003:223) and therefore evaluation was an intrinsic part of the development process of this particular continued professional development (CPD) programme. The development process encompassed an early development phase that was followed by an advanced development phase (refer to Figure 1-5). The early development phase of the CPD programme was addressed within the input component of the framework, whereas the advanced development phase was evaluated within the process, output, and outcomes components (refer to Section 4.3.1) (Coffman, 1999:322). The aim of the research was to determine the value of this specific CPD programme and the research question was answered by systematically addressing the various sub-questions in a chronological order within the Logic Model framework (refer to Section 4.3.1).

6.1.2 Framework for the presentation of the results

Quantitative and qualitative data were collected and analyzed concurrently and the inferences were converged within the 'triangulation convergence design' (Creswell & Plano Clark, 2007:119). This chapter presents the results obtained from both quantitative and qualitative strands of the research, hence referred to as the QUAN and QUAL strands (Onwuegbuzie & Collins, 2006:1; Teddlie & Tashakkori, 2003:8). In some cases, however, only one of the strands was available due to the nature of the topic, and in those cases the respective data set was accepted as being sufficiently representative. A dictionary of all codes is presented as Appendix 6C

and a list of all codes with accompanying quotes is presented in Appendix 6D, which can be used to track categories alphabetically with their accompanying quotes and data sources. The text is further enhanced by digital photographs (see Appendix 6E). In an effort to elucidate the QUAL strand while maintaining the flow of the discussion, selected quotes are presented as footnotes. For ethical reasons not all the data could be used to answer the research questions that were assigned to the 'process', 'output', and 'outcomes' components of the programme as data were also collected from trainees who attended workshops without signing of informed consent at the onset of the programme. The research therefore focused primarily on those participants who signed informed consent and participated in all activities of the programme ("core group"), and only compared their results with the entire group when necessary.

The evaluation of the CPD programme is conducted by systematically answering the research questions. In answer to each research question the qualitative inferences are discussed first, followed by a discussion of the relevant quantitative inferences, to finally be converged and integrated (refer to Figure 5-6 in Section 5.3.1). In the conclusion of each of the four components of the evaluation framework a critical assessment and summary of the results are provided. This chapter evaluates the CPD programme by answering those questions grouped within the input component of the Logic Model framework.

6.2 Evaluation of the input component

6.2.1 Introduction to the input component of the programme

The questions in the input component are presented in Table 6-1[13].

[13] The electronic version of this thesis is hyper-linked. Press 'control + left click' for quick access to paragraph.

Table 6-1: Questions posed to evaluate the input component of the programme

Research question	Aspects assessed	Par no
Question #1: What were the participants' training needs?	Need for competence Need for support Need to implement the NCS Previous support	6.2.2
Question #2: What was the impact of the prevailing factors on the proposed programme?	Input strengths Input challenges: - Context - Language - Learners	6.2.3 6.2.3(b)

6.2.2 Training needs of the participants

The training needs were addressed by both strands of the research.

(a) QUAL strand: Training needs

The QUAL strand of the research indicated that the participants did not feel comfortable implementing the NCS and therefore expressed a need for training and support[14] (n=299) (refer to the theme 'training needs' in Table 1, Appendix 6B). The following needs were identified, namely to 'increase competence' (n=96) and to 'implement the NCS' (n=32) in terms of listening and language skills (with specific reference to the language required for numeracy), as well as a 'need for support' (n=148). The participants' need to increase their 'competence' (refer to Table 3 in Appendix 6B) implied a need for more 'experience' and 'knowledge' so that they could support all their learners ('learner directed') with more 'confidence'.

Educators are expected to become specialists in their subject fields with sufficient knowledge and skills to teach the NCS (Du Toit *et al.*, 2002:158), which causes many teachers to feel vulnerable and unsure. The participants' need for support may

[14] (to)… 'be empowered in teaching foundation phase, especially with the new curriculum system' (Line 48, Un-tabled Open questions Form 1 registration)

I want knowledge on what I teach and my learners to understand and have confidence in what they've been taught (Line 52, Un-tabled Open questions Form 1 registration)

reflect their perception that they cannot meet these expectations (Gouws & Dicker, 2006:416).

(b) QUAN strand: Training Needs

A lack of confidence in meeting the requirements of the NCS was also evident from the results obtained in the QUAN strand of the research, which further elucidated the participants' training needs. Figure 6-2 depicts the participants' confidence in facilitating the components of literacy and numeracy in the foundation phase curriculum prior to training, whereas Figure 6-3 is a comparison between the participants in the two contexts (semi-rural and urban). Figure 6-2 shows that only 34% of the participants felt confident in facilitating the skills required for literacy and numeracy at the onset of the programme while the remaining 66% were uncomfortable or unsure.

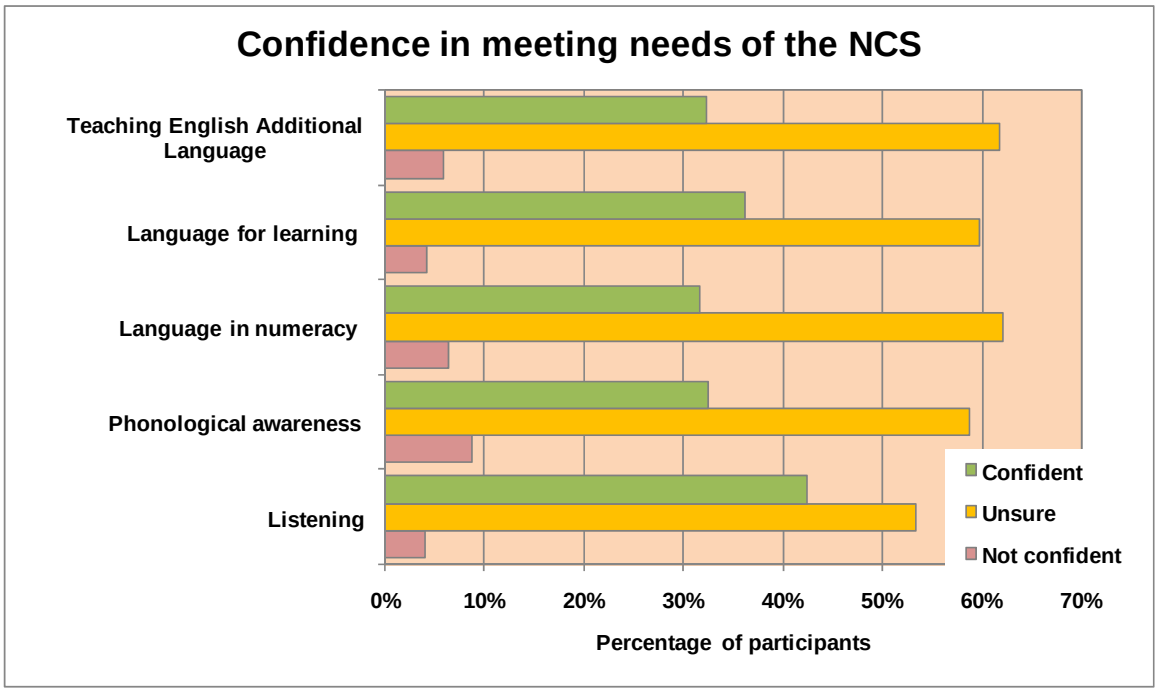

Figure 6-2: Confidence of teachers in meeting the various aspects in the NCS

Similar results were obtained across the two contexts (refer to Figure 6-3) as only 35% of the participants were confident in meeting the requirements of the NCS,

indicating that 65% required additional support. The validity of the findings was high as the results from the two contexts were similar (refer to Figure 6-3). Considering the relationship between between teachers' self-efficacy and learners' performance (Gibson & Dembo, 1984:581) it is understandable that performance is unacceptably low.

The participants expressed a need for professional development activities that could help them become more competent in implementing the NCS. These findings are verified by those of McDonald and Van der Horst (2001:1 in Gouws & Dicker, 2006:419).

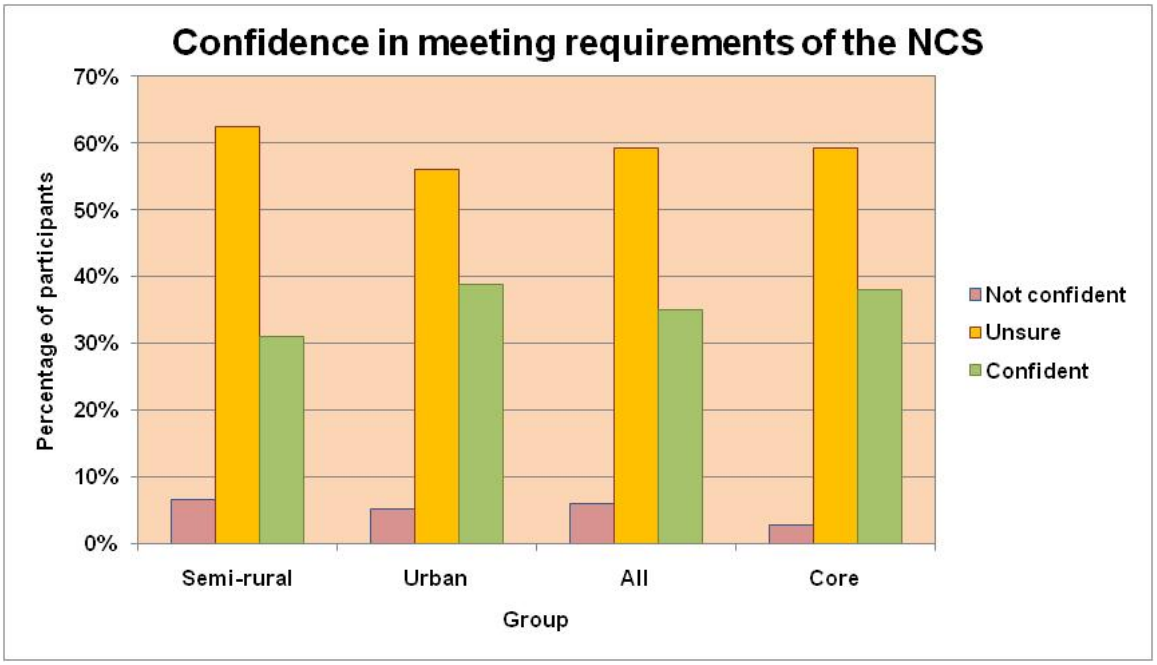

Figure 6-3: Comparison of confidence levels in facilitating the NCS between the participants in the two contexts

The need for support was more pronounced in the semi-rural context (67%) than in the urban context (55%). The qualitative and quantitative inferences drawn confirmed that many of the participants had received prior support, but analysis of the QUAN results indicated that the urban context received more support than the semi-rural context (refer to Table 6-2), which explains the findings.

Table 6-2: Comparison between the two contexts with regard to previous support

Prior to training (workshops)	Semi-rural (n=48)	Urban (n-48)
Quantitative strand	60%	76%

The need for support in the semi-rural context may have been more pressing as participants received less previous support than those in the urban context. Previous research (Taylor & Vinjevold, 1999c:142) reported that teacher support had a significant effect on their conceptual knowledge. It is possible that the participants in the urban setting were more familiar with terminology and information explained in the workshops than their colleagues in the semi-rural areas, who had received less support. As the country is redressing past inequalities, such results have implications for future planning (refer to Section 1.1.1.) (Department of Education, 1995:11). The participants had to indicate their preferene in the manner of support they required, which is illustrated in Figure 6-4.

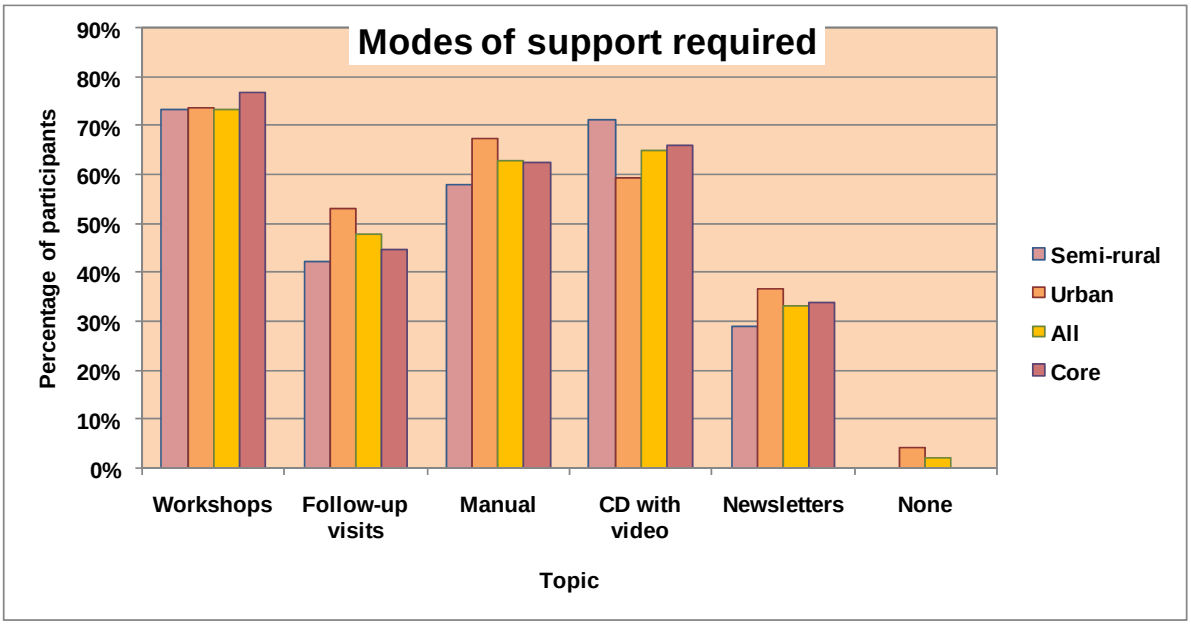

Figure 6-4: Modes of support required

The results show (refer to Figure 6-4) that the participants preferred workshops (training component), training support materials, and follow-up visits (mentoring

component) as modes for support. These preferences guided the trainer/researcher in the development of this CPD programme to include a training component and a mentoring component.

(c) Convergence of results: Training needs

The convergence of the results as depicted in Table 6-3 shows that both strands of the research concur in terms of the participants' need to increase their competence and to implement the NCS.

Table 6-3: Convergence of inferences with regard to training needs

Component	Question	Aspects assessed	QUAL	QUAN (n=96)
Input1	What were the participants' training needs?	Need for competence	98%, n=96	66%
		Need to implement the NCS	81%, n=32	65%
		Need for support	91%, n=23	65%
		Previous support	91%, n=23	68%

Both strands of the research indicated a need for support, notwithstanding the support (e.g. workshops) that most of the participants (>68%) had received previously (refer to Table 6-3). These results answered the first research question and justified the development of this CPD programme. The need for training in the NCS is not specific to the contexts of the current research, but has been identified as a national priority as it was cited as one of the reasons for the poor performance of South African learners (Govender, 2009:9).

6.2.3 The prevailing factors that impacted on the programme

(a) Input strengths

Two factors that had a positive impact on the programme were the infrastructure provided by the Department Communication Pathology (of the University of Pretoria)

and the institutional support provided to the trainer by the Gauteng Department of Education (GDE) (n=19) (refer to theme 'input strengths' in Table 1, Appendix 6B). Collaboration with the GDE was established on provincial level (GDE), district level, and school level. Collaboration at the provincial level paved the way for the roll out of the programme as training times were negotiated with the trade unions, and district facilitators were assigned to support the trainer/researcher with the logistical arrangements. The district facilitators also provided input in the workshop material and supported the trainer/researcher in the research. Diary entries confirmed the hospitality of the schools,[15] which ensured more effective implementation of the programme. The time and effort spent on the preliminary phase of the programme were worthwhile and ensured the smooth implementation of the programme.

(b) Input challenges

A number of factors that may have impacted negatively on the programme were also identified. The QUAL strand identified challenges (n=174) with regard to the learners, the context in which education is provided, and the qualifications and language use of the teachers (refer to theme 'input challenges', Table 2, Appendix 6B). The inferences drawn from the first three challenges were obtained from qualitative data only, but the use of language in the programme was informed by both strands of the research.

(i) Learner-related challenges

The participants expressed a need to be competent in order to support *all* learners (refer to Section 6.2.2) because they were particularly concerned about learners who experience *'barriers to learning'* or who have *'special needs'* (refer to Table 3 in Appendix 6B). The participants complained about learners' poor *'behaviour',* with

[15] * School was very hospitable and supplied water, cookies and Coke for the use of the presenter and GDE officials (Line 29, Diary entry 6 on the 21 July 2005)

resulting *'discipline problems'.* Large classes (e.g. reports were obtained of 60[16] or even 74 learners in a single class) could have been the cause of discipline and behaviour problems. This problem is not unique to this context, but is the reality of education in South Africa. Large class sizes is a problem to be addressed by Government (HSRC, 2006:2), but teachers should also be supported to manage large classes.

Some participants experienced difficulty in teaching learners who were not school ready (refer to codes 'school readiness' and 'difficult for learner/gap in learners' knowledge' in Table 3, Appendix 6B*).* The contexts of this study were comprised of low-income households (refer to Section 5.3.5) with limited access to learner support materials in homes and prevailing low literacy levels of primary caregivers (Howie, 2007, as quoted by Bateman, 2007b:1; Botha *et al.*, 2005:697; Howie, 2004:160). Learners from low-income and poverty-stricken homes are at risk of not being school ready when reaching school-going age (Department of Education, 1995:75; Winkler, 1998:55). A general delay in school readiness could cause delays in delivering the curriculum as considerable time is required to prepare such learners for formal learning.[17] When struggling to complete the curriculum within the specified period, teachers tend to either omit certain parts or rush through them. Either way, the learners fall further behind their peers. Learners' school readiness therefore affects both learning and teaching.

(ii) Contextual challenges

The following challenges to the programme with regard to the context were identified (refer to theme 'input challenges', category 'environment', Table 1, Appendix 6B)

[16] T: Yeah I think it was ..eh…eh…I had a problem with eh…..getting the learners attention. When I start doing my job... in the morning, I had this tension, because I am dealing with 60 learners (PD6, line 171, Focus group 1, 2006)

[17] "With the Gr 1 educators we are overloaded with more work, especially during the first term, because some of the learners are not from preschools. Do something". (Line 111, Un-tabled Open questions, Form 1 registration)

(n=53), namely classes being too large, lack of infrastructure (refer e.g. to PD 9, Line 184, Focus group 2 in 2006), limited resources[18], and underqualified teachers. Rembe (2005:3) reported that the underprovision of classrooms resulted in overcrowding in many township and rural schools. Limited infrastructure detracts the focus from teaching and learning (Adler *et al.*, 2003a:54). Such contextual challenges may cause low morale in teachers and even, in some cases, health problems[19] due to stress (Olivier & Venter, 2003:188).

The participants also complained about a shortage of teaching resources and stationery for learners. This necessitates learners to borrow from each other and to share, and results in noisy classrooms.[20] Resource availability may have an affect on the outcomes of the programme (Adler *et al.*, 2003a:58) as it slowed down the pace of teaching and inhibited the teachers to implement the strategies.

Participants currently in the system teaching Gr. R were not required to be professionally qualified and some had received very little training. As described in Chapter 5 (refer to Section 5.3.1.8) the training of 29% of the participants was not accredited by the GDE, which explains the low literacy levels of some of the participants as evidenced by the completed questionnaires and portfolio assignments.

The results show an improvement from the earlier audit of the ECD sector conducted in 2000 where 43% of ECD practitioners did not hold qualifications that were recognized by the Department of Education (Badroodien *et al.*, 2002:19). Du Plessis and Louw (2008:63) reported that only 12% of the teachers, who were primarily

[18] The problem is we do not have books to refer to like the pamphlet we got at the workshop (Line 131, Un-tabled open questions Forms 2&3)

[19] T: Yes Ma'm, it was tough. Today, I was teaching three classes. Sometimes I go to doctors saying to tell them that I was sick (Line 171, Focus group 1, 2006)

[20] I am experiencing problems with regard to LO 1. Learners find it difficult to adjust, most of without stationary and they disturb others hence there is noise in class (PD 54, Line 52, Un-tabled reflection of teachers in the 2006 listening & language assignment 2006)

Caucasian, in urban pre-schools in their study were not qualified. This difference may be attributed to previous inequalities in the education system.

(iii) Language-related challenges

The language used by the participants in the classroom (LoLT) presented a challenge[21] (n=68) (see category 'language', Table 1, Appendix 6B). The fact that the language used in the classroom was not necessarily the language of learning and teaching (LoLT) in the school[22] posed a challenge. Furthermore, the home language (L1) of the participants was not necessarily the same as the LoLT.[23] The results obtained from the QUAN strand illustrate the various home languages (L1) in the two contexts (refer to Figure 6-5), whereas Figure 6-6 shows the use of LoLT.

According to Figure 6-5 and Figure 6-6 the language use in these two contexts was diverse (Dyers, 2003:61; Naudé, 2005:29). In both contexts Northern Sotho as L1 was the most prevalent (>53%). Participants whose home language was isiZulu also used it as LoLT. In the semi-rural context 53% of the participants used Northern Sotho as L1, but only 40% used it as LoLT. This implies that 13% of the participants taught in a language other than their L1, as opposed to the township context where only 6% Northern Sotho L1 speakers taught in another language. These findings show an improvement from previous studies (Du Plessis & Louw, 2008:62; Setati *et al.*, 2003:77) which reported that teachers teaching in a language other than their L1 were quite common in the South African context.

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[21] A.M: And the languages of these children? Are they all the same?

T: No, no, no, they are different languages. The others are Shangaan, but they press us to do Northern Sotho (PD6, Line 188, Focus group 1, 2006)

Informal settlements, its all, all…all nations are there. Ndebele, Zulu, Xosa, Swazi, Northern Sotho, Tswana. This inter-marriages, the mother talks to the children maybe Tswana, and then the father is a Zulu, and the father wants to say "I want my child to learn Zulu"

A.M: But are you...are your home languages the same as the school's LoLT?

T1: You know, the school has maybe three to four LoLT (PD6, Line 192, Focus group 1, 2006)

[22] I was thinking of those learners who are unable to show their potential because of the LOLT and you find the educator unable to code switch due to the limited vocabulary of other languages (Line 29, Testimonials from teacher support educators)

[23] T: The problem is the language, the language that I speak to them (Line 101, Focus group 2 in 2005)

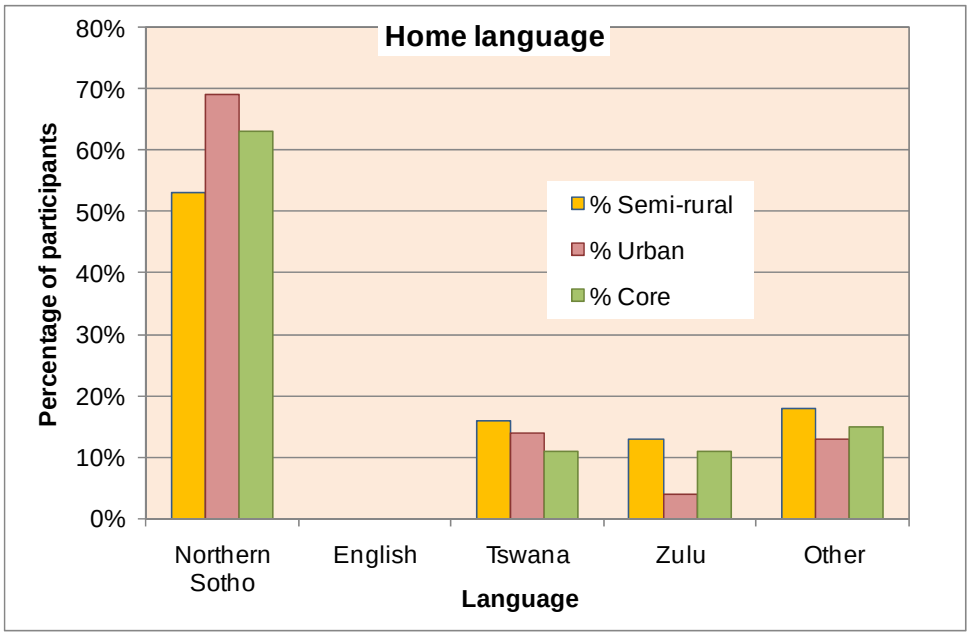

Figure 6-5: Various home languages in the two contexts and of the core group

Figure 6-6 shows the language of learning and teaching (LoLT) in both the urban and semi-rural contexts, as well as for the core group of participants.

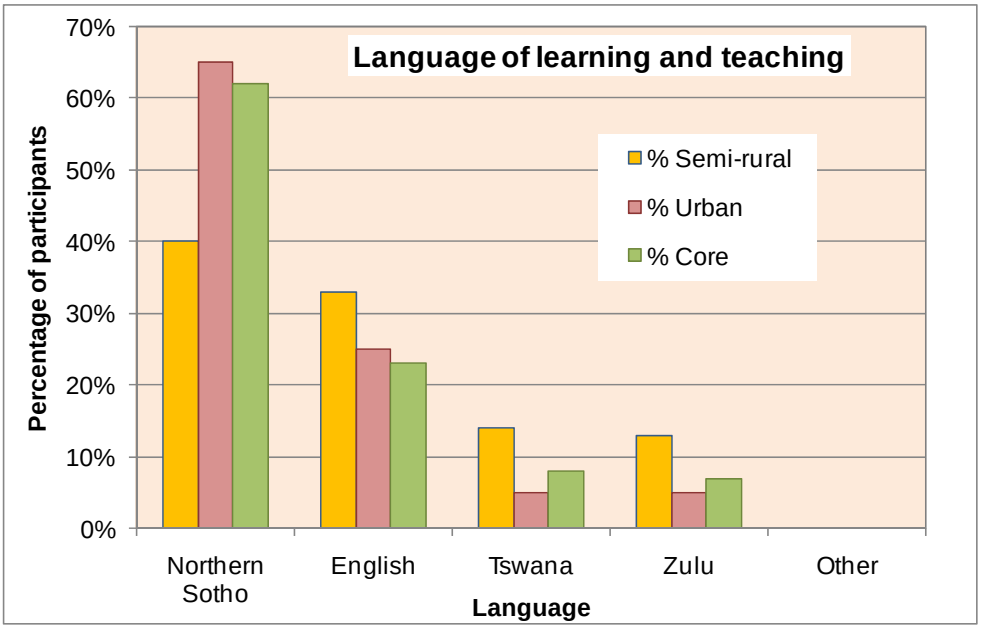

Figure 6-6: The language of learning and teaching in the two contexts and of the core group

Linguistic diversity, especially in the urban, densely populated context, can be attributed to the increased migration from rural to urban contexts following the 1994 elections. Migration has had an adverse effect on the language profiles of schools in

townships and informal settlements as these communities are no longer homogeneous (Pile & Smyth, 1999:314). Marriages between various cultures result in many households having more than one L1. In this case the linguistic diversity in the classrooms required some participants to use more than one LoLT and therefore some of them preferred to teach in English. The results (refer to Figure 6-6) show a higher prevalence of English as language of learning and teaching (ELoLT) in the semi-rural area (33%) than in the urban area (25%).

These results contradict previous research by Setati *et al.* (2003) who found that ELoLT was more commonly used in the urban contexts. This may be attributed to the fact that the semi-rural context had received less support than the urban context (refer to Table 6-2), specifically in terms of language policies and the advancement of best language practices. Teachers need to provide adequate language models for learners to follow and therefore the effect of ELoLT in these contexts (as used by teachers who are not necessarily proficient in English) may have significant implications for teaching and learning (Dawber & Jordaan, 1999:14).

Figure 6-6 shows that on average only 28% from the entire group used ELoLT in their classrooms across contexts. This implies that 72% of the participants used an indigenous language as LoLT. Setati (1999:317) reported a decade ago that all Gr. 1 teachers in Gauteng were using ELoLT. These findings were also recently confirmed by the Human Sciences Research Council (HSRC) (Kassiem, 2008:4) that reported that the demand for English as LoLT in the foundation phase has progressively decreased in preference for the L1 of the learner. It appears that the Language in Education Policy (Department of Education, 2002:1) is being implemented, and that efforts to promote the use of indigenous languages as LoLT in the foundation phase are successful.

Although none (0%) of the participants' L1 was English, they had to participate in the

CPD programme in English (refer to Figure 6-6). The raw data obtained from questionnaires, portfolios, and focus groups show that the participants' proficiency in English was mostly inadequate, which confirmed findings from previous studies in similar contexts (Du Plessis & Louw, 2008:63; Lemmer, 1995:88; Setati *et al.*, 2003:77). The participants' limited proficiency in English could be the reason for non-response in the questionnaires and portfolio assignments, or inhibited participation in focus groups (Lemmer, 1995:88).

Table 6-4 depicts the convergence of the two strands of the research with regard to the prevailing factors that may have impacted on the outcomes. These challenges were inherent to the education system.

Table 6-4: Convergence of inferences with regard to the prevailing factors

Theme	Category/Aspects assessed	QUAL	QUAN (n=96)
Prevailing factors	Input strengths	93%	
	Challenges related to the context	86%	
	Insufficient qualifications		26%
	Challenges related to the learners	54%	
	Challenges related to language use	75%	28% (ELoLT) 100% English L2

6.3 Summary and conclusion

6.3.1 Summary

The results in this chapter determined the participants' training needs, which confirmed the need for workshops. The Provincial and institutional support ensured the roll out of the programme. Several prevailing factors that could impact on the programme were identified, which were related to the participants, the context, the learners, and the use of language. The 'process component' of the CPD programme was evaluated next.

6.3.2 Conclusion

The detrimental effects of apartheid were still evident in schools in these contexts. The challenges currently within the system emphasize the need for support, but also for planning from Government. The South African education environment is complex and, together with the new requirements of the NCS, places high demands on teachers, which many find difficult to meet. There is a need for CPD programmes for foundation phase teachers that focus pertinently on the facilitation of listening and language, as well as the language for numeracy, which this study aimed to meet.

6.4 Appendix

These appendices are available on the separate Compact Disk.

Appendix 6A *Primary documents*

Appendix 6B *Code structure*

Appendix 6C *Dictionary of codes*

Appendix 6D *List of codes with quotes*

Appendix 6E *Digital photographs*

Appendix 6F *Memos noted in coding of primary documents*

Chapter 7 Results and discussion of the process component

"Research is to see what everybody else has seen and to think what nobody else has thought

(Albert Szent-Gyorgyi, 1937 Nobel prize in medicine*)*

Aim of the chapter

The aim of this chapter is to describe the process of the continued professional development (CPD) programme by answering particular questions in this regard. The topics covered in this chapter are depicted in Figure 7-1.

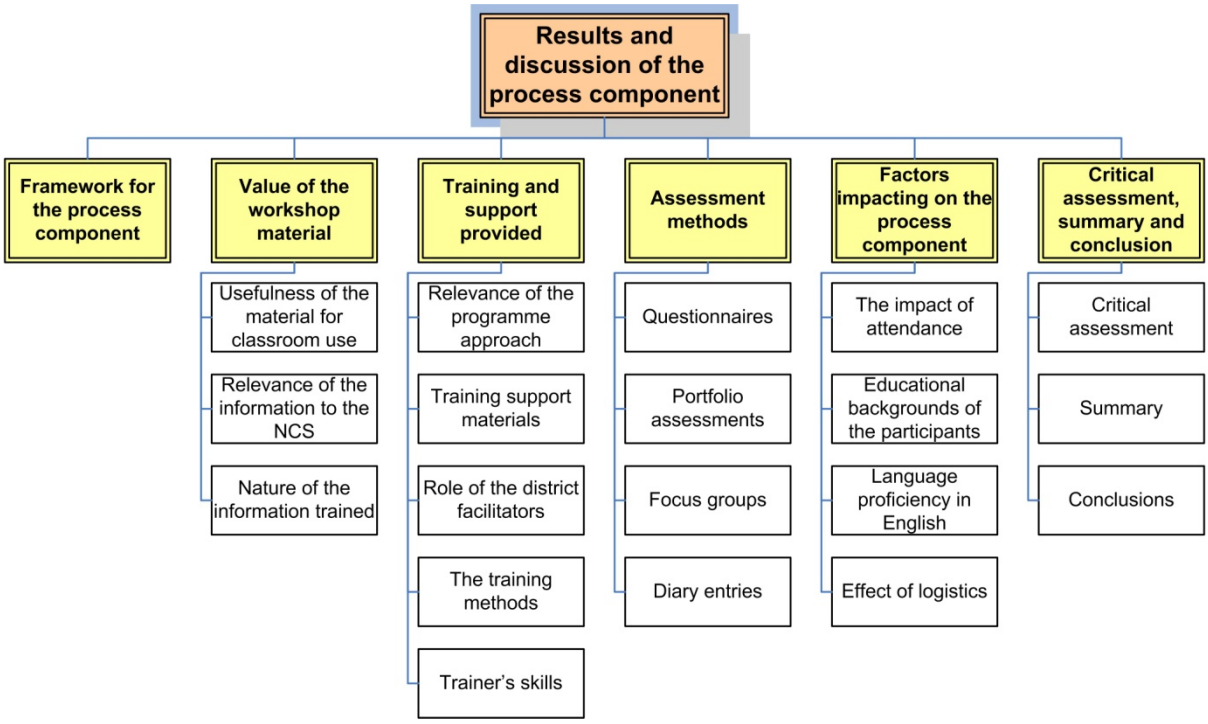

Figure 7-1: Outline of Chapter 7

7.1 Framework for the process component

The process component of the Logic Model in the development of the programme evaluated the effectiveness of the following aspects: the training material, the training approach and strategies, the assessment methods, and aspects that affected the process (attendance and aspects related to time, and logistics). The relevant research questions to be answered in this component are presented in Table 7-1.

Table 7-1: Research questions to validate the process component

Research question	Aspects addressed	Paragraph
Question # 3 What was the value of the workshop material for future use?	a. Usefulness of the information in the classroom b. Relevance to the NCS c. Nature of the information trained New or confirmatory information Omit necessary or include unnecessary information	7.2.1 7.2.10 7.2.3
Question # 4 How effective was the training and support?	a. Training approach b. Training methods c. Trainer's skills	7.3.1 7.3.4 7.3.5
Question # 5 How effective were the assessment methods used?	Assessment methods: - Questionnaires - Portfolio assignments - Focus groups - Research diary	7.5.1
Question # 6 Which factors affected the process?	Attendance: - Assessed by questionnaires - Assessed by portfolio assignments Language proficiency in English Educational backgrounds of the participants Logistics: Factors related to timing (duration and pace of training, scheduling) and selection of the venue	7.5 7.5.1 7.5.2 7.5.3 7.5.2 7.5.4 7.5.4(b)

7.2 Value of the workshop material

7.2.1 Usefulness of the material for classroom use

Both the qualitative and quantitative strands of the research addressed the results

regarding the usefulness and relevance of the information. Reference to the *'usefulness'* of the material in the QUAL strand was minimal (n=4) (refer to code "information useful' in Table 3, Appendix 6B) and therefore could not provide an answer to this research question. Notwithstanding, the 'word cruncher' option in ATLAS-ti (Thomas Muir Scientific Software Development, 2003-2004) identified the expression *'helped a lot'* 120 times across the data. The participants reported that they had learnt how to implement specific strategies in class, which is an indication of the usefulness of the material.

The usefulness of the material was confirmed by the quantitative results obtained from questionnaire data, as shown in Table 7-2.

Table 7-2: Usefulness of the material

Aspect evaluated	Workshop 1		Workshop 2		Workshop 3		Average	
Usefulness of the material	Semi-rural	Urban	Semi-rural	Urban	Semi-rural	Urban	Semi-rural	Urban
	100%	100%	100%	100%	97%	100%	99%	100%

It is clear from Table 7-2 that almost all the participants (>98%) across contexts considered the training material to be useful. In this case the inference quality was high as similar results were obtained between the two contexts and both strands of the research corroborated the finding (Johnson & Christensen, 2004:249).

7.2.2 Relevance of the information to the NCS

The relevance of the training material to the NCS was confirmed by 97% of the items in the QUAN strand[24,25] (n=33) (refer to category 'information relevant' in Table 1,

[24] You can see the progression, and they don't forget the phonemes that you have taught them before. I was using the sound "thl" and then I made "Thlaba" made the what, what,…they can make that word. "Thlela, thlega.." oh, it was so interesting. Very much (Line 30, Focus group 1, 2005)

[25] …"you know, we teachers have never done stories, songs and rhymes in class. We thought all of that in the RNCS - it was for nothing. I feel our children ....their minds were caged in. We have since opened the screws, and the children came flying out like birds (Line 45, Diary entry 16 on 13 Oct 2005,Focus group 1,)

Appendix 6B).[26] Such inferences regarding the relevance of the material were supported by the results obtained from the QUAN strand (refer to Table 7-3).

Table 7-3: Relevance of the material to the NCS

Aspect evaluated	Workshop 1		Workshop 2		Workshop 3		Average	
Relevance of the material with regard to RNCS	Semi-rural	Urban	Semi-rural	Urban	Semi-rural	Urban	Semi-rural	Urban
	90%	88%	90%	81%	86%	86%	89%	85%

From Table 7-3 it is evident that an average of 87% of the participants across contexts regarded the information included in the workshop material as relevant to the NCS. The slight difference (4%) between the opinions of the two contexts increased the validity of the inferences that were drawn (McMillan & Schumacher, 2006:194). The material developed for teachers to facilitate skills in listening, speaking, reading, and language was viewed to be important in the effective delivery of the curriculum (Chief Directorate: Quality Assurance, 2002).

The inclusion of these skill areas and the collaboration of the district and GDE officials in the development of the material (refer to Section 6.2.3(a)) ensured the relevance of the information. In order to answer the research question the inferences obtained from the two strands of the research are converged in Table 7-4. The QUAN and QUAL results in Table 7-4 confirm the usefulness and relevance of the material to the NCS, which indicates high inference quality (Onwuegbuzie & Johnson, 2006:59). As the material developed for the workshops was found to be useful and relevant to the NCS, it equipped the participants "…to deal with the many challenges and opportunities they are likely to face in tomorrow's complex world" (Spady & Schlebusch, 1999:39).

[26] T: Yes, the way you are presenting, especially when you integrate. It is very relevant. It fits in nicely with the assessment standards (PD11, Line 282, Focus group on WS 3, 2006 new)

Table 7-4: Convergence of results with regard to the usefulness and relevance of the programme

Research question	Aspects included	QUAL	QUAN
Material useful and relevant to the NCS	Information useful (n=4) "helped a lot" (n=120)	100%	99.5%
	Information relevant (n=33)	87%	82.5%
	Will recommend the programme to colleagues		100%

The participants were 'life-centred', 'task-centred', problem-centred', 'solution-driven', 'skill-seeking' adult learners (Ference & Vockell, 1994:25) and therefore appreciated the material, which in turn may have motivated them to learn and to participate (Cyr, 1999:6).

7.2.3 Nature of the information trained

The 'nature of the information trained' encapsulates two aspects, namely whether the information was new or a confirmation of previous knowledge, as well as whether the information was necessary or redundant.

(a) New information or confirmation of previous knowledge

Prior to training, the level of previous support and knowledge had to be determined to provide insight into the existing knowledge base to which new knowledge could be added. In the QUAL strand this aspect can be linked to the *'previous support'* provided to the participants (refer to Section 7.2.3). The participants from a specific school referred to *'previous support'* (n=7) by the GDE on related topics (refer to PD 6, Focus group 1, 2006, line 103-105 in Appendix 6A), while others referred to *'commercial programmes'* purchased by their schools, which addressed similar issues (n=16) as these programmes were designed in accordance with the NCS. This aspect can be related to a *'gap in participants' knowledge'* (refer to Table 3 in

Appendix 6B, them 'Process', category 'material', code 'gap in teachers' knowledge') where 96% of the coded items (n=33) confirmed that the participants were not familiar with the information prior to training[27] and that the information was therefore new[28].

It may be assumed that the participants were aware of the requirements in the NCS as they had already confirmed that the material used in the workshop was relevant to the NCS (refer to Section 7.2.2). However, they did not necessarily know how to implement these requirements and therefore may have ignored them in their teaching[29]. Some participants reported that the workshops clarified certain aspects in the NCS that they were previously unfamiliar with and consequently tended to omit.[30] Such revelations emphasize the importance of teacher support, which in turn empowers teachers to adequately support their learners to develop the necessary skills for literacy and numeracy (Motseke, 2005:119).

The QUAN strand confirmed that the information was new to some of the participants although this aspect was not specifically addressed in the questionnaires. As 71% of the participants received formal training (refer to Table 5-7) and 91% attended prior workshops (refer to Section refer to Section 6.2.2), some of them may have been introduced to such information before, either during their pre-service training or through previous support. Some of the participants in the core group (26%) were not adequately trained (refer to Section 5.3.3), and 9% of them had not received any prior support (refer to Section 6.2.2), which may signify that the

[27] I asked her, "do you really think that it is the programme that made the difference? Is it not that you would have done it anyways?" She replied, ".. Yes, it is the programme. We did not know this before. We never thought those things (in the RNCS) meant

[28] …"you know, we teachers have never done stories, songs and rhymes in class. We thought all of that in the RNCS - it was for nothing. I feel our children ....their minds were caged in. We have since opened the screws, and the children came flying out like birds

[29] "We knew about the skills, but we did not know about the strategies. These workshops gave us the strategies" (PD doc 16)

[30] I will be able to teach some of the concepts that I did not know how to tackle (Line 111, Open questions Form 5, ws 3)

information trained in this programme was new to some participants. The inferences drawn from the two strands of the research are converged in Table 7-5.

Table 7-5: Corroboration of results related to new or confirmatory information

Aspect assessed	Categories/codes consulted	QUAL	QUAN
New information or confirmation of previous knowledge	Commercial programmes	96% (n= 24)	
	Confirmation of 'previous support'/workshops	100% (n=7)	68%
	Gap in participants' knowledge (code) (N=25)	89% (n=25)	
	Formal qualifications (degree, diploma, certificate)		71%
	Less formal qualifications		29%
	No prior workshops in these skill areas		32%

The participants with no former exposure to this information came from a lower knowledge base and therefore required more support than those previously exposed to the information and consequently more familiar with the terminology. The latter group had an advantage as their previous knowledge could be used as a scaffold for new knowledge.

(b) Information included: necessary or unnecessary

In order to design the workshop material, the trainer/researcher needed to determine whether unnecessary information was included or necessary information omitted. This aspect was addressed by qualitative data only. As the pilot study initially indicated that unnecessary information was included,[31] the trainer/researcher reduced the content. The GDE officials and the district facilitators assigned to the

[31] The workshop is too long. I need to trim down on the content. Much of the information is relevant but not crucial. What appears important to me, may not be crucial for them in order to do their job (Line 30, Diary Entry 15 on 8 Oct 2005 Pilot Workshop 3)

learning areas of literacy and numeracy were of the opinion that all the information included in the workshop material was relevant and did not want any of the content to be excluded (refer to PD13, Line 32, Diary entry 2, 19 June 2005). With reference to Table 1 in Appendix 6B, there was 100% confirmation that no unnecessary information was included, and the number of items coded as 'information unnecessary' was too small to make inferences (n=2).

One particular listening strategy included in Workshop 1 ('Listening for learning')) was identified by a focus group as inappropriate for this context[32] and needs to be omitted from future programmes (refer to PD 9, line 205, focus group interview 2006). This strategy aimed to obtain the attention of the learners by simulating the listening posture of an owl, but the participants in the focus group was of the opinion that learners did not know what an owl looked like. This is probably because owls are scarce and being nocturnal are only seen during times when young children are kept indoors (sleeping), and also because learners in low socio-economic schools (SES) may not have access to books or excursions (e.g. to zoos or museums) (Mullis *et al.*, 2003:9; Nancollis *et al.*, 2005:326). According to cultural belief in this particular context, an owl is considered a bad omen and is therefore not discussed with young children, which makes this exercise inappropriate in this context (E. Ngulele, personal communication, June 27, 2009). Future programmes need to introduce new vocabulary within a naturalistic environment (Beukelman & Mirenda, 2005:302; Owens, 2001:215; Paul, 2001:314; Wolf-Nelson, 1998:62) because young children learn through their experiences.

The second workshop addressed issues related to literacy and the results obtained from the codes 'literacy' and 'story' were therefore combined (refer to Outcomes in

[32] "… the course, the idea of the owl could not be captured, because we do not get owls anywhere and everywhere like we did in the past. It is difficult to do the owl, unless children have seen it on TV and so on. So if you have to explain what an owl is' (P 9, line 205, focus group interview 2006)

Table 3, Appendix 6B). From 18 items coded, all the items for 'literacy' and 70% of the items coded as 'story' were categorized as positive. This confirmed that the participants viewed the information included to be important[33] and therefore necessary to be included. A few of the participants in a focus group, being familiar with a specific commercial programme for literacy purchased by their school, particularly valued the 'balanced approach'[34] to literacy teaching (refer to Section 3.2.3. (d)) (Justice & Kaderavek, 2004:212).

Both the participants and the GDE officials therefore confirmed the relevance and importance of the information presented. It contributed to both the specific content knowledge and to pedagogical content knowledge, which are required for teacher competency (Galusha, 1998:8; Lebeta, 2006:23).

7.3 Training and support provided

The training and support provided were evaluated in terms of the relevance of the training approach, the training methods used, and the trainer's skills.

7.3.1 Relevance of the programme approach

The training approach consisted of a training component (workshops), a practical component (implementation of strategies in the classroom as part of a portfolio assignment), and a mentoring component (feedback on lesson planning and the portfolio assignments). Both strands of the research were used to evaluate the '*training approach'*. The QUAL strand indicated that 82% (n=247) of the items coded with regard to the training approach were categorized as positive (refer to category

[33] 'Language is important in communicating, reading and writing' (Line 31, Un-tabled reflection of teachers in the 2006 listening & language assignment 2006)

[34] The 'balanced approach', which was advocated in the workshop, combines contextualized and de-contextualized language and firstly teaches understanding, and then uses the understanding in the teaching of discreet skills. This approach was adopted by a particular commercial programme purchased by a school, which made the participants familiar with the underlying concepts

'*Training approach'*, Table 2, Appendix 6B).

(a) Training component

(i) QUAL strand: Value of the workshops

Data from the QUAL strand indicated that the participants were *"feeling positive"* about the workshops as 99% of 94 items were coded to confirm it (refer to theme 'training', category 'training approach', Table 3 in Appendix 6B). Across contexts the participants testified to how much they had *'enjoyed'*[35] the workshops (94%, n=17) (refer to phase 'output, category 'attitude' in Table 3, Appendix 6B). The participants considered the workshops to be well presented as they valued the information and considered it to be presented clearly.

The participants could relate to the materials used to demonstrate the strategies because they were constructed from everyday items found in all homes[36] (e.g. string, paper, glue, scissors, crayons, etc.). The handouts were found to be well organized and useful, specifically as a resource for lesson planning and to train other colleagues.[37] The availability of resources in schools in these specific contexts was limited (Adler *et al.*, 2003a:58) (refer to Section 6.2.3(b)).

The handouts were valued as a reference to provide practical examples for the classroom and the participants also used them to train their colleagues at school.

[35] I think I am very happy in this workshop. I will like to recommend this to my colleagues (Line 95, Open questions, form 4)

[36] T: Do with the resources. It is as if you are learning yourself. Because you create all the materials, which make it easier for us to understand. To see each and every step. It was perfect. All the resources that you create, which makes it easier for us (PD 7, Line 323, Pilot focus group 2)

[37] T: The handouts we used very much. We made copies for everybody to use in their classrooms. But before they start, we have a meeting and we share what we got from the workshop.

A: Do you mean you do the demonstrations as well?

T: Exactly, so that they can implement in their class as well

A: Is that the case in all the schools

All: Yes, yes (PD 5, Line 79, Focus group 1, 2005)

(ii) QUAN strand: Value of the workshops

The results from the workshop evaluations are summarized in Table 7-6 to present a holistic overview of the training across contexts (to be discussed in following sections), where 'Y1' relates to the semi-rural context and 'Y2' to the urban context. According to Table 7-6 almost all the participants in both contexts rated the training component positively. Almost all the participants (98%) also agreed that they would recommend the programme to their colleagues (question no. 7).

Table 7-6: Feedback by participants after each workshop

Question	Workshop 1		Workshop 2		Workshop 3		Average	
	Y1	Y2	Y1	Y2	Y1	Y2	Y1	Y2
1. Do you want to use the information taught in the workshop in your class?	100%	100%	100%	100%	97%	100%	99%	100%
2. Do you think it is necessary to support the workshop by a follow-up visit?	75%	92%	97%	76%	79%	84%	83%	84%
3. Did you find that there was sufficient time for discussion in the workshop?	63%	76%	81%	58%	71%	75%	71%	70%
4. Did you find the information presented during the workshop clear and easy to understand?	100%	92%	97%	88%	97%	95%	98%	91%
5. Did you understand the terminology and language used throughout this workshop?	91%	100%	97%	77%	93%	94%	93%	90%
6. Do you think that the video material clarified the strategies taught in the workshop?	100%	96%	90%	96%			95%	96%
7. Will you recommend this programme to your colleagues?	100%	100%	97%	100%	97%	94%	98%	98%
8. How relevant was the information covered in this workshop with regard to RNCS?	90%	88%	90%	81%	86%	86%	89%	85%

The credibility of the results was increased by additional feedback provided by an external evaluator (Onwuegbuzie & Johnson, 2006:48) (refer to Section 5.3.4c). Such feedback was provided in terms of a five-point scale as depicted in Table 7-7 and shows how the external evaluator described all aspects in the workshops favourably, but recommended that the pace of training be reduced to accommodate the language proficiency and levels of qualification of some of the participants.

Table 7-7: External evaluation of the programme

Aspect related to the workshop	Excellent	Competent	Average	Below average	Weak
1.Clarity of information in workshop	X				
2. Relevance of information in workshop	X				
3. Organization of information in workshop	X				
4. Presentation style in workshop	X				
5. Rate and pace of presentation in workshop			X		

The external evaluator's opinions were supported by the feedback obtained from the participants (refer to question 3 in Table 7-6), which indicated that approximately 30% of the participants required more time for discussion. The question is whether this number relates to the 29% of participants who were not formally trained?

(iii) Convergence of results: Value of the workshops

The results depicting the participants' perceptions about the workshops are converged in Table 7-8.

Table 7-8: Participants' perceptions about the workshops

Aspect assessed	QUAL	QUAN
Feeling positive about the workshops	99%	98%
Enjoyed the workshop	99%	
Recommend the workshop to colleagues		98%

The inferences obtained from the two strands of the research corroborate in terms of the degree to which the participants valued the workshops. The inference quality was high as the data were obtained from several data sources in two contexts.

Positive feelings about the workshops were described as the 'happiness factor' by Pike (in Mervin, 1992:3) and do not reflect the actual knowledge gained. This level of programme evaluation can easily be manipulated (e.g. fun activities, good food, etc.), or be contaminated by personal values, which in turn threaten reliability and validity (Agochyia, 2002:322; Holton, 1996:5). However, such positive feelings and enjoyment contribute to learning of adult learners as they motivate people (Cyr, 1999:3; Pike, 1989:23).

(b) Practical component

The practical component provided the participants with the opportunity to 'implement the strategies' in their classrooms as part of the portfolio assignment. The QUAL strand indicated that 70% of the items coded in this regard (n=125) were positive (refer to phase *'outcomes'* in Table 1, Appendix 6B). The assignments provided the participants the opportunity to reflect upon their practices[38] and to assess their own understanding of the focus area (Vella, 1994:87).[39,40]

The implementation of strategies was determined by the participants' compliance to complete the portfolio assignment. The portfolio assignment, however, elicited mixed feelings among the participants (refer to 'main critique' Table 3, Appendix 6B). Many were unable (or unwilling) to complete the assignments (to be discussed) because of the added workload.

The qualitative data revealed an appreciation of practical activities that were

[38] T: It makes us think of what we are doing. It changes the mind set. Change the mindset (Line 332, Focus group 1, 2006)

[39] T: It force us to assess ourselves whether we understand. And to be innovative and to implement these different activities. So we write an assignment that is right, so that the person who is helping us with this programme, can also see if we understand (Line 327, Focus group 1, 2006)

[40] They felt that they have learnt valuable information and have gained skills. The training made them think before they start to plan a lesson. The assignments made them go back and review the handout from the workshop. They now understand the content of the workshop better as they had to read it again (Line 28, Diary entry 18 on 3 Nov 2005 Pilot Focus group 2)

demonstrated and practised in the workshops.[41] The participants appreciated the use of real objects in the demonstrations during the practical sessions,[42] especially because they were also accessible in their own homes. They valued the small group planning sessions at their schools where they could share ideas with other participants.[43] The programme taught them valuable skills[44] and helped them to design their own lesson plans without being dependent on commercial programmes,[45] which they found empowering.

Some participants requested class visits to observe an expert teaching in their own classrooms.[46] Classroom sessions as a means of support provide the opportunity to model good teaching practice (Marojele, Selikow & Welch, 1997:349). In this case, classes were visited by the district facilitators, but they were unable to visit all the schools included in the study. To accommodate such requests it may be necessary to provide additional support to the district facilitators. This aspect further relates to the tension previously identified between theory and practice.

The question arises as to whether training should be focused on principles of

[41] A.M: Why is the workshop so important? (Line 354, Pilot Focus group 1, 2005)

T: The practical examples (Line 354,Pilot Focus group 1, 2005)

T: Yes the practical - and then you go to the video and the manual to see that you are doing it right (Line 354, Pilot Focus group 1, 2005)

T: I think that workshops are so important. Then educators can see. And also the assignment. The way that the teachers must sit and plan it together. Our way of our culture. And also how we are coping with our strategies - we give examples from our class (Line 362, Pilot Focus group 1, 2005)

[42] T: The way you facilitated us, with the pictures, when you use examples, you can see how you can implement those examples. And you showed us the real object and how can we use them. The blocks and the bottle caps (Line 209, Focus group 3, *, 2006)

[43] Sharing ideas with other teachers (support from colleagues) (planning phase each week) (Line 422, Pilot Focus group 1 2005)

[44] It enriched me with lot of activities to be done in class and the strategies to achieve learning outcomes (Line 99, Open questions form 4)

[45] Teachers were very positive about the entire programme. The HOD of the foundation phase told me that all four of them have benefited to such an extent that they are no longer dependent on “bought programmes”. They can now generate their own lesson planning that would meet the requirements of the NCS. They got so many new ideas - “those strategies, …we can now go on all day and forget about the time” (Line 49, Diary entry 29 on 30th May 2006, Focus group 3, (b))

[46] T: I think, I don’t know, if it is possible for one to come to present a lesson, where you have some problems. Maybe I have a problem, because …someone can come in class and give a lesson (Line 175, Focus group 3 *, 2006)

teaching and learning or on direct experience in classrooms, and also whether training should be provided by educational institutions or gained through own experience (Adler *et al.*, 2003a:155; Welch, 2003).

(c) Mentoring component

The mentoring component was provided through portfolio assignments, training support materials, and follow-up visits by district facilitators. The portfolio assignments had a two-fold purpose: They were intended as a means to provide support (mentoring) (Campbell & Brummett, 2007:53) and to a lesser extent, to be used as an assessment procedure (to be discussed).

(i) QUAN strand: Portfolio assignments

The use of portfolio assignments as a means to provide support (mentoring) were categorized positively (100% n=28) (refer to category "assessment methods', code '*assignment positive'*, Table 3, Appendix 6B). The evaluation of the participants' lesson plans provided the opportunity for them to be mentored (Campbell & Brummett, 2007:53).

Feedback on lesson plans is regarded as the prominent feature of mentoring in the professional development of teachers (Kwan & Lopez-Real, 2005:275). In this case it could only benefit those participants who submitted lesson plans as part of their portfolio assignments (refer to Table 7-9), and therefore was related to the level of attendance (refer to Section 7.5.1(b)). To ensure a higher submission rate so that all participants may benefit, future programmes need to minimize attrition and ensure higher attendance rates of the same group of participants throughout the entire programme.

As group work enhances learning (Killen, 2007:229) the participants were required to support each other with resources and ideas within school-based support groups.

The results showed that *'peer support and group learning'* were valued as 83% of the items coded (n=42) were positive (refer to Table 3, Appendix 6B). The participants indicated a preference for completing the portfolio assignments as a group,[47] rather than being assessed individually. Such group support allowed the participants to support each other in the completion of the assignments and allowed them to reflect (Facteau et al, 1995, Tracey et al 1995 in Salas & Cannon-Bowers, 2001:489; Tannenbaum, 1997:440).

The results suggested a preference of participants to sit around a table "…in a small group, because we can talk about the problems we encounter" (P11, line 163, Focus group 3b, Appendix 6A), but the sample size (n=5) of the items coded in this regard was too small to draw strong inferences. The small group work method appealed to the participants,[48] indicating a 'communal learning preference' (Boyle, 2005:115) which could be ascribed to the participants in this study coming from community settings where collaborative relationships are important (Mbigi, 2005:26; Snowman & Biehler, 1996:143).

(ii) QUAN strand: Mentoring

Answers to the value of the mentoring component were also sought in the QUAN strand, which evaluated the value of the training support materials and participation in completing the portfolio assignments. The training support materials included a manual with examples of prepared lesson plans and a compact disc (CD) with video material of strategies being implemented in classrooms. Although these were not a substitute for traditional mentoring, the training support materials contributed to the mentoring function by providing the participants with additional guidance for the implementation of strategies in the classroom. Table 7-9 compared the submission

[47] T: Ma'm can we have a small group, not like the real focus group. Just to do it (Line 311, Focus group 1, 2006)

[48] The way that the teachers must sit and plan it together. Our way of our culture.(Line 362, Pilot Focus group 1, 2005)

rate of the entire group to that of the core group, and also between contexts. The submission rate of at least one portfolio assignment for the core group was high (93%), which enabled the participants to apply their knowledge in class and allowed the trainer/researcher to provide feedback on their lessons plans.

Table 7-9: The submission rate of portfolio assignments

Group	Sub-group	Total	Ass1	Ass2	Ass3	At least 1
Total group	Semi-rural	56	68%	55%	45%	73%
	Urban	66		45%	15%	56%
	Total	122	31%	50%	29%	64%
Core group	Semi-rural	31	81%	68%	52%	87%
	Urban	25		76%	24%	100%
	Total	56	45%	71%	39%	93%

The difference in submission rate between the two groups (29%) could be attributed to higher attendance and commitment to participate by members of the core group in contrast to that of the total group (refer to Section 7.5.1(b)). The input challenges previously identified in the input component (refer to 6.2.3(b)), however, also have to be acknowledged as being more prevalent in the semi-rural context.

(iii) Convergence of results: Portfolio assignments

The results from the QUAN and QUAL strands are converged in Table 7-10.

Table 7-10: Corroboration of results re portfolio assignments

Aspect assessed	QUAL	QUAN
Mentoring and support	75% (n=45)	
Portfolio assignments	100% (n=28)	93% (n=56)
Group support and peer learning	83% (n=42)	

The results in Table 7-10 concur that the portfolio assignment contributed to learning and was a valuable means of support.

7.3.2 Training support materials

(a) QUAL strand: Training support materials

In general, the mentoring and training support materials were considered valuable as 75% (n=45) of items coded were of a positive/confirmatory nature (refer to Table 1 in Appendix 6B). The participants considered the manual to be a valuable resource to "…fall back on when we get stuck" (PD6, Line 258, Focus group 1, 2006, Appendix 6A). A previous study that applied innovative instructional and curriculum strategies to enhance physical education teacher practice (Bomna, Wallhead & Ward, 2006:397) emphasized the importance of providing resources to support teachers in the integration of new curricula and instructional skills into their existing contexts. However, this study *(Ibid)* was performed in a developed country with formally qualified teachers.

In this study, the training support materials were generally underutilized (Line 415, Pilot Focus group 1, 2005), which may be attributed to participants' unwillingness to read or write outside the classroom, as became apparent from the following quote:

> *T: "….there is this thing about too much writing. Teachers have a problem with too much writing and reading. They keep that so nicely in the file. And then when maybe some of the facilitators come, and then they tell them they have been trained in this or that, and then they have not read it. So I think the video will help a lot (Line 84, Focus group 1, 2005)".*

The participants' preference to rather view a video than to read a manual may be related to their own literacy levels and educational backgrounds. Such findings are in accordance with those obtained by Pile and Smith (1999:176) who found that, in spite of teachers valuing support materials, there was an underutilization thereof because their reading levels did not allow them to comfortably access such resources. It is also possible that this could be attributed to what Du Plessis and

Louw (2008:70) described as a “passive approach to learning”, where the preference is to be told by others what they need to know rather than a self-discovery approach. Either way, the results in this study suggest that it would be better to apply resources for the development of video material rather than manuals in the support of teachers.

The manual was better utilized in the urban context where it was used by several participants to complete the assignments.[49,50] Some participants shared that they intended to use it again for new ideas to be implemented in the classroom, which support similar findings by Farrell (1993: 33 in Christie *et al.*, 2004:169) that teachers’ guides were effective in supporting poorly trained teachers. It therefore appears as if the context determined the kind of support preferred.

The participants in the semi-rural context preferred the video to the manual as they thought it could help them provide feedback to their colleagues at school and 'to workshop those who could not attend the training' (P9, Line 125, Focus group 2, 2006).[51] The participants preferred to 'look and do' rather than to 'read and do' as a learning strategy (Dennison & Kirk, 1990:2).

(b) QUAN strand: Training support materials

The results obtained from the QUAN strand (refer to Table 7-6) indicated that almost all the participants (96%) in both contexts were of the opinion that the video material clarified the strategies taught in the workshop and that it was a valuable addition to the workshops. The value of the learning support materials was also confirmed by the feedback provided by the external evaluator, who described the learning support materials as ‘excellent’ (refer to Table 7-7).

[49] T: It did help us with the assignments (Line 115, Focus group 2(b) 2006 *)

[50] T: Yes, it will. After I have done my assignment, the manual I will get some light of what to do (Line 164, Focus group on WS 3 2006 new)

[51] “And we want to use it to teach our colleagues” (Line 74, Focus group 1, 2005)

(c) Convergence of results: Training support materials

The results from the two strands of data are converged in Table 7-11. From the results (refer to Table 7-11) it is concluded that the support materials were valued, but depending on the specific context, would not necessarily be utilized optimally, and that the video material would most likely be better utilized than written manuals.

Table 7-11: Value of the training support materials

Aspect assessed	QUAL	QUAN
Value of the training support materials	75%	96%

7.3.3 Role of the district facilitators in the CPD programme

The 'role of the district facilitator' in providing follow-up support to the participants (specifically with the portfolio assignments) was considered to be an advantage, as was indicated by 75% of the items being positive (n=45) (refer to Table 3, Appendix 6B). The support of teachers was a collaborative process where the facilitators were included as 'partners' in the CPD process. The effect of their support was, however, dependent on their availability and individual qualities.

The district facilitators were requested to hand out the training support materials during school visits following each workshop and to support the participants with their portfolio assignments. The school districts in this study covered large geographical areas and included many schools. School visits were difficult to fit into the facilitators' own busy work schedules, which resulted in the training support materials not being handed out in time to complete the portfolios in some cases.[52]

Lack of access to the manuals during the implementation period may have impacted negatively on the quality of the assignments, which in turn may have affected the general performance of these participants (especially when compared to those who

[52] DF: No, I will do it but there are only three schools here today (Line 299, Focus group on WS 3, 2006 new)

did receive the manuals in time). This lack of control affected the methodological rigor of the research and may have affected the outcomes.

The two strands of the research corresponded with regard to the value of the three components within the training approach, which make the inferences trustworthy and credible. In this case the external validity of the results was increased by implementing the research in two contexts (Leedy & Ormrod, 2005:100) and by obtaining multiple measurements (Johnson & Christensen, 2004:141). The training approach was therefore considered to be effective and beneficial to the participants. The next aspect to be evaluated is the methods of training.

7.3.4 The training methods

The *'training methods'* were addressed by the QUAL strand only of the research. The appropriateness of the training methods used was confirmed by 74% of the 42 items coded ('Training methods', Table 2, Appendix 6B). The fact that the participants were "feeling positive about workshops or training programme" (Table 3, Appendix 6B), including the training methods used, was confirmed by 99% (n=94) of the items.

In this case direct instruction (lectures and practical demonstrations) was alternated with practical group learning activities and role play, all of which were perceived as positive (85%, n=15). Direct instruction is regarded to be the most appropriate method of training when learners are introduced to new material as it develops basic knowledge and skills that are required before learners can be expected to discuss or critically reflect on the information (Killen, 2007:109).

Role-play activities were enthusiastically supported (refer to code *'training methods'* Table 3, in Appendix 6B) and gave the participants confidence to experiment with the

strategies in their classrooms[53] From observing the role play it was evident that the participants re-enacted their classroom situations and problems, which enhanced their learning and created the opportunity to reflect (De Beer & Swanepoel, 1996:47). The participants also participated enthusiastically in small group discussions.[54]

The practical activities were characterized by "a buzz of participation in the air" (Silberman, 1996:4) (Line 27, Diary entry 25 on 22 March 2006 Training 1&26) and the participants enjoyed the demonstrations (Line 27, Diary entry 7 of 23 July 2005). Such a mix of teaching methods appeals to most learning styles (Dennison & Kirk, 1990:29; Munro & Rice-Munro, 2004:23) (refer to Appendix 2A in Chapter 2). It is in accordance with experiential models of learning, specifically the 'Do, Review, Learn and Apply' (DRLA) model (Dennison & Kirk, 1990:29) for instructional design (refer to Figure 3-9 in Section 3.1.3).

It can be concluded that the participants in this study considered the training methods as appropriate and adequate to enhance learning, making these methods suitable for use in future programmes. The trainer/researcher is also of the opinion that the relevant and practical nature of the workshops made the participants more enthusiastic about their teaching (Line 111, Diary entry 28 on 25th May 2006, Focus group 3(a)). In order to determine the effectiveness of the training process, it was also necessary to evaluate the trainer's attitude and skills in the presentation of the material.

7.3.5 Trainer's skills

To determine whether the trainer's attitude and skills were of such a nature that it

[53] Several teachers came to me during the lunch to thank me as they felt to have gained significantly from the workshop. One lady said: "I feel I now have confidence - I have gained the skills to make me confident with this".

[54] They voiced their opinions, laughed, and argued about several issues such as the language policy, the LoLT vs. L1 issue etc. They enjoyed all the demonstrations and turntaking activities (Line 27, Diary entry 7 of 23 July 2005)

encouraged learning, it was necessary to consider the results obtained from both QUAL and QUAN vantage points.

(a) QUAL strand: Trainer's skills

The participants regarded the trainer as competent and expressed appreciation of her presentation style.[55,56] From the 16 items coded under the category 'trainer's skills' (refer to Table 3, Appendix 6B), 94% were of a positive nature. The participants reported that the trainer motivated them to implement the strategies in class (85%, n=13) (refer to Output, category 'attitude' in Table 3, Appendix 6B).[57,58] Brumfit (2001:115) is of the opinion that "…the trainer's ability to relate to participants, the role of enthusiasm for the subject and the interaction of these with a sense of purpose and organization was as relevant in 1500 as in 2000". The effectiveness of the CPD programme therefore also depended on individual qualities (Byram, 1997:32) (e.g. the ability of the trainer/researcher to build and maintain human relationships), which emphasized the role of the trainer in the process of teaching and learning.

Testimonials regarding the trainer's skills were received from the Teaching Support Educators (P44, Open questions form 4, line 107, in Appendix 6A), and although they were not included in the study,[59] such reports increased the inference quality. Motivational processes contribute significantly to intellectual processes (Do & Schallert, 2004:620) and therefore the trainer's ability to motivate the participants contributed to their learning.

[55] I like the way the facilitator encouraged us to implement it because she is very active (Line 113, Open questions Form 5 workshop 3)

[56] I would like to thank our facilitator because she was active and using clear English (Line 116, Open questions Form 5 ws 3)

[57] The facilitator....the workshop motivates the educators (Line 107, Open questions form 4)

[58] I like the way the facilitator encouraged us to implement it because she is very active (Line 113, Open questions Form 5 ws 3)

[59] The facilitator....the workshop motivates the educators (Line 107, Open questions, Form 4)

In the event of unforeseen occurrences which could potentially reduce the effectiveness of the CPD programme, the trainer/researcher demonstrated the ability to problem solve, which is a virtue "…without which the scientific part of research cannot take place" (Ebrahim, 2004:32). On several occasions during the fieldwork the trainer/researcher had 'to make things work', which is in accordance with the pragmatic approach to the research.

In the semi-rural context it was necessary to deal with faulty power supply, to improvise a screen for the data projector, and to gain entry to training venues when the person responsible for opening up arrived later than expected. On one occasion it was necessary to manage an intoxicated individual who was threatening to disrupt the workshop, and at another time it was necessary to deal with a district facilitator who elicited negative attitudes from the participants by her derogatory manner of addressing the participants. In the data collection it was necessary to add portfolio assessments when the questionnaires proved to be unreliable in the pilot study, and to fax post-training questionnaires after they had temporarily been discontinued. Managing large amounts of data was extremely challenging and required extensive problem solving to organize the data in a manageable format.

Challenges and problems encountered were documented in a research diary, which proved a helpful tool for reflection. It also allowed the trainer/researcher to communicate the various challenges experienced by sharing diary entries with knowledgeable others who provided valuable feedback. Such reflection is associated with evidence-based research (Ebrahim, 2003:21).

(b) QUAN strand: Trainer's skills

In the QUAN strand the trainer's skills were evaluated by determining whether the information was presented clearly and in a manner that was easy to understand, as

well as how well the terminology was explained. Table 7-12 provides a comparison between the results obtained in two contexts.

Table 7-12: Comparison of participants' perception of the trainer's skills between the two contexts

Issue	Semi-rural context (2005)		Urban context (2006)		Difference
	No	*Yes*	*No*	*Yes*	*Change*
Clear & easy to understand	1%	99%	6%	94%	-4%
Understand terminology	6%	94%	9%	91%	-4%

The results in Table 7-12 show that >94% of the participants in both contexts felt that the trainer presented the information in a clear and easy-to-understand manner and >91% items indicated that the terminology was adequately explained.

(c) Convergence: Trainer's skills

Similar opinions were obtained from both contexts and the two strands of the research corroborated, which increased the inference quality (refer to Table 7-13).

Table 7-13: Convergence of inferences with regard to trainer's skills

Aspect evaluated	Category	QUAL	QUAN
Trainer's skills	Motivate participants	85% (n=13)	87%
	Presentation of the workshops	99%	94%
	Clarity of terminology used in training	n.a	95%
Average		96%	91%

According to Killen (quoting France (1997) in 2000:xi) trainers "…should be judged on their ability to encourage insight and self-confidence and to provide moral support" to trainees. The teaching was based on the educational principles required by the University of Pretoria (2006:787) (refer to Section 3.1) and was supported by the results obtained from the research.

It is concluded that the trainer was considered competent in presenting the material in a manner that encouraged learning. The next section evaluated the assessment methods used in the evaluation.

7.4 Assessment methods

Data from both strands of the research were used to evaluate the assessment methods. However, some of the assessment methods are discussed according to observation and experience as no data were collected in this regard.

7.4.1 Questionnaires

Questionnaires were used for various purposes, namely to determine knowledge gains (recall of information), to collect demographic data for descriptive statistics, and to determine opinions and values (South African Qualifications Authority, 2001:30). Qualitative data were also collected by means of open-ended questions. However, the suitability of using questionnaires in this particular context is questioned as there were many factors that could have affected the reliability of the data (Leedy & Ormrod, 2005:210).

Questionnaires proved to be an unreliable tool in this context for several reasons. Firstly, the number of participants who attended each workshop did not correspond with the maximum number of questionnaires completed (either pre- or post-training). Table 7-14 shows a comparison of the number of trainees at each workshop with the number of questionnaires completed in both contexts.

It is evident from viewing Table 7-14 that the lower ratio of 71% for the core group in the semi-rural context reflects the change in data collection procedure where post-training questionnaires were faxed two weeks following training (refer to Section 5.5.2(b)), which resulted in a lower return rate. In several cases participants

completed only one questionnaire per workshop.

The completion rate for questionnaires was similar in both contexts, which increases the validity of these findings. When comparing the completion rate of the core group with that of the entire group the core group in the urban context completed 13% more questionnaires. This indicates that those trainees who attended as substitutes probably were not motivated to complete the questionnaires.

Table 7-14: Maximum number of questionnaires completed compared with attendance per workshop

Group		Semi-rural			Urban		
		Participants	Questionnaires	Ratio	Participants	Questionnaires	Ratio
Core group	WS1	31	59	95%	25	47	94%
	WS2	31	22	71%	25	47	94%
	WS3	31	59	95%	25	48	96%
	Total	93	140	90%	75	142	95%
All participants	WS1	46	86	93%	51	94	92%
	WS2	36	27	75%	55	100	91%
	WS3	39	74	95%	55	69	63%
	Total	121	187	91%	161	263	82%

Table 7-15 compares the number of participants who completed a specific number of questionnaires across contexts.

Table 7-15: Comparison of questionnaires completed across contexts

Number of questionnaires	Number of participants who completed specific questionnaire in the semi-rural context	Number of participants who completed specific questionnaire in the urban context	Total (n)	Cumm %
1	4	2	6	5%
2	2	5	7	6%
3	6	6	12	10%
4	6	6	12	10%
5	5	18	23	20%
6	13	7	20	17%
7	17	18	35	30%
Totals	**53**	**62**	**115**	**100%**

There were only 30% (n=35) participants from the entire sample of 96 who completed all 7 questionnaires, and 67% (n=78) completed 5 or more questionnaires. The number of questionnaires completed depended on proficiency in English, literacy levels of the participants, aspects related to timing, as well as attendance. Secondly, questionnaires proved to be an unreliable tool for the purpose of evaluating knowledge gains.

According to Figure 7-2 between 22% and 29% of the participants who attended workshops 1 and 3, and 50% who attended workshop 2, showed a decrease in knowledge after training.

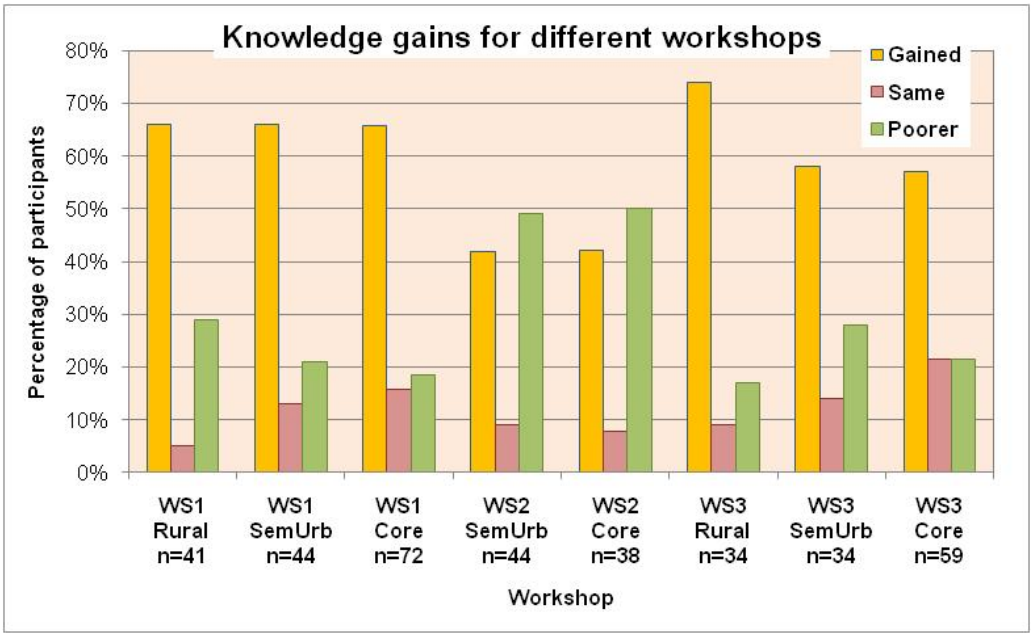

Figure 7-2: Gains in knowledge as indicated by questionnaires

Several factors (to be discussed at the end of this section) that may have affected the reliability of the results were identified. It is therefore questionable whether the questionnaires were reliable measuring instruments in these contexts, which indicates a limitation in the research. Thirdly, the questionnaires were not suitable tools to assess the participants' applied knowledge. The format of the questions

(e.g. alternative response questions and structured questions, as well as assertion/reason questions) mainly assessed recall of factual information (South African Qualifications Authority, 2001:30-33). Factual knowledge is necessary when trainees are being introduced to new information, but is considered at the lower levels of the knowledge domain (Bloom *et al.*, 1956) and therefore can be considered 'shallow learning'. It was more important to assess the development of insight and understanding that would allow the participants to apply their knowledge, for which portfolio assessments proved more appropriate.

After the results of the first pilot workshop in the semi-rural context became known, the trainer/researcher, in consultation with two research experts (refer to Section 5.5.2(b), realized the limitations of the questionnaires and decided to discontinue their use for the assessment of knowledge gains (refer to results depicted for Workshop 2 in Figure 7-2). The decision was taken to assess the application of the information trained by means of portfolio assessments and focus group discussions, whereas the questionnaires would be used to collect data regarding attitudes, values, interests, opinions, and demographics (McMillan & Schumacher, 2006:194). Shortly thereafter this decision was reversed when the statistical advisor to the study thought it best for statistical reasons to continue using the questionnaires (C Smit, personal communication, September 10, 2005). The post-training questionnaires were faxed to the participants two weeks following training, which consequently resulted in a low return rate (refer to Figure 7-2).

The questionnaire data were augmented with other assessment methods. The use of the mixed methods approach increased the validity of the questionnaire (McMillan & Schumacher, 2006:316) and allowed inferences to be made. The results obtained from questions that assessed knowledge gains were used within a triangulation conversion design (Creswell & Plano Clark, 2007:138; Onwuegbuzie & Collins,

2006) with data obtained from portfolio assessments, as well as with qualitative data.

Despite the questionnaires being problematic in this research, the evaluation thereof as assessment method was considered constructive because it contributed to the evaluation procedure used in the development of the CPD programme. It provided new insights that could be shared with the research community in the form of recommendations.

7.4.2 Portfolio assessments

The original aim of the portfolio assignments was to contribute to the learning experience of the participants, but as direct observation of the implementation of strategies was not possible, the assignments were also used to assess the application of strategies in the classroom (South African Qualifications Authority, 2001:34). The value of the portfolio as assessment method was determined by both the QUAN and QUAL strands of the research.

(a) QUAL strand: Portfolio assessments

In general, the portfolio assignments were prepared with care and several were comprehensive, which bore evidence of the time and thought that went into preparing them (refer to photographs no. 21 – 30 in Appendix 6E). However, some participants in a focus group acknowledged that the assignment was not a true reflection of their teaching and that it was submitted[60] without implementing the strategies.[61,62] These participants stated that they did not need the assignments to

[60] T: There is no use to writing. You know writing, for the sake of a due date (Line 130, Focus group 2(b) 2006 *)

[61] A. So some of you did the assignment without implementing it in the class. So you feel the assignment is not a true reflection of what is going on in the class? Oh, Ok.

T: That was my problem, it came out. So at least somebody did raise it. (laughter) (Line 139, Focus group 2, (b) 2006 *)

[62] But you …..you don't implement that what you have written on the assignment, you just write it to submit it to the lecturer. It is like studying for a degree (Line 200, Focus group 2, (b) 2006 *)

ensure that they implement the strategies in class. Such revelations indicated negative feelings (n=35) (refer to category 'assignment negative', Table 3, Appendix 6B) and because these individuals were from specific schools, their attitudes were probably school related.

There were also indications that participants from specific schools copied their portfolio assignments from each other, which was counterproductive as these participants did not benefit from this exercise (Line 10, Un-tabled individual complaints from Assignment 2). In this respect the portfolio assessment was not an effective measuring instrument as their scores were not a true reflection of their understanding and skill.

Incomplete portfolios were scored poorly.[63] The components most often omitted by the participants were their 'personal reflection' and 'self-assessments', both of which were of a reflective nature.[64] It is possible that the participants (and district facilitators) had little prior experience of reflective practices (Kolb, 1984:4, 38; Vella, 1994:87) and did not know how to apply this technique. Due to the recentness of the introduction of these practices with the implementation of the OBE approach (Killen, 2007:25), the majority of the participants in this study may have not been trained in reflection and self-assessment.

Reflection is the basis for the successful implementation of OBE (Schwahn & Spady, 1998:45). The participants' inability to reflect on their own practices indicates that they have not yet mastered the basic skills required by an OBE approach. Reflection (from a technical or moral perspective) is an acquired skill that needs to be developed by practice and guidance (Killen, 2007:105) and therefore this practice

[63] Incomplete assignments: Many submitted their portfolios but did not do all three the tasks/sections that were included in the assignment. Some educators also facilitated only a single aspect in the listening assignment (e.g. an auditory discrimination strategy) (Line 6, Summary of the portfolio assessments and reflection of the trainer)

[64] T: Implementation is very good, the problem is this assignment. To know,… to write it. But it helps us. It really helps us. When we start planning again for those…..for your….compiling everything. But I don't like the assignment (Line 12, Focus group 2, in 2005)

needs to be addressed in future programmes.

The peer assessments with feedback (Rooth, 1995:8) were intended to contribute to training transfer (Facteau et al, 1995, Tracey et al 1995 in Salas & Cannon-Bowers, 2001:489; Tannenbaum, 1997:440). The results provided an indication of how well the strategies were implemented in the classroom. The feedback documented in the peer review was superficial, and could not be regarded as constructive for learning. Their unwillingness to criticize their colleagues may be ascribed either to observers not wanting to offend their colleagues who were being observed, or, alternatively, to a lack of insight.

An interval scale with designated values may have guided the participants in their peer assessment. Despite the lack of constructive feedback to peers, the peer assessment process may have contributed to participants' learning as Phillips and Glickman (1991:23) reported increased conceptual levels, reduced teacher isolation, and the development of more positive experiences towards CPD experiences through peer assessments.

Several participants reported that they found it difficult to write the assignments..[65,66] Such problems may be ascribed to the language used in the CPD programme (refer to Section 6.2.3(b)(iii)) and/or the participants' educational levels (refer to Section 5.3.3(a)) inhibiting their ability to complete the portfolio. The prospect of being assessed through portfolio assignments made some participants feel anxious about failing. Adult learners often do not want to be criticized and fear humiliation (Knowles, 1990 in Cyr, 1999:6).

The feelings of resentment or helplessness were particularly evident in the Gr. R

[65] T: To write it is difficult (Line 25, Focus group 2 in 2005)

[66] The writing part of assignment was difficult but the implementation was very easy (Line 58, Un-tabled reflection and self-evaluation of teachers in the numeracy assignment)

participants, who generally were inadequately qualified and were not part of a school-based support group because they were teaching in preschools that were not part of a primary school.

Although the use of rubrics made the portfolio assessment less subjective (McMillan & Schumacher, 2006:193), it was not necessarily a reflection of the participants' true competence. The portfolio assessments provided only a glimpse of how the participants implemented the strategies in the classrooms and possibly their attitudes towards their work, but the trainer/researcher gained insight into classroom practices and the context. As an assessment method standing by itself, it cannot be regarded as a valid method for assessment. When the results were confirmed by information obtained from focus groups, however, the trustworthiness of the inferences was increased.

(b) QUAN results: Submission rate of portfolio assignments

With reference to Table 7-9 the average submission rate for at least one portfolio assignment for the core group was 93%, which was considered adequate as it indicated that a sufficient number of participants could be evaluated with the portfolio assessment to draw valid inferences. The submission rate for the urban context was 100% and for the semi-rural context 87%. The challenge would be to increase the submission rate as high as possible in future programmes in order to make the portfolio as assessment method more effective.

(c) Convergence of inferences: Portfolio assessments

The two strands of the research contributed different perspectives of the inferences as they did not address similar aspects. The results obtained from the two strands of the research are converged in Table 7-16.

Table 7-16: Convergence of inferences with regard to the portfolio as assessment procedure

Portfolio assessment	Qualitative strand (categories)	Quantitative strand
Feelings about the portfolio assessment	57% positive 40% negative	None
Submission rate	NA	93% (n=56)

Table 7-16 shows a satisfactory submission rate of portfolio assignments for the core group, indicating that the results were representative. The ambiguous feelings displayed by the participants may be due to a lack of support. A high submission rate is required for portfolio assignments to be an effective assessment method. The portfolio assignment was an appropriate tool for assessment in this context as it was not possible for the trainer/researcher to observe the implementation of strategies in the classroom.Despite criticism that portfolio assessments are of a subjective nature, it is an acceptable evaluation method when used in combination with other more conventional assessment methods (McMillan & Schumacher, 2006:193).

7.4.3 Focus groups

Eight focus groups that provided rich data with thick descriptions were conducted and allowed for comparisons to be made between the two contexts. Although unique information was obtained from each, Morgan and Krueger (1998:77) suggested that a smaller number of four focus groups would have been equally sufficient in obtaining data saturation.

The focus group discussions were found to be a suitable assessment method as they provided information on the workshops and allowed participants to discuss their opinions and share their feelings,[67,68] which provided more insight into the context

[67] They opened their hearts to me. I also heard about their frustrations and challenges with inclusion (Line 97, Diary entry 28 on 25th May 2006, Focus group 3(a))

and culture. The trainer/researcher could also engage with the participants on a more personal and subjective level than with any of the quantitative methods (e.g. questionnaires or portfolio assessments).

The participants reported that they enjoyed the small group context around a table talking to each other. The researcher experienced these discussions as opportunities that allowed the participants to express their personal opinions and feelings (refer to photos no. 2, 6, and 13 in Appendix 6E) Do and Schallert (2004:619) were of the opinion that follow-up small group discussions after a training event (which are similar in nature to focus groups) contribute a 'socio-affective component' to programmes that have motivational value to trainees. In answer to the research question, the focus groups proved to be an appropriate assessment method for the context and provided sufficient information to understand the context and to draw conclusions for the evaluation of the CPD programme.

7.4.4 Diary entries

The research diary was not primarily intended as an assessment tool, but rather as a means to aid reflection on the development of the entire programme[69] and the research process (McMillan & Schumacher, 2006:329). The trainer/researcher used the research diary to document events, describe situations,[70] explain occurrences,[71] and question specific issues.[72] By reflecting on the various components of the

[68] I received much pleasure from getting to know the participants, and to hear their stories, and to talk to them about their lives. I came to understand what their challenges and problems were, and realized that in many ways they were similar to one's own (Line 100, Diary entry 28 on 25th May 2006, Focus group 3(a))

[69] QB6: Why do they indicate "teaching English Additional Language" as the only option in which teachers should be knowledgeable? Is the question wrongly asked? (Line 120, Diary entry 7 of 23 July 2005)

[70] I feel as if they are starting to open up to me, and to trust me (Line 15, Diary entry 10 23 & 25 August 2005 follow-up of workshop 1)

[71] The workshop section after lunch is crucial - but they are tired by that time and want to go home (Line 30, Diary Entry 15 on 8 Oct 2005 Pilot Workshop 3)

[72] I am still skeptical. How can two training sessions with assignments have made such a dramatic difference to

programme (e.g. meetings, workshops, focus group sessions, and assignments) the actual events were confirmed. Although this data source by itself did not provide sufficient information to draw conclusions, it confirmed data generated by other assessment methods and so contributed valuable information to the assessment process.

With the exception of the questionnaires, the assessment methods used were all determined to be suitable for evaluation purposes. It was not possible for any one of the assessments methods to stand on its own, and therefore the use of the mixed methods approach (where multiple methods were used) proved to be most suitable in this context as it strengthened the inference quality. Next, it is necessary to address the factors that impacted on the process component, as they could also affect the output.

7.5 Factors impacting on the process component

Evaluation of the process component indicated specific factors that may have affected the results:

7.5.1 The impact of attendance

Attendance of the workshops was included in the evaluation of the CPD programme as it was a crucial factor in the learning process.[73] The effect of attendance was evaluated using both qualitative and quantitative data.

(a) QUAL strand: Attendance

Attendance was not particularly addressed by the QUAL strand, but from the data

the way they teach? (Line 59, Diary entry 16 on 13 Oct 2005 focus group 1)

[73] T: " …attending all workshops…..Getting all the material" (P50, line 259, Pilot focus group).

obtained 50% (n=26) of the items coded in the category *'attendance*' (refer to Table 2 in Appendix 6B) were negative. The qualitative results indicated a relationship between attendance, timing (see category *'scheduling'* in Table 1, Appendix 6B), and the choice of '*venue'* (refer to Section 7.5.4(b)) (to be discussed).

The participants regarded full participation in the programme (consisting of attendance of workshops and completion of portfolio assignments) as prerequisites to benefit from the programme[74,75] (refer to code 'attendance' in category 'participation' in Table 1, Appendix 6B). They were of the opinion that they became more skilled as they attended more workshops and completed the assignments.[76]

It became apparent that aspects related to the category 'scheduling' (refer to theme *'Factors affecting the process'* in Table 3, Appendix 6B) played a crucial role in attendance as 95% of the 145 items coded were categorized negatively. Participants in the semi-rural area continually expressed their discontent with being trained on Saturdays because of personal commitments (Line 162, Focus group 2 in 2005).[77] In the urban context the participants resented giving up their public and school holidays to participate in training. In the former case the dates for training were determined by the district facilitator without consulting the participants, whereas in the urban context the dates for training were selected by the majority of participants together with the district facilitators.

When the training schedules were discussed (refer to Section 5.5.1(b)) it was not possible to obtain full consensus in this regard. There were many participants in the urban contexts who were not in favour of the training dates, which may have caused

[74] I should use the language strategies continuously, so that I could get used to them because I have realized that they really improved my teaching (Line 40, Reflection and self-evaluation of teachers in the numeracy assignment 2006 (WS 3))
[75] Many of the participants could not do the assignment because they did not attend the workshop.
[76] It was not difficult because of the last experience but the continuation of the previous workshops (Line 59, Un-tabled reflection and self-evaluation of teachers in the numeracy assignment (WS 3), 2005)
[77] Funerals are common, and one of the factors to take into account with attendance. The devastating effect of the AIDS pandemic has an effect on all educational programmes (Line 6, Diary entry 6 on the 21 July 2005)

attrition.

Apart from the attendance of workshops, the focus groups meetings were well attended[78] probably because the participants valued the opportunity to meet in small groups to discuss their problems. The exception was a single occasion in the urban context when the district facilitators failed to notify the schools long ahead of time and fewer participants could attend on short notice.

The high attendance of focus group meetings suggests that participants had no objections to being engaged in CPD activities during weekday afternoons, which makes such scheduling for workshops a preferable option. The key to solving the problem with attendance is to obtain consensus with regard to training dates. The trainees, district facilitators, as well as the trainer need to reach consensus in a collaborative manner, which may be a challenge as people differ in their preferences in terms of training dates.

(b) QUAN strand: Attendance

Table 7-17 depicts the number of participants who attended the three workshops, as well as the attrition. The results show that of the 97 participants trained in the programme, 46 were from the semi-rural context, and 49 from the urban context. The original sample who signed informed consent did not necessarily attend all three workshops.

Of the total group (consisting of both semi-rural and urban contexts) 78% participants attended all three workshops, but did not necessarily sign informed consent. Attrition already occurred between the briefing session and the first workshop as only 56 of the 96 participants who signed informed consent at the initial briefing meeting attended the first and following workshops (core group).

[78] There was a 100% attendance (Line 11, Diary entry 16 on 13 Oct 2005 Focus group 1)

Table 7-17: Attendance and attrition of workshops

Context	Workshop (WS)	Total	% Attrition		New or substitutes	
		n	n	%	n	%
Semi-rural	All workshops	33(72%)				
	WS1-total	46				
	WS1only		9	9%		
	WS3only		3	3%		
	WS1-2		11	24%	1	3%
	WS2-3		0	0%	0	0%
Urban	All workshops	43(84%)				
	WS1-total	51				
	WS1only		7	15%		
	WS3only		0	0%		
	WS1-2		4	8%	8	15%
	WS2-3		0	0%	3	5%
Total	All workshops	76(78%)				
	WS1-total	97				
	WS1only		2	4%		
	WS3only		3	6%		
	WS1-2		15	15%	9	10%
	WS2-3		0	0%	3	3%

There were 24 replacement participants in the first workshop and further attrition occurred between workshops 1 and 2 in both contexts, but no attrition between workshops 2 and 3. It is possible that participants considered the requirements of the programme after the briefing meeting and decided to withdraw without notifying the trainer. Fewer participants from the semi-rural context (72%) attended all three workshops, probably because their programme was scheduled for the last term in the school calendar, which is a period when teachers have many other commitments (e.g. university examinations), and because they were trained on Saturdays. Additional trainees joined the programme as substitutes for those who originally signed informed consent, which made the workshops appear well attended. These replacement participants were excluded from the research because they did not sign informed consent. Poor and inconsistent attendance also impacted on participants'

completion of the questionnaires (refer to Section 7.4.1).

In the urban context there were 12 additional trainees (consisting of district facilitators, GDE officials, and Learning Support educators) who attended the programme on invitation of the district facilitators without notifying the trainer beforehand.[79]

(c) Convergence of results: Effect of attendance

The convergence of the QUAN and QUAL strands of the research is shown in Table 7-18. Attendance and attrition affected data collection and the sample size and are some of the challenging realities of doing research in this particular context (Adler, 2003:3; African National Congress, 1995). The core group consisted of 56 participants, which was much lower than the intended sample of 96. From a research viewpoint it would have been ideal if the participants showed more commitment to full participation in the programme.

Table 7-18: Convergence of QUAL and QUAN results with regards to attendance

Category	QUAL	QUAN
Submission of portfolio assignments		Semi-rural 64% Urban 93%
Completion of questionnaires		95%
'Attendance'	50% negative (n=26)	78%
Core group		56

It can be questioned whether one can expect more in terms of 'participant ethics' (e.g. notifying the trainer in advance in order to arrange for informed consent from substitutes). However, participation was voluntary, and participants were given the

[79] I was worried that people will not turn up because of the holiday. To my surprise, we had a 100% attendance with all 48 teachers present. An unexpected additional 12 people came which included some of the GDE facilitators from other regions, and some learner support educators (Line 9, Diary entry 25 on 22 March 2006 Training 1&26)

option to withdraw at any time (refer to Section 5.3.2(a)(ii)).

As the study was conducted in a real-life context, it was not possible to control all the variables. The real-life context was less predictable and adaptations had to be made. Attendance may have been affected by several factors such as funerals, illness, and poverty, which are common within the South African context (Khan, 2005:20).

7.5.2 Educational backgrounds of the participants

The quality of questionnaires and portfolio assignments was dependent on the literacy levels of the participants. Their responses to both assessments reflected varying levels of competence in reading and writing skills. Such a variation could be related to their educational backgrounds (refer to Section 0), which reflected their qualifications. The reading and writing skills and/or insufficient qualifications of some participants rendered the use of questionnaires unsuitable for determining knowledge gains in these particular contexts. However, these were not the only reasons for the questionnaires not being effective as an assessment method in this research.

7.5.3 Language proficiency in English

The use of language in the CPD programme was identified as an input challenge (refer to Section 6.2.3(b)(iii)) as it had an effect on assessment (see Section 6.2.3(b)) and on the participation by the participants. The questionnaires, portfolios, and focus groups revealed that none of the participants was fully proficient in English as errors, omissions, and scant expressions were common.[80] Language proficiency in

[80] A limited language proficiency inhibited the participants' ability to express themselves freely in the questionnaires, focus groups, assignments, and classrooms (PD 55, refer to Line 12, Untabled Individual complaints from assignment 2).

English may have been one of the reasons for the low response, as it probably required too much effort to complete the portfolio assignments, and may have accounted for participants misinterpreting some of the questions in the questionnaires (McMillan & Schumacher, 2006:194) or for expressing themselves poorly in the open-ended questions.

Although the participants were encouraged to use their language of choice, only six portfolios were compiled in an indigenous language and on just two occasions the participants in a focus group responded in their L1. To prevent discrimination against participants, assessment tools that place high demands on reading and writing, especially in an additional language, should not be used in these contexts, unless provided with additional support.

When participating in the workshops, the participants found it difficult to express themselves (e.g. they struggled to find the appropriate vocabulary when referring to terminology or strategies).[81] Although examples in Northern Sotho were provided for phonological awareness training, the participants required more demonstrations.[82] As the trainer/researcher was not competent in any of the indigenous languages, it was not possible to provide impromptu examples in demonstrations of rhyming.[83] The district facilitator who acted as translator was equally unable to translate rhymes from English to any of the indigenous languages represented in the workshop, because she was not familiar with the concept of rhyming (refer to PD 23, Diary entry

[81] T: I am talking about, I forgot the thing that you showed us,…The….the - when you taught the kids the heavy, heavier?

A.M: The scale? (Line 114, Focus group 2 in 2005)

T: The scale. Yeah (Line 114, Focus group 2 in 2005)

[82] T: Yeah, but it was in English (Line 275, Focus group 1 2006)

A: So you want it in Northern Sotho?

T: And in Zulu, and Pedi, and….So that you can say, “Zulus, have your preparation” and then eh… that is what it is going to teach for the activity (Line 275, Focus group 1 2006)

[83] T: But maybe what I can advise you, make use of the LoLT because we are teaching in the African languages

A: So the whole course should be taught in the African languages.

T: Only the examples (Line 266, Focus group 1 2006)

12 on Pilot workshop 2, ME 08/02/01).

The fact that not enough examples in indigenous languages were available to demonstrate the concepts in phonological awareness was a limitation in the training component. According to V. Ramsing (personal communication on September 27, 2007) all support currently provided by the GDE is in English, which may be limiting. Additional prior-workshop support to district facilitators to become co-presenters in future programmes will allow them to support the trainer with code switching and impromptu examples when necessary.

7.5.4 Effect of logistics

The effect of logistics included the effect of timing in the workshops and in assessment procedures, as well as the choice of training venues.

(a) Effect of timing

The effect of timing was obtained from both strands of the research. The focus was on the effect of timing on workshops, the length of the workshops, as well as scheduling.

(i) Effect of timing in workshops

- *QUAL strand: Effect of timing*

The theme '*aspects related to time'* was prominent (n=47) in the QUAL strand and was mostly (62%) regarded negatively (refer to category 'timing' in Table 3, Appendix 6B). The trainer/researcher was under pressure to present specified material within less time than planned. Several of the workshops started later than planned because the participants were not punctual[84,85] and they were anxious to go

[84] Teachers were still arriving "by drips and drabs" till 10h00. The (district) facilitator literally scolded the teachers

home early (after lunch) when training was conducted on Saturdays or public holidays.

In an attempt to complete the presentation within less time than planned, caused too much emphasis on the transfer of information, resulting in the trainer/researcher becoming 'trainer-directed' in presenting all the workshop material. It would have been beneficial for learning if more time was allowed for review, discussion, and reflection, which are typical of learner-directed training (Killen, 2007:10, 78). The information was deemed to be excessive for the amount of time available and hence the request (n=13) was made for 'more time for training' (refer to category 'time' in Table 3, Appendix 6B). This may have been related also to the 'length of the workshop' (n=17), where 76% of the items indicated that full-day workshops were experienced as too tiring.[86] There was a discrepancy between the scope of information that the districts and GDE officials wanted the participants to receive, and the amount of time that the participants were willing to spend in workshops.

Another time factor affecting the CPD programme was the time of closure of the workshops, which the participants considered as being too late (15h30). The participants did not like returning to the workshop after lunch to review the assignment, which was an important aspect of the workshop that subsequently had to be rushed. In order to attend the workshops at 08h00, some participants probably had to start their day at 05h00, which made them want to leave early to allow for time to commute and to spend time with their families.

'Scheduling' in terms of time of the year or specific days in the week for training was

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who arrived late. I thought she was a bit harsh and tried to calm her down - even though it was very disruptive when each tried to settle into their seats (Line 11, Diary Entry 9 on the 13th of August 2005)

[85] Others arrived late, and/or had to leave early (Line 69, Diary entry 28 on 25th May 2006 Focus group 3(a))

[86] Nothing, It was a very interesting workshop. I enjoyed it very much though it was tiring but all activities were interesting (Line 66, Open questions form 4)

considered by the majority of participants (95%) to be problematic (n=141) (refer to category 'scheduling' in Table 2, Appendix 6B. In Table 3 (Appendix 6B) the category 'scheduling' refers to aspects such as 'busy schedule', 'early in the year', 'not Saturdays', 'time of training', and 'train during the week'. There were many complaints (89%, n=47) (refer to category 'scheduling' in Table 3, Appendix 6B) about the time of training, with specific requests not to have it on public holidays[87] or on Saturdays (n=20) because of family commitments and other priorities.[88] Several requests (n= 26) were made for 'training during the week' rather than on Saturdays, which was later confirmed by other researchers in similar contexts (Lessing & De Wit, 2008). The training dates in the semi-rural context were decided on by the district facilitators to fit into their schedule. It was therefore a top-down decision and not agreed upon by consensus.

Participants seemed to prefer school holidays as their choice of training times (n=38),[89] especially the first two days of the school holidays.[90] The GDE, however, also uses this time for professional development activities, which limits the availability of training venues and participants. In addition, the Trade Union needs to approve training during school holidays, and obtaining permission from them may be problematic (refer to PD 13, Line 25, Diary entry 2, 19 June 2005). In both contexts, the scheduling was partly to blame for attrition as it may have affected attitudes and motivation to participate in the programme and to complete the portfolio assignments, and therefore was a limitation in the research.

[87] The training was helpful but my problem is that it was held on a holiday so it deprived me the opportunity to be with my family and celebrate the day (Line 25, Open questions form 4)

[88] Let the workshop be implemented during the week. Not on Saturdays. We use this day for home affairs (Line 49, Open questions Forms 2&3)

[89] T: Annemarie, how about this workshop we run in our vacation. Because it is on Saturdays, Monday to Friday we work. Saturday, we are very much committed. (Line 317, Pilot Focus group 2,)

[90] Eh, …the training should be during school holidays, preferably the first two days, not on public holidays like human rights day (Line 201, Focus group 2, (b) 2006 *)

- *QUAN strand: Effect of timing*

In the QUAN strand the pace of the presentation was considered too fast in both contexts, as shown in Table 7-19.

Table 7-19: Comparison of the results between the two contexts

Aspect evaluated	Urban context		Semi-rural context		Difference
	No	Yes	No	Yes	
Need for follow-up workshop	14%	86%	17%	83%	-3%
Sufficient discussion time	19%	81%	27%	73%	-8%

More than 83% of the participants indicated a need for some form of follow-up session on the information trained, probably because they required more time to master it. An average of 23% of the participants (n=96) indicated that they would have appreciated more time for discussion. An external evaluator (refer to Section 5.5.3.4c) also recommended that the pace be slowed down to accommodate the participants' English language proficiency (refer to Section 6.2.3(b)(iii)). In addition, the participants' limited prior knowledge (refer to Section 6.2.3(b)(ii)) and varying levels of education (see Table 5-8 in Section 5.3.4) required more time for review and discussion. Future programmes should therefore make allowance for more time to discuss the concepts being trained.

- *Convergence of results: Effect of timing*

Both strands of the research agreed that more time was required for discussion (refer to Table 7-20), which indicates that the pace of training was too fast and that more time should have been allowed for participants to process the information. In this case the inference quality was increased by conducting the research in two contexts and by obtaining multiple measurements (Johnson & Christensen,

2004:141). Timing is described as one of the inherent tensions in teacher development programmes (Adler, 2003:7). There is no clear answer to scheduling of training, as all options have advantages and disadvantages. Training dates require collaborative decision making between trainers, support structures and participants to coordinate programmes long ahead of time.

Table 7-20: Convergence of inferences with regard to pace of training

Aspect assessed	QUAL	QUAN
Not sufficient time	100% (n=14)	23% (n=96)
Scheduling (negative feelings)	95% (n= 153)	
Duration of the workshops too long	78% (n=18)	
Too much info for time	100% (n=13)	

(ii) Effect of timing in assessment procedures

Late arrivals at and early departures from workshops[91] resulted in high levels of non-response or, in some instances, partially completed questionnaires (refer to Section 7.4.1), which pointed to a limitation in the use of questionnaires as assessment method in these contexts.

With regard to portfolio assessments most of the complaints (n=15) (refer to codes *'excuses'* and *'explain'* in category *'assessment procedure'*, Table 3 in Appendix 6B) were about the lack of time[92] and the extra work created by the assignments. Some participants (mostly in the urban context) required more time to complete the assignments and continually requested extension of submission dates on account of busy schedules at school.[93] [94]

[91] One has to accept that there will always be those who arrive late, and therefore cannot complete the pre-training response form with the others (Line 25, Diary entry 25 on 22 March 2006 Training 1&26)

[92] T: Yeah, because of lack of time. We have been so busy (Line 303, Focus group 1, 2006)

[93] T: In the week it is difficult. I think we should work on it for another two weeks (Line 161, Focus group 1, 2005)

[94] T1: It has been so hectic, since the schools closing.
T2: Busy, very busy.
A.M: With what?
T: With meetings, some of the workshops (Line 15, Focus group 2, in 2006)

Factors related to timing highlighted some of the challenges of research in the specific contexts. As mentioned earlier timing is one of the existing tensions in teacher education programmes (Adler, 2003:7) for which no easy solution is available. It is concluded that timing had an effect on attitudes and motivation, which also affected participation and data collection.

(b) Selection of training venues

The selection of training venues may have affected the reliability of the results because the participants were dependent on public transport. The training venue in the semi-rural context was well equipped for training and also had a kitchen[95] (see Photograph 5 in Appendix 6E). Poor ventilation during the hot summer months made the participants feel uncomfortable during some of the sessions[96] and contributed to fatigue, which made them want to leave early. Although the venue selected by the GDE in the semi-rural area was regarded as a suitable training facility, the classroom was too small for such a large group and did not allow for specific arrangements of tables in order to facilitate action learning (De Beer & Swanepoel, 1996:57) or for moving around (refer to Photograph 2 in Appendix 6E), which may have affected learning to some extent.[97]

With reference to Table 3 (category '*logistics',* Appendix 6B) there were 32 items documented pertaining to training venues, of which 53% were categorized as being of a negative nature. The schools in the semi-rural area as well as in the urban areas (townships) were far apart and not within easy distance from the training

[95] I appreciated the facilities in the lecture room as I initially thought it was spacious, but it turned out to be very cramped once the teachers started filling it up. It had a large roll-down screen for the data projector (Line 12, Diary Entry 9 on the 13th of August 2005)

[96] The staff room allocated for our use was unbearably hot and stuffy (Line 15, Diary entry 16 on 13 Oct 2005 Focus group 1,)

[97] The room/lecture hall was small and crowded with chairs standing back-to-back which made it uncomfortable to find space to squeeze into their seats (Line 11, Diary Entry 13 on 17 Sept 2005 Workshop 2)

venue. Participants from these schools were dependent on public transport to reach the training venues and some of them had to hail as many as three taxis in each direction. Because of the geographical spread several participants arrived late or left early, resulting in high levels of non-response in the questionnaires as they had to rush through the completion thereof or did not complete them properly (refer to Section 7.4.1).

The training venue selected for the urban context was located at the Department Communication Pathology, University of Pretoria, and was much more suitable for teaching and learning. It had sufficient room to implement action learning techniques and for specific table arrangements that are known to be conducive to adult learning (refer to Photograph 11 in Appendix 6E). The schools in this particular district were situated in townships at two ends of the city and, because the University of Pretoria was considered to be halfway in between,[98] the district facilitators selected it as training venue[99]. The majority of the participants had to take two taxis in each direction, which was costly and cumbersome.

An advantage of using a central venue such as the University of Pretoria was that the trainer had more control over external factors than in the townships. This venue was well equipped for training as the facilities were of such a nature that the participants felt valued as adult learners (Pike, 1989:63; Silberman, 1996:10) (refer to photographs 10, 11, 12, and 14 in Appendix 6E).

The effort and financial implications to reach the training venues may have affected the participants' motivation to attend the workshops. Such results imply that the

[98] We had the workshops in the Department of Communication Pathology, University of Pretoria because the teachers and facilitators preferred it that way. It was a neutral setting, central to all (* and *), and on the main transport routes (Line 11, Diary entry 25 on 22 March 2006 Training 1&26)

[99] This time I did the training at our Department, on request of the district facilitators. The reasons they gave me was that people have to travel any way - they might just as well travel to a more neutral setting. At schools, the principals feel obliged to formally host the event, or to make a welcoming speech. V** (donor representative) questioned this matter and thought it was a pity that it was not in the schools. The teachers prefer it this way, (I think) - or I was told they do. They need to travel anyway.

choice of venue needs to be considered more carefully in future programmes. Table 7-21 compares the advantages and disadvantages of the centrally based option with the school-based option.

Table 7-21: Comparison of two options for training venues

	Option 1: Centrally based	Option 2: School based
Advantages	- Larger groups - More cost-effective - More control over the procedure (e.g. electricity supply, space) - Better facilities	- No transport required - More personal approach
Disadvantages	- Transport required - Less personal approach	- Cannot accommodate large groups - Is not cost- and time-effective - Does not necessarily have facilities

It is not easy to find a solution from the comparison in Table 7-21 as the advantages of the one option are the disadvantages of the other. Future programmes may need to consider these limitations and find a middle way, perhaps by selecting a central venue closer to where the participants live and within easy access to a smaller number of schools, but which can accommodate larger groups. The ideal for future programmes in these contexts appears to be shorter programmes with less information presented in each workshop, but an increase in the number of workshops to provide all the necessary information. Although this option may be more costly, it may be more effective, but needs to be explored first.

7.6 Critical assessment, summary and conclusion

7.6.1 Critical assessment

The evaluation of the process component included several aspects related to the training and support provided. Apart from the convergence of inferences from the

two strands of the research, confidence in the trustworthiness (Tashakkori & Teddlie, 2003b:41) was supported by feedback from an external evaluator, as well as the testimonials obtained from the external observers. The results were confirmed by multiple and independent measures obtained from several data sources across workshops, as well as in different contexts.

7.6.2 Section summary

Several aspects were evaluated in the process component, namely the training material, the training (approach, methods, and trainer's skills), the assessment methods, and the factors that affected the outcomes. The workshop material was found to be relevant and useful. The information was new to several of the participants, indicating limited prior knowledge. The training approach was appropriate for developing competence, and the training methods used were suitable to facilitate learning. The trainer was considered competent as she not only transferred the information clearly, but also motivated the participants. The combination of assessment methods provided trustworthy results. Aspects that affected the outcomes in this study were related to timing and the choice of training venue as they both determined the attendance, as well as language use and the level of prior knowledge. The following component of the Logic Model addressed by this evaluation is the output of the programme.

7.6.3 Conclusions

The process component is crucial to the outcomes. In order to design more effective CPD programmes, it is necessary to obtain extensive prior knowledge of the contextual barriers that exist within the context (Bomna *et al.*, 2006:411). By addressing the limitations in the process, the effect and effectiveness of future

programmes can be improved (Patton, 2002). In this case several challenges and limitations were identified, some of which can be addressed by making certain adjustments, while others may require systemic changes. Venues should rather be selected to be within comfortable distance for participants, as it will reduce travelling time and costs and may improve attendance. As none of the schools in these contexts has the facilities to host larger groups, it implies that smaller groups have to be trained at a time, particularly because learning in small groups is a suitable strategy for teaching and learning in these contexts. Full-day workshops may not be the most effective option and should rather be replaced with shorter sessions presented at regular intervals over a longer period of time.

Collaboration is a key aspect for effective support programmes. The collaborative role of the SLT in this CPD programme is to also support the district facilitators (Moodley *et al.*, 2005:40) apart from supporting the teachers. Collaboration with other professionals (e.g. district facilitators), however, has to be learned and worked at (Allan, 2004 in Forbes, 2008:142) to create positive outcomes.

District facilitators are responsible for the roll out of the programme and can also support the trainer in the presentation of the material. For district facilitators to assist the trainer in a co-trainer capacity in the workshops and to enable them to conduct workshops on their own, they need additional support. It will however, will increase the effectiveness of the CPD programme.

Chapter 8 Results and discussion of the output component

"Research serves to make building stones out of stumbling blocks"

(Arthur D. Little)

Aim of the chapter

The aim of this chapter is to describe the output component as part of a comprehensive evaluation of the continued professional development (CPD) programme. The topics covered in this chapter are depicted in Figure 8-1.

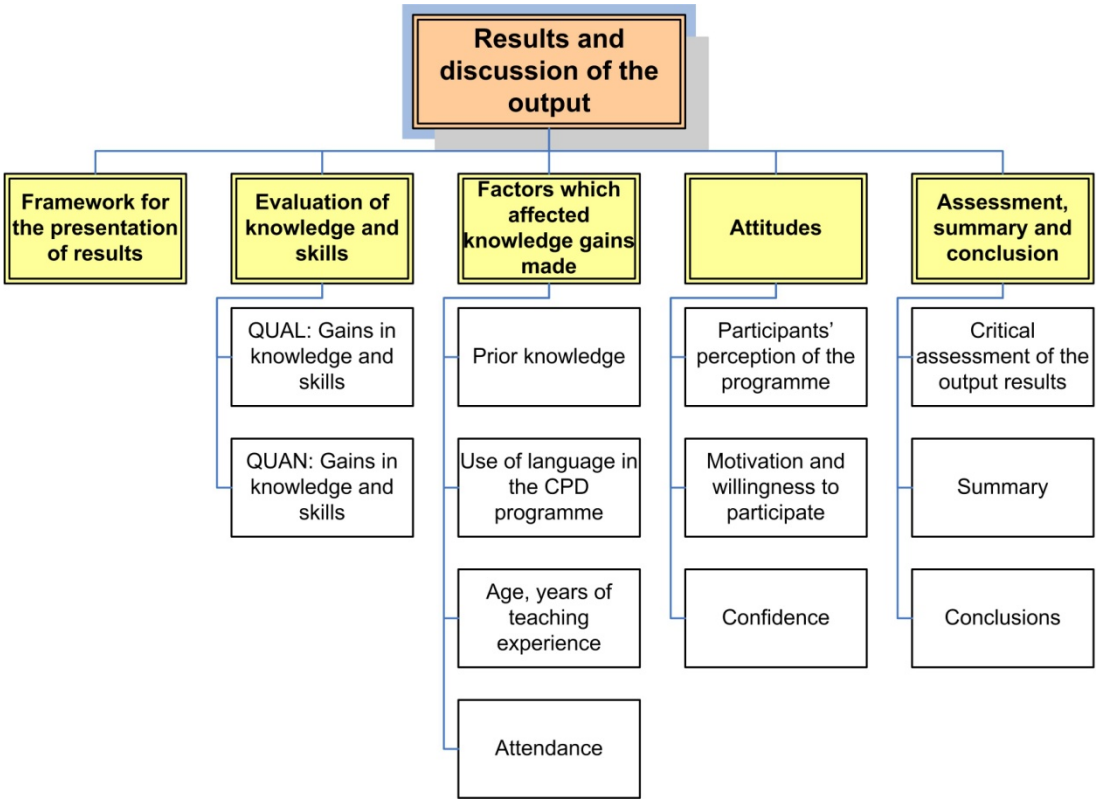

Figure 8-1: Outline of the chapter

8.1 Framework for the presentation of results

The research question to be answered in this component is presented in Table 8-1 with the relevant paragraph markers.[100]

Table 8-1: Research question in the output component

Research question	Aspect evaluated	Paragraph
Question # 5: What did the participants benefit from the training?	Knowledge and skills	8.2
	Attitudinal changes	8.4

The competency gains of the participants were evaluated by both the QUAL and QUAN strands of the research. In this case the knowledge and skills were interrelated because the knowledge obtained in the workshop was applied in the classrooms and therefore are discussed in an integrated manner, followed by a discussion of changes that occurred in attitudes.

8.2 Evaluation of knowledge and skills

The changes that occurred in knowledge and skills were documented in both the QUAL and QUAN strands of the research.

8.2.1 QUAL strand: Gains made in knowledge and skills

With reference to Table 2 in Appendix 6B (see theme 'competency gains') there was strong evidence (85%, n=184) that the participants made knowledge gains.[101] The results obtained on knowledge and skills are discussed according to the levels of knowledge acquisition as described by Miller and Watts (1990:61) (refer to Section 4.2.3(b)).

[100] Corresponding paragraphs are hyper-linked in the electronic version

[101] T: As I have more knowledge, I found it much easy to teach learners. And have more patient to help them learn and experiment to make lesson easier for them" (line 37 Reflection and self-evaluation of teachers in the language assignment (WS 2))

These include the use of terminology, understanding, implementation of strategies, adaptation of strategies, and training of others.

(a) The use of terminology

The code 'terminology' referred to the 'retention' of terminology taught in the workshops. Of the items coded, 53% (n=15) confirmed the acquisition of new terminology (refer to Appendix 6B, Table 3, theme 'competency gains') after the workshops,[102] but the limited sample size made it difficult to draw inferences in this regard. However, 90% (n=83) of the items confirmed the 'acquisition of knowledge', which included the use of terminology. The use of new terminology was, however, not generalized[103] during the training (line 15, Diary Entry 15 on 8 Oct 2005, Pilot Workshop 3) as became evident when 64% (n=14) of the items were coded as 'inability to recall the information'. There were several instances of confusion, e.g. the term 'auditory discrimination' was used interchangeably with the term 'rhyming'; as was 'identification' and 'auditory memory'.

The lack of understanding of these concepts became apparent early in the programme and therefore the term 'auditory discrimination' was specifically emphasized in the 'Listening for learning' workshop in the urban context, which appeared to be effective as no such confusion was noted in consequent sessions.

The participants' inability to recall the terminology may also have been related to their limited language proficiency in English (refer to 6.2.3(b)(iii)) as is evident from the following example (refer to line 121, Focus group 2 in 2005):

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[102] Language for Numeracy (WS3): "I'm thinking about the one-to-one correspondence, and the seriation, classification. That is what they are doing. So when they come to Gr 1 we expect them to know those things" (line 91, Focus group 2 in 2005).

[103] "T: Yeah, I think I benefited from it, because when I was trying this clapping method, ….so that the learners were enjoying it. They clapped two times, and then they clapped three times.

A.M: Yes - that was the segmentation. Yes…you will learn to say the terminology for these things soon…..but I understand what you are saying. It was one of the strategies we did" (Line 96, Focus group 2, in 2006).

T: I am talking about, …I forgot the thing that you showed us. The….the - when you taught the kids the heavy, heavier?

A.M: The scale?

T: The scale. Yeah!

When participants could not recall the correct terminology, they described the concepts in their own words.[104] This relates to the "awareness level" of knowledge acquisition, which is one level higher than the entry level (Miller & Watts, 1990:61). In this case the participants were aware of the information, but in several instances their knowledge was not applied in their classrooms. It may have been possible that some of the participants could not recall the terminology because they did not complete their portfolio assignments.

The confusion in terminology use was also detected in the discourses of the district facilitators (e.g. when the district facilitator referred to CALP (Cognitive Academic Language Proficiency) as "CLAP" (PD9, refer to line 209, Appendix 6A). Although not formally assessed, the depth of knowledge and understanding displayed by the district facilitators in this programme was a matter of concern as it may have implications for teacher support. It may be necessary to consider an enriched pre-training programme designed specifically for district facilitators to empower them in providing daily teacher support.

(b) Understanding of concepts

Of the items coded as *'understanding',* 93% (n=43) were categorized positively (refer to Table 3, code 'knowledge', Appendix 6B). As could be expected the participants had different levels of prior knowledge before the workshop (e.g. some of the participants admitted that they had never addressed the concept of "estimation" in

[104] Listening for Learning (WS1): "When I say "listen" they give attention. They fold their arms, they look at me" (line 57, Pilot focus group 1, 2005)

their numeracy lessons prior to training, because they did not understand the concept or how to teach it).[105] Teachers can only teach what they understand themselves.

Some participants demonstrated more in-depth prior knowledge than others, as can be seen from the following example (line 112, Pilot focus group 2):

> *"T: If I just think of the lady, who just thinks of "adjectives", but they are "prepositions".*

In the example provided above, one of the group was correcting a colleague which indicates that she had more prior knowledge about language form than her colleague. This is because not all the participants had similar qualifications (refer to Table 5-7 in Section 5.3.4), or were on similar levels of competence when they entered the programme, and therefore they differed in their understanding of the material during the programme.

(c) Implementation of strategies

The training of 'knowledge-in-practice' (Adler *et al.*, 2003b:137) which was realized by the portfolio assignments required the application of participants' knowledge in the classroom situation. The results were positive (88% of the 377 items coded) regarding skill gains (refer to Output phase, category *'skills'* in Table 2, Appendix 6B).

Once the concepts were explained in the workshops and participants understood the material, they were able to *'implement it in their classrooms'* (refer to Appendix 6B, Table 3, 'Outcome' phase, theme *'application of strategies in the classroom'*). The participants were convinced that these new skills would help them to improve their

[105]: "None of the group ever (before) asked the learners to "estimate", which is one of the assessment standards of LO1, 3. in numeracy. I explained it to them" (line 15, Diary Entry 15 on 8 Oct 2005 Pilot Workshop 3).

teaching and that their learners would benefit. From the results depicted in the 'skills' category, the *'implementation'* of the strategies in the classroom was described positively in 87% of the items coded (n=133) (refer to codes *'implement'* and *'implementing the taught lesson'*, Table 3, Appendix 6B). There was also evidence of a *'change in teaching practice'*, which was confirmed by 91% of the 44 items coded as such.

The particular skills that participants reported to have developed during the training are depicted in Figure 8-2 and are based on the results shown in the 'Output component' (refer to Appendix 6B, Table 3).

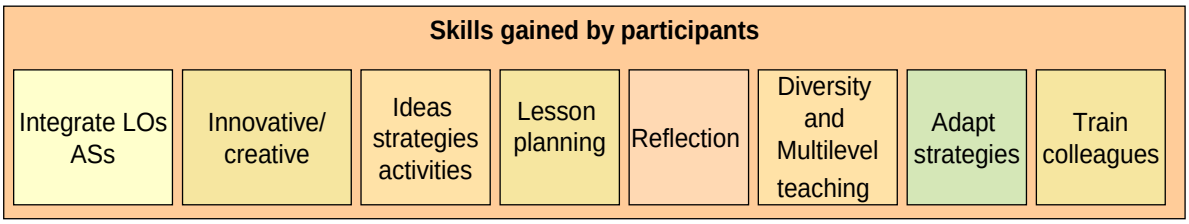

Figure 8-2: Skills gained from the training

The participants felt strongly (87%, n=45) that the training helped them to become more competent as they had learnt to integrate various assessment standards and learning objectives in one activity,[106] which some said they could not do previously. *'Integration'* of learning objectives and assessment standards is inherent to the NCS (Gauteng Department of Education, 1997).

There was also evidence that some of the participants found it easier to do their *'lesson planning'* (80%, n=25),[107] which they previously experienced as difficult.[108] The portfolio assessments (refer to Section 7.4.2) revealed that in several instances

[106] "Yeah, it covered many aspects in one. You can incorporate so many assessment standards in one activity (line 95, Focus group 1, 2005).

[107] Yes it helped me with planning of the lesson. Learners were participating and became more active in the class, through stories, songs, rhymes. Listening strategies were used, and in one case motivational charts were given to the learners (Line 191, Focus group 3 (b) 2006 *)

[108] Most of our teachers had problems with planning our lessons. Or creating LO's. I am so perfect now. I can now use the one LO and apply it to another - we kill two LO's. It also help us to be creative - because .....(all talk together) (Line 284, Pilot Focus group 1 2005)

the lesson plans were incomplete and did not take the needs of individual learners into account. Regardless of the teacher's level of expertise, thoughtful lesson planning is necessary to make the learning experience in the classroom purposeful, effective, and efficient. Incomplete and insufficient lesson planning may lead to ineffective teaching and learning.

A few participants experienced themselves as becoming more *'creative and innovative'*[109] (89%, n=9) as they had acquired new *'strategies'* and generated new ideas to implement in class (n=28). An example of them becoming more creative was documented in a diary entry (PD 41, Appendix 6A) which referred to a school where the participants collected polystyrene from the refuse dump to cut out three-dimensional shapes.[110] These particular group of participants testified that the workshop facilitated their understanding of three-dimensionality, which reflect on poor content knowledge prior to the training. Sufficient content knowledge enables teachers to employ inventive and creative opportunities for learning (Van der Sandt & Nieuwoudt, 2005:110). Such creativity was described by Spady (2001:34) as one of the common threads of quality learning because "…learning is not just absorbing content from printed material; it's an inherent part of living simply because living is a continuously unfolding array of new input and experiences".

Several participants, (who previously relied heavily on '*commercial programmes'* to teach), reported that the training helped them to become more independent from using such programmes. The ability to develop their own lesson plans gave them confidence, which in turn is related to improved learner achievement (Killen, 2007:37).

[109] "In gr R ....and another thing - the workshop also help us a lot - to be creative. They thought in our language we can only teach one, two three. Now we can create our own stories, our own riddles, and our own songs" (line 235, Pilot focus group 1, 2005)

[110] T: But at the course, we got those ideas. I got the polystyrene. Then the shapes, when I drew this, it were one dimension. The moment I had it on polystyrene it was three dimensions! So the HOD and I we went to the rubbish heap, and got that polystyrene" (PD11, line 101, Focus group 3, (b) 2006 *).

Some of the participants also experienced the workshops as being helpful dealing with *diversity and multi-level teaching*[111] (79%, n=14) (refer to Table 3, Appendix 6B). The participants experienced satisfaction from '*including all learners*' in their activities,[112] because they had felt guilty of not supporting such learners in a more efficient manner. The assignments allowed some participants to identify the *'slow learners'* who required more time to master the new strategies. In these contexts many of the learners are not ready for formal learning when they enter school (Botha *et al.*, 2005:697; Winkler, 1998:55)[113] (refer to Section 1.1.2). By addressing the needs of the *'slow learners'*, a specific training need was met.[114]

Although the participants applied the strategies in their classrooms, it does not imply that they have become fully competent as 'implementation' represents only the third of five levels of acquiring competence (Miller & Watts, 1990:61). The portfolio assignments bore evidence that many of those who implemented the strategies still required some level of support.

(d) Adaptation of strategies

With reference to the category 'Skills' in the theme 'Competency gains' there was an indication (n=4) that some participants *'adapted'* some of the strategies for their own use,[115,116] but the sample size was too small to draw strong inferences (refer to

[111] T: Use the strategies to teach different levels. I was able to different levels. And see my capabilities in teaching those (Line 285, Pilot focus group 2)

[112] T: I had this learner in my class. He was no speaking or doing anything. And then I used this strategies, especially this one of eh..eh… getting them involved to dramatize what they have seen in the story. So he has participated nicely. I was satisfied (Line 110, Focus group on WS 3 2006 new)

[113] T: The slow learners, those who are very slow. And remember when they come, not all of them can hold a pencil. It takes months, for you to train that child to train his muscles. Doing the pegs to train his muscles every day, it takes a very long time (Line 96, Focus group 2 in 2005)

[114] To give learners with learning barriers more attention for them to progress (Line 80, Un-tabled reflection and self-evaluation of teachers in the numeracy assignment)

[115] T: I told them about the cat. And the cat wanted to catch the mouse. Like the one of the owl. And when I say "Listen like the cat, they put all the pencils down and they (gestures the listening position) (Line 101, Focus group 1 2005)

[116] But at the course we got that idea. I got the polystyrene. Then the shapes, when I drew this, it was one dimension. The moment I had it on polystyrene it was three dimension/ So the HOD and I we went to the rubbish

category 'skills' in Table 3, Appendix 6B). The fact that some of the participants began to apply the strategies to their own contexts (generalizing) demonstrated a higher level of understanding (line 67 Diary entry 16 on 13 Oct 2005 focus group 1), which correlates with the 'adaptation level' of skills competence described by Miller and Watts (1990:61, 70).

Adaptations to strategies are indicative of behaviour change (Miller & Watts, 1990:139) (refer to Section 8.2.1) that is in accordance with the fourth level of skills acquisition described by Haring (in Miller & Watts, 1990:61) where a strategy can be applied without support in different situations and be modified to meet new demands. The ability to adapt strategies in the classroom to meet specific needs realized the objective of this particular learning experience, although only a few participants achieved this.

(e) Teaching of others

Some participants were empowered to such an extent that they were able to *'help their colleagues'* (n= 13) (refer to category 'attitudes', Table 3, Appendix 6B) and to *'train their colleagues'*[117] (n=9) (refer to Table 3, phase 'Outcome', theme: 'Benefits of the programme', Appendix 6B). One participant in particular explained how she took a small group of her learners from class to class to demonstrate the strategies.[118] This aspect relates to the fifth and final level of knowledge acquisition described by Miller and Watts (1990:61) (refer to Section 8.2.1) where a few participants were able to successfully apply their newly acquired knowledge and skills, and to train

heap, and got that polystyrene (Line 101, Focus group 3 (b) 2006 *)

[117] The handouts we used very much. We made copies for everybody to use in their classrooms (Line 79, Focus group 1, 2005)

[118] T1: I created the song, and the rhyme, and then I go to the other classes

T2: She showed them (Line 27, Focus group 2, in 2005)

others in the application thereof. In summary, the QUAL results showed strong evidence (87%, n=661) that the participants have gained in competence from the CPD programme (refer to theme 'Competency gains', Table 1, Appendix 6B), but that only a small group achieved the highest levels of skill acquisition.

8.2.2 QUAN strand: Gains made in knowledge and skills

To determine the gains made in knowledge and skills, the QUAN strand employed questionnaires to assess how many participants had acquired new knowledge, and portfolio assessments to assess the application of this knowledge in practice.

(a) Knowledge assessed with questionnaires

With reference to Figure 7-2, 66% of the participants in both contexts showed an increase in knowledge after the first workshop.

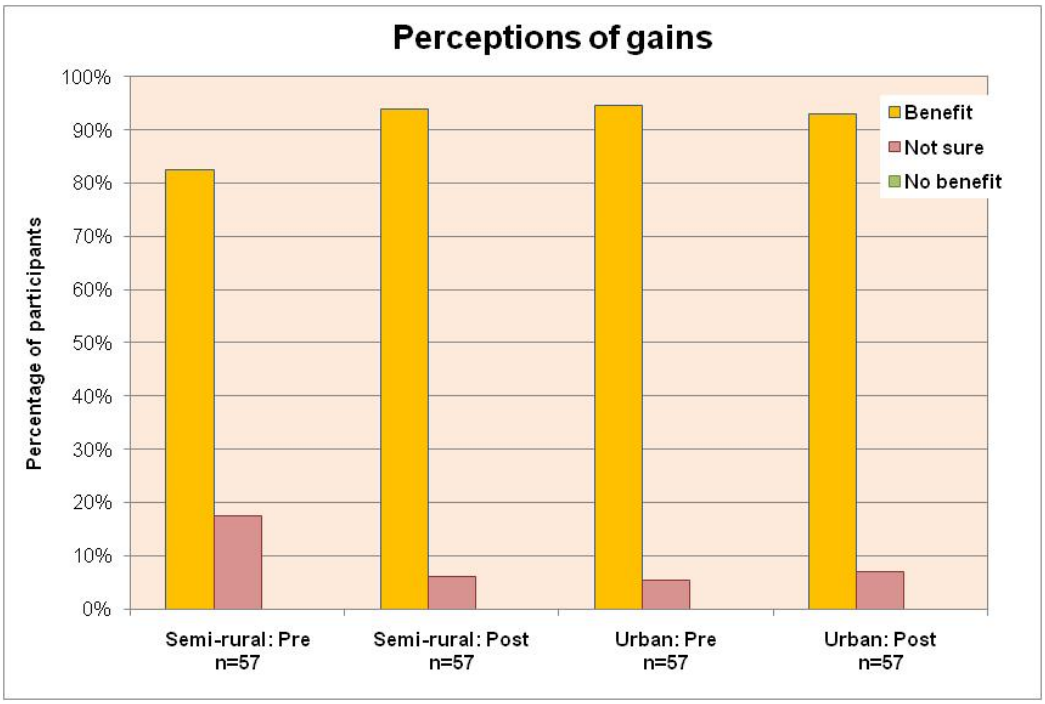

Figure 8-3: Perceptions of gains in knowledge and skills

Note that questionnaire data were not available for workshop 2 in the semi-rural context as the use of questionnaires was temporarily discontinued (refer to Section

5.5.2(a)(i)), but 42% of the participants made gains in the urban context. For workshop 3, 74% of the participants in the semi-rural district made knowledge gains, whereas 57% gained new knowledge in the urban schools. This may be ascribed to the latter group being in a hurry to get home on the public holiday, which affected the completion of questionnaires after training (refer to Section 7.4.1).

When considering the core group's results from questionnaires across the three workshops, 61% of the participants had made gains in knowledge. The results reflecting knowledge gains as assessed by the pre- and post-training questionnaires differ considerably from how the participants themselves perceived their knowledge gains, as shown in Figure 8-3. These results show that in both contexts >92% of the participants believed that they had gained in knowledge, which is considerably more than was depicted by the questionnaire data (refer to Figure 7-2). This probably was due to the fact that all the participants were introduced to new ideas and observed practical demonstrations of strategies to use in class.

Knowledge acquisition therefore was on the 'awareness level', which, according to Bloom's taxonomy of the knowledge domain (Bloom *et al.*, 1956), is the lowest level in acquiring new knowledge and is related to 'shallow learning'. They did not necessarily all understand the information, or know how to apply it. In addition, the reliability of the results gained from the questionnaires in these contexts was questioned (refer to Section 7.4.1). However, it was necessary to determine whether the knowledge gains measured by the questionnaires were related to knowledge applied in practice, as discussed in Section 7.4.1.

(b) Knowledge assessed by portfolio assessment

The portfolio assessments assessed knowledge as it was applied to practice. An understanding of performance could be obtained when the scores were analyzed to

show the spread of achievement. Table 8-2 depicts the ratio of participants who achieved scores above specific indicated levels. From the results it is evident that there was a minimal difference between the performance of the different categories of participants and the general achievement was centred on 47%.

Table 8-2: Ratio of participants with scores above indicated levels

Group	Non-core			Core		
Av score	All	Semi-rural	Urban	All	Semi-rural	Urban
>40%	69%	69%	69%	67%	68%	65%
>50%	44%	47%	41%	49%	52%	45%
>60%	19%	22%	16%	27%	32%	20%
>70%	13%	14%	13%	18%	20%	15%
>80%	6%	3%	9%	7%	4%	10%
Average	47.2%	47.1%	47.2%	47.9%	48.5%	47.2%

In the core group 67% of the participants achieved scores higher than 40% and 49% participants achieved scores more than 50%. The semi-rural group performed better than the urban group on average scores below 80%. There were 10% of participants in the urban group (from a specific school) who performed exceptionally well with average scores higher than 80%.[119]

The performances of the core and non-core groups were similar, except for average scores higher than 60% where there were more participants in the core group (27%) versus 19% in the non-core group, which indicates a better performance of participants who attended all workshops. The conclusion that the semi-rural group performed better is also evident in Figure 8-4 in which the cumulative distribution of portfolio scores for the different groups is compared. This figure illustrates that a larger number of participants in the urban context scored lower than 40%, although

[119] "Very good assignment. Well integrated within the lesson plan, with assessment standards and terms included. Strategies were appropriate. Neat presentation, clearly explained"(Line 64, Reflection of the trainer on the 2005 listening assignment 2005 (WS 1))

their top performance outperformed their semi-rural counterparts. When scrutinizing the portfolios for explanations for the low scores, it became evident that poor achievement could be attributed to inefficiency or a slow rate of implementation. The rubric assigned scores for each week of implementation (which required a new lesson plan to be prepared within the theme of the week, accompanied with a story, song and rhyme and activities to facilitate phonological awareness skills). When the same lesson plan was implemented for the entire period the portfolio was scored much lower than when a new lesson plan was developed for each of the three weeks.

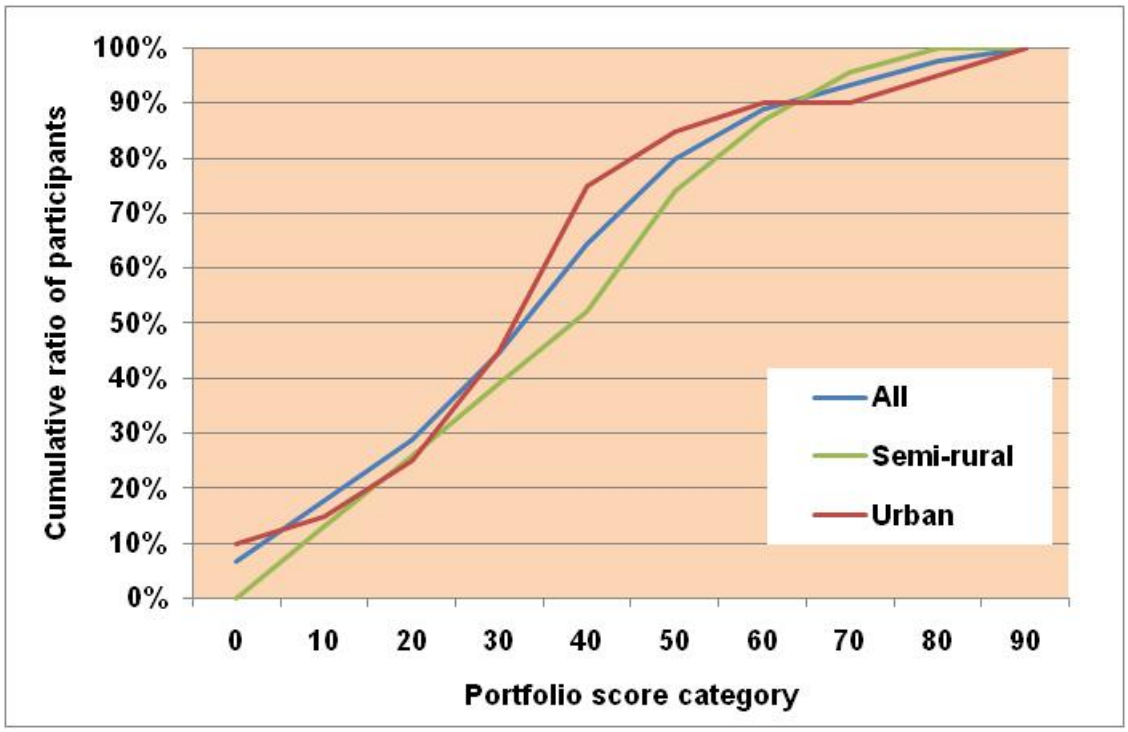

Figure 8-4: Cumulative ratio of participants in particular scores categories

Participants often developed adequate lesson plans and activities for one week, but then applied the same lesson plan and activities for the remainder of the three-week implementation period (in stead of developing three lesson plans with activities), which led to a poor mark allocation. This phenomenon occurred in both contexts.

Such ineffectiveness[120] may be attributed to the various input challenges discussed previously (refer to Section 6.2.3(b)). The low developmental levels and school readiness of learners required the participants to spend more time on each activity than was anticipated, and the large class sizes may have led to low teacher morale (Olivier & Venter, 2003:188). Killen (2007:38) was, however, of the opinion that resourceful teachers can make use of available physical resources around them and make the best of these conditions.

The trainer/researcher probed further to see whether the participants understood the information and could apply the strategies in class. The portfolio assignments were re-assessed and were categorized according to a three-point scale, which rated each assignment in terms of whether the participant understood, partially understood, or did not understand at all, as illustrated in Figure 8-5. This procedure did not take into account that some participants repeated the same lesson plan for the entire three-week implementation period, but rather evaluated whether the participants understood the principles and applied them well. In this case they were not evaluated for comprehensiveness, but rather for their understanding of the information and their ability to apply it in class.

The results indicate that 50% of the participants were rated as competent (understood the information and could apply it), 34% partially understood the information and therefore required additional support, and a minority of 16% required significant support. It is possible that this latter group consisted of the same participants who indicated in the workshop evaluation that they did not understand the terminology used in the workshop (refer to Table 7-6 and Section 7.3.1).

These inferences indicate that 50% of the participants required additional support to

[120] They felt the assignment should be done every fortnight and not every week. They do not get time to do it properly in one week as they work on a story and theme for two weeks (Line 43, Diary entry 16 on 13 Oct 2005, Focus group 1)

varying degrees to facilitate their understanding and skills. When considering the number of workshops attended and the contexts of their work, the performance of participants is considered to be realistic.

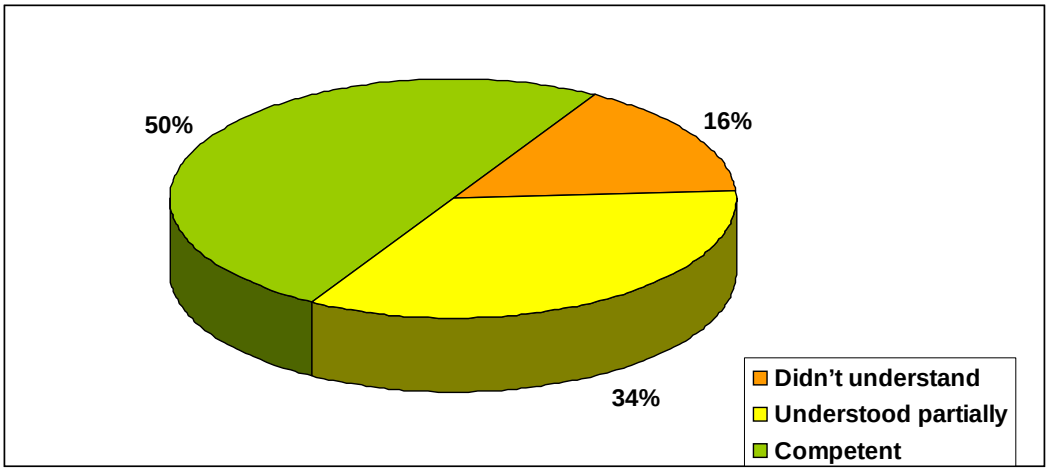

Figure 8-5: Indication of levels of understanding of information according to portfolio assignments

Factors such as the participants' educational backgrounds and English language proficiency could also have had an effect on their performance in the portfolio assessments.These results may be used for planning future teacher support to specifically focus on those participants who performed poorly. More individual and intensive levels of support need to be provided, e.g. by providing a mentor (Sundli, 2007:203) to demonstrate the strategies and to also support teachers with the completion of the assignments.

(c) Interrelationship between portfolio and questionnaire scores

The scores achieved by the participants in the questionnaires and in portfolio assessments were used to assess the outcomes of the training. Figure 8-6 shows how these outcomes were compared by using regression analysis (Montgomery *et al.*, 2001:47). Figure 8-6 illustrates that the average gains for the two years (indicated in brighter, larger markers on the graph) differ quite substantially,

indicating that the semi-rural group gained more from the workshops than the urban group, while their average portfolio marks were essentially the same.

The results in the second year (i.e. urban group) showed that those participants who scored higher according to their questionnaires (factual knowledge) in fact also scored better in their portfolios. It appears as if those with more prior knowledge have benefited more. The scatter in the data was quite large and yielded a regression coefficient (R-squared) of 0.34, which did not show a strong relationship.

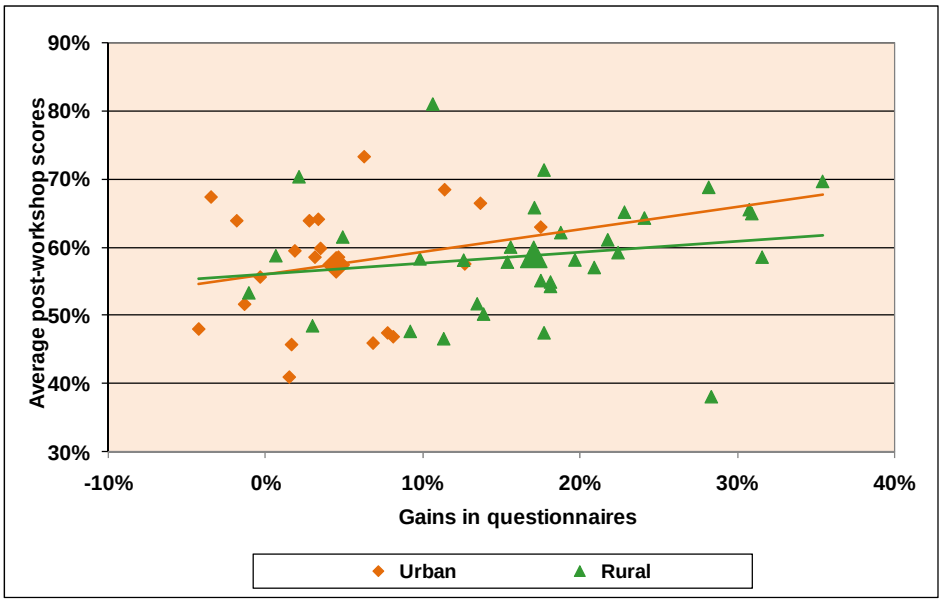

Figure 8-6: Gains compared to post-workshop scores

The opposite was true in the first year (semi-rural group) where those participants with higher gains according to the questionnaire results performed worse in the portfolio assessments. This may be ascribed to the fact that participants who gained most in the semi-rural context did so from a very low baseline, probably due to limited previous support (refer to Sections 6.2.3(b)(ii)) in combination with challenges related to the participants discussed previously in Sections 6.2.3(b) and 7.2.3(a).

It may be deduced that the participants from the semi-rural context probably did not have the skills to prepare the portfolios to the same degree of excellence as those participants who started high in the questionnaires and gained less.

Figure 8-7 clearly illustrates that the actual post-workshop questionnaire scores for the two groups were similar (the averages are close together), although the trend line for the urban context (in the second year) has a pronounced slope compared to that of the semi-rural context, which is very flat. The implication is that there was no correlation between questionnaire and portfolio scores for this group.

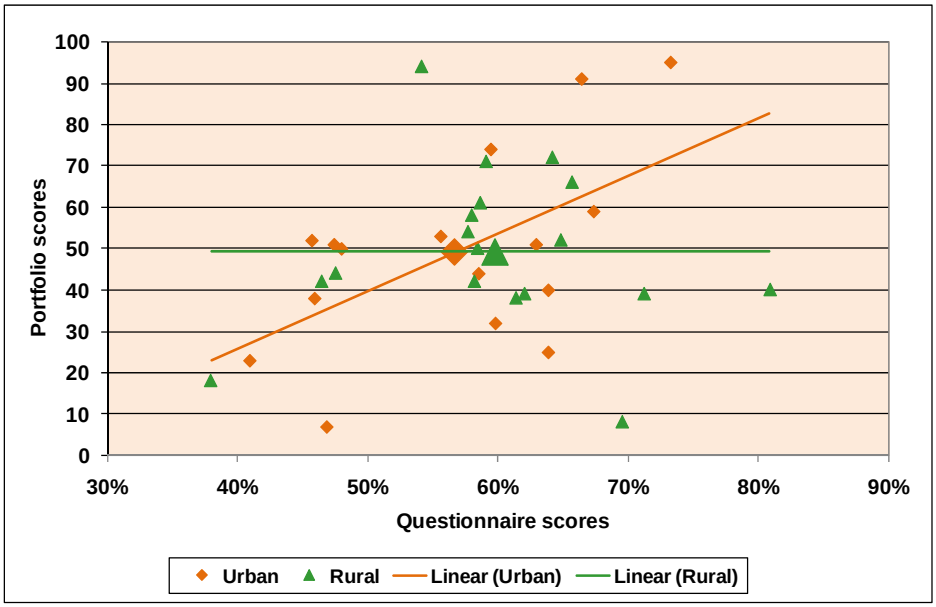

Figure 8-7: Questionnaire scores compared to portfolio scores

Such results indicated that participants in the urban context with higher questionnaire scores gained more and performed better in their portfolios. Higher questionnaire scores prior to training were related to more prior knowledge, which indicates the importance of prior knowledge in the performance of participants.

Every learning opportunity that is created for participants contributes to their knowledge base and becomes 'prior knowledge' for future programmes, indicating a scaffolding effect. Similar trends are depicted in Figure 8-8 where the actual scores in the portfolios were compared to the gains in questionnaires, confirming that the two criteria of knowledge gains in the workshops (the portfolio scores and the post-workshop questionnaires scores) yielded similar results.

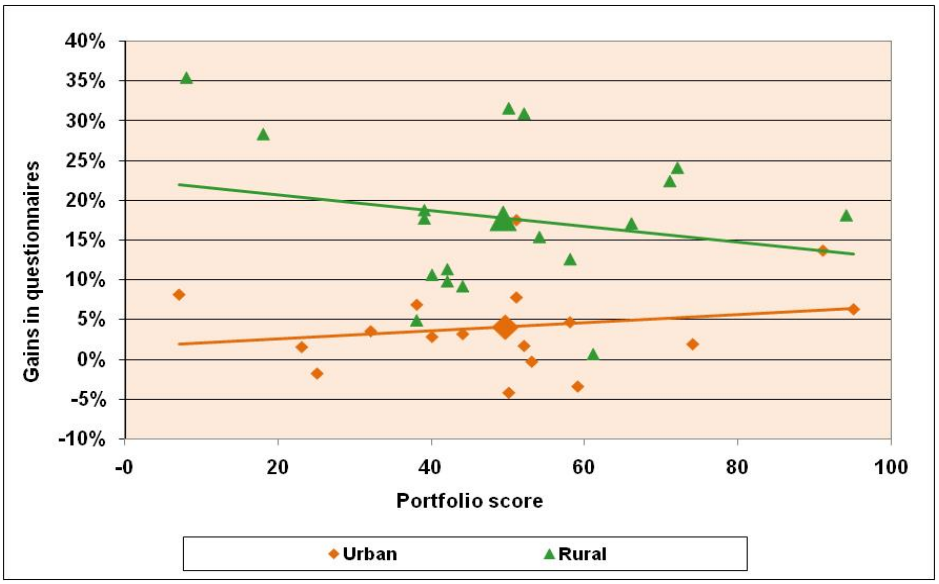

Figure 8-8: Gains in questionnaire scores compared to portfolio scores

8.2.3 Convergence of results: gains in knowledge and skills

The results from the two strands of the research in terms of gains made in knowledge and skills are converged in Table 8-3, and are in agreement that the participants have gained in knowledge.

Table 8-3: Corroboration of results re knowledge gains

Theme	Category	QUAL	QUAN
Competency gains	'Knowledge'	85%	61%
	'Skills' (knowledge in practice)	88%	47%

The two measuring instruments (questionnaires and portfolio assignments) assessed different aspects of knowledge, namely factual knowledge and knowledge as applied in practice. The results obtained with both these methods show that the participants had gained in knowledge as a relatively large number of participants performed satisfactorily.

It is, however, not possible to draw conclusions from average scores as some participants gained less than others. Nevertheless, an increase in content

knowledge may yield positive outcomes in this context as it was previously found to impact on pedagogical content knowledge and also to have increased the effectiveness of teaching practices (Ozen (2008:634). The existence of such a relationship was, however, disputed by Mopolelo (1999:723).

8.3 Factors which affected knowledge gains

The two strands of the research both indicated factors that impacted on the results. From the QUAN strand several factors that may have influenced the potential benefits were identified as illustrated in Figure 8-9.

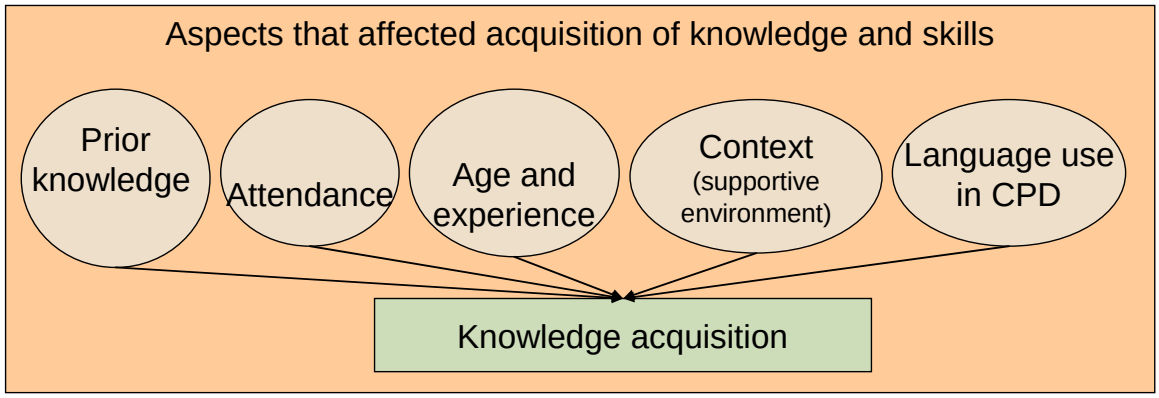

Figure 8-9: Aspects that had an effect on the acquisition of knowledge and skills

8.3.1 Prior knowledge

The factor 'prior knowledge' in this thesis refers to previous support provided by in-service training (i.e. workshops, seminars, conferences), as well as formal qualifications (e.g. degrees and diplomas) that informed their conceptualization of literacy and numeracy and their role in facilitating these learning areas.

(a) QUAL strand: prior knowledge

With reference to Section 7.2.3(a) the data obtained from the QUAL strand revealed that several of the participants had limited prior knowledge of the subject matter and

had to become familiarized with the concepts for the first time in the workshops (96%, n=33) (refer to Appendix 6B, Table 3, theme 'Process', Category 'Material', code 'gap in teachers' knowledge'). This is illustrated by the following quote:

> *"Let me first start by explaining that I take myself as a Gr R educator. The thing is that I have to familiarize myself with the terminology, some of the methods, some of the strategies - that I can be able to give my learners the knowledge" (line 20, Focus group 2 in the urban context).*

Section 6.2.2 on the other hand, indicated that participants from schools that had received more prior support evidenced a higher level of confidence in implementing the NCS than those who had not received prior support. Those participants who scored high in their portfolio assessments reported in the focus groups that the information taught in the workshops was not new,[121] but that it confirmed what they already knew, refreshed their current knowledge, and gave them new ideas for teaching listening, language, and the language used in numeracy.

The level of prior knowledge also appeared to have influenced the participant's motivation as those with more prior knowledge were more motivated to cooperate in the programme. This finding confirms research conducted by Tannenbaum (1997:439) that described a positive relationship between the level of prior support and participation and attitude in a programme.

(b) QUAN strand: Prior knowledge

(i) Formal qualifications and informal support

Table Table 8-4 shows the ration of participants per training. Data from the QUAN strand showed that in both the semi-rural and urban areas the same percentage of

[121] No, with our school it is not new. We have got three years in Molteno. It deals basically with the sounds, and how to break sounds (Line 121, Focus group 1, 2006)

But as Ma'm has said, that training that we have attended with Gerda, it is going to add more on that. We have already started with that. (Line 120, Focus group 1, 2006)

participants were formally trained (diplomas and degrees) and that the participants in the urban context (refer to Table 8-4) had received more informal prior training (e.g. workshops).

Table 8-4: Ratio of participants with prior training

Extent of prior support and qualification	Semi-rural (n=46)	Urban (n=51)
No formal qualification	87%	86%
Formal qualification	13%	14%
No informal prior support provided	40%	24%
Informal prior support provided	60%	76%

The impact of prior training (formal and informal) is shown in Table 8-5.

Table 8-5: Impact of prior training on knowledge gains

Group	Extent of training	Gain in questionnaire scores	Post-training questionnaire score	Portfolio score
Impact of formal training on knowledge gains				
Total group	Formally trained	12%	56%	52
	Informally trained	9%	58%	47
	Confidence level	59%	27%	35%
Core group	Formally trained	17%	55%	45
	Informally trained	12%	59%	48
	Confidence level	76%	54%	15%
Impact of informal prior support on knowledge gains				
Total group	Prior support	9%	57%	48
	No prior support	11%	58%	44
	Confidence level	40%	13%	50%
Core group	Prior support	11%	57%	49
	No prior support	15%	61%	47
	Confidence level	90%	83%	22%

Table 8-5 shows insignificant differences between the core group and the total group. The results showed that formally trained participants in the core group gained more than the group that was not formally qualified, while the portfolio scores and the post-training questionnaire scores did not change significantly. The low

confidence levels indicate that questionnaires were not a reliable measure.

The portfolio scores differed for the total group and the core group and those with formal qualifications performed better than those who were informally trained (without appropriate qualifications).

Participants with formal qualifications gained the most while those who had no formal qualifications gained the least from the workshops, as they did not have the prior knowledge to provide a scaffold for new information. Qualifications and literacy levels appear to be related, which implies that participants with lesser qualifications require considerable support in order to construct meaning from the information and may need different and/or additional support to that offered by this programme.

(ii) Prior support related to contexts

According to Table 6-2 participants in the semi-rural schools had not received as much previous support as the participants from the urban schools. The participants from the urban township schools had more prior knowledge because they had received more prior support (refer to Section 6.2.2(b)), which probably provided a scaffold for the new knowledge trained (Killen, 2007:11, 73). In addition, reflections by the trainer on the performance in portfolio assessments (refer to PD 50, paragraph 16 in Appendix 6A) suggested a relationship between performance in the portfolio assignments and the context (refer to Section 7.4.2). The context was described by Tsui (2003: 277 in Sowden, 2007:207) as the place where teachers construct and reconstruct their understanding of their work as teachers. Participants from specific schools performed similarly (either good or poor) and they also reflected the same general attitude.

It appears as if the school culture played a role in the participants' performance. In this case the context also determined the extent to which the information trained was

applied (Tannenbaum, & Kavanagh, 1995 in Tannenbaum, 1997:347; Rouiller & Goldstein, 1993 in Warr *et al.*, 1999:372). In several instances participants had to report back to their staff on what they had learnt in the workshops.

Social support (e.g. reporting back to colleagues on training) was found to enhance training effectiveness (Rouiller & Goldstein 1993 in Tannenbaum, 1997:440). Supervisors who encourage trainees to apply the training material, can contribute to training effectiveness (Tannenbaum, 1997:437). Future programmes should include the school management teams and phase heads in the workshops to ensure carry over.

(c) Convergence of results: Prior knowledge

Table 8-6 shows the convergence from the two strands. The results from the two strands indicate that the participants' initial education and in-service training to implement the NCS were inadequate to equip them for their task.

Table 8-6: Convergence of results re prior knowledge

Aspect assessed	QUAN	QUAL
Gap in teachers' knowledge		96% (n=33)
Formal qualifications	74%	
Prior support related to the context	60% (semi-rural) 76% (urban)	n=7
Gain in questionnaire score	17% (formal qualifications) 12% informally trained	
Portfolio scores (total group)	52% (formal qualifications) 47% (informally trained)	

There is a definite need for continued professional development in this field. Those participants with more prior knowledge because of formal qualifications gained more from the training and performed better than those who were not formally trained.

Those who received more informal training (urban context) were more confident in

implementing the NCS and participated better than those who received less prior support (semi-rural context). Such results emphasize the value of prior knowledge and indicate the value of CPD.

8.3.2 Use of language in the CPD programme

The participants found the portfolio assignments with lesson planning difficult as these (with the exception of three) were mostly completed in English. English was an additional language for all the participants (refer to 6.2.3(b)(iii)) and not all of them were proficient in English, which hampered their efforts, as is evident from the following quote:

> *"pa-sse-nger-s (passengers); whee-l-bu-rrow (wheelbarrow)" (Line 10, Un-tabled reflection of the trainer on the 2005 listening assignment 2005 (WS 1))*.

The use of English in the CPD programme and some of the participants' limited proficiency in English were earlier identified as input challenges to the programme (refer to Section 6.2.3(b)(iii)) that impacted on both the process (refer to Section 7.5.3) and outcomes.

The participants' knowledge of terminology proved to be scant as English was not their L1 (refer to Sections 6.2.3(b)(iii)), and terminology in all the indigenous languages is still in the process of being verified and authenticated by the various national language bodies of PanSALB (M. Alberts, personal communication, November 27, 2007).

8.3.3 Age and number of years of teaching experience

The next parameter considered was the number of years of experience of the participants (refer to Table 8-7). No significant difference was found between the gains in questionnaire scores for the two groups (1-16 yrs experience and >17years

experience), with the confidence level at 49%. The post-workshop questionnaire scores were similar at a very low confidence level (10%). The portfolio scores differed by 13% at a very high level of confidence (90%).

Table 8-7: Impact of years of experience on knowledge acquisition

Group	Years of Teaching	Gain in questionnaire scores	Post-training questionnaire score	Portfolio score
Total group	1 – 16 years	10%	59%	52%
	17 and more years, unknown	9%	57%	39%
	Confidence level	32%	80%	96%
Core	1 – 16 years	13%	58%	53%
	17 and more years, unknown	11%	58%	40%
	Confidence level	49%	10%	90%

The results indicate that the participants with less experience (who probably were also younger) adapted easier to the principles and would be more amenable to change their teaching style.he age of the participants had a similar impact on the outcomes (refer to Table 8-8) as the years of experience.

Table 8-8: The effect of the participants' age on knowledge acquisition

Group	Age	Gain in questionnaire scores	Post-training questionnaire score	Portfolio score
Total group	20 - 35 years	8%	61%	59%
	36 and older, unknown	10%	57%	43%
	Confidence level	60%	83%	98%
Core	20 - 35 years	12%	58%	60%
	36 and older, unknown	12%	58%	44%
	Confidence level	7%	1%	98%

There was a notable difference of 16% between the group <35 yrs and the older group (>36years) at a high confidence level of 98%. A factor analysis (Montgomery *et al.*, 2001:46) was done to determine the interrelationship between the age of

participants and their qualifications. The results in Table 8-9 show the average portfolio scores for different categories of age and qualification.

Table 8-9: Impact of age and qualification on portfolio score

Age	1-year certificate	Diploma	Degree	In-service	Other	Un-known	Total
20 – 25		50.0					50.0%
26- 30		59.0	71.0				65.0%
31 – 35		56.8	64.2		35.0		58.2%
36 – 40		41.8	55.5	44.0	53.0		47.0%
41 – 50	58.0	40.7		7.0	39.3		39.3%
51 & older	91.0	52.8	16.5				47.9%
Unknown						40.8	40.8%
Average	**74.5**	**46.9**	**53.6**	**25.5**	**42.6**	**40.8**	**47.3**

It is evident that participants with formal training and the younger group performed better, although in a few select cases the older participants with a 1-year teachers' certificate performed exceptionally well. This indicates that performance also depends on the personal aspirations and motivation of a participant.

8.3.4 Attendance

The attendance of workshops appeared to be a determining factor of knowledge gains. As could be expected, participants who attended 3 workshops gained significantly more than those who attended fewer workshops (refer to Table 8-10), which indicates that the participants benefited from attending the workshops.

Table 8-10: Impact of number of workshops attended

Attendance	Gain in questionnaire scores	Post-training questionnaire score	Portfolio score
1 or 2 Workshops	6%	56%	45%
3 Workshops	12%	57%	48%
Confidence level	99%	16%	36%

Results obtained from a bi-directional assessment (see) confirmed the above finding and showed an appreciable difference between those participants with formal training and those who received only in-service training shows the impact of qualifications and the number of attendances on knowledge gains (refer to Table 8-11).

These results also showed that performance in the portfolios was determined by the number of workshops attended. The participants may have become more knowledgeable and competent as they attended more workshops and therefore they performed better in the portfolio assignments (refer to Section 7.5.1(a)). Attendance of workshops was a determining factor regarding gains made as the more workshops were attended the more likely it was that the participants completed at least one portfolio assignment.

Table 8-11: Impact of qualification and number of attendances on knowledge gains

Qualification	Number of workshops attended			Portfolio score
	1 Workshop	2 Workshops	3 Workshops	
1-year			74.5%	74.5%
Diploma	33.5%	52.8%	45.5%	46.0%
Degree		40.0%	55.1%	53.6%
In-service training			25.5%	25.5%
Other		37.5%	44.6%	42.6%
Unknown		53.0%	32.7%	40.8%
Total	**33.5%**	**48.5%**	**47.0%**	**46.8%**

Participants who attended fewer workshops were less motivated to complete portfolio assignments. The attendance of the workshops was therefore not necessarily the determining factor in terms of gains, but rather the completion of the portfolio assignment. It enabled them to benefit from the practical application of strategies in their classrooms (refer to the value of the practical component in

Section 7.3.1(b)) and the feedback on their lesson plans (refer to the value of the mentoring component in Section 7.3.1(c)). The entire programme (consisting of the training, practical and mentoring components) was necessary for the effective support of the participants.

Participants who completed at least one portfolio assignment had the opportunity to apply and internalize their knowledge from the workshop. This resulted in a better understanding of the information and in developing to a higher level of knowledge acquisition as opposed to those participants who only attended one or two workshops without completing the assignment. The latter group therefore developed to a lower level in the process of knowledge acquisition (Bloom *et al.*, 1956).

The first two workshops were better attended than the third workshop (refer to 7.5.1(b). This resulted in more portfolio assignments being submitted after the first two workshops and therefore more participants benefited from them.

When teachers are learning, so will their learners, resulting in a contribution to the development of an entire 'learning community' (Dennison & Kirk, 1990:9). It is concluded that the attendance of workshops and the completion of portfolio assignments were crucial elements in determining knowledge gains.

All participants benefited from the development of this CPD programme, although some participants (e.g. those with prior knowledge and qualifications, <36 years of age, and who participated fully) benefited more than others. In addition to the gains made in knowledge and skills, it was also necessary to determine the effect of the CPD programme on the attitudes of the participants.

8.4 Attitudes

Attitudinal factors such as the participants' perception of the programme, motivation

and willingness to learn, and confidence were assessed to evaluate the training impact of this programme (Mervin, 1992:14).

8.4.1 Participants' perception of the programme

The QUAL strand indicated mostly positive attitudes[122] towards the CPD programme (training and implementation of strategies in class), as 86% of the items coded (n= 100) were positive (refer to Appendix 6B, Table 2, Phase 'Output', category 'attitude'). These results were confirmed by those previously discussed in Section 7.3.1(a) and shown in Table 7-8. As adults learn better when they enjoy the learning experience and see the need for it (Cyr, 1999:3; Pike, 1989:23) the participants' satisfaction regarding the programme is considered to be a motivational factor that may contribute to learning.

8.4.2 Motivation and willingness to participate in the programme

This aspect was evaluated by both strands of the research.

(a) QUAL strand: Motivation and willingness to participate

The trainer/researcher experienced the participants as a group to be attentive in the workshops and to be participating with enthusiasm by sharing their experiences (Line 24, Diary entry 26 on 28 April 2006, Ws 3). Participation in the programme was also measured by the participants' attitudes towards the completion of the portfolio assignments (refer to Sections 7.3.1(b) and 7.4.2). More items were coded as *'assignment negative'* (n=35) than *'assignment positive'* (n=28) (see Appendix 6B, Table 3, category 'assessment method'), which means that the participants did not want to compile the portfolio assignments and had negative feelings about it. Those

[122] According to ***(district facilitator), the good attendance is indicative of what the workshop has meant to them (Line 14, Diary entry no 8 on 11 August 2005.rtf).

participants who perceived the assignments as 'positive' felt that they have benefited from compiling the assignments[123] (see Diary Entry 9, 31 May 2006). They thought that it provided hands-on experience and an opportunity to reflect on their practices.[124]

Some participants who had previously complained of burnout (refer to Section 6.2.3(b)(ii)) appeared excited by the prospect of trying new ideas. Because the participants were '*empowered*' by implementing the strategies, some of them saw themselves playing a role in motivating and training their colleagues[125] (refer to Section 8.2.1(e)), which was also confirmed by feedback obtained from the Learning Support Educators (refer to PD 46 in Appendix 6A). It can be assumed that those participants who trained their colleagues (refer to Section 8.2.1(e)) did so because they were motivated and positive about what they had learnt in the workshops.

The items coded as negative (n=35) were indicative of resentment from those participants who did not appreciate the extra work demanded by the portfolio assignments.[126] Although many of the participants experienced the implementation of the strategies taught to be manageable,[127] there were some who experienced difficulties (n=21), specifically with rhyming (refer to Appendix 6B, Table 3, Category 'Rhyming'). It is to be expected that many participants who did not submit their assignments experienced negative feelings (refer to Figure 8-10 and Section 7.4.2) that most probably resulted in them not benefiting as much from the programme. The reasons for such negative feelings are summarized in Figure 8-10 and are

[123] T: Implementation is very good, the problem is this assignment. To know,… to write it. But it helps us. It really helps us. When we start planning again for those…..for your….compiling everything. But I don't like the assignment (Line 12, Focus group 2, in 2005)

[124] T: The assignment, it did help us (Line 33, Focus group 2, in 2005)

[125] And the assignment …what I have learnt in the workshop. It will motivate the teachers as well. (Line 277, Focus group on WS 3, 2006 new)

[126] T: The assignment is not so good because it shows you, the facilitator what you have taught if it is implemented or not (Line 158, Focus group 1, 2005)

[127] It was not difficult because of the last experience but the continuation of the previous workshops (Line 59, Un-tabled reflection and self-evaluation of teachers in the numeracy assignment)

similar to those factors which were previously described as input challenges (refer to Section 6.2.3(b)), impacting on the process component (refer to Section 7.5).

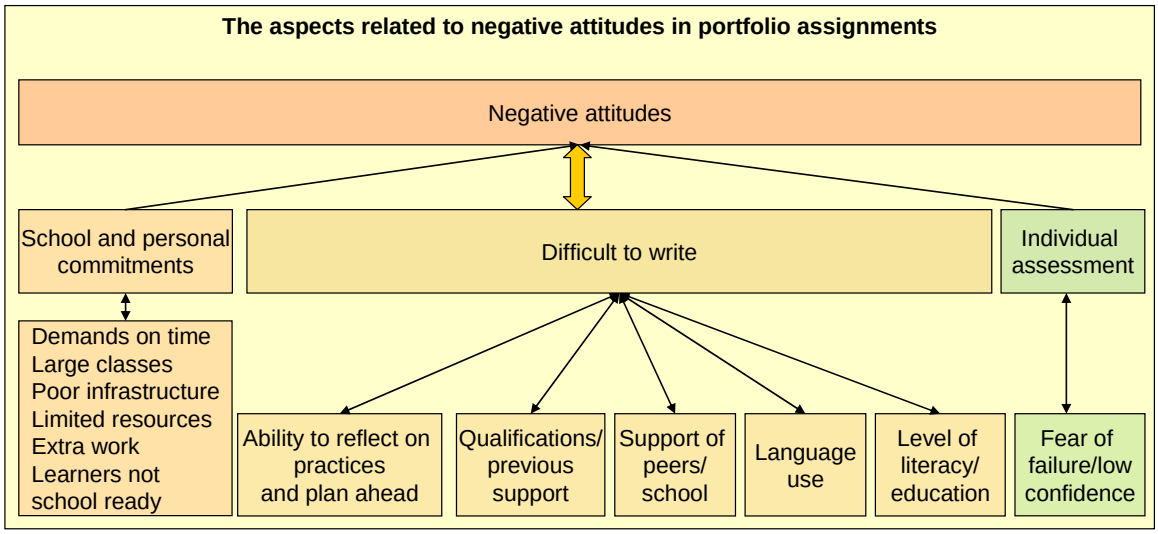

Figure 8-10: Aspects related to negative attitudes in completion of assignments

Some of the participants did not like being assessed on an individual basis and were concerned that they might fail the assignments. As adult learners they did not want to be criticized and also feared humiliation (Knowles, 1990 in Cyr, 1999:6). This behaviour reflects a lack of confidence, which probably was related to feelings of incompetence (refer to Sections 6.2.2 and 1.1.2(c)). Attitudes regarding the portfolio assignment appeared to have been school related,[128,129] (refer to Section 7.4.2), which indicated that the specific context may have played a determining role in the participation and performance. Participation (attendance and the completion of the portfolio assignment) depended on the participants' motivation and attitudes, which emphasizes the importance of including strategies to motivate participants in future programmes.

'Motivation' was coded only 13 times,[130,131] of which 85% confirmed that participants

[128] T: There is no use to writing. You know writing, for the sake of a due date (Line 130, Focus group 2(b) 2006*)

[129] But you …..you don't implement that what you have written on the assignment, you just write it to submit it to the lecturer. It is like studying for a degree (Line 200, Focus group 2, (b) 2006 *)

[130] The facilitator....the workshop motivates the educators (Line 107, Un-tabled Open questions form 4)

were motivated to participate and implement the strategies in class[132] (refer to Table 3, category 'Attitude', Appendix 6B). The sample size was relatively small for inferences to be made, but *'motivation'* could have been inherent in several other codes and categories which did identify it as such. Some participants were motivated and enthusiastic because they had learnt to address assessment standards, which they could not do prior to the workshop[133] (refer to Section 8.2.1(c)). Three participants telephoned the trainer/researcher after hours to share their positive experiences in class.[134] Motivation to participate was influenced by timing (duration and scheduling) (refer to Section 7.5.4(a)(ii)) and the choice of venue (refer to Section 7.5.4(b)).

Although motivation could be linked to the CPD programme in several instances[135], it is also possible that some participants were positive and motivated prior to training and did not necessarily became motivated as a result of the programme (e.g. participants who came from schools where they were well supported by supportive management teams and commercial programmes or workshops) (refer to Section 7.5.2).

(b) QUAN strand: Motivation and willingness to participate

The QUAN-strand also indicated a general willingness to learn (refer to Table 8-12.)

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[131] It has impact and encourages me to reinforce what I have learnt (Line 89, Un-tabled open questions Form 5 ws 3)

[132] I saw teachers becoming enthusiastic about teaching again. The workshops provided them with new ideas. They came back to me to tell me about their successes. (Line 96, Diary entry 28 on 25th May 2006, Focus group 3, (a))

[133] T: Because as we have said, we had these LO's and AS's that we could not achieve, but now, we are positive. We know how to approach these AS's (Line 334, Focus group 1, 2006)

[134] The commitment of some of the participants warmed my heart. I had some participants who telephoned me afterwards to tell me about their teaching (Line 101, Diary entry 28 on 25th May 2006 Focus group 3(a))

[135] Appears motivated and enthusiastic (Line 2, Reflection of the trainer on the 2005 listening assignment, 2005 (WS 1))

Table 8-12: Submission of assignments in all schools

			Number of assignments submitted				
Context	**School no.**	**% failure to submit**	**0**	**1**	**2**	**3**	**Total**
Semi-rural	1	17%	1		1	4	6
	2	0%		1		5	6
	3	0%				5	5
	4	40%	2	1	1	1	5
	5	40%	2		3		5
	6	0%		2		2	4
	7	50%	2	1		1	4
	8	0%		3	1		4
	9	50%	2	1		1	4
	10	25%	1			3	4
	11	50%	2		2		4
	12a	100%	4				4
	12b	0%				1	1
Semi-rural: Number of portfolios			**16**	**9**	**8**	**23**	**56**
Urban	13	20%	1	3	1		5
	14	100%	5				5
	15	60%	3		2		5
	16	20%	1	3	1		5
	17	0%		4			4
	18	25%	1	3			4
	19	100%	4				4
	20	0%		4			4
	21	100%	4				4
	22	0%		2	2		4
	23	0%		4			4
	24	67%	2	1			3
	25	100%	2				2
	26	0%			1		1
	27	0%			1		1
	28	100%	1				1
Urban: Number of portfolios			**24**	**24**	**8**		**56**
Total portfolios submitted			**40**	**33**	**16**	**23**	**112**

In this programme the participants' enthusiasm to complete the portfolio assignments was used as an indicator of how motivated the participants were to participate in the

programme, and hence portrayed their attitude towards the programme. The results in Table 8-12 show that there was one school in the semi-rural context and five schools in the urban context from which none of the participants submitted assignments, suggesting that their attitude (willingness to participate and motivation) was school related. There is no other reason for more schools in the urban context than the semi-rural context not submitting portfolio assignments, but that of a lack of support (either by the school management, or by the district facilitators).

With reference to Figure 8-11 there were 85% of the participants who expected to learn from the programme. In both year groups the majority (>91%) of the participants were satisfied with what the training had to offer and were of the opinion that they benefited from the programme.

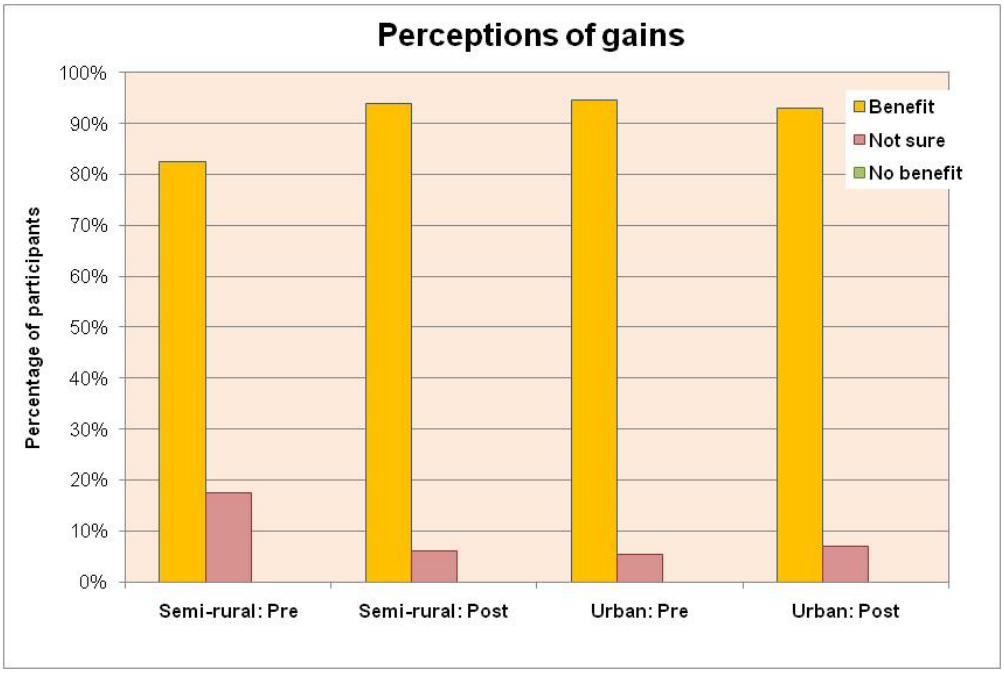

Figure 8-11: Comparison of expectations of participants and outcomes

In summary, 93% of the core group (refer to Table 7-9 in Section 7.3.1(c)), as compared to that of the total group in terms of portfolio submissions, submitted at least one assignment. There were also more participants in the urban context (100%) than in the semi-rural context who submitted at least one assignment.

(c) Convergence of results: Willingness to participate and motivation

Although the two strands did not evaluate similar aspects, both contributed to a better understanding of attitudes in terms of motivation and willingness to participate.

Table 8-13: Convergence of results in terms of willingness to participate and motivation

Aspect evaluated	QUAL	QUAN
Attitudes re portfolio assignments	100% negative (n=35) 100% positive (n=28)	
Expectations to benefit from the programme prior to training		85% (n=96)
Motivation to implement strategies (as reflected in submitting at least one assignment)	85% (n=13)	93% (n=56%)

The convergence of the results regarding the participants' willingness to participate and motivation to submit their portfolio assignments is shown in Table 8-13. The participants expected to learn prior to training, which may have been conducive to learning, and both strands of the research concurred that the participants were motivated to implement the strategies in class. Attitude in terms of willingness to participate and motivation may have been affected by several factors as discussed in Section 7.5 but also appeared to have been school/context related.

8.4.3 Confidence

(a) QUAL strand: Confidence

An increasing sense of professional confidence is important for learning (Graven, 2002 in Adler *et al.*, 2003b:146). Evidence of increased *'confidence'*[136] (refer to Appendix 6B, Table 3, category 'attitude') was noted in 88% of items coded,[137]

[136] "I feel so confident with what I am doing now. I know it is the right way now". (Line 47, Diary entry 16 on 13 Oct 2005 focus group 1)

[137] Increased my confidence in totality of dealing with the whole spectrum of language (Line 139, Un-tabled Open

although the sample size was relatively small (n=16). A statement such as *"I have learnt so much"* from several participants in the focus groups was therefore regarded as a positive indication of increased confidence. Confidence was inherently included in items coded in the category 'value to the teacher' as items *'value of training'* (n=34) and *'value of training to the teacher'* (n= 38) (see phase 'Outcomes', Table 3 in Appendix 6B). Several participants reported in the focus groups that they had acquired more confidence by doing the portfolio, as this required them to develop lesson plans and activities that they were unable to do before (refer to Section 8.2.1(c)).[138] Self-confidence also enabled some of the participants to train their colleagues[139] (refer to Sections 8.2.1(e)).

The code *'empowerment'* could also be related to the development of confidence (n=17) (refer to Appendix 6B, Table 3, category 'value to the teacher'). The implementation of strategies in class may have increased their confidence,[140] because they perceived themselves as being successful.

(b) QUAN strand: Confidence

The participants rated their confidence in a self-evaluation section in the questionnaires (see Figure 8-12). These results did not show any correlation with their actual performance. Generally the participants judged their own competence as being high (>70%) which indicated high levels of self-confidence in implementing the strategies learnt in the workshop.

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questions form 4)

[138] The difference I have is that since I started to attend this workshops I have got the skills, knowledge, and confidence (Line 156, Un-tabled Open questions form 4)

[139] Teachers feel so much more empowered to teach. They are going to teach their colleagues next week (Line 55, Diary entry 29 on 30th May 2006 Focus group 3, (b))

[140] It appears as if they have become empowered and confident. I think the assignment has a lot to do with their confidence (Line 51, Diary Entry 15 on 8 Oct 2005 Pilot Workshop 3)

Such discrepancy between confidence levels and portfolio performance may be attributed to limited insight of the participants.

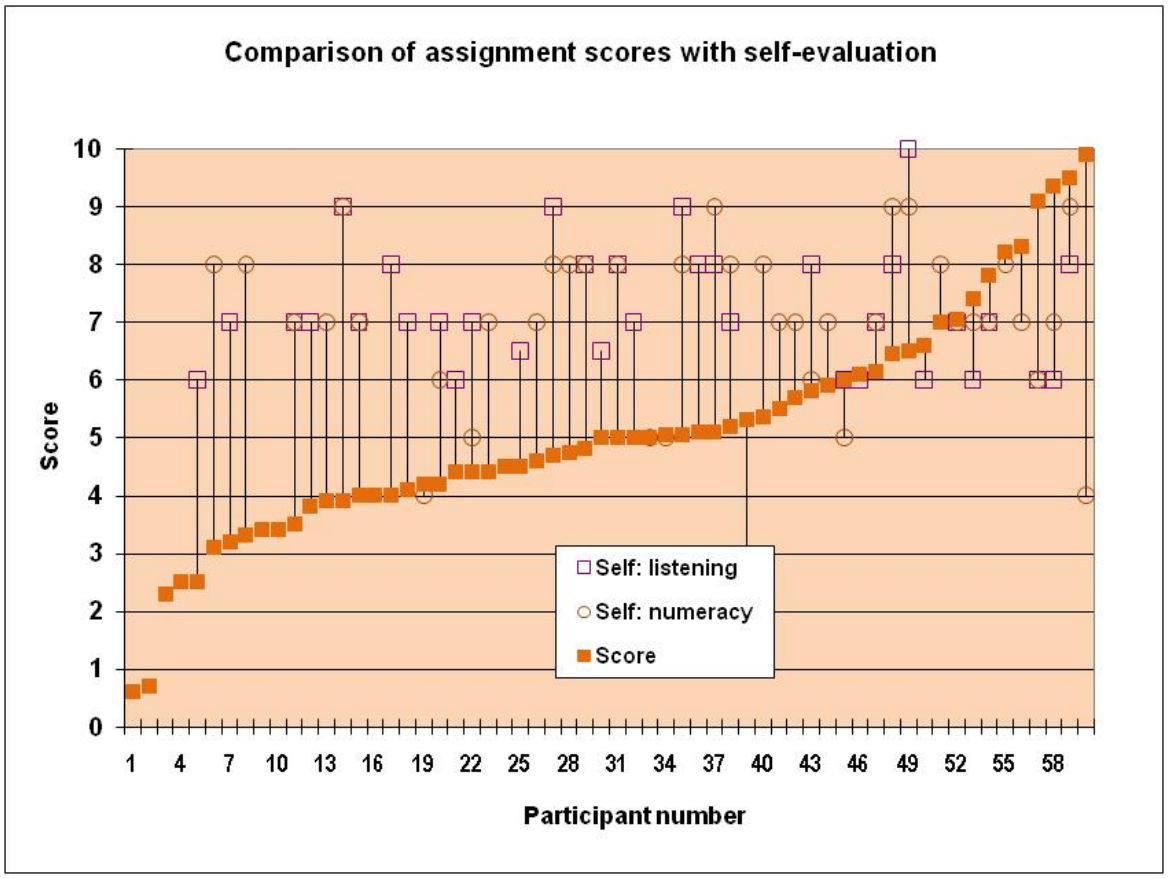

Figure 8-12: Comparison of assignment scores with self-evaluation of competence

It is also possible that the portfolio scores were not necessarily a true reflection of competence in the classroom as the scores were affected by several factors (refer to Section 7.5) which made it difficult to accurately determine the actual levels of competence. It was also taken into account that the sample did not represent the entire group (n=20) (because not all the participants in the group chose to complete this section of the portfolio assignment).

(i) Convergence of results: Confidence

The results on confidence of the participants are converged in Table 8-14. These results indicate high levels of confidence in the implementation of strategies following training in both strands of the research.

Table 8-14: Convergence of results with regard to confidence

Aspect assessed	QUAL	QUAN
Overall confidence (total)	88% (n=147)	
Confidence	89% (n=15)	
Empowerment	100% (n=17)	>70% (n=31)
Implementing	86% (n=102)	
Help/train colleagues	85% (n=13)	

The evaluation of confidence was based on the participants' own perceptions of their gains in confidence and therefore was subjective. In confirmation of the gains made in attitude, the testimonials from the Teacher Support Educators verified the positive attitude noted in participant feedback (refer to HU 46, line 33).

The Teacher Support Educators felt that the workshops could also change the attitudes of other teachers, which in turn could effect changes in their schools[141]. As a result of prolonged engagement and multiple observations across contexts, the credibility of the inferences regarding attitudinal gains was high (Leedy & Ormrod, 2005:99-100). Teacher confidence is directly related to teacher competence and clear links exist between teachers' confidence and their ability to facilitate learning (Killen, 2007:37).

High levels of confidence can therefore be regarded as a positive attribute of the outcomes of this training programme as it can be expected that learners may also benefit (Gibson & Dembo, 1984:578). In general, the gains made in knowledge, skills and confidence with this CPD programme represented professional growth in the participants (Grundy & Robinson, 2004:147).

[141] I was thinking that if all the teachers were attending workshops like these, lots of things were going to change at our schools - involving the negative attitudes of teacher for learners who have barriers, and teachers themselves who don't realize that they are barriers themselves for the learners. Because they don't want to apply new strategies in their lessons (refer to HU 46, line 33. Testimonials of Teacher Support Educators) .

8.5 Assessment, summary and conclusion

8.5.1 Critical assessment of the output results

The acquisition of knowledge and skills, and a change in attitude contributed to increased competence of the participants. The CPD programme thereby responded to the institutional needs put forth by the National Norms and Standards for Educators (Department of Education, 2000:2) and also satisfied the participants' personal training needs that were previously identified (refer to Section 6.2.2). The combination of assessment methods in both the QUAN and QUAL strands yielded credible results.

8.5.2 Summary

Figure 8-13 is a summary of the CPD programme within the South African environment and illustrates the various factors that affected the outcomes, as well as the interrelationship between the output and outcomes components. The latter component is the focus of the next section.

The output component assessed the gains made in terms of knowledge, skills, and attitudes, and determined that all participants made gains, but not all to the same extent. In general, the participants were motivated to participate, although the execution of portfolios elicited some negative feelings.

The confidence displayed by the participants was not necessarily an indication of competence, but could have reflected a lack of insight. Language use, attendance, years of experience and age, as well as previous training were found to impact on the gains made in knowledge and skills.

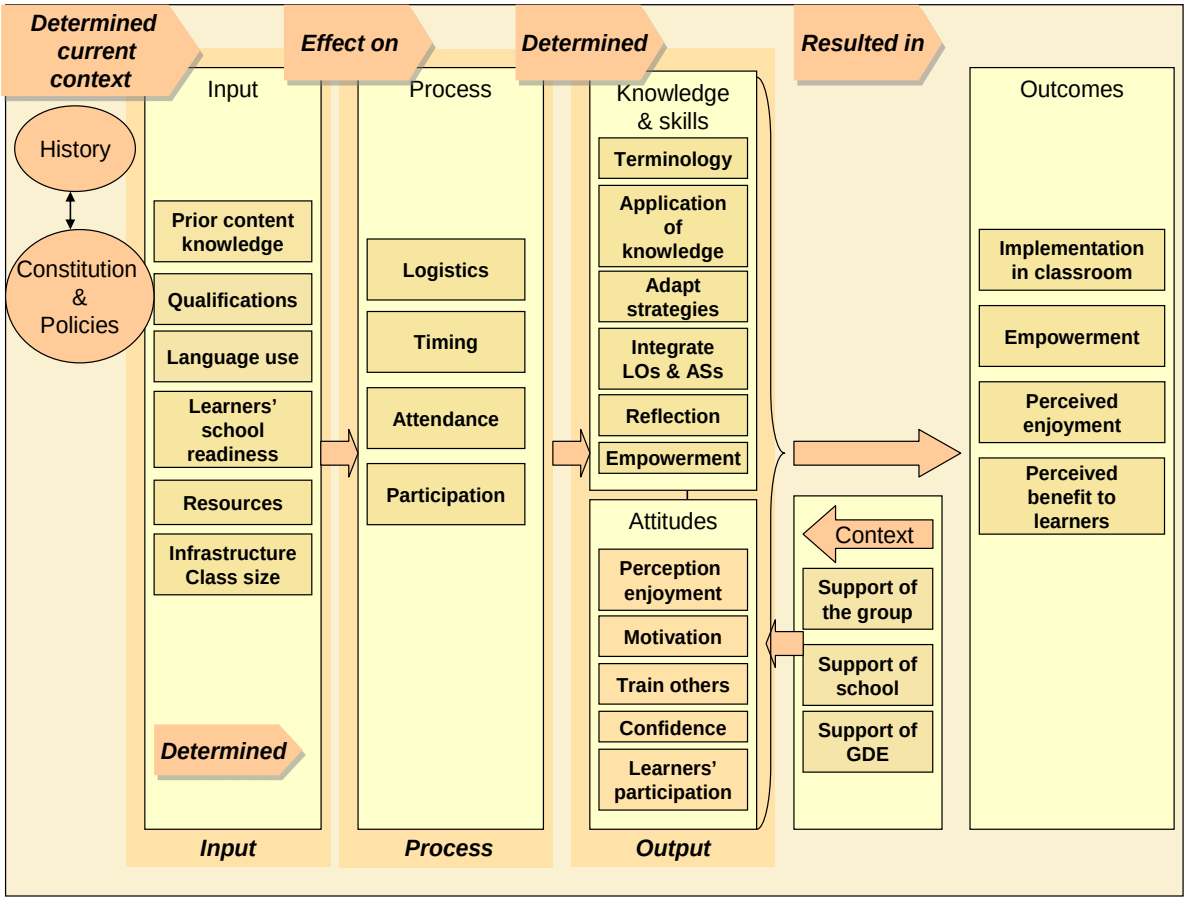

Figure 8-13: The output component in relation to the entire programme

8.5.3 Conclusions

The participants benefited from the CPD programme, but not all to the same extent. Those who benefited less need to be identified in order to be supported differently and options such a mentoring and pre-training of vocabulary and terminology need to be considered.

Recall of factual knowledge (assessed by the questionnaires) is not the only knowledge required for learning. Of more importance is the integration of knowledge and practice (Adler *et al.*, 2003b:138; Marojele *et al.*, 1997:349; South African Qualifications Authority, 2001). The "…upgrading and scaffolding of teachers' conceptual knowledge and skills" in order to improve performance is currently a national imperative (Department of Education, 2006:3; Taylor & Vinjevold,

1999b:159). To engage learners in higher level thinking teachers' knowledge of subject matter needs to be improved.

The key to the participants' performance lies in their participation in the programme in terms of attendance and the implementation of the strategies in the classroom. The level of attendance determined whether the participants completed a portfolio assignment or not, and therefore all efforts should be made to ensure a high level of continued attendance in future programmes.

Apart from making procedural changes, it is also necessary to offer more lucrative incentives to motivate trainees to complete the entire programme. Such an incentive can be provided by rewarding the trainees with CPD points, which requires that programmes become accredited.

Chapter 9 Results and discussion of the outcomes component

Question: *What is truer than the truth?*

Answer: *The story*

(Old Jewish saying)

Aim of the chapter

The aim of this chapter is to describe the outcomes component as part of a comprehensive evaluation of the continued professional development (CPD) programme. The topics covered in this chapter are depicted in Figure 9-1.

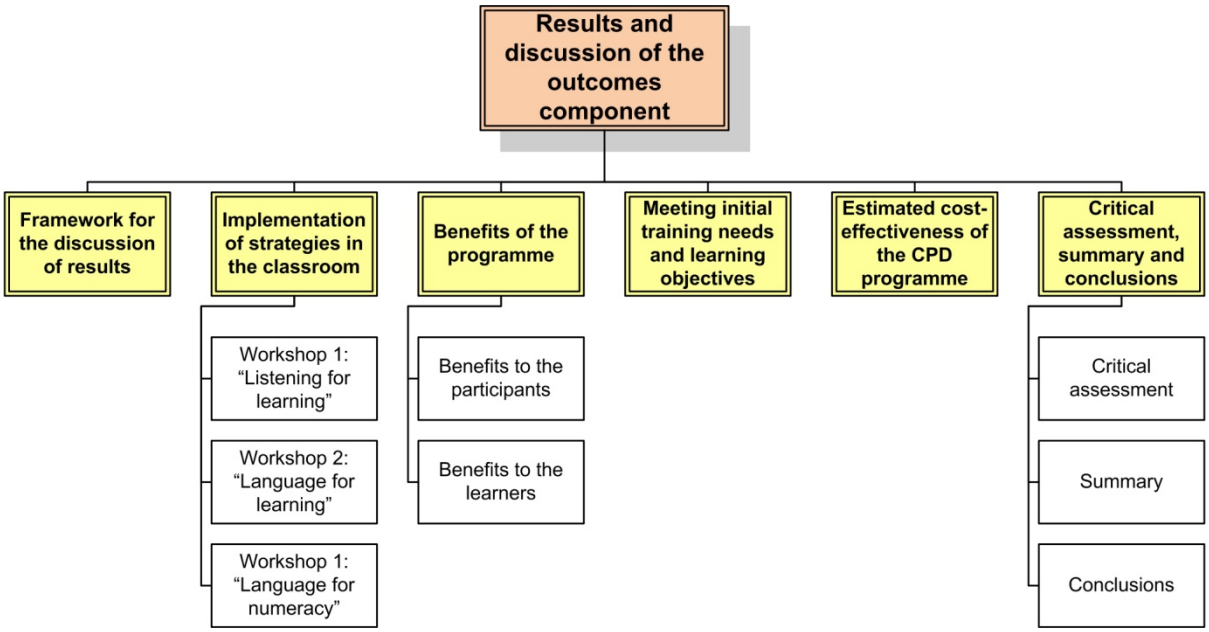

Figure 9-1: Outline of Chapter 9

9.1 Framework for the discussion of results

The outcomes of the CPD programme were evaluated in terms of the transfer of knowledge and skills to the work situation and whether the objectives of the CPD programme were met (Mervin, 1992:14). Programme outcomes, however, also need to include an estimate of cost-effectiveness (Rae, 2002:4). The four research questions which were answered in this regard are stated in Table 9-1.

Table 9-1: Research questions by means of which the outcomes of the programme were evaluated

Research question	Aspect evaluated	Paragraph
Question # 8: How did the participants implement the strategies in the classroom?	Implementation of strategies in class	9.2
Question # :9 What were the benefits of the programme?	Benefit to learners Value to the participant Enjoyment	9.3
Question # 10: Were the objectives met?	Participants' needs Objectives of the programme	9.4
Question # 11: What was the estimated cost-effectiveness of the CPD programme?	Cost-effectiveness	9.5

The first three questions were answered qualitatively and the fourth question was addressed quantitatively as discussed in the following sections.

9.2 Implementation of strategies in the classroom

There was ample evidence that the strategies were implemented in the classroom as 125 items were coded of which 70% were of a positive nature. According to the results depicted in Appendix 6B (see Table 2, Category 'implementation rate') there was some (n=9) inefficiency in terms of the implementation rate of the strategies. The participants were required to select a story, rhyme, and song for every week of the 3-week implementation period. However, for several reasons (refer to Sections

6.2.3(b) and 7.4.2(a)) some participants worked on the same story, rhyme, song, and art activity for the entire period.

Some of the participants reported that the implementation of strategies in their classrooms made them 'think' and reflect[142] on their practices,[143] which is in keeping with the reflective competence required by the Norms and Standards for Educators (Department of Education, 2000:1).

All the workshops were valued[144] (refer to Section 7.3.1(a)) and several participants reported a change in their teaching practices.[145] They believed that they had benefited from the training[146] because they had learnt to address assessment standards in the NCS which they could not do before.[147,148] The following section describes how the information taught in the three workshops was implemented in the classrooms.

9.2.1 Workshop 1: "Listening for learning"

The information included in Workshop 1 was viewed positively[149] as 73% (n=20) of the items coded indicated that the participants appreciated the information and the

[142] Improve my teaching, help me to reflect back (Line 97, Un-tabled open questions Form 5 ws 3)

[143] T: It makes you think (Line 217, Focus group 1 2006)

T: Yes, it makes you think, like you were saying it make you cast the body parts (Line 217, Focus group 1 2006)

[144] This really works, because I use it in my classroom. Especially the listening activities are fine! (Line 120, Open questions Form 5 ws 3)

[145] The workshop made a big difference to me because I could see that I was doing many wrong teaching in my teaching (Line 123, Un-tabled Open questions form 4)

[146] According to me the workshops I have attended have been fruitful and helpful. I have improved a lot on them. All the methods I learnt, e.g. story telling, to hold attention, questioning to value responses and attention /understanding. All the strategies (Line 24, Un-tabled reflection and self-evaluation of teachers in the numeracy assignment)

[147] …"you know, we teachers have never done stories, songs and rhymes in class. We thought all of that in the RNCS - it was for nothing. I feel our children ....their minds were caged in. We have since opened the screws, and the children came flying out like… birds! (Line 45, Diary entry 16 on 13 Oct 2005 focus group 1)

[148] I did not know some of the strategies taught at the workshop, but now I can apply them in my class when teaching numeracy (Line 20, Open-ended questions in the numeracy portfolio of 2006)

[149] "I have learnt good ways of improving listening and be able to draw the attention of learners to listen attentively" (Line 17, Reflection of teachers in the 2006 listening & language assignment 2006)

strategies taught[150] (refer to Table 3 in Appendix 6B, Outcomes component, category 'listening'). Strategies were mostly implemented[151] by using the LoLT,[152] which was in accordance with the language policy specified for the foundation phase (Department of Education, 2002:6). Strategies employed to facilitate literacy, such as "riddles" (used to facilitate auditory memory) and phonological awareness activities (e.g. segmentation and blending activities) were particularly popular and singled out by some as being successful and useful.[153] Some participants in both contexts were exposed to information regarding phonological awareness and its role in facilitating literacy for the first time[154], and were excited about the effect the strategies had on their learners. Many of the participants in this study reported that they had previously omitted phonological awareness training from their curriculum because they did not understand the rationale thereof and did not know how to address it (even though it is specified in the NCS).[155]

Despite providing several examples in the LoLT, the participants required more, which could be challenging for trainers who are not proficient in an African language. The use of English as the medium for training of phonological awareness skills was problematic as some participants were unable to transfer the knowledge trained in the workshop to the LoLT. Direct translation of English to the LoLT is often not possible as it does not provide the required results (in many cases a combination of e.g. Tswana words would be required to fully translate the meaning of single English

[150] Especially the listening activities are fine! (Line 120, Un-tabled open questions Form 5 ws 3)

[151] They got so many new ideas - "those strategies, …we can now go on all day and forget about the time" (Line 50, Diary entry 29 on 30th May 2006 Focus group 3(b))

[152] Yes in mother tongue I like the riddles, we also have the songs (Line 214, Pilot Focus group 1 2005)

[153] they specifically singled out "riddles" and "segmentation and blending activities" as being very effective and it seemed as if they have all implemented these strategies (Line 20, Diary Entry 14 on 20 Sept 2005 Pilot focus group 1,)

[154] …"you know, we teachers have never done stories, songs and rhymes in class. We thought all of that in the RNCS - it was for nothing. I feel our children ....their minds were caged in. We have since opened the screws, and the children came flying out like… birds! (Line 45, Diary entry 16 on 13 Oct 2005 focus group 1)

[155] T3: You know you helped us a lot. We used to skip most of the things (Line 284, Focus group 1, 2006)

words). The participants indicated that some elements of phonological awareness were easier to teach in the LoLT: this included the segmentation of words as syllables and sounds, as well as the identification of the initial and final sounds of words. Phonological awareness ideally needs to be trained by a trainer who is proficient in the LoLT and who has a sound understanding of the underlying phonetic structure of the language.

Several participants (51%, n=43) described the use of rhyming (used as a strategy to facilitate phonological awareness in young learners) as "difficult" (refer to Appendix 6B, Table 2, category 'rhyming').[156] The focus group participants and the workshop participants reported that rhyming is not common in the African languages and therefore difficult to facilitate. Examples obtained from portfolio assignments showed that the participants were more familiar with the concept of alliteration, which is rhyming of a word beginning or ending with the same sound (e.g. "tloka, tlela "), with onset being the initial phoneme (Jenkins & Bowen, 1994:34; Johnson & Roseman, 2003:118). Rhyming, as it appears in English with repetition of the final vowel-consonant cluster, (e.g. "the cat sat on the mat"), is reportedly an unfamiliar concept in the indigenous languages.

Phonological awareness training in English follows a developmental sequence, of which rhyming is the first step, followed by onset-rhyme and alliteration (Harbers, Paden & Halle, 1999:50). According to N. Campbell (personal communication, May 24, 2005) the purpose of alliteration is similar to that of rhyming, in that it familiarizes the ear to repetitive patterns of sound, which makes it acceptable to use when teaching phonological awareness in these contexts. It is therefore proposed that more emphasis be placed on alliteration and less emphasis on rhyming

[156] T: It was difficult for me the rhyming. Like, we don't have so many rhymes like they have in English. So it was difficult with the LoLT, to get like rhymes to find rhymes. Like we associate to do that. To get songs and rhymes. That was difficult for me (Line 205, Focus group 1 2006)

9.2.2 Workshop 2: "Language for learning"

The results indicated that the strategies for language facilitation were experienced as positive (83% of the items coded, n=18). The use of stories allowed the participants to integrate various assessment standards (ASs) within a single activity. [157,158] It also integrated literacy with other learning areas,[159] e.g. life skills, where values such as respect for animals could be taught.[160]

In both contexts it was evident that some participants at first did not clearly understand how to construct a story or how to hold the attention of learners when reading a storybook. This may be attributed to them not having used this strategy before, or to the use of English (as an additional language) in the role play, which inhibited their expression ability. In general, the participants reported satisfactory results with the implementation of the story[161] and the use of pictures to enhance understanding (receptive language).[162]A few participants complained that they found it difficult to match the story with a rhyme and/or a song,[163] or to find a story that would encompass all the various elements required by the assignment.[164] These

[157] T: "I took many things out of that story. I made a song, made a poem, and then they must do the plurals, the opposites, segmentation, and then I also stated the new vocabulary. It takes maybe two weeks…on one story. Which is (why) I forgot about the assessment" (Line 28, Focus group 1, 2005)

[158] "That any story can teach learners all the learning outcomes" (Line 20, Reflection and self-evaluation of teachers in the numeracy assignment)

[159] A told us how much the story has made an impact on her class. Previously she taught numeracy through counting (rote counting). Now she makes sure that the story introduces the numbers and concepts within a more meaningful manner. (Line 22, Diary entry 18 on 3 Nov 2005 Pilot Focus 2)

[160] When we tell the story, animals, (some learners do not respect animals), when I tell them about animals; they see that they have to respect the animals

A.M Was that because of the story or why did they learn to respect animals?

T: The story that I was telling - they have changed. I think they have changed (Line 42, Pilot Focus group 1, 2005)

[161] T: And even that one of…the sequencing. When I was just telling them the story, so that they listen and then afterwards, they could tell the story. They were able to sit and listen and then afterwards they could tell us the sequence (Line 46, Focus group 1 2006)

[162] I learnt also that pictures need to be used when telling a story (Line 101, Open questions form 4)

[163] Story telling was easy but it was sometimes difficult to have a rhyme and art activity that links with the story (Line 33, Reflection and self-evaluation of teachers in the numeracy assignment 2006 (WS 3))

[164] They complained about how difficult it had been to design a good story that encompassed all the different elements stipulated in the assignment (Line 17, Diary entry 18 on 3 Nov 2005 Pilot Focus 2)

participants may have benefited from more peer support or mentoring. It is possible that the participants had followed a fragmented approach in the past where such activities were conducted in isolation, as was the case with the previous transmission approach to learning (Jansen, 1998:1; Motseke, 2005:113; Welch, 2003:40).

Prior to training many of the participants did not understand the value of integrating various activities around a central theme in order to enrich the learners' conceptual language base and understanding of vocabulary (Paul, 2001:402). Strategies to be used within a central theme, e.g. stories and role play, relate to the functional approach to language learning and increase linguistic awareness (Goodman, 1986:2; Owens, 2004:365).

The participants' limited prior knowledge re the Language Programme of the NCS became apparent when some of them reported that prepositions (which are related to special relationships in numeracy) were experienced as being difficult to implement.[165] They explained how they referred to prepositions in a different manner in the classroom[166] where the LoLT was an indigenous language.

These participants tended to use archiforms (use of one member of a word class to represent all members) to refer to several positions in space and augmented the meaning with different hand gestures.[167] Such use of prepositions relates to the typical language use of additional language speakers (Owens, 2001:433), although in this case archiforms were used by some of the participants when communicating with learners in their home language (L1).

The participants' lack of insight in this regard became evident when some reported

[165] T: Ehh, space,…we can! We can. The prepositions….yeah, it is a little bit difficult (Line 100, Pilot focus group 2)

[166] I also struggled, so I looked at the story and tried to implement the strategies. But some of the things we do not do in N Sotho. Like…. prepositions, and ….adjectives! (Line 97, Pilot focus group 2)

[167] T: We say Ka-ga-re (inside), kamorago (behind). E-kamogare. E- mogauswe, E- kamorage (sing song style) (Line 109, Pilot focus group 2)

A.M: But then you explain it with gestures? You can also explain kagare behind? (Line 109, Pilot focus group 2)

that their learners' limited vocabulary required of them to refer to positions in space in a similar manner as their learners. Such practices did not allow for conceptual growth or for an expansion of vocabulary and therefore the participants themselves could be regarded as barriers to learning. The importance of language modelling (Dawber & Jordaan, 1999:; Paul, 2001:14) needs to be emphasized in future programmes because learners need an adult as 'knowledgeable other' (in this case the teacher) to provide them with the relevant insights within cultural and social exchange (Vygotsky, 1998:23, 243). Participants also complained that subject-specific vocabulary and terminology do not necessarily exist in indigenous languages and concepts had to be explained by using a description and gestures.

9.2.3 Workshop 3: "Language for numeracy"

The participants reported that although the learners understood the language used in the classroom, they became confused when standard terminology was used (e.g. money was referred to as "five-bob"). One participant described the situation as follows: *"They know the money when we talk* [in]*formally but when write(sic),…. oh chaos!" (PD 5, Line 76, Focus group 2, in 2005).*

The use of incorrect terminology may cause learners to experience difficulty in standardized assessment procedures (e.g. the GDE's annual numeracy challenge), as the formal terminology may be unfamiliar to them. It is important that teachers provide accurate examples of numeracy vocabulary and terminology (Rothman & Cohen, 1989:137; Thompson & Rubinstein, 2000:57), and they therefore need to be alerted to the consequences of not doing so.

The conceptual knowledge for teaching numeracy is as much about pedagogy as it is about content (Ma, 1999, in Adler *et al.*, 2003b:138). Some of the participants reported that they had never before addressed specific numeracy concepts in class

(e.g. the concept of estimation or three-dimensionality), because they did not understand these concepts themselves.[168] This may be ascribed to limited prior knowledge and/or inadequate English language proficiency. Although the NCS is available in English, the vocabulary used and concepts referred to were not understood by all the teachers. Limited conceptual knowledge of teachers causes poor performance of learners (Taylor & Vinjevold, 1999c:139).

Reflective notes of the trainer/researcher after marking the portfolio assignments (PD 50, Summary of the Assignments and Reflexive Notes of the Trainer, par 28, Appendix 6A) indicated that some participants applied inappropriate activities that appeared to be more suitable for lower grades than for the specific grade levels that they were teaching.[169] From the limited information available the question is whether the participants underestimated the learners' abilities (or had too low expectations), or whether the learners were too far behind in the curriculum to meet the standards set for specific grade levels?

Low teacher expectations of learners' achievement in low-income communities is well documented (Timperley & Phillips, 2003). The Reeves study (1998:322) of teaching and learning Gr. 4 mathematics, as well as recent reports from the Khanyisa project (Khoza, 2007:2), found that teachers had fairly low expectations of their learners as a whole as tasks were not cognitively demanding, which may also have been the case in this context. In addition, it is also known that learners from poor socio-economic school (SES) have limited or no pre-school experience, which

[168] In one focus group it was determined that the participants had never before addressed the term "estimate", (which is required by the NCS), because the term was unfamiliar to them (Diary Entry 15 on 8 Oct 2005 Pilot Workshop 3).

The participants were confused as to when to use English when teaching numeracy. The researcher/trainer had to repeat and explain the importance of first demonstrating instructional words in Sotho, before introducing it in English (Line 24, Diary Entry 15 on 8 Oct 2005 Pilot Workshop 3)

[169] From the assignments, it is clear that in many cases the teachers provided numeracy activities which seemed more suitable for lower grades than for the specific grade level (do they have low expectations?) (Line 28, Summary of the portfolio assessments and reflection of the trainer)

places them at risk when entering school (Botha *et al.*, 2005:697). It is therefore possible that these learners required more time to catch up.

Pluddermann *et al.* (1998:317) reported that teachers favoured the use of English materials, and the portfolio assignments confirmed their findings. Many of the participants included English worksheets in their portfolio assignments, which may be due to the availability of English teaching resources[170] (refer to Section 6.2.3(b)(ii)). English is an additional language of all the learners in these particular schools and these worksheets could have affected their learning. When considering that cognitive academic language (CALP) takes five to seven years to develop (Dawber & Jordaan, 1999:7) the use of English workbooks could have implications for the quality of education in this context (refer to Section 6.2.3(b)(iii)).

Ideally, basic concepts should first be acquired in the mother tongue (Department of Education, 2002:6), and although workbooks were available in Northern Sotho (e.g. Oxford University Press), schools in these specific contexts did not have the funds to buy them. The availability of resources in these contexts was previously identified as an input challenge to this programme (refer to Section 6.2.3(b)(ii)) . Even though workbooks could be provided in the LoLT, it would not necessarily meet the diverse needs of all learners (Line 8, Summary of the portfolio assessments and reflection of the trainer) (refer to Section 1.1.2(b)).

In addition, it was found that the materials used often did not meet the level of learning required, which is consistent with results obtained by Thusi (2006:26). Such materials were unlikely to develop higher order thinking skills in their learners. The participants' dependence on English resources was most probably because of their

[170] The problem is that very few of the schools trained had English as a LOLT, and therefore the learners in these schools have limited use of English. Because of a lack of resources, some teachers made use of commercial workbooks which were more readily available in English. They complained about unavailability of workbooks in the LoLT and therefore used English books.

need for additional support to implement the NCS (refer to Section 6.2.2) and the availability of English workbooks (refer to Section 6.2.3(b)(ii)).

The participants were also confused as to whether they should use English when teaching numeracy or continue using the LoLT (Line 24, Diary Entry 15 on 8 Oct 2005, Pilot Workshop 3). The use of ELoLT in these contexts was not uncommon (refer to Section 6.2.3(b)(iii)), which makes it imperative to use code switching to an African language when introducing new concepts in numeracy (Du Plessis, 2005:47; Paul, 2001:190). The importance of code switching needs to be emphasized in future programmes (Department of Education, 2002:6).

Some of the participants discovered the importance of language to develop 'numeracy' skills[171] and also learnt how to facilitate such skills in a constructive manner by making use of real objects and live experiences,[172] as was confirmed by 89% of items coded (n= 35) (refer to Appendix 6B, Table 3, category 'numeracy'). The importance of culture in teaching and learning became evident in the participants' use of indigenous games (e.g. 'Morabaraba', a board game usually played with stones, which requires counting), stories, songs, and teaching resources[173] (refer to Section 2.4.1 in Chapter 2).

The benefit of this workshop to the participants was further confirmed by an external evaluation of a group of Learning Support Educators (LSE) from the GDE. They viewed the information taught in the workshop as having the potential to change the manner in which educators teach numeracy[174] and thought it would be valuable in their own support of learners who experience challenges in numeracy. Some of the

[171] T: He must understand the language first (Line 49, Focus group on WS 3 2006 new)

[172] The participants understood what numeracy consisted of and how it should be taught[172].

[173] One of the participants expressed sadness because her own son attended a school with English as LoLT, which caused him to loose his language and culture (Line 97, Pilot Focus group 1 2005).

[174] The educators' approach is going to be different especially with numeracy (Line 24, Testimonials from teacher support educators)

participants were not specifically qualified to teach the foundation phase and were grateful for the opportunity to learn practical skills for teaching young learners in numeracy.[175]

9.3 Benefits of the programme

The QUAL strand indicated that 95% (n=288) of all items coded in terms of the benefits of the programme were positive, but these results were analyzed separately with regard to the participants and the learners.

9.3.1 Benefits to the participants

The professional development of the participants was informed by the category '*value to teacher'* (refer to Appendix 6B, phase 'benefits of the programme', category 'Outcomes'). The results indicated that 96% of the 137 items coded were positive, and included the participants' perception of changes that occurred in their teaching practices, their ability to reflect on their practices, as well as their empowerment.[176] Evidence of *'empowerment'* (n=17) is related to the fourth level of knowledge acquisition described by Miller and Watts (1990:61), which concerns the 'training of others' (see Sections 4.2.2(a)(iv) and 8.2.1(e)). Coenders *et al.* (2008:333) reported on the successful preparation of teachers for a new science curriculum by having them develop and use curriculum materials as it created ownership and strengthened their pedagogical content knowledge (PCK). Even though a small sample (n=7) was used in their study, these findings resonate with findings in this study where teachers had to prepare lesson plans for assessment.

[175] I have developed competence and skill in teaching numeracy in the Foundation phase because I have no teaching experience of this phase. And will be able to address the problem of LOLT at English Medium Schools (Line 12, Testimonials from teacher support educators)

[176] It has empowered me enormously and am highly skilled to deal with learners' problems with sound right strategies, and confident to approach any learning problem and to assist my colleagues with pride (Line 128, Un-tabled open questions Forms 2&3)

Moreover, as the participants came to realize that they all shared similar problems, a network of support was established between schools.[177] A sense of collegiality appeared to have developed between the participants through sharing experiences (refer to Photograph 6 in Appendix 6E), which verifies the value of group and peer learning.

Not all the participants benefited to the same extent, as some started off from a much lower competence base (knowledge and skills) (refer to Section 8.2.2(a)) and the gains in knowledge and skills were affected by several other factors (see Section 8.37.5). The district facilitators testified that they had also benefited from the training[178] and one of them requested the trainer/researcher to assist with training more schools at another time.

9.3.2 Benefit to the learners

The effect of the programme on the learners is described by information obtained from secondary data on participants' perceptions of the effect of the strategies on their learners.[179] In general the participants were positive (94%, n=132) about the effect the strategies had on their learners,[180] which is promising as Gilmore and Vance (2007:145) found a positive correlation between teachers' overall rating of attentive listening and learners' verbal comprehension test scores. All the participants (100%, n=34) testified to the increased *'participation of the learners'* when using the newly acquired strategies and activities, especially from those

[177] They also came to realize that others are in the same boat, and that they need to support one another as teachers. Networking was also established (Line 42, Diary entry 25 on 22 March 2006 Training 1&26)

[178] Facilitators from the district were also trained. They have reported to have benefited significantly from the workshops. One facilitator asked me to help her in 2006 with a literacy programme in the city. (Line 30, Diary Entry 20 on 20 Nov 2005 reflection)

[179] The learners could segment above their means (Line 274, Focus group on WS 3 2006 new)

[180] They thought their learners have made wonderful progress - even the slow learners (Line 52, Diary entry 29 on 30th May 2006 Focus group 3(b))

learners who had been excluded in the past or would not participate[181] (refer to Appendix 6B, category 'benefit to the learners'). A particular attribute of the programme was the element of '*enjoyment*' that was experienced (100%, n=19) across contexts, and is illustrated in Figure 9-2.

Because the learners enjoyed the new activities and participated in the classroom,[182] the participants responded positively[183,] and expressed their excitement[184] with the outcomes[185]. The results of the implementation of the strategies and the benefits are summarized in Figure 9-2.

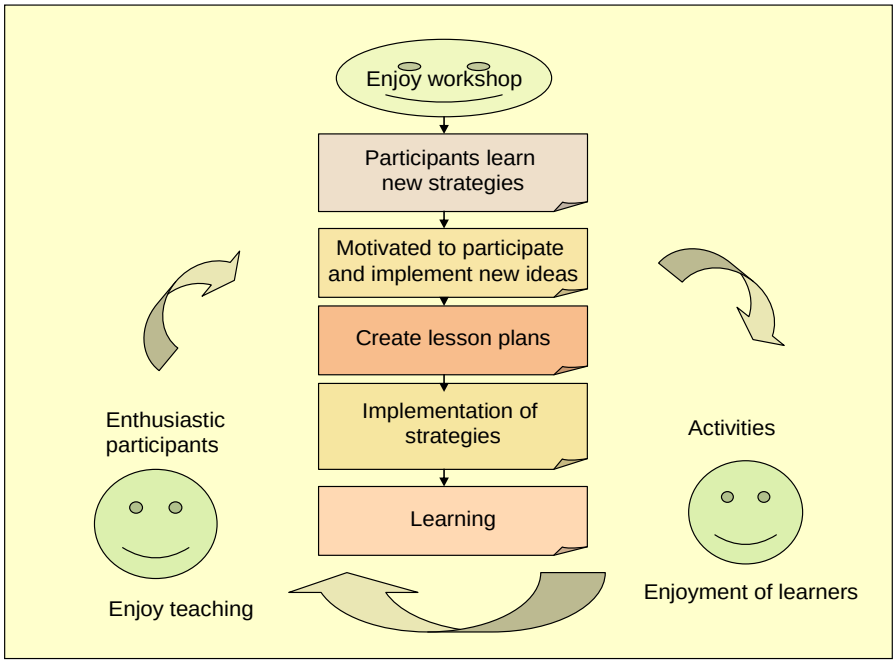

Figure 9-2: The role of enjoyment in the programme

Both the participants and the trainer/researcher benefited from the CPD programme.

[181] "Learners can tell the stories with the pictures. Even the learners who struggle, they can tell the stories. The riddles - that was so good" (Line 35, Pilot focus group 1, 2005)

[182] When teaching the story, learners were active. They were able to predict, reason, and reply. Everything worked well (Line 55, Reflection of teachers in the 2006 listening & language assignment, 2006)

[183] "These strategies provide the language development. The classes are so much fun "sometimes I look at my class and I cannot believe the difference. The children, they all enjoy the lessons so much. Sometimes I feel as if I just want to cry" (Line 46, Diary entry 16 on 13 Oct 2005 focus group 1)

[184] "It was so exciting, because the children could identify the beginning sound. It was so exciting because the children had to stop and think, and bring out the beginning sound, and even in the middle of the word". (Line 25, Focus group 1 2006)

[185] A.M "…and it appears as if YOU are enjoying the classes, you all seem to be very confident?" (Line 133, Pilot Focus group 1, 2005)

The trainer/researcher[186] gained new knowledge and skills and developed new insights into the contexts and challenges experienced by the participants. Continued reflection on the entire process led to professional and personal benefits (Dobbins, 1996: 270 as cited by Killen, 2007:98; Sowden, 2007:307). The following section evaluates whether the objectives for the programme were met.

Table 9-2: Summary of the results obtained in the outcomes component

Area assessed	Results
Implementation of strategies	70% (n=125) positive
Benefits of the programme: • Learners • Participants • Enjoyment	 94% (n=132) 96% (n= 137) 95% (n=19)

9.4 Meeting initial training needs and learning objectives

Professional development activities are designed to meet the training needs of the participants and to relate these to the organizational expectations (Marojele *et al.*, 1997:347). Inferences were made from both strands of the research and the training needs of the participants are summarized in Table 9-3.

Table 9-3: Training needs of the participants

Training needs of the participants	Were needs met? Yes / no
1. Need to meet requirements of the NCS	✔ Yes
2. Need to become more competent (knowledge and skills)	✔ Yes
3. Need to assist all learners, including those with special needs	✔ Yes
4. Need to gain more experience which would benefit their teaching	✔ Yes
5. All teachers need to be trained, not only privileged few	x No
6. Need for professional development	✔ Yes

Apart from the need expressed that all teachers should be trained (which was not the

[186] The increase in competence warmed my heart. They gained confidence. Not all the teachers equally - some more than others, depending on their participation and cooperation (Line 98, Diary entry 28 on 25th May 2006 Focus group 3(a))

intention of this programme as it was a pilot project), all the training needs were met.

According to Table 9-4the learning objectives for the training were met.

Table 9-4: Learning objectives for the training

Specific learning outcomes (LO) At the completion of the programme the participants should be able to:	Assessment standards (AS) The participants will be required to:	Assessment standards met: Yes/no?
LO1: Show an awareness of the various skills required for the Language Programme (particularly in listening, language and the language required for numeracy)	AS 1: Recognize the specific skills related to listening and language (including the language for numeracy)	✔ Yes
LO 2: Recognize the specific terminology related to the area of focus	AS 2: Recall and use the terminology used in the NCS with regard to listening, language and the language for numeracy	✔ Yes
LO 3: Demonstrate skill in the application of strategies	AS 3: Apply the strategies taught in the workshop within: - Role play - Group activities	✔ Yes
LO 4: Apply the strategies in the classroom to facilitate listening, language, and the language for numeracy and to adapt the strategies to meet their individual needs	AS 4: - Prepare a different lesson for each of three weeks by including suitable activities (story, song, rhyme, and art activity) within the general theme of the week. - Implement the strategies in the classroom - Monitor the performance of three learners throughout - Observe a peer, and be observed by a peer - Work within a group to support other trainees in the planning and implementation of the strategies	✔ Yes
LO 5: Be willing to participate, become confident and motivated to implement strategies in the classroom, be aware of their own emotions, as well as show a sense of self-efficacy	AS 5: Show a positive attitude by participating fully in the programme	✔ Yes

9.5 Estimated cost-effectiveness of the CPD programme

The evaluation of a programme is not complete without an assessment of "…the bottom line" (Rae, 2002:171). The professional development model requires not

only a description of how well the programme was conducted, but also whether it was cost-effective (Monyatsi *et al.*, 2006:218). Cost-effectiveness is more suitable in describing a CPD programme's value than a return on investment analysis (ROI), as too many factors affected the outcomes. It is also preferable to a cost-benefit analysis because of the question: "what can be considered as the benefit?" The benefits in this case were partly described by using qualitative measures and could not be quantified clearly. However, an attempt was made in this case to attach an estimated monetary value to the programme as a starting point for future planning.

To only consider development cost may be short-sighted, as the real value of the programme still needs to be uncovered when applied within the wider community, which decreases the cost per trainee dramatically. Based on the cost-effectiveness of this CPD programme, four different models have been investigated and are presented in Appendix 9A. A summary of the cost for each of four options, of which the current programme is Option 1, is depicted in Table 9-5.

Table 9-5: Summary of cost for each of the four options per training unit

Option	No of teachers attending per school	Number of schools represented	Rate per teacher trained	Estimated cost-ratio of teacher's annual salary
1	4	12	R431	0.4%
2	4	3	R1,474	1.5%
3	8	3	R859	0.9%
4	4	5	R996	1.0%

Should the proposed programme (refer to Table 9-5) be implemented across a much wider community, the cost per trainee is estimated to be R431 per teacher, which accounts for approximately 0.4% of a teacher's average annual salary. The composition of the current programme implied that each trainee spent 40 hours in the programme, which amounts to 3% of a trainees working time per year (if

estimated at 32 weeks teaching and 8 hours work per day). In most professions (including teachers) between 5% and 10% of working time should be allocated to continuing professional development in order to maintain or acquire new skills (Miller & Watts, 1990:22). A recent survey in Europe confirmed this finding (Eurydice, 2005). As this programme used 40 hours (3.1%) of teaching time per year, it is considered cost-efficient in terms of time. It also leaves sufficient time for covering other topics and activities.

When changing the parameters for each unit, the cost changes as well. With reference to Table 9-5 it appears as if Option 2 was the least cost-effective, and Option 3 to be the most cost-effective of the three options. The number of teachers attending per school is doubled to 8, but only three schools are included in the cluster. In this option 24 trainees from 3 schools are trained in each cluster at a cost of R859 each. In this case two groups of 12 teachers will sit around a table. When the number of schools is increased to five schools per cluster with four teachers per school in Option 4, the cost per trainee is slightly higher (R996.00), but much less than in Options 1 or 2.

This particular CPD module has the potential to be implemented across a much wider community of foundation phase teachers. It is recommended that this programme be implemented as a pilot project for a period of one year and then re-evaluated to assist in the planning thereof.

9.6 Critical assessment, summary and conclusions

9.6.1 Critical assessment of outcomes of the programme

The real-world context in which the study was conducted, was complex and did not permit simple causal inferences to be made (Guskey, 2002:50) between outcomes

and performance. Simultaneously, the Department of Education launched several systemic reform initiatives aimed at improving education standards (e.g. the Dinaledi initiative (SAinfo reporter, 2008), and the 'Kha Ri Gude Literacy Project' (South Africa Info, 2008). It was nevertheless possible to collect sufficient evidence that the participants gained in several ways, which reportedly also benefited their learners. The acquisition of knowledge was partly shaped by the way in which the participants responded to their contexts (schools). From a methodological perspective, the use of anecdotes and testimonials from the Learner Support Educators was subjective, but nevertheless provided personalized evidence in terms of the value of the programme.

9.6.2 Summary

The outcomes evaluated the implementation of the information taught in the workshops, the value of the programme, as well as how the participants experienced the effect of the strategies on their learners. The results showed that the information trained was transferred to the work situation through the completion of assignments, and participants were of the opinion that their learners have benefited from the strategies used, indicating that the initial objectives for the programme were met (Mervin, 1992:14). Finally, the cost-effectiveness of the programme was estimated (Rae, 2002:13) and four proposed financial models were compared. It was postulated that a better quality of support could be provided to smaller groups within a cluster approach but over a longer period of time. The challenge, however, appears to be balancing cost with quality and to find an acceptable middle ground.

9.6.3 Conclusions

In conclusion, Table 9-6 summarizes the strengths and limitations of the programme

using a three-point scale. The results obtained from the empirical study created a better understanding of the challenges in the context.

Table 9-6: Summary of the evaluation of the CPD programme

Component	Quantitative	Qualitative	Conclude
Input			
Training needs of participants	☺	☺	☺
Prior support provided	😐	😐	😐
Prevailing conditions:			
Input strengths		☺	☺
Input challenges	☹	☹	☹
Process			
Relevance and use of the information	☺	☺	☺
Training approach	☺	☺	☺
Assessment methods:			
Questionnaires	☹	☹	☹
Portfolio assessments	😐	☺	☺
Focus groups	☺	☺	☺
Diary entries	☺	☺	☺
Attendance	😐	😐	😐
Trainer's skills	☺	☺	☺
Factors affecting the process:			
Timing	☹	☹	☹
Venue		☹	☹
Output			
Knowledge	☺	☺	☺
Skills	☺	☺	☺
Attitude	☺	☺	☺
Outcomes			
Implementation in the classroom		☺	☺
Value to the participants		☺	☺
Impact on learners		☺	☺
Meeting objectives		☺	☺
Cost-effectiveness	☺		☺
Key	☺ Positive	😐 Neutral	☹ Negative

The process component, however, shows room for improvement as a number of aspects need to be changed to make the programme more effective. Such an evaluation of a programme is constructive, as it is done for improvement (Patton, 2002:10). The exploratory nature of the research identified an inherent causal relationship between the context and outcomes of the programme, which according to Johnson and Christensen (2004:23) is the "… key purpose of science". The inferences drawn from the research generated several recommendations for future programmes, which are discussed in Chapter 10.

9.7 Appendix

This appendix is available on the separate Compact Disk.

Appendix 9A *Cost-effectiveness of the CPD programme*

Chapter 10 Conclusion and critical review

"It is good to have an end to journey towards, but, it is the journey that matters in the end"

(Ursula Guin)

Aim of the chapter

The aim of Chapter 10 is to draw the final conclusions from the empirical research, to legitimize the inferences, to derive its implications in practice and the wider education community, and to make recommendations for future research. The topics to be discussed in this chapter are depicted in Figure 10-1.

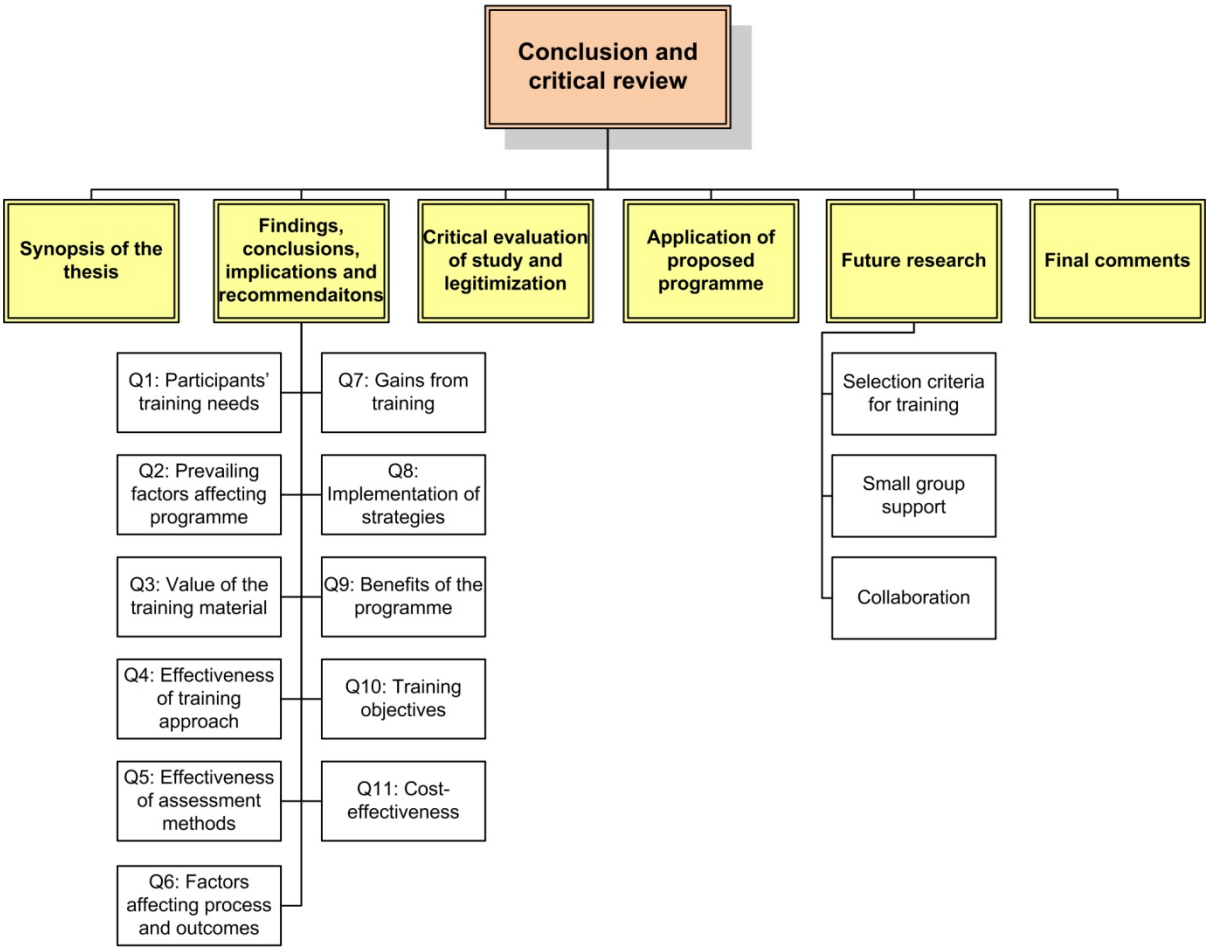

Figure 10-1: Outline of Chapter 10

10.1 Synopsis of the study

A synopsis of the research is provided as framework for formulating the conclusions that have emanated from the study.

Chapter 1 located the study within the historical and political context of South Africa and the process of educational reform. Owing to the current challenges experienced in education the need was identified to develop a specific CPD programme to support foundation phase teachers to facilitate listening and language skills (with particular emphasis on the language for numeracy). The research focused on evaluating a specific CPD programme and the researcher took a pragmatic stance to accommodate the complexity of programme evaluation within the specific context. The chapter concluded by clarifying the terminology and by providing an outline of the various chapters.

Chapter 2 focused on the continued professional development (CPD) of foundation phase teachers. A specific CPD model was proposed that consisted of a training, mentoring, and practical component. These three components aimed at improving teachers' foundational, practical, and reflective competencies.

Chapter 3 emphasized the importance and interrelationship between listening and language (particularly language for numeracy). Three workshops ('Listening for learning', 'Language for learning', and the 'Language for numeracy') were proposed to develop the foundational competence of teachers, as well as practical and mentoring components to contribute to their professional growth.

In order to provide guidance in the evaluation of the CPD programme, *Chapter 4* reviewed the principles of programme evaluation by critically assessing evaluation theories. The Logic Model approach with its input, process, output and outcomes components was selected for the evaluation of the programme as it is

comprehensive. The key aspects of programme evaluation were addressed, namely the assumptions and prerequisites, factors that could potentially affect the evaluation, stages of the evaluation process, and the challenges encountered in programme evaluation.

Chapter 5 presented the methodology of the research. The study was conducted over two years in a semi-rural context and an urban context with informal settlements. A mixed methods approach was used to collect and analyze the data (Greene & Caracelli, 1997b:1). The data were obtained from questionnaires prior to and after each training session, portfolio assessments, focus group discussions, and the analysis of documents and photographs. The research results were discussed in *Chapters 6, 7, 8 and 9*, where eleven research questions were formulated within the Logic Model framework and systematically addressed. Inferences made from the qualitative and quantitative strands of the research were corroborated by quantifying the qualitative findings through triangulation, discussed and interpreted.

In conclusion, *Chapter 10* firstly provided a summary of the key findings and conclusions, and aligned these in table format with the implications for the development of the CPD programme, and recommendations for future use in schools, as well as the implications for education in general. A critical evaluation of the research legitimized the findings, and was followed by a plan to apply the CPD programme within in a wider community. Finally recommendations were made for future research, followed by the final comments.

10.2 Key findings, conclusions, implications and recommendations

The key findings, conclusions and implications are summarized in table format in order to align the various aspects in a logical manner. The table format also

provides a means by which to integrate the various aspects and allows a large amount of information to be condensed.

10.2.1 Question #1: What were the participants' training needs?

Table 10-1 summarises the findings regarding the needs of teachers with respect to the NCS.

Table 10-1: The participants' training needs

Key findings and conclusions	Impact on output of training	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
Participants required support with implementing the NCS Participants expressed a need for CPD activities to equip them with knowledge and skills in order to facilitate listening and language skills.	Participants were motivated to learn because they had a need for more knowledge and skills in implementing the NCS.	The results emphasized the importance of developing this specific CPD programme to support foundation phase teachers in facilitating literacy and numeracy.	Speech-language therapists working in the education environment need to work within a consultative and collaborative framework by providing support on both district and school level.	There is a need to develop foundation phase teachers' content knowledge in numeracy (with specific emphasis on the language required for numeracy).
Not all the participants received equal levels of support. Participants from the semi-rural areas had previously received less support than those from the urban context. Participants with more advanced qualifications could use their prior knowledge as a scaffold in acquiring new knowledge.	The difference in prior support and a disparity in qualifications resulted in some participants entering the programme from a much lower knowledge base than their counterparts.	It may be necessary to provide pre-training of particular terminology and basic concepts related to the NCS.	In a collaborative approach to service delivery the district facilitators can be employed to provide pre-training support.	It is necessary to take cognizance of the differences in teachers' prior knowledge and competence for the purpose of in-service teacher development.

Findings confirmed that teachers experienced a need to increase their competence in implementing the NCS, which in turn emphasized the need for a CPD programme to support teachers in a manner that takes their unique prior knowledge and skills into consideration.

10.2.2 Question #2: Which prevailing factors affected this programme?

Various factors were identified which impeded the outcomes of the programme, as discussed in Table 10-2.

Table 10-2: Prevailing factors that impacted on the progamme

Key findings and conclusions	Impact on output of training and/or research	Implications and recommendations		
		Implication for the development of the CPD programme	**Implication for use of proposed CPD programme in schools**	**Implications for education in general**
Challenges within the system				
Large classes and limited resources and infrastructure impacted on teaching and learning, and undermined participants' morale. *Limited infrastructure* made teaching and learning ineffective. Such conditions impact on the quality of teaching and learning (Reed, Davis & Nyabanyaba, 2003:139)	English worksheets were more readily available, butt hese often did not meet the level of learning required (Thusi, 2006:26). Teachers also favoured English materials (Pliiddemann *et al.*, 1998:317). The use of resources in an additional language in the foundation phase may affect teaching and learning. Participants experienced disciplinary problems implementing the strategies in *classes with large numbers of learners,* and became despondent. Teachers reported that classrooms were noisy, partly because many of the learners in these contexts came from poor family homes and therefore had to borrow the necessary stationery from each other. The resulting noise and talking in class were not conducive to learning.	These factors are not within the control of the programme and therefore need to be addressed on district and national level. Additional classrooms and desks are needed, and class sizes need to be reduced or, alternatively, teachers have to be equipped to manage large classes (through skills training and/or classroom assistants, both of which have cost implications).	Teachers need strategies to deal with large numbers of learners. Learners in the foundation phase have to learn the basic concepts in L1, which ideally should be the LoLT (Department of Education, 2002:3). Teaching materials need to be developed in the LoLT.	The findings confirmed existing knowledge about institutional conditions. Teachers also require teaching resources. The needs of dysfunctional schools should be addressed within a systemic model of support (Khoza, 2007:2). This calls for cooperation and coordination of various stakeholders and includes budgeting from government. All support should be evaluated.

Table 10-2: (Continued)

Key findings and conclusions	Impact on output of training and/or research	Implications and recommendations		
		Implication for the proposed CPD programme	**Implication for use of the proposed training programme in schools**	**Implications for education in general**
		Learner-related challenges		
Many learners in these contexts were not school ready.	The implementation rate of lesson plans was slow. As a result it appeared as if the participants were not effective in their classrooms.	The expectations of the trainer/researcher were too high for this context. Rather than implementing new lesson plans every week, participants required three weeks for each lesson plan.	The pace of teaching is slow as it is influenced by the pace of learning of the weakest learner in class (Reeves & Long, 1998:322). The imple-menttation of each lesson plan requires at least two to three weeks.	The inclusion of Gr. R in the NCS to facilitate school readiness is a critical need that is currently being addressed on national level (Department of Education, 1997). Gr. R teachers need to be supported to facilitate school readiness, which may require intensive in-service training programmes (Tracey & Hlope, 2007:6).
		Participant-related challenges		
Qualifications: Some participants (29%) were underqualified or inadequately qualified and therefore came from a much lower knowledge base than others. Prior knowledge provides a scaffold for the acquisition of new knowledge, which makes training programmes more effective.	Underqualified or inadequately qualified participants were at a disadvantage, as they did not have an appropriate knowledge base to facilitate the acquisition of new knowledge. As teachers are expected to be specialists in their subject fields, these participants may have felt vulnerable and threatened, and some even appeared to be despondent (Gouws & Dicker, 2006:416), or suffered health problems as a result.	Trainers need to be flexible in accommodating trainees with varying levels of prior knowledge and/or academic backgrounds. Selection criteria will allow for programmes to be designed for specific groups.	In-service training programmes may have to be custom-made for groups according to the trainees' educational backgrounds by using specific selection criteria. It should not be seen as exclusionary, but a method by which more appropriate and effective training could be provided that suits individual needs.	Findings from the study indicated that the use of a single in-service programme for a heterogeneous group was not necessarily the most effective manner of support. A stratified approach based on specific selection criteria will allow for programmes to be designed to suit particular needs. Such an approach should not be regarded as exclusive, but should aim at providing more effective support for specific groups.

Table 10-2: *(Continued)*

	Implications and recommendations			
Key findings and conclusions	**Impact on output of training and/or research**	**Implication for the proposed CPD programme**	**Implication for use of the proposed training programme in schools**	**Implications for education in general**
Language use: The use of language has widespread implications for teaching and learning, as well as for teacher support and research. Although English was an additional language for all the participants, they had to attend the CPD programme in English. Language proficiency in English impacted on participation and learning, and also on the research.	Limited language proficiency in English inhibited the participants to express themselves freely, and therefore could have impacted on participation in the programme and their learning. Despite the availability of translators/interpreters (district facilitators) and encouragement to participate in their L1, the participants mostly preferred to participate in English because of the high social status attached to this language and because they did not want to be portrayed poorly. The trainer was not able to provide impromptu examples in the LoLT, and the district facilitators (serving as translators and interpreters) were not necessarily able to assist, as they were not familiar with all the concepts. Language use also impacted on the data collection procedures, resulting in a low response in the questionnaires and portfolio assignments. It even may have affected the following of instructions. Language use in the classroom could also impact on teaching and learning because of diversity and the LoLT. Teachers and/or learners are not necessarily proficient in the LoLT.	Training materials should include examples in the LoLT to accommodate diversity. This implies providing examples in several of the official languages of South Africa, which may be challenging to the trainer.	District facilitators who are proficient in an indigenous language can be employed to conduct the workshops by code switching between English and the LoLT. This implies that district facilitators need to be empowered to conduct such training. Support by SLTs therefore can also focus on the 'training of the trainers'.	There is a need for training materials that accommodate diversity. Training materials with examples in the LoLT therefore need to be developed. Code switching is imperative for effective teaching, not only in schools, but also in training programmes. A possible option to be investigated would be to include district facilitators as co-trainers as they are often proficient in the LoLT. Alternatively, support from a knowledgeable translator and/or interpreter can be obtained when training conducted in English. Should it be found that district facilitators can be included as co-trainers, they will require training, which may have cost implications that need to be budgeted for. Factors specifically related to the system need to be addressed by planning on national level, and implementation on provincial level.

The prevailing factors should be considered in future as they affect teaching, learning and outcomes of the programmes.

10.2.3 Question #3: What was the value of the training material?

Question #3 is answered in Table 10-3, which confirmed the relevance and use of the training material.

Table 10-3: The value of the training material

Key findings, conclusions and challenges	Impact on output and outcomes	Implications and recommendation		
		Recommendations for the proposed CPD programme	**Recommendations for use of training programme in schools**	**Implications for education in general**
The training material was *useful* and *relevant* to the NCS and can be used in future programmes.	The material equipped the participants to deal with the challenges and seize the opportunities in their classrooms while implementing the NCS. As life-centred, task-centred, and solution-driven adult learners, the participants were motivated to learn.	The material can be used in future programmes.	To make it more effective, the material needs to be presented in smaller sections, but over a longer period of time.	The information is relevant to the NCS and contributes to a basic understanding of the underlying concepts of literacy and numeracy. The training material can be included in more comprehensive CPD programmes that are implemented on provincial and national levels.
Information necessary or unnecessary: The information was considered necessary and important, but too much for the time available. For several of the participants the information was new, while for the majority it was a confirmation of their existing knowledge. All paraticipants gained in knowledge	Adjustments need to be made to the amount of information trained per session. Less information needs to be presented at a time, as it will allow for more time to review and for better understanding. The programme had a renewal function for participants who had some prior knowledge, whereas it had an expansion function for those who had no prior knowledge (Grundy & Robinson, 2004:146).	Shorter sessions with less information to limit fatigue are recommended. Teachers want to leave early to get transport and are tired after a day's work. As the information may be new to many of the participants, it is prudent to present the material at a slow rate and allow for ample opportunity to internalize the information.	Less information has to be trained per session, but in more sessions over time. Prolonged engagement will be to the advantage of the programme. It may be necessary to group participants according to their prior knowledge or educational levels, and adjust the workshops accordingly.	Teachers' insufficient prior knowledge impacts on the quality of teaching and learning. CPD of teachers must continue to be a national imperative, particularly for teachers with limited educational backgrounds.

10.2.4 Question #4: How effective was the training approach?

The value of the training approach (consisting of training, practical and mentoring components) is discussed in Table 10-4.

Table 10-4: The value of the training approach

Key findings, conclusions and challenges	Impact on output and outcomes	Recommendations for the proposed CPD programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
		Learning will be more effective if terminology/vocabulary and the underlying principles of literacy and numeracy are pre-trained in the briefing session prior to training. The participants in this context may require additional small group training sessions to enrich their basic knowledge base. It is also recommended that the video material be expanded as participants in this specific context preferred watching a video demonstrating new strategies rather than reading a manual.	The cluster model of support is recommended rather than large workshops. Such cluster training sessions can be conducted at a venue that is central to the cluster schools within a given community to make them more accessible and limit transport costs. It is suggested that no more than four schools be clustered together and that three or four teachers from each school are selected, together with a member of the school management team (e.g. the principal or HOD) and the district facilitators.	This approach of teacher support can now be applied in more contexts to determine the transferability of the findings, before it is implemented on a larger scale in other provinces.
Training methods: Action learning strategies were valued and enjoyed.	Action learning strategies accommodated all learning styles and were effective.	More time should be allowed for reflection and the affective dimension of learning should also be included for more effective training.		Action learning was found to be effective in this study as it enhanced the participation of all trainees.

Table 10-4: *(Continued)*

Key findings, conclusions and challenges	Impact on output and outcomes	Recommendations for the proposed CPD programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
The practical component: The practical component provided the participants with opportunities to implement strategies in the classroom. Participants gained skills that many of them did not have before the training. The findings also emphasized the value of school-based support groups and group learning.	The portfolio assignments elicited negative feelings as some participants were of the opinion that it added to their workload. Others valued the opportunity to learn and participated well. Many of the participants did not know how to reflect on their practices, and omitted this aspect from their portfolio assignments. The core group had a high submission rate of portfolios, in contrast to the entire group who attended as substitutes and therefore were less committed to participate fully. .	Workshops should be conducted in shorter sessions of not more than 2-3 hours. These sessions need to be provided at regular intervals (e.g. four sessions conducted on a specific day of the week for four consecutive weeks). The implication would be prolonged engagement over a longer period of time, which may also benefit learning.		
The mentoring component: The participants valued the learning support materials, particularly the video material. It was questioned whether the effort and money invested in them would pay dividends. The mentoring component included feedback on lesson planning and school-based support groups where the participants could mentor each other.	The manuals were not used sufficiently, as many of the participants did not like reading or writing, which reflected low literacy/educational levels. The participants in this study were inexperienced in reflective practices, which caused them to omit this aspect from their portfolio assignments.	Future programmes need to focus more on the reflective competence and specifically train teachers how to reflect.	Future research should investigate the effectiveness of mentoring that includes class observations and shadowing by an expert teacher or other professional who has to provide more personal guidance to teachers that require additional support. Although individualized support is costly it can be provided by more experienced and/or competent teachers in the school. If mentors can be identified beforehand and trained they can be used to support their colleagues who require more individualized support.	

Table 10-4: *(Continued)*

Key findings, conclusions and challenges	Impact on output and outcomes	Recommendations for the proposed CPD programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
Due to factors related to time the portfolio assignments were not sufficiently reviewed during the workshops. Some participants did not obtain clarity the first time was assignments were explained.	More time is required to review the portfolio assignments during the workshops.	Existing lesson planning formats should be used to show participants that the assignment does not add to their current workload, but forms part of it.	It is suggested that district facilitators do follow-up visits in the classrooms as participants need confirmation that they are implementing the strategies in the correct manner.	The acquisition of reflective skills will increase the competence of teachers and is a crucial aspect to the success of outcomes-based education (OBE). The districts have to address this issue continuously.
		More opportunity should be provided for personal development activities (e.g. reflection and group discussions) in the workshops as this may result in a change in behaviour (Reed *et al.*, 2003:130).		

10.2.5 Question #5: How effective were the assessment methods?

An evaluation of the various assessment methods used is presented in Table 10-5. The results showed that none of the assessment methods could be used in isolation, but inferences that are more credible were created by using questionnaires, portfolio assessments, focus groups, and the research diary in combination within a mixed methods approach.

Table 10-5: Value of the assessment methods used

Key findings, conclusions and challenges	Impact on output of training	Implications and recommendations		
		Recommendations for the proposed CPD programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
Questionnaires: Questionnaires were unreliable in this context as too many factors impacted on them.	Not everyone who attended the workshops completed all the questionnaires and non-response was high, especially with regard to post-training questionnaires.	Questionnaires should not be used to assess knowledge gains. They are more suitable to collect demographic data, opinions and values.	The use of questionnaires should be limited because various factors (language proficiency, literacy levels, factors related to timing and attendance) affect the reliability. Questionnaires are unsuitable to assess knowledge as they focus on knowledge recall (shallow learning) and not understanding.	
Portfolio assessments: Portfolio assessments were a suitable assessment tool but should be used in combination with other assessment methods. The portfolio assignment created a valuable learning experience. The value of the training was determined by the participants' completion of a portfolio assignment.	Portfolios cannot be used on their own as they were too subjective and created negative feelings in some participants because of the additional work. School-based group support was valuable and effective, although in some instances participants copied from one another. Non-response in the self-evaluation section was high because the participants were unfamiliar with reflective practices.	Portfolio assessments require sufficient review in the workshops to ensure clear understanding of the requirements. Practical examples will contribute to successful completion. Follow-up school visits by district facilitators are required to support the participants with the completion thereof. Effective training needs to be included in the workshop. All efforts should be made to ensure high submission rates.	Portfolio assignments need to be completed with the support of school-based support teams, as well as follow-up visits by district facilitators. Sufficient time for review in the workshops is required to ensure that participants understand the instructions and requirements. Participants need to be encouraged to complete them in their language of choice.	The portfolio assessment is a valuable assessment method but requires sufficient support structures to ensure high submission rates.
Focus groups: This type of assessment was appropriate for the context. It was effective in assessing the value of the training and became part of the intervention as the participants were given the opportunity discuss their issues.	Focus group discussions provided information on the workshops and the implementation of strategies. The participants enjoyed talking about their experiences around a table, which created a better understanding of the context, school culture, and the problems encountered in the workplace.	Focus group discussions should be used to assess the value of the training.	Follow-up sessions for small groups can provide teachers the opportunity to reflect and discuss their problems. Focus group discussions provide valuable information in this regard.	Programme effectiveness should be monitored on a continual basis.

Table 10-5: *(Continued)*

Key findings, conclusions and challenges	Impact on output of training	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
The research diary contributed to the assessment procedure as it validated the procedures.	It provided helpful insight in the interpretation of findings through reflection	The research diary is a helpful tool to document the process, but cannot be used as an assessment method on its own	Trainers should document procedures and observations, and continually reflect on their practices in order to make changes. Such practices are part of evidence-based practice and therefore should be encouraged (Ebrahim & Ogunbanjo, 2003:60).	

10.2.6 Question #6: Which factors impacted on the process?

Question #6 is discussed in Table 10-6. The logistical arrangements had a critical impact upon the outcomes of the programme. They affected the attendance rate, which in turn resulted in some participants not gaining as much as those who had attended all sessions.

Table 10-6: Factors which impacted on the process and outcomes

Key findings, conclusions and challenges	Impact on the research	Implications and recommendation		
		Recommendations for the CPD programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
Attendance: Attendance and attrition affected the research as well as learning	Although the workshops were well attended, not everyone who attended the workshops signed the initial informed consent, and therefore (for ethical reasons) their data could not be included in the research. Attendance of workshops determined whether the portfolio assignment was completed, which in turn was a critical factor of learning as it focussed on applied knowledge.	Fluctuation in attendance should be accepted as a reality in these particular contexts. It is therefore necessary to design such programmes in such a manner as to include compensatory strategies. Attrition should be contained by the selection of the training venue and scheduling of the workshops.	All attempts should be made to limit attrition (e.g. training should be conducted in the townships to limit the use of public transport. Workshops should be scheduled during school holidays or on weekday afternoons after school.	Cluster training of smaller groups within schools, preferably during weekday afternoons after school, may be a more effective alternative to larger workshops at a central venue. Cluster training, however, will have cost implications that need to be budgeted for.
Logistics: - Aspects related to timing	*Scheduling* the workshops on Saturdays and public holidays caused attrition and resentment. The *length of the workshops* (which caused fatigue), together with the fact that the *workshops started late* (due to several factors) resulted in the pace of training being too fast. These factors put pressure on the trainer (the training became more trainer-directed and less trainee-directed) and therefore not enough time was spent on review and reflection, or the affective components of learning.	Workshops should be scheduled during school holidays or on weekday afternoons after school. Sessions should be shorter (not more than two-hours at a time), which will reduce fatigue.	District facilitators should be made aware of the crucial role they play in logistical arrangements. Conside-ration of logistics may contain attrition.	

Table 10-6: *(Continued)*

Key findings, conclusions and challenges	Impact on the research	Implications and recommendation		
		Recommendations for the CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
		Cluster training with four to six schools will allow training of smaller groups (12 trainees in a group) that can be accommodated by schools in the context (e.g. townships). This will be more time and cost-effective for the trainees as it will save on time to commute and travel costs, and it will be more accessible. It should also limit attrition. Cluster training will allow for groups of twelve to sit around a table, which is an effective teaching strategy within an OBE approach (Killen, 2007:167). It is also culturally appropriate in these contexts as it allows for sharing of ideas and experiences.		

Specific consideration to logistical arrangements would have increased the effectiveness of the programme.

10.2.7 Question #7: What did the participants gain from the training?

Several gains were made from the programme, and are discussed in Table 10-7 as indicated below.

Table 10-7: Gains made from the training

Key findings and conclusions	Impact on output of training or research	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
1 Gains made in knowledge: Almost all (92%) participants believed that they made gains in knowledge, which ranged from a general awareness of terminology (Bloom *et al.*, 1956) to implementation and adaptation of strategies, and training of colleagues (Miller, 1990:61).	Gains made ranged on a continuum between the use of terminology as the lowest range, to understanding, implementation of strategies, adaptation of strategies, to teaching of others (Miller, 1990:61). Knowledge of terminology proved to be scant, as English was an additional language for all participants. The training of content knowledge is necessary to improve the participants' pedagogical content knowledge (the application of the knowledge) (Adler *et al.*, 2003b:137) (Ozden, 2008:633). When teachers are learning, so will their learners, resulting in the development of a 'learning community' (Dennison & Kirk, 1990:9).	More effective training will require that: - Less information is trained per session, allowing more time for reflection and discussion. - Shorter sessions of preferably not more than 2 hours are conducted at a time. - The information is trained in more sessions over longer periods of time, allowing for prolonged engagement. - Small groups (of not more than 12 participants in a group) are trained around a table. This implies cluster training of two to three schools at a central venue in the context.	Teachers need more time to complete a lesson plan within a theme to accommodate learners who are struggling.	Workshops are an effective means by which to improve teachers' content knowledge.

Table 10-7: *(Continued)*

Key findings and conclusions	Impact on output of training or research	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
2. 'Knowledge-in-practice' gains: Participants learnt to address learning outcomes and assessment standards in the NCS. Findings in the urban context indicated a correlation between knowledge gained in the workshop and knowledge gained in practice. An increase in factual knowledge also impacted positively on the practical competence, confirming the value of workshops in improving teachers' competence. These findings did not hold true for the semi-rural context. This might be due to them coming from a very low knowledge base as a result of less prior support and a number of other factors e.g.	Reasons for poor performance in portfolios included the slow rate of work done in the classroom, educational backgrounds, and language proficiency.	To develop more effective CPD programmes it is necessary to first determine the contextual barriers that exist in the context prior to developing the programme (Bomna *et al.*, 2006:412)	Workshops combined with the implementation of knowledge in the classrooms improve teachers' competence and therefore such an approach is effective in CPD programmes.	
a) Slow work pace: Performance in portfolio assignments was related to the slow implementation rate of lesson plans in the classroom. This probably was because the teachers' pace of teaching correlated with the pace of learning of the weakest learner in the class (Reeves & Long, 1998:322).	Participantsrequired more time to complete a lesson plan that should have been completed within a week. This resulted in them performing poorly as their portfolios seemed incomplete.	The trainer/researcher's expectations were too high for this context and needed to be adjusted. More time should be allowed for the implementation of each lesson plan, and the scoring procedure (rubric) should be adjusted.	Participants need to be supported to complete portfolio assignments. School visits by the district facilitators are required, as well as mentoring by an expert teacher or outside consultant.	Accountability should be enforced. Clear expectations between various levels of the system are necessary (Khoza, 2007:3).

Table 10-7: *(Continued)*

Key findings and conclusions	Impact on output of training or research	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
b) Age and qualifications were determining factors in how much was gained from the programme.	Younger participants (<36yrs) and qualified participants (e.g. diplomas and degrees) gained significantly more than older participants (>36 yrs) and/or participants with non-accredited qualifications or no qualifications. The latter gained the least.	Participants with lesser qualifications require considerable support to benefit from a CPD programme such as this. Effective mentoring may provide the required support.	If specific selection criteria can be applied to CPD programmes, more effective support can be provided to accommodate both these groups. Participants who stand to gain less from training require additional support (e.g. mentoring), whereas those who are more competent may be supported to become mentors to their colleagues who require additional support.	In-service training of teachers needs to be reviewed as a 'one-size-fits all" approach is not effective.
c) Prior knowledge provides a scaffold for acquiring new knowledge. Participants with prior knowledge gained more from this programme than those who received less prior support. Such prior content knowledge also appeared to have impacted on their teaching practices as participants with formal qualifications, or those who have received more prior support performed better in the portfolio assignments. The value of prior knowledge is recognized as having an effect on teachers' performance and competence.	Participants in the semi-rural group gained more than the urban group, possibly because they came from a lower base (as a result of less prior training). Participants from schools where less prior support has previously been provided (e.g. in semi-rural contexts) require more support in the completion of portfolio assignments.	If certain selection criteria for CPD programmes can be applied, teachers who stand to benefit less from workshops can be identified in advance and be provided with additional support, e.g. mentoring, or they can receive more effective training.		

Table 10-7: (*Continued)*

Key findings and conclusions	Impact on output of training or research	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
d) Participation (attendance of workshops and willingness to submit a portfolio assignment) was pertinent to how much gains were made.	The more workshops attended, the better the participants performed, as they could build on knowledge gained in previous workshops. It was more likely that those with good attendance would complete at least one assignment. It was the completion of the assignments that determined whether the participant has gained because it allowed them an opportunity to reflect on their practices and to review the workshop material in the handouts	Workshops of this nature need to be encouraged as they provide opportunities where an additional layer of knowledge is supplied from which future programmes can draw. Sufficient support must be provided to ensure that participants complete the portfolio assignments in order to bring about 'knowledge-in-practice' (Adler *et al.*, 2003b:137).		Workshops alone may not yield effective results. Teachers learn most when actually applying the strategies in class. Training programmes therefore have to simultaneously address both these aspects. To ensure carry-over from workshops to the classroom, teachers should be adequately supported to facilitate implementation. District facilitators need to do school visits following training to assist teachers with the implementation of strategies in their classrooms and to support them in the completion of portfolios. School-based support groups are also important for carry-over of workshop strategies.
e) The context also affected the participation (motivation) and how much participants gained.	Participants from specific schools performed similarly and reflected similar attitudes. Findings also showed that participants from schools with better social support from management teams gained more and participated better.			
3. Change in attitude All participants made some attitudinal gains.	The portfolio assignments induced negative feelings in some participants while others valued the opportunity to learn new skills.	Members from school management teams should be included in the group that is being trained from each school as social support was found to enhance training effectiveness (Tannenbaum, 1997:437).		Workshops can boost teachers' self-confidence (Griffiths, 2007:120). Teacher confidence is directly related to teacher competence and the ability to facilitate learning (Killen, 2007:37).

Table 10-7: *(Continued)*

Key findings and conclusions	Impact on output of training or research	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
The programme *motivated* the participants to implement the strategies in their classrooms. Motivation to participate in portfolio assignments was school related.	Motivation to participate in portfolio assignments was influenced by timing (duration and scheduling) and the context, as none of the participants from specific schools submitted any assignments.	Social support of CPD activities will also change the school culture in terms of learning.		It is important to create opportunities where teachers can develop confidence. An approach where teachers acquire knowledge and implement it in practice is therefore most suitable.
Gains were made in *confidence,* particularly as a result of completing portfolio assignments. There was no relationship between the participants' perception of confidence and their actual performance in portfolio assignments, which indicated the participants' limited insight.	Gains were made in confidence as portfolio assignments provided participants the opportunity to develop lesson plans with specific activities that they were unable to do before. Self efficacy of teachers is related to learners' performance (Gibson & Dembo, 1984:581). Some participants became empowered to such an extent that they could train their colleagues.	Portfolio assignments need to be included in teacher support programmes as they allow teachers to develop not only theoretical knowledge and skills, but also confidence.		

The gains experienced by the participants varied, and were determined by the participants' prior knowledge, age, qualifications, context, and attendance. These findings suggested the need for a differentiated approach to teacher support as a single programme did not appear to be equally effective for all participants.

10.2.8 Question #8: How were the strategies implemented?

When considering the outcomes of the programme following each workshop it was important to evaluate the implementation of strategies in the classroom (refer to Table 10-8).

Table 10-8: Implementation of strategies in the classroom

Key findings, conclusions and challenges	Impact on output of training	Implications and recommendations		
		Recommendations for the proposed CPD programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
Strategies were mainly implemented in the LoLT. The participants were enthusiastic about the results obtained, which enhanced their ability to reflect on their practices. (a)) 'Listening for learning': Specific strategies to facilitate literacy (e.g. phonological awareness training) were successfully implemented by several participants, while others were unfamiliar with phonological awareness skills and had previously excluded them from the curriculum. More examples in the LoLT were required to effectively teach these skills. The 'balanced approach' of combining the whole language approach with the training of discreet skills was particularly valued in the Literacy area.	The use of English as language of training of phonological skills was problematic as it was not necessarily possible for participants to transfer such knowledge to the LoLT.	Phonological awareness training requires more review and more examples in the LoLT. District facilitators who are proficient in the LoLT need to be included in the preparation of the material, and should also be trained to become co-presenters in workshops. Alliteration (in lieu of rhyming) should be emphasized when training teachers whose first language is not English. The importance of code switching needs to be emphasized in future programmes.	Code switching is very important when introducing new concepts (Du Plessis, 2005:47; Paul, 2001:190). Phonological awareness should ideally be trained by a trainer who is proficient in the LoLT. Training material should include adequate examples in the LoLT.	Training material with sufficient examples in the LoLT needs to be developed to accommodate diversity.

Table 10-8: *(Continued)*

Key findings, conclusions and challenges	Impact on output of training	Implications and recommendations		
		Recommendations for the proposed CPD programme	**Recommendations for use of the proposed training programme in schools**	**Implications for education in general**
(b) 'Language for learning': The use of themes with stories, songs, rhymes and art allowed the participants to integrate several assessment standards (ASs). The participants' own limited conceptual knowledge became apparent.	The programme allowed teachers to address specific assessment standards that they could not do prior to training.	The correct use of language by teachers needs to be emphasized in future programmes. Basic concepts and how to teach them need to be continually trained in workshops, as it cannot be assumed that teachers have the basic knowledge.	CPD programmes need to address the conceptual knowledge base of teachers in numeracy first, in order for them to be able to teach the learners.	As language is the key to all learning, it is critical for teachers to be competent in the teaching of language skills in the foundation phase. Continual support is required in this area.
(c) 'Language for numeracy': Standard terminology confused learners who use context-specific language to describe basic concepts. Teachers' own limited conceptual base and/or English language proficiency was evident from their inability to address certain numeracy concepts.				

The findings show that the strategies were implemented in the classroom, which created the opportunity for hands-on experience. Several of the participants reported that they had previously omitted LOs and ASs because they did not know how to do it, but that they were able to do it after attending the workshops. They particularly valued the combination of phonological awareness training with the whole language approach for literacy learning.

10.2.9 Question #9: What were the benefits to the learners?

The evaluation of the outcomes of the CPD programme also addressed the benefits of the programme for the learners, which are discussed in Table 10-9.

Table 10-9: Benefits to the learners

Key findings, conclusions and challenges	Impact on output of training and/or research	Implications and recommendations		
		Recommendations for the proposed development programme	Recommen-dations for use of the proposed training programme in schools	Implications for education in general
Participants reported positive gains made by learners in the literacy learning area, and were excited that by doing the activities they were able to include all learners, even those who had previously been excluded. The activities were enjoyed, which in turn motivated the participants.	The fact that the learners enjoyed the workshops motivated the participants to apply the strategies in class. The participants enjoyed their classes.	Future programmes need to evaluate the effect of the programme on the learners. This will require that learners from three consequetive year grous be assessed for listening, language and language for numeracy competence and be compared,		The strategies and activities included in this particular CPD programme are fun, and provide learners the opportunity to actively engage in their learning and to construct their own knowledge. When activities are enjoyed it enhances learning.

Several of the participants reported that their learners showed improved competence in literacy-related skills because they were better able to explain the activities. Many participants were excited because they could now include all the learners, which was not necessarily the case prior to their participation in the programme.

10.2.10 Question #10: Were the training objectives achieved?

Table 10-10 shows how the training objectives were met.

Table 10-10: Training objectives met

Key findings, conclusions and challenges	Impact on output of training and/or research	Implications and recommendations		
		Recommendations for the proposed CPD programme	Recommendations for use of the proposed CPD programme in schools	Implications for education in general
All the training objectives were met as the participants gained in knowledge, skills and attitude, although not equally.	By the end of the programme the participants could: - Describe the various skills required for literacy and numeracy development. - Identify the appropriate vocabulary to describe the various skills required for literacy and numeracy. - Demonstrate the use of strategies to facilitate listening and language for numeracy. - Respond positively to the strategies trained. The participants valued the information presented in the training.	Previous recommendations regarding logistics and training procedures need to be implemented to obtain better results (e.g. scheduling, choice of venue, cluster model of support, shorter sessions, less information per session).	The CPD programme is suitable for use in schools, but will be more effective if recommendations regarding logistics and the training procedures are employed.	CPD activities are designed to meet the training needs of the trainees, and to relate these to the organizational expectations (Marojele *et al.*, 1997:347). It may be necessary to consider a differential approach to CPD, where specific selection criteria are applied in order to develop more effective training. The possibility of a true mentoring programme should be investigated as mentoring could help teachers integrate the NCS and strategies learnt in workshops into their teaching practices (Bomna *et al.*, 2006:411). Language is a critical issue that needs to be considered.

The objectives for the programme were met, but the programme would be more effective if the recommendations for improvements are implemented.

10.2.11 Question #11: Was the programme cost-effective?

Finally, the value of the programme is determined by its cost-effectiveness, which is discussed in Table 10-11.

Table 10-11: Cost-effectiveness of the programme

Key findings, conclusions and challenges	Impact on output of training and/or research	Implications and recommendation		
		Recommendations for the proposed development programme	Recommendations for use of the proposed training programme in schools	Implications for education in general
The programme was cost-effective as the rate was estimated at R431 per trainee, which amounts to 0.4% of a teacher's annual salary. The programme was also time effective as it accounted for 3% of a teacher's working time (which is less than the suggested 5-10% of working time for such activities) (Miller, 1990:22).	The programme was effective in terms of time and costs, which makes it suitable for use in these contexts.	Better support could be provided to smaller groups within a cluster approach, spread over a longer period of time.		The challenge is to balance cost and quality. The choice lies between higher quality support with fewer participants at a time within a cluster model, or the more reasonable option of training larger groups as in the proposed model.

The findings indicated that the programme was time and cost-effective. Should the size of the groups trained be altered, it will affect costs. If fewer participants are trained in a group it may result in more effective teaching and learning yet this will have costs implications. Group size and training costs need to be balanced, and be budgeted for in future training. The inferences drawn from the empirical research suggest guidelines for conducting future programmes (Denzin & Lincoln, 2005d:19), provided that the quality of such inferences is adequate. The next section provides a critical evaluation and legitimization of the research.

10.3 Critical evaluation of the study and legitimization

In order to legitimize the inference quality, it was necessary to first determine the methodological and interpretive rigour of both the QUAN and QUAL strands independently (also known as multiple validities legitimization) before the quality of the mixed methods research could be determined (Creswell & Plano Clark, 2007:163; Onwuegbuzie & Collins, 2006:46). Such a critical review includes the strengths, challenges and limitations of the study, which are presented in Table 10-12. Addressing these issues in the evaluation of the research confirmed the study to be contextually relevant.

A distinction firstly has to be made between 'challenges' and 'limitations' of the research, although both these aspects could affect the inference quality. In this research 'challenges' are regarded as situations that evolved throughout the process and were a result of specific factors that affected the outcomes. Such challenges were inherent to the specific context and therefore could not be foreseen. By identifying the challenges in Table 10-12 it was possible to make recommendations for a more effective application of the programme.

Limitations in this research (as they are presented in Table 10-12) are regarded as inherent flaws to the research design. Such limitations posed a threat to the inference quality and therefore need to be avoided in future programmes.

When viewing Table 10-12 it is clear that both the challenges and limitations could have impacted on the inference quality and therefore the findings need to be interpreted with these in mind. The factors that affected the outcomes (e.g. low response in questionnaires and portfolio assignments as a result of timing and literacy levels, as well as the reduced sample size as a result of attrition) could have compromised the methodological rigour. The inference quality was augmented

when the data were used in triangulation with other data sources and methods (Onwuegbuzie & Johnson, 2006:55; Stake & Thrumbull, 1982:31; Teddlie & Tashakkori, 2003:37, 42). The criteria for interpretive rigour (Teddlie & Tashakkori, 2003:42) were met through conceptual consistency of the research, interpretive agreement, and inter-rater consistency.

The third requirement for inference quality, i.e. inference transferability (external validity) (Johnson & Christensen, 2004:255), was determined by the quality of the meta-inference obtained from the research. The inferences obtained from both the quantitative and qualitative strands concurred and therefore the quality of the meta-inference was high. Neither the quantitative nor the qualitative samples in this study were randomly selected, which limited the inference quality and transferability of the findings (Johnson & Christensen, 2004:255). The inferences made from mixed methods research, however, are more transferable than inferences made from either QUAN or QUAL components (Onwuegbuzie & Johnson, 2006:57; Teddlie & Tashakkori, 2003:42). In addition, the contexts in this study are similar to several other contexts in South Africa, which allows “rough generalizations” to be made (Stake & Thrumbull, 1982:1) within the current context.

Table 10-12: Critical evaluation of the study

Nature of the data		
QUAN	**QUAL**	**Mixed Methods**
Strength o The same sample that completed the questionnaires also completed the portfolio assignments, which allowed for the data to be compared. Limitations o There was a high level of non-response regarding the questionnaires as well as the portfolio assignments, which was caused by several factors (language use in the CPD programme, education and literacy levels, timing and logistics). o Attrition posed a threat to inference quality because it resulted in a reduced sample size (and therefore decreased the generalizability of the findings). An attempt was made to limit attrition by offering a certificate at completion (Struwig & Stead, 2001:139), but this did not have the desired result. It is suggested that attrition be limited by considering the choice of venue in order to restrict the need for public transport, and also to schedule workshops during school holidays, or alternatively, on weekday afternoons. Training dates should be determined by the participants and not by the facilitators.	Strength o Because it was preferable to compare similar samples, the qualitative data included in the portfolio assessments and the open-ended questions in the questionnaires were obtained from the full sample (97). This compensated for the data obtained from the much smaller sample of the focus groups (Creswell & Plano Clark, 2007:163). In addition, a sufficient number of focus groups (8) were conducted over the two years to counter this problem (Tashakkori & Teddlie, 2003b:37). Challenge o High levels of non-response were evident in the open-ended questions in the questionnaires as well as in the critical reflections included in the portfolio assessments. Non-response could be attributed to several factors, e.g. participants not being familiar with reflective practices, but also the use of language, literacy levels, timing and logistics. Limitation o None observed	Strengths o The use of several data sources confirmed the findings. o Within-design consistency was achieved when the research design was consistent with the research questions, and each research question could be answered by using at least one data type. Challenge o The large amount of data was cumbersome and the organization thereof into a meaningful whole proved to be a challenge, demanding considerable time and effort. Structuring the data was made possible by the Logic Model framework (e.g. organizing the codes and categories to answer the research questions). Limitation o None observed

Table 10-12: *(Continued)*

Data collection		
QUAN	**QUAL**	**Mixed method**
Strengths o Sufficient data were collected from various data sources. o The questions in the questionnaires were pertinent to the study's objectives, which provided a good foundation for validity. Challenges o Questionnaires were not completed by all the participants because some arrived late or had to leave early (which was related to the choice of venue as they were dependent on public transport). o High levels of non-response in questionnaires and portfolio assignments were related to the choice of training venues that required public transport (that resulted in late arrival or early departure), aspects related to timing, as well as the literacy levels and language proficiency of the participants. o It is possible that the questionnaires placed too high demands on the respondents' language proficiency and literacy levels (Mouton, 2006:103), of which the extent was not known to the trainer/researcher prior to onset of the programme. Future programmes should rather rely on portfolio assignments and focus group interviews to determine knowledge gains.	Strengths o Qualitative data sources contributed to a better understanding of the context. There was *interpretive agreement* (Johnson & Christensen, 2004:250) of the findings in focus groups when the researcher's (etic) view was compared with a peer review from the assistant moderator (who in both contexts was the district facilitator). To justify the emic view, a summary was presented to the group for verification at the conclusion of the focus group. o An external rater also verified the coding system and the coding of the transcripts. o Focus groups were effective in providing insight into classroom practices and the application of practical knowledge (Adler *et al.*, 2003b:137).	Strengths o The *design fidelity* was ensured through the use of several data sources, including extensive field notes and a research diary. This guaranteed that the findings happened the way the researcher claimed they did. The observation measures provided sufficient information to draw conclusions when used in triangulation. None of the assessment methods could be used standing alone as too many factors affected the outcomes, but they yielded trustworthy inferences when used in combination. o The researcher was involved with each of the two groups for a one-year period (over a period of two years), and multiple sets of data were collected in six research units, which enhanced the inference quality (Johnson & Christensen, 2004:141).

Table 10-12: *(Continued)*

Data collection		
QUAN	**QUAL**	**Mixed method**
o The research sample was considerably reduced when substitute trainees replaced participants from the original sample without notifying the trainer. Due to ethical constraints the data obtained from substitute trainees could not be included in the research as they did not sign informed consent at the onset of the programme. The reduced sample size, together with the use of non-probability sampling limited the transferability of the findings.	o To ensure conformability the entire research process was documented in a research journal complete with quotes, in addition to transcripts being presented as an audit trail. The research diary proved to be helpful as a tool for reflection on the entire process, but also provided a means of reflecting on what was observed in the real world. Through this process questions could be answered with regard to methods used (Chase, 2005:652). Such continued reflection resulted in changes being made, and therefore could be associated with evidence-based research (Ebrahim, 2003:21).	
Limitations o The data collection instruments were self- developed and although all attempts were made to ensure validity, it is possible that these were subject to the trainer/researcher's subjectivity. o During the first year the original data collection procedures could not be implemented for the second workshop because the researcher realized the limitations of questionnaires in this particular context and decided to terminate the use thereof. This decision was reversed soon after when the statistical advisor recommended the opposite. Post-training questionnaires were then faxed to schools to assess knowledge gains resulting in a low return rate, and also compromised the methodological rigour of the research. These measures could have impacted on the trustworthiness (reliability) of the findings.	Challenge o Qualitative assessment measures (focus groups, open-ended questions and a research diary) could not stand alone and had to be used in combination with other measures.	Limitation None observed.

Table 10-12: *(Continued)*

Analytic and interpretive adequacy		
QUAN	**QUAL**	**Mixed method**
Challenge Fluctuating attendance had an effect on the research as it resulted in a reduced sample size (56 as opposed to the original 97), which could impact on the transferability of the findings. Attendance was related to several factors, e.g. scheduling and the choice of venue that required public transport (cost factor). Fluctuating attendance should be accepted as a reality in these contexts, and compensatory measures need to be built into the design.	Limitation When working in close proximity with teachers over a prolonged period of time the danger of over involvement and subjectivity exists. All the focus groups were conducted, transcribed, coded, and analyzed by the trainer/researcher, and therefore the interpretations made could have been subjective. Despite several measures taken to reduce subjectivity the possibility thereof could not be completely eliminated.	Strengths: o The research questions were answered by data from more than one data source, which confirmed the inferences drawn. The answers to the research questions (obtained from the QUAN and QUAL strands) were consistent with each other, which ensured *conceptual consistency*. o The research questions could all be answered by suitable data analysis techniques, which ensured *analytic adequacy*. o The meta-inference derived at for each aspect evaluated was consistent with the inferences obtained from both the QUAL and QUAN strands, which ensured *cross-inference consistency.* o The *research design was suitable* for answering the research questions. o The inferences obtained from both the quantitative and qualitative strands were compared and converged. The use of triangulation created the necessary magnitude or strength of inferences to warrant conclusion. o *Within-design consistency* was attained by determining the differences between contexts (semi-rural and urban). The results obtained from both strands of the research were mostly similar, and when they differed, it was possible to draw meaningful conclusions. o *Theoretical consistency* was increased by relating the inferences to the literature and the current state of knowledge whenever possible. o *Interpretive distinctiveness* (Onwuegbuzie & Johnson, 2006:48) was ensured by ruling out rival inferences, and when this could not be done in the QUAL findings, they were clarified with plausible explanations. During the interpretation stage, the researcher engaged in a discussion with two experts who challenged her to provide evidence to any of the interpretations made or conclusions drawn. These two external experts reviewed the qualitative and quantitative inferences, as well as the integration of the two strands (Creswell & Plano Clark, 2007:196), and agreed that the answers to the research questions were plausible. Challenge o Matching the diverse data sets was a challenge, and only became possible once qualitative data were quantitized and compared with quantitative findings in a matrix.

Table 10-12: *(Continued)*

Participants
Strength o The participants attended the focus groups voluntarily and therefore participated freely, which was an indication of their willingness to learn. o The number of participants was sufficient Challenge: o Participants who enrolled at the start of the programme did not necessarily attend all the workshops and sent substitutes without notifying the trainer. These substitute participants did not provide informed consent, and therefore their data could not be used in research, which decreased the size of the sample. Limitations o The participants were not a homogeneous group as they differed in terms of qualifications, literacy levels, prior knowledge, age, and language proficiency. Such differences resulted in the pace of training being too fast for some, while appropriate for others. These factors also impacted on the completion of questionnaires and portfolio assignments. In this case, the selection criteria did not exclude participants with lesser qualifications, as it was the intention of the GDE to redress past inequalities by inviting schools most in need of support (personal communication with K. Makgada on February 26 2005).
Context
Strength o The support and infrastructure provided by the researcher's institution (Department Communication Pathology, University of Pretoria), as well as the support from the GDE, ensured the roll out of the programme. Challenges o In some instances a negative school culture impacted on the participants' motivation to complete the portfolio assignments. o Schools were far apart, and also far from the training venues, which caused participants to often arrive late or wanting to leave early, causing high levels of non-response in the questionnaires. Training venues more central to the schools could have decreased the attrition and limited late arrivals.
Training material
Strength o The training material was perceived as relevant and useful. Limitations o As the material was prepared mainly in English, the participants were required to transfer their knowledge to the LoLT, which hampered optimal learning. More examples are required in the LoLT, specifically when training phonological awareness as an early literacy skill. District facilitators who are proficient in the LoLT need to become more actively involved in the preparation of the material, and need to be trained as co-trainers to bridge the language divide. Too much information was included in the workshops and, together with the time limitations, caused the pace of training being too fast for some of the participants. Less information would have allowed more time for review, which would have increased the effectiveness of the training.

The research therefore met the three requirements for inference quality. Research informs practice, and thus the implications and critical review of the study allowed the researcher to envisage the application of the training model in a wider framework.

10.4 Applications of the proposed programme

With reference to Section 1.2.2 of this thesis (refer to Figure 1-5), the final phase of programme development described by Thomas & Rothman (1994:27) is the application thereof to a wider community. Should this particular programme therefore be applied to more contexts, it would improve the transferability of the findings.

The research confirmed that this particular programme can be used in a CPD programme for foundation phase teachers within a specific context, but that it could benefit from refinements in its application (Patton, 2002:10), such as considering alternative options regarding the choice of venue and time of training. It is envisaged that following an initial workshop where the basic principles and terminology are addressed and opportunity for hands-on experiences are provided (as in the current model); the district facilitators will need to conduct follow-up workshop sessions for small groups in the communities.

The current workshop material can be used for the initial training, but should then be divided into more, but shorter sections and discussed in small groups. It will also imply that district facilitators receive additional support to empower them in this task. With such a cluster model of support only eight to twelve participants from two or three schools will be included.

Such adjustments to the process would require pre-testing to eliminate potential

problems in the procedure. It is suggested that the further application of the programme be conducted in phases as stipulated in Table 10-13 as it will ensure a smooth roll out of the application to a larger community.

Table 10-13: Phases in the application of the programme

Phase	Implementation
Phase 1: Preparatory work:	For this phase the district facilitators would need to receive specific skills training and customized training material with sufficient examples provided in the various LoLT. A detailed set of supporting material (e.g. video material) need to be developed for specific contexts to address the issues of language.
Phase 2: Implementation in two districts	It is proposed that the revised support programme be pre-tested in two districts for a limited period to minimize possible problems before it is applied to more contexts. This phase will ensure that the programme can be implemented via the district facilitators and in small groups for shorter sessions. Initial focus will be on those teachers who stand to gain the most (see earlier recommendations in this regard), but eventually the programme will be available for support of all foundation phase teachers, where various levels of support can be provided.
Phase 3: Initial application to other provinces	Once the underlying principles have been confirmed in the pre-testing, the support programme can be implemented on a limited scale in other contexts or provinces to confirm the transferability of the findings.
Phase 4: Application to the wider community and continued support	Only once the transferability has been determined will the programme be ready for application to the larger community in all the provinces. In this phase, training would be repeated for newly appointed teachers. District facilitators will be employed to provide additional support to those who are still facing challenges in their everyday class work.

10.5 Recommendations for future research

According to Leedy and Ormrod (2005:11) research is 'helical' as it emanates further questions that need answering and requires the process to be repeated. Research in the field of education is "a disciplined attempt to address or solve problems through the collection and analysis of primary data for the purpose of description, explanation, generalization and prediction" (Anderson & Arsenault, 1998:6). In order to create a better understanding of the education context, such research needs to be planned and approached cautiously and systematically (Blaxter, Hughes & Tight, 2001:5). The complex nature of education as a contested context requires a better understanding from SLTs working in the education environment (O'Connor & Geiger,

2009:253).

It is recognized that researchers come from different backgrounds and training, which may affect their research design choices and consequent conclusions. Therefore this study suggests topics with proposed methodologies that may be adjusted to suit individual preferences.

The nature of the current study required the trainer/researcher to investigate her own practice in order to be accountable when providing support to teachers (Burton & Bartlett, 2005:34). From this research several questions emerged that need further investigation. These questions were categorized into two groups, namely those related to intervention practices that effect behaviour change in learners, and those related to the process of providing support to teachers (which includes training) in order to promote the adoption and use of such intervention practices (Fixen et al., 2005 in Dunst & Trivette, 2009:164).

10.5.1 Continued professional development of teachers

(a) The effect of "trainer-guided reflection" on learning

The three-pronged approach described in this study included a training component for teachers and was based on the integration of adult learning theory (Knowles, 1996:253; Merriam, 2001:3) and the OBE approach. Reflective practices are inherent in the OBE approach, but have not yet become familiar practice in the contexts of the current study and need to be addressed in future programmes. Recent research by Dunst and Trivette (2009:164) developed the participatory adult learning strategy (PALS) which included "trainer-guided reflection" to promote child literacy, communication and language learning practices to parents and SLTs.

It would be appropriate to investigate whether this 'trainer-guided reflection" strategy

can be used to teach reflective skills to teachers in the South African context. For such an enquiry, a collaborative action research model is suggested to evaluate the effect of the programme. Both quantitative and qualitative data need to be collected within a triangulation design (Onwuegbuzie & Collins, 2006), where data obtained from self-reports (questionnaires), co-worker observations, and interviews all provide unique perspectives on the effect of the mentoring programme.

(b) The effect of continuing professional development on learners' performance

Research to determine the impact of programmes on learners' performance is limited (Khoza, 2007:4; Roulstone, Owen & French, 2005:78). The current study reported perceived gains made by learners, but these findings were subjective. The effect of CPD programmes on learners' performance needs further investigation. It is suggested that such research develops an experimental-field design as a longitudinal study.

A 'pretest-posttest' design with a control group is proposed (Burton & Bartlett, 2005:16; Taris, 2000:6) where learners are assessed in literacy-related skills at the beginning of the year and again at the end of the year, and where the teachers in both the experimental and control groups are selected on the grounds of similar inclusion criteria. The effect of the CPD programme on learners' performance can be assessed annually, with a different group being assessed from the same teachers over a three-year period. A comparison of these groups will increase the validity of the findings. The use of a control group will enable the researcher to allow for the effect of natural maturation of the learners, and will ensure accountability and will meet the requirements for evidence-based practice (Nail-Chiwetalu & Ratner, 2006:157).

(c) Determining the knowledge required for collaboration

There is still much to be learnt regarding collaborative relationships and support of teachers in the current education context (Du Plessis & Naude, 2003:122). The understanding of true collaboration between SLTs and teachers in South Africa still needs to be developed as there appears to be limited documentation of successful programmes in the current context. Effective collaboration between SLTs and teachers requires that both parties understand their individual roles, and that SLTs take account of the educational environment.

Collaboration between SLTs and teachers cannot be taken for granted when these two professions are brought together as they stem from different disciplinary specialization and knowledge bases. Allen (in Forbes, 2008:153) is of the opinion that:

> *"Collaboration with other professionals is a complex knot of relationships which has to be learned and worked at. It cannot be assumed that by issuing an enjoinder to collaborate, and by placing people together, that the outcomes will be positive".*

It is therefore necessary to identify each discipline's individual knowledge base and approaches, as well as the new knowledge, skills and approaches required to work together in supporting young learners in South African classrooms.

With literacy and numeracy as central focus, the unique contribution of each profession needs to be determined in order to facilitate collaboration in schools. Forbes *et al.* (2008:141) based a similar line of enquiry on the analytic modes of knowledge described by Gibbon *et al.* (Gibbon *et al.*, 1994), which appear potentially useful as a starting point.

However, more contextually relevant information is required for the South African context. The research will need to include different research methods, such as a

survey (with questionnaires, or, on a more limited scale, telephone interviews), but will also need to include the voices of both teachers and SLTs by conducting focus groups to understand each discipline's issues at hand. Classroom observations will provide insight into teacher practices and classroom discourses, while a review of education documents with regard to the NCS and the roles of teachers will provide essential background information.

(d) Support to district facilitators

District facilitators are responsible for the daily support of teachers and therefore need to be supported in their efforts to provide ongoing in-service training in literacy related skills. In a consultative and collaborative capacity, the SLT can provide advice and support with CPD activities related to listening and language facilitation on an ongoing basis.

In a collaborative model of support SLTs need to provide staff development activities to increase theoretical content knowledge and skills (King *et al.*, 2009:214) as basis for pedagogical content knowledge. In turn, district facilitators often are proficient in the LoLT and can contribute to the support process by using code switching during workshops to bridge the language divide that currently exists in workshops for teachers where trainers are from a different language background.

Such a collaborative support programme needs to be developed as action research (Burton & Bartlett, 2005:34; Onwuegbuzie & Dickinson, 2007) seeing that it will have to be adjusted over time to accommodate various topics and be tailor-made for various contexts. It will firstly require a needs assessment to develop a better understanding of the participants' prior knowledge, their expectations of the work environment, and their experiences in their work (Dunst & Trivette, 2009:165). Focus group discussions (Krueger, 1998c:13).

Alternatively, semi-structured interviews can be used to assess the perceived educational needs of the district facilitators in order to develop such a support programme.

(e) The effect of cluster model support compared to large group support

Section 9.5 proposed the cluster model of support as an alternative to large group support, as it could be more effective. The results of this study indicated that the participants preferred group learning and discussing issues and experiences in small groups while sitting around a table (Snowman & Biehler, 1996:143). Group learning is therefore a suitable training strategy for these particular contexts (Killen, 2007:168) .

In an attempt to establish a balance between quantity and quality in training, the questions that need to be answered are whether cluster support contributes significantly more to the competence of teachers than large group workshops and whether it warrants the costs. The advantages and disadvantages of such a cluster model (where small groups will be trained in short sessions over an extended period) as opposed to 'once-off' large group training should be investigated. The effect of such a cluster model could be determined with a case study design where both quantitative and qualitative methods are employed (Roulstone *et al.*, 2005:78).

(f) The use of specific selection criteria

Currently in-service training is provided through workshops for large groups of trainees with varying levels of prior learning, as it is considered to be time and cost-effective. The current study questions the effectiveness of such an approach and suggests selection criteria aimed at obtaining more homogeneous groups, as such grouping may result in more positive outcomes (Sheridan, 1995). The proposition to

be investigated is that a “one size fits all’ programme is not the most effective manner of providing support and that more effective support can be provided for homogeneous groups. If the use of selection criteria to obtain homogeneous groups proves to be effective, support that is more appropriate can be provided to the different groups.

The feasibility of using selection criteria for a specific support programmes can be determined by using the comparative method as it shows cause and effect relationships (Burton & Bartlett, 2005:21). Such a design requires a representative sample where large numbers of participants are included in each group. Data will have to be collected with questionnaires or, should a smaller group be selected, with structured interviews. Data will be presented as statistical tables to enable others to see how the data has been interpreted.

10.5.2 Intervention practices informed by research

(a) Determining the use of prepositions in the LoLT

The current research pointed out that the use of prepositions was problematic in some of the indigenous languages in this context. Learners used prepositions in a general manner to represent more than one position in space and augmented meaning with gestures for specificity. Teachers reiterated by using similar language to ensure that learners understood them, rather than providing the exact language models for learners to develop language (Dawber & Jordaan, 1999:14). According to the social interaction theory of language development (Wolf-Nelson, 1998:83) young children need an adequate language model to acquire language. It is therefore necessary to determine the extent of this phenomenon as it may affect the vocabulary development and conceptual base required for numeracy (Gawned, 1993:27; Naudé, 2004:34). It is also important to determine teachers’ use of

language in language learning activities. The outcomes of this inquiry will determine the need for training in this respect.

To determine the extent of generalized use of prepositions, classroom discourses in various contexts need to be analyzed by using observation as a research method (Leedy & Ormrod, 2005:179). It is preferable that the researcher who collects, transcribes, and analyzes the data is competent in the LoLT. The outcomes of this study will provide a basis for workshops where trainees could be trained to develop suitable lesson plans and provide appropriate intervention in whole-class teaching.

10.6 Final comments

Newspaper reports of university students' poor performance in national benchmark testing can be linked directly to inadequate development of language and numeracy skills during the early school years and the inability of teachers to facilitate these skills (Yeld in Hindle, 2009:9). Such results emphasize the importance of language as a tool for learning, and the need for teacher support. Adler (quoted by Smith, 2009:9) stated that teachers' competence and subject knowledge, particularly in the foundation phase, need to improve if children are "… to understand better and perform better". The Department of Education has recently committed itself to training foundation phase teachers in basic literacy and numeracy, including the teaching of reading, because these areas have not been addressed during initial pre-service training (Hindle, 2009:9).

In view of the relationship between language and literacy, it is imperative that teachers and speech-language therapists work as a team in supporting learners in learning. As team members they need to have equal respect for each other and show an ability to work towards similar outcomes (O'Toole & Kirkpatrick, 2007:326).

In South Africa, SLTs employed by the Department of Education provide

professional educational services to learners directly in schools (Moodley *et al.*, 2005:40). These services include identification, assessment and intervention. Apart from providing therapeutic services, SLTs have collaborative and consultative roles in providing support on district and school levels (Department of Education, 2001b). Such support of teachers encompasses training, mentoring, monitoring, and consultation. SLTs have to identify and manage barriers to learning at the learner, teacher, curriculum, and institutional levels. As collaborative efforts are integral to the success of adult learning experiences (Galusha, 1998:15), it is necessary that positive and constructive relationships are established and that the education system supports SLTs in the execution of their tasks (Law, 2002: 2 in O'Toole & Kirkpatrick, 2007:326).

A significant additional role for SLTs has now been identified, namely that of practitioner researcher (Burton & Bartlett, 2005:17). SLTs need to develop research skills to create a deeper understanding of the nature of learning, teaching and the educational process. Efficacy studies of collaborative practices will provide the bridge between theory and practice (Nail-Chiwetalu & Ratner, 2006:157). SLTs, as expert practitioners, should seek new information to improve intervention effectiveness *(Ibid.)*. Although it is generally acknowledged that research informs practice, this can be regarded as a simplistic view of educational research because it implies that variables can be identified and allowed for, whereby the complexity of what actually happens in classroom situations or in specific contexts is ignored. Therefore, despite the call for accountability and emphasis on evidence-based practice, it is important that practitioner researchers do not adhere solely to positivist approaches, but to consider the very important values dimension that is inherent in education, which calls for descriptions.

Teacher support and the professional development of teachers should be seen as

"…a long-term investment in building the capacity of teachers to exercise their judgement and leadership abilities to improve learning for themselves and their students. It is not a form of teacher education that produces quick fixes for complex and enduring problems in schooling" (Zeichner & Wray, 2001:320). The continuing professional development (CPD) of teachers should be viewed as a career-long process (Ormrod & Cole, 1996:117). CPD implies increased attention to the needs, interests and skills of teachers as adult learners, whether viewed as adult training or adult education (Galusha, 1998:14). In turn, the Department of Education should be considered a 'learning organization' where learning is facilitated at all levels (e.g. learner, teacher, as well as district, provincial and national levels) and be in a position to transform itself on a continuous basis.

Ultimately, the learners have to benefit from all intervention practices. Brombacher (2008) (Brombacher, 2008) clearly stated that "…the future of our great country will be determined ….by the impact that we can have on the lives of children in the first three or four years of their school careers." Literacy and numeracy are "…the enablers to effective participation in and constructive contribution to society" *(Ibid.)*. Learners, particularly those in disadvantaged environments, need to develop adequate language skills to learn in order to achieve academic success. It is therefore important that foundation phase teachers are competent and prepared to facilitate such learning. This particular study can be considered relevant and timeous. It is a step in the direction of bringing about change in how teachers facilitate language in order for learners to learn.

"Take care of the children, for they are the future
Take care of your elders, for they have travelled far
Take care of those in between, for they have to do the work"
(Angeles Arrien, 2006)

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