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.

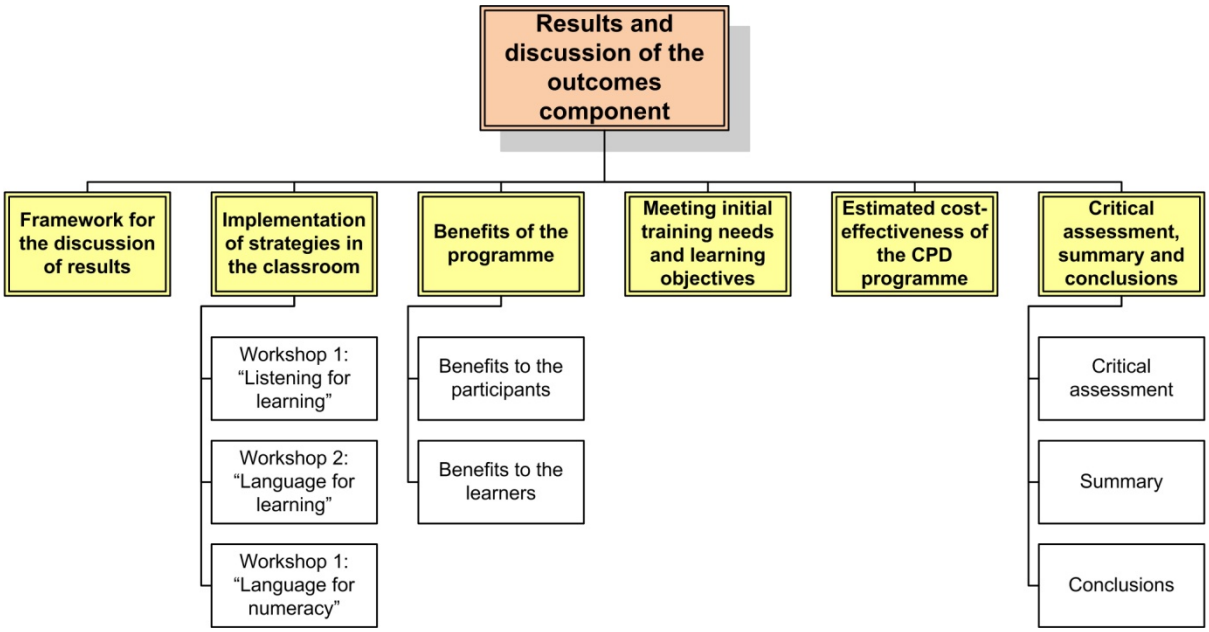

Figure 9-1: Outline of Chapter 9

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.

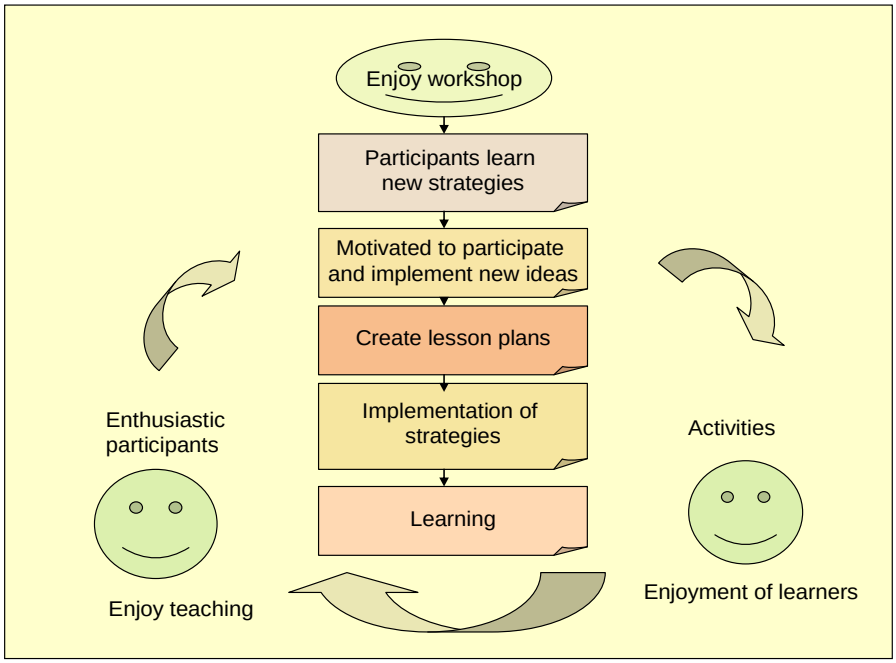

Figure 9-2: The role of enjoyment in the programme

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.

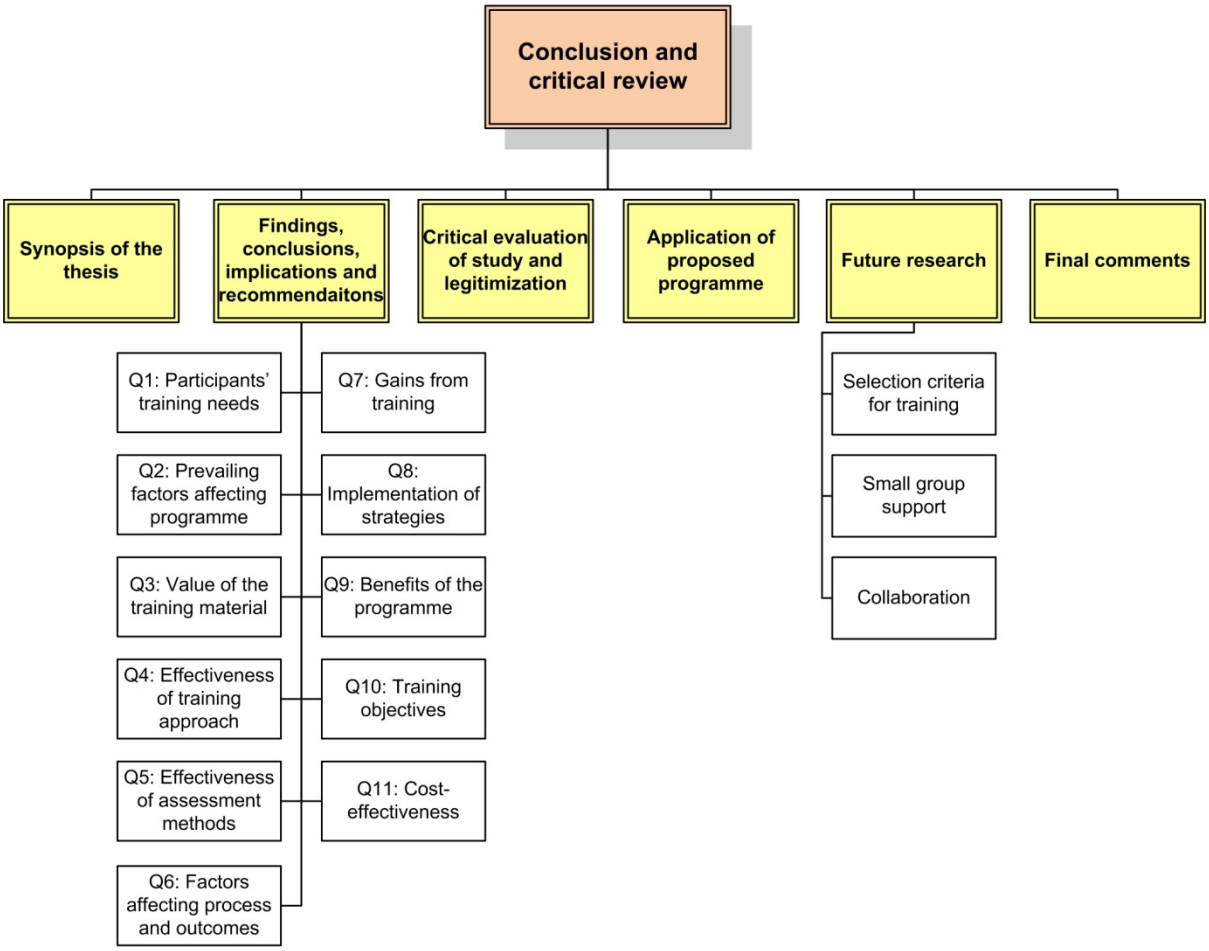

Figure 10-1: Outline of Chapter 10

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)