An analysis of vocabulary instructional methods relevant for Grade 4 learners

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Dissertation submitted in fulfilment of the requirements for the degree Master in Education at the Potchefstroom Campus of the North-West University

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April 2010

ACKNOWLEDGEMENTS

I would like to thank the following individuals who played a cardinal role in the completion of this study:

- My supervisor, Prof C Nel, who showed me how resolution and positive motivation can get the job done.
- My parents, Drs Jaco and Ina Joubert. Thank you for helping me persevere in difficult times.
- My husband, Albert, for his love and patience.
- Finally, all praise belongs to God for giving me the strength to accomplish my goal.

OPSOMMING

Die aanleer van woordeskat is een van die grondliggende doelwitte van die onderrig van Engels as tweede taal. In Suid-Afrikaanse laerskole word leerders in Graad 4 wat vir die eerste keer Engels as 'n leerarea neem, met die byna onmoontlike doelwit gekonfronteer om in een jaar tussen 2000 en 3 500 Engelse woorde te bemeester. Daar bestaan dus 'n behoefte aan doeltreffende strategieë vir woordeskatverwerwing in Engels as tweede taal in Graad 4.

Leesnavorsing bly vind dat die omvang van 'n leerder se woordeskat 'n bepalende faktor is vir sy/haar vermoë om met begrip te lees en ook sy/haar algehele akademiese sukses. Die leer van woordeskat en die onderrig van woordeskat is sentraal tot die uitbreiding van 'n leerder se woordeskat en dan ook hierdie studie. Daar is verskeie faktore wat 'n rol speel in die leer van woordeskat soos die ouderdom van die leerder en die leerder se huistaal. Navorsing het bevind dat verskillende woordeskat strategieë wat op verskillende tydstipte tydens die aanleer van woordskat aangewend word, optimale woordeskat verkryging verseker. Daar is verder 'n dringende behoefte aan metodes waarmee woordeskat doeltreffend onderrig kan word. Volgens navorsing is daar geen enkele metode waarmee woordeskat die beste aangeleer word nie, maar eerder 'n kombinasie van metodes. Hierdie verkeidenheid van metodes moet indirekte en direkte woordeskat onderrig insluit. Rekenaargebasseerde onderrig is 'n volgende metode wat aangewend kan word. Hierdie metode het unieke eienskappe wat nie in gedrukte media gevind word nie. Hierdie studie het gekyk na die CAMI Reader sagteware program as 'n voorbeeld van rekenaar gebasseerde onderrig vir die aanleer van woordeskat.

'n Kwasi-eksperimentele onewekansige voor- en natoetsontwerp met kontrolegroep is in die studie gebruik. Twee klasse by 'n laerskool in die Limpopo-provinsie is vir hierdie studie gebruik. Beide klasse het eerstens 'n voortoets geskryf om seker te maak dat die woorde wat vir die doel van hierdie studie aangeleer word, aan hulle onbekend is. Die eksperimentele groep is daarna blootgestel aan dertig nuwe woorde deur die indirekte rekenaargebasseerde metode, CAMI te gebruik en die kontrolegroep is blootgestel aan dertig nuwe woorde deur middel van direkte onderrig wat geskied het deur middel van drie woordeskatstrategieë wat onderskryf word deur die nasionale kurrikulum. Een dag na die blootstelling aan die dertig woorde, het beide groepe die eerste natoets geskryf, en sewe dae later die tweede natoets. Fokusgroeponderhoude is ook met vyftien leerders elk van die

eksperimentele en kontrolegroep gehou om te bepaal hoe hulle die verskillende metodes ondervind het.

Die resultate van die voor- en natoetse is verwerk met behulp van t-toetse en die ANCOVA statistiese prosedure. Na ontleding van die data was dit duidelik dat die indirekte rekenaargebasseerde metode (CAMI) slegs oor die kort termyn beter resultate gelewer het, en dat daar oor die lang termyn (na sewe dae) geen merkbare verskil tussen uitslae van die tweede natoets van die twee groepe was nie. Beide strategieë het daarin geslaag om nuwe woordeskat vir die leerders aan te leer.

'n Kombinasie van direkte woordeskat onderrig en indirekte rekenaargebasseerde onderrig is meer doeltreffend vir die uitbreiding van Graad 4 leerders se Engelse woordeskat as die gebruik van 'n enkele onderrig metode.

Sleutelwoorde:
Aanleer van woordeskat; onderrig van woordeskat; woordeskatstrategieë; woordeskat; tweedetaalleerproses; CAMI Reader; Engels as tweede taal; UGO-woordeskatstrategieë; indirekte woordskat onderrig metodes; direkte woordeskat onderrig metodes

ABSTRACT

The acquisition of vocabulary is one of the most important objectives for the teaching of English as a second language (ESL). In South African primary schools, Grade 4 learners, who are taking English as a separate learning area for the first time, are confronted with the immense task of acquiring between 2000 and 3 500 English words. Thus, a need exists for effective ESL vocabulary acquisition strategies that can be used in Grade 4.

Reading research has persistently found that the extent of students' vocabulary knowledge relates strongly to their reading comprehension and overall academic success. Vocabulary learning and vocabulary teaching are central to vocabulary knowledge and this study. Various issues play a role in learning vocabulary such as the role of age and nature of the students' first language. Research has found that the use of different vocabulary learning strategies used at different stages of vocabulary learning leads to optimal word acquisition. There is an urgency to provide vocabulary instruction which will amount to more words in less time. According to research, there is no one single instructional method that is sufficient, therefore effective instruction must use a variety of methods to help learners acquire new words. The variety of methods should include incidental word learning as well as direct explicit instruction. Computer-related instruction is another instructional method used for vocabulary learning. This method has capabilities not found in printed materials. This study looked at the CAMI Reader software programme as an example of software that can be used for computer-related vocabulary instruction.

A quasi-experimental nonrandomised control group pre-test-post-test design was used in this study. Two classes at a primary school in the Limpopo province were used in this study. Both classes wrote a pre-test to make sure that the vocabulary to be learnt for the purpose of this study was unknown to them. The experimental group was then exposed to thirty new words by using the indirect computer-related instructional method in the form of CAMI and the control group was exposed to thirty new words through direct explicit instruction which made use of three different vocabulary strategies prescribed by the national curriculum. One day after exposure to the thirty words, both groups wrote the first post-test and seven days after the exposure both groups wrote the second post-test. Focus group interviews were also held with fifteen learners from both the experimental and control groups to determine how the participants experienced the different instructional methods.

The results of the pre- and post-test were processed by using t-test and the ANCOVA statistical procedure. After analysing the data, it was clear that the indirect computer-related instruction (CAMI) only resulted in better short-term results and that there was no practical difference on the long term (seven days) between the results of the second post-tests of the two groups. Both strategies resulted in vocabulary acquisition.

A combination of indirect computer-related instruction and direct explicit instruction would benefit Grade 4 learners more than the use of a single instructional method.

Keywords:

Vocabulary learning; vocabulary acquisition; vocabulary instruction; vocabulary strategies; vocabulary knowledge; second language learning process; CAMI Reader; English second language (ESL); OBE vocabulary strategies; incidental vocabulary learning instructional methods; direct explicit vocabulary instructional methods

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Learning a language involves mastering a great number of words. In Grade 4, learners make a huge leap from the foundation phase with its three learning programmes, to the intermediate phase with its eight learning areas (SA, 2002:2). One of these learning areas is English, presented as Home Language, First Additional Language or Second Additional Language. The term for English Second Language (ESL) in South African schools is English First Additional Language. For those who do not speak English as a home language it can be a daunting experience to suddenly be expected to read, write and communicate solely in their second language, when they do not possess the needed vocabulary. According to research, both teachers and learners are beginning to realise the importance of vocabulary in the language classroom and in overall academic success (see Baumann, Kame'enui, & Ash, 2003; Becker, 1977; Davis, 1942; Whipple, 1925).

Vocabulary learning and vocabulary instruction are the two central concepts of this study. The scope of the vocabulary learning challenge is wide and the issues in vocabulary learning intricate. Furthermore, a variety of instructional methods exist. The importance of these methods are often overlooked, with teachers and learners oblivious to what exactly vocabulary learning entails. In some instances, teachers are also unacquainted with how best to use instructional methods for the benefit of their learners. This study aims to shed some light on vocabulary learning and vocabulary instructional methods relevant for Grade 4 learners.

1.2 The problem defined

Fluency in English is a necessity for effective functioning in a global information society. Not only is English the lingua franca in South Africa, but the vast majority of learners who do not speak English as their home language, prefer English as their medium of instruction (Vorster & Piper, 1995:171; Buchorn-Stoll, 2002:25; Heugh, 2002:174; Kapp, 2004:247,258). Although it is their preference, many of these learners lack the necessary proficiency in English to function effectively in a learning environment, and thus cannot be part of and contribute to the global information

society (Louw, 1992:12). The teaching of English, in general, and the development of English communication skills should, therefore, be a priority in schools.

A sufficient and rich vocabulary is an important prerequisite for effective communication and fluency in English. It can be quite harrowing to think that the English language consists of thousands of words that play a part in daily communication. It is estimated that approximately 2000 words are needed to make conversation; 3000 word families are needed to read and understand text and 10 000 word families are needed to interpret academic texts (Richards, 2000:157). According to Foley and Thompson (2003:10), the upper limit of a learnt vocabulary can comprise as many as 50 000 words.

It is difficult to define vocabulary; in its broadest sense, vocabulary can be described as knowledge of words and word meanings. Yet, there are different forms of words such as oral vocabulary used in listening and speaking, and print vocabulary used in reading and writing. Knowing a word also entails receptive and productive vocabulary. Receptive vocabulary is the classification for words recognized by hearing or seeing, and productive vocabulary is the classification for words used when speaking or writing. Learners must know all these different forms of words to be able to read a wide range of texts with comprehension.

Reading with comprehension is central to a learner's overall academic success. No matter what learning area, learners are confronted on a daily basis with tasks and assignments which require them to get meaning from what they read. Without adequate vocabulary or strategies to find the meanings of unknown words, many learners become lost in a vicious cycle where they are negative towards reading in general, which in turn leaves them with fewer opportunities to increase their vocabulary. In terms of vocabulary development, good readers like reading and continuously expand their vocabulary, while poor readers read less and less resulting in a stationary vocabulary. It is especially these poor readers who need intervention to break the negative cycle that they find themselves in.

Before interventional strategies can be applied, it is important to fully understand the scope of the vocabulary learning challenge. What does it mean to know a word and just how many words are needed to read with comprehension? Hulstijn and Laufer (2001) contributed to the field of vocabulary learning by developing the Involvement Load Hypothesis. According to this hypothesis,

incidental vocabulary tasks such as writing original sentences with new words, will result in bigger vocabulary gains if there is a high involvement load. The hypothesis is based on the depth of processing model which proposes that information processed on a deep level, stays in memory longer. The Involvement Load Hypothesis also includes an involvement index that teachers can use to score different tasks to help them evaluate which task would in all probability result in higher vocabulary gains.

Vocabulary gains are not something that happen instantly. Knowing a word in its full sense is a continuum of levels, which encapsulates the complexity of vocabulary learning (Laufer & Paribakt, 1998). Vocabulary knowledge can further be examined from various dimensions. Two of these dimensions are breadth of knowledge and depth of knowledge. Simply put, breadth of knowledge refers to the amount of words that a learner knows on a more superficial level, while depth of knowledge refers to the quality of knowledge a learner has about a specific word, for example syntactic and semantic relationships. How learners acquire the different dimensions of word knowledge are influenced by diverse issues such as learners' age, mother tongue and familiarity with vocabulary learning strategies.

Given the important role of vocabulary in reading comprehension and academic achievement, the instruction of vocabulary is an area that has become increasingly researched. The National Reading Panel (2001) has published a report on vocabulary instruction research. In this report, 21 different vocabulary instructional methods were identified. Incidental word learning, intentional explicit instruction and computer-related instruction are the three methods with direct relevance to this study.

Incidental word learning can be described as learners 'picking up' new words while they are busy with other tasks such as reading a text or taking part in a conversation. The English Home Language policy document explicitly states that vocabulary should be taught in context and integrated with reading (SA, 2002:49). Many researchers believe that this instructional method is the most important of all the methods as learners acquire the majority of their vocabulary in this way (Hunt & Beglar, 2005:24; Williams & Morris, 2004:312; Segler, 2001:25; Nagy, 1997:83). Although this method is called *incidental*, parents and teachers are consciously creating opportunities for children to learn new words. These opportunities can include reading to children, talking about what was read or independent wide reading by the child himself. This method has positive and negative features. It

can be of great benefit to avid readers, but to poor readers this strategy involves a lot of frustration with very little benefit.

Intentional explicit instruction is a direct vocabulary instructional method as the teacher instructs unknown vocabulary. As a small amount of words are taught at a time, learners usually acquire in-depth knowledge about them. Studies have indicated that new vocabulary should be encountered five to sixteen times before it has truly been acquired (Sökmn, 1997). Explicit instruction is a method that easily creates the needed repeated exposures. An important consideration when this method is used, is the choice of words for instruction. In general terms, choosing a word for instruction relies on the importance of the word, its usefulness and its frequency. Teaching synonyms of words, words with multiple meanings, words that represent complex concepts, teaching independent word learning strategies and developing word consciousness are all important aspects within this explicit instructional method.

According to the National Reading Panel (2000), computer-related instruction is a very promising method for increasing vocabulary. The availability of computers in some schools has made it possible to include the computer in the language classroom. Computer-related instruction can offer unique learning opportunities as it has capabilities that are not found in print materials such as game-like formats and animation. Studies have shown that computer-related instruction can lead to vocabulary learning gains when compared to traditional methods (NICHHD, 2000:18).

A primary school in the Limpopo province bought the CAMI Reader software programme used for computer-related instruction. At this school, where the researcher teaches English, the programme was bought by the headmaster in 2005 to improve the English skills of the learners. The English department at the school did not allocate any time for the learners to use CAMI, because the English teachers were not convinced that the programme did indeed improve English Seocnd Language (ESL) skills. The researcher decided to investigate the programme in terms of ESL vocabulary learning to find out if it improved skills, more specifically vocabulary skills. If this is the case, the English department at the school will make use of CAMI on a regular basis.

Within the South African context, teachers do not use vocabulary instructional methods optimally; the researcher has experienced at first hand in an Afrikaans primary school in the Limpopo Province

that teachers use different (mostly ineffective) instructional methods when teaching vocabulary, as no specific or particular method is prescribed in either the English Home Language or English First Additional Language policy documents. Also, with the Revised National Curriculum Statement (RNCS) published in 2002, many teachers are struggling to organise and create the content of their learning programmes. The researcher has found that time is a major constraint in the Grade 4 ESL class and that it is becoming increasingly difficult for teachers to implement the correct method or combination of methods for vocabulary instruction.

Grade 4 is a crucial year for the inception of vocabulary learning in a second language in South African schools. In this year, learners enter the Intermediate Phase with its eight Learning Areas. ESL is taught as one of the eight and as a separate learning area for the first time. Learning Outcome 6 of this learning area explicitly states that learners must know and be able to use the vocabulary of an additional language (Lessing & De Witt, 2003:275). Learners, therefore, have to acquire between 2000 and 3 500 commonly spoken words, by the end of Grade 4 (SA, 2002:80). Hickman, Pollard-Durodola and Vaughn (2004:720) report that this new vocabulary requirement results in the ESL learners being the largest group of learners having problems with vocabulary learning. Brits (1994:1) and Richards and Rodgers (2001:37) depict the role of vocabulary as being by far the biggest and most unmanageable component in learning a second language.

The learning of vocabulary is an important but neglected component for ESL learners (Richards, 1976:78). In order to achieve the target of 3 500 words in Grade 4 as set out by the Department of Education in the national curriculum document, a need exists for efficient instructional methods that teachers can use for vocabulary acquisition. This study aims to analyse different instructional methods for effective and efficient vocabulary learning relevant for Grade 4 learners. Based on the preceding discussion, the following research questions need to be addressed:

1. What improvement, if any, did one group of Grade four learners (i.e., control group) show when they were exposed to direct, explicit vocabulary instruction, when tested immediately after instruction as well as when tested one week later?
2. How did this group of Grade four learners experience explicit instruction?

3. What improvement, if any, did a second group of Grade four learners (i.e., experimental group) show when they were exposed to computer-based vocabulary instruction via CAMI, when tested immediately after instruction as well as when tested one week later?
4. How did this group of Grade four learners experience computer-based instruction?
5. How did the two groups compare with regard to performance on the tests written immediately after instruction as well as one week later?
6. What are the implications of the results for teachers' selection of vocabulary instructional methods for Grade 4 learners as well as vocabulary learning, in general?

1.3 Purpose of this study

The purpose of this study was to determine:

- what improvement, if any, one group of Grade four learners (i.e., control group) showed when they were exposed to direct, explicit vocabulary instruction, when tested immediately after instruction as well as when tested one week later;
- how this group of Grade four learners experienced explicit instruction;
- what improvement, if any, a second group of Grade four learners (i.e., experimental group) showed when they were exposed to computer-based vocabulary instruction via CAMI, when tested immediately after instruction as well as when tested one week later;
- how this group of Grade four learners experienced computer-based instruction;
- how the two groups compared with regard to performance on the tests written immediately after instruction as well as one week later; and
- what the implications of the results are for teachers' selection of vocabulary instructional methods for Grade 4 learners as well as vocabulary learning, in general.

1.4 Central theoretical statement

A combination of direct explicit vocabulary instruction, incidental word learning and computer-related instruction is more useful to expand the ESL vocabulary of Grade 4 learners than the use of a single method.

1.5 Method of research

Relevant literature on vocabulary learning and vocabulary instruction was reviewed in detail and an empirical investigation was conducted. A quantitative as well as a qualitative method was used in this study as set out in the following section.

1.5.1 Quantitative method

In order to analyse different vocabulary instructional methods, two groups of Grade 4 learners were exposed to two different methods. A quasi-experimental nonrandomised pre-test-post-test-delayed post-test control group design was used in this study. It was not a true experimental design because the participants were not randomly assigned. The reason was that classes at the primary school where the researcher collected the data could not be disrupted for the duration of the study. Two classes or groups were used. Firstly, a pre-test was written by both groups to determine the vocabulary knowledge of the participants and whether the two groups could be compared at pre-test level. Thereafter, one group learnt new vocabulary in the classroom with intentional, explicit instruction (i.e., control group). The second group (i.e., experimental group) learnt new vocabulary by completing a computer-related drill-and-practise vocabulary quiz of the CAMI Reader software programme. Post-tests were used to determine what vocabulary participants had learnt after the different treatments.

The following measuring instruments were used to collect the quantitative data:

- A pre-test determined learners' vocabulary
- A post-test directly after the instruction determined the vocabulary learnt in the treatment session (post-test 1).
- A post-test seven days after the instruction determined the retention of new vocabulary (post-test 2).
- A biographical questionnaire collected information about the participants such as age, home language and reading habits.

Dependent and independent t-tests were used to compare within and between group means. Effect sizes were also calculated.

1.5.2 Qualitative method

Focus group interviews were held with three groups of five learners each. The nonprobability purposive sampling technique was used to select learners from three distinct groups. The first group consisted of learners who had learnt many new words; learners who had learnt an average number of new words made up the second group and the last group consisted of learners who had learnt very little. The purpose of these interviews was to determine how the group of learners experienced the different instructional methods. Thematic analysis was used to analyse the data collected with the focus group interviews.

1.6 Chapter divisions

Chapter 2 focuses on all aspects relevant to vocabulary learning. The importance of vocabulary to reading comprehension is highlighted. The scope of the vocabulary challenge is discussed as well as issues in vocabulary learning. The chapter concludes with a detailed discussion of vocabulary learning strategies.

Chapter 3 deals with vocabulary instruction. Without vocabulary instruction, no vocabulary development can take place. Three instructional methods are reported in this chapter, namely incidental word learning, intentional explicit instruction and computer-related instruction. The CAMI Reader software programme was used in this study and the chapter ends with a comprehensive review of the vocabulary feature of this programme.

Chapter 4 focuses on the methodology employed in this study. It gives a clear description of the quantitative and qualitative methods used, together with the purpose and process of each method.

In Chapter 5 the collected data are presented and discussed. The chapter is divided into a section for the discussion of the data collected by means of the quantitative method and a section for the data collected by means of the qualitative method.

Chapter 6 contains a summary of the study as well as conclusions and recommendations about the importance of instructional methods and vocabulary learning in general.

CHAPTER 2: VOCABULARY LEARNING

2.1 Introduction

One thing that students, teachers, materials writers, and researchers can all agree upon *is that* learning vocabulary is an essential part of mastering a second language (Schmitt, 2008). However, the best means of achieving good vocabulary learning is still unclear, partly because it depends on a wide variety of factors (de Groot, 2006), and so it is perhaps not surprising that teachers and learners have often been unsure of the best way to pursue it, especially as textbooks, syllabuses and DoE documents have typically been negligent in providing clear descriptions and guidelines (SA, 2002:2).

The purpose of this chapter is to focus on aspects relevant to the learning of vocabulary in English as a Second Language (ESL). Firstly, the question of what is vocabulary will be considered, secondly, the importance of vocabulary to reading comprehension is discussed, thirdly, the scope of the vocabulary learning challenge is highlighted, fourthly, issues relevant in vocabulary learning are addressed and lastly, vocabulary learning strategies are discussed.

2.2 What is vocabulary?

Broadly defined, *vocabulary* is knowledge of words and word meanings. However, vocabulary is more complex than this definition suggests. First, words come in two forms: oral and print. Oral vocabulary includes those words that we recognize and use in listening and speaking. Print vocabulary includes those words that we recognize and use in reading and writing. Second, word knowledge also comes in two forms, receptive and productive. Receptive vocabulary includes words that we recognize when we hear or see them. Productive vocabulary includes words that we use when we speak or write. Receptive vocabulary is typically larger than productive vocabulary, and may include many words to which we assign some meaning, even if we don't know their full definitions and connotations – or ever use them ourselves as we speak and write (Kamil & Hiebert, in press). Adding further complexity, in education, the word *vocabulary* is used with varying meanings. For example, for beginning reading teachers, the word might be synonymous with "sight vocabulary," by which they mean a set of the most common words in English that young students

need to be able to recognize quickly as they see them in print. However, for teachers of upper elementary and secondary school students, *vocabulary* usually means the "hard" words that students encounter in content area textbook and literature selections.

For purposes of this study, vocabulary is defined as knowledge of words and word meanings in both oral and print language and in productive and receptive forms. More specifically, *vocabulary* is used to refer to the kind of words that learners must know to read increasingly demanding text with comprehension.

The next section focuses on why developing this kind of vocabulary is important to reading comprehension.

2.3 The importance of vocabulary to reading comprehension

Words and their meanings are the building blocks of literacy development. One of the most persistent findings in reading research is that the extent of students' vocabulary knowledge relates strongly to their reading comprehension and overall academic success (see Baumann, Kame'enui, & Ash, 2003; Becker, 1977; Davis, 1942; Whipple, 1925). This relationship seems logical; to get meaning from what they read, students need both a great many words in their vocabularies and the ability to use various strategies to establish the meanings of new words when they encounter them. Young students who don't have large vocabularies or effective word-learning strategies often struggle to achieve comprehension. Their bad experiences with reading set in motion a cycle of frustration and failure that continues throughout their schooling (Hart & Risley, 2003; Snow, Barnes, Chandler, Goodman, & Hemphill, 2000; White, Graves, & Slater, 1990). Because these students don't have sufficient word knowledge to understand what they read, they typically avoid reading. Because they don't read very much, they don't have the opportunity to see and learn very many new words. This sets in motion the well known "Matthew Effects," Stanovich's (1986) application of Matthew, 25:29–"the rich get richer and the poor get poorer." In terms of vocabulary development, good readers read more, become better readers, and learn more words; poor readers read less, become poorer readers, and learn fewer words.

This particular relationship between vocabulary knowledge and reading comprehension seems clear. But vocabulary knowledge contributes to reading success in other important ways that are perhaps less obvious. For beginning readers, evidence indicates a link between word knowledge and phonological awareness. Young children who have a large number of words in their oral vocabularies may more easily analyze the representation of the individual sounds of those words (see Goswami, 2001; Metsala & Walley, 1998). In addition, vocabulary knowledge helps beginning readers decode, or map spoken sounds to words in print. If children have the printed words in their oral vocabulary, they can more easily and quickly sound out, read, and understand them, as well as comprehend what they are reading. If the words are not in children's oral vocabulary, they have trouble reading the words and their comprehension is hindered (National Reading Panel, 2000). Thus, an extensive vocabulary is the bridge between the word-level processes of phonics and the cognitive processes of comprehension (Kamil & Hiebert, in press).

The issues to address next, then, is the involvement load hypothesis, what it means to "know" a word, and just how many words do students need to know (i.e., vocabulary breadth or size) so as to read with comprehension?

2.4 The scope of the vocabulary learning challenge

Vocabulary development is very important, regardless of the purpose of language learning. Language learners and teachers would like to find ways to increase vocabulary knowledge. This section starts by focussing on the involvement load hypothesis, and then discusses knowing a word, breadth and depth of vocabulary learning, and receptive and productive vocabulary knowledge.

2.4.1 Involvement load hypothesis

Learning a language involves mastering a great number of words. How to acquire more words in less time is a problem many language learners and teachers grapple with. To try and address this problem, Hulstijn and Laufer (2001) developed the Involvement Load Hypothesis for second language (L2) vocabulary learning. They developed this hypothesis from the depth of processing model, first proposed by Craik and Lockhart in 1972 (Tsubaki, 2001). Simply put, the depth of processing model proposes that information that is processed at a deep level stays in memory longer

than that which goes through a shallower processing. Hulstijn and Laufer adapted and integrated the theoretical notions and constructs of the depth of processing model, and proposed their Involvement Load Hypothesis which includes both cognitive and motivational factors (Tsubaki, 2001; Martinez-Fernandez, 2008).

This hypothesis proposes that incidental tasks inducing higher involvement load is likely to produce better vocabulary retention effects. Retention of unfamiliar words is claimed to be conditional upon the amount of involvement while processing these words. The notion of involvement includes three task-specific components: a motivational component, 'need', and two cognitive components, 'search' and 'evaluation' (Martinez-Fernandez, 2008). Two degrees of importance are suggested for the first component 'need': moderate and strong. According to Hulstijn and Laufer (2001), need is moderate when it is imposed by an external agent, for example the need to use a word in a sentence as instructed by the teacher. Need is strong when it is intrinsically motivated by the learners, for example the decision to look up a word in a bilingual dictionary when writing a composition.

Search and evaluation are two cognitive dimensions of involvement, contingent upon allocating attention to form-meaning relationships (Schmidt as quoted by Jing & Jianbin, 2009). Search is the attempt to find the meaning of an unknown L2 word by consulting a dictionary or another authority, for example, a teacher. Evaluation entails a comparison of a given word with other words in order to assess whether a word does or does not fit in its context (Jing & Jianbin, 2009). Hulstijn and Laufer (2001) also differentiated between moderate evaluation and strong evaluation. Moderate evaluation entails recognising differences between **given** words such as a fill-in task or a given context while strong evaluation requires a decision such as how additional words will combine with a new word in an **original** sentence or text.

Need, search and evaluation can be absent or present when processing a word in a task. The combination of factors with their degrees of importance constitutes involvement load (Jing & Jianbin, 2009). This can be better explained with an example. Take two tasks that vary in involvement load. In task one, the learner is asked to write original sentences with some words which are explained by the teacher. The task induces a moderate need (imposed by the teacher), no search (the words are glossed), and strong evaluation because the new words are evaluated against suitable collocations in learner-generated context. In task two, the learners have to read an L2 text

and answer comprehension questions. New words are glossed with L1 meanings. The task will induce a moderate need to consult the gloss (moderate as it was induced by the text), but it will induce neither search nor evaluation. It has less involvement load than task one. It is supposed that task one will exert better retention than task two. Hulstijn and Laufer (2001) further created an involvement index where they assigned three degrees of values for the need, search and evaluation components of their hypothesis. None is indexed as 0, moderate as 1 and strong as 2. In this way, a task can have an involvement index which can be compared to other tasks' indexes. Tasks with high involvement load indexes are proposed to result in better vocabulary retention. These high indexed tasks might be the answer to the previously stated problem of more words in less time.

2.4.2 Vocabulary knowledge

Vocabulary knowledge refers to what it actually means for a learner to know a word. The complexity of lexical knowledge is hinted at by Coady's (1993:13) definition of knowing a word. Knowing a word involves knowing the following:

- the degree of probability of when and where a given word may be encountered and the types of words to be found with it (collocations);
- the limitations imposed on it by register (register);
- its appropriate syntactic behaviour (grammatical properties);
- its underlying form and derivations (morphological behaviours);
- the network of associations it has (associative meanings);
- its semantic features; its extended or metaphorical meanings (senses) and so forth.

Establishing exactly what it means to know a word is no easy task. Is "knowing" a word being able to recognize what it looks and sounds like? Is it being able to give the word's dictionary definition? Research suggests that, in general, the answer to these questions is *no*. Knowing a word by sight and sound and knowing its dictionary definition are not the same as knowing how to use the word correctly and understanding it when it is heard or seen in various contexts (Miller & Gildea, 1987).

Nagy and Scott (2000) identify several dimensions that describe the complexity of what it means to know a word. First, word knowledge is *incremental*, which means that readers need to have many

exposures to a word in different contexts before they "know" it. Second, word knowledge is *multidimensional*. This is because many words have multiple meanings (e.g., *sage*: a wise person; an herb) and serve different functions in different sentences, texts, and even conversations. Third, word knowledge is *interrelated* in that knowledge of one word (e.g., *urban*) connects to knowledge of other words (e.g., *suburban, urbanite, urbane*).

What all of this means is that "knowing" a word is a matter of degree rather than an all-or-nothing proposition (Beck & McKeown, 1991; Nagy & Scott, 2000). The degrees of knowing a word are reflected in the precision with which we use a word, how quickly we understand a word, and how well we understand and use words in different modes (e.g., receptive, productive) and for different purposes (e.g., formal vs. informal occasions).

Knowing a word also implies knowing how that word relates to other knowledge (sometimes called *word schema*). The more we know about a specific concept, for example, the more words we bring to our understanding of that concept. Because we have individual interests and backgrounds, each of us brings different words to shape that understanding.

Finally, knowing a word means being able to appreciate its connotations and subtleties. When we know a word at this level, we can use and recognize it in idioms, jokes, slang, and puns (Johnson, Johnson, & Schlicting, 2004).

It is clear that knowing a word in its full sense is a process that cannot happen the first time a learner encounters a word. Laufer and Paribakht (1998) conclude that the nature of vocabulary knowledge is a continuum of levels rather than an all-or-nothing phenomenon.

According to McShane (2005), there are three levels of word knowledge. The first level is the unknown level where a learner is completely unfamiliar with a word. The second level is the acquainted level, where the word is somewhat familiar and the third level is the established level where the word is very familiar and the learner can use the word correctly. Levels two and three are very similar to the classification of depth and breadth of knowledge (Nassaji, 2004). In vocabulary literature, a distinction is also made between two other levels: productive word knowledge and receptive word knowledge (Segler, 2001). In the following sections (paragraphs 2.4.3 and 2.4.4) the

difference between breadth and depth of vocabulary knowledge, and also between productive and receptive vocabulary knowledge, is explained.

2.4.3 Breadth and depth of vocabulary knowledge

Vocabulary knowledge can be examined from various dimensions, especially a quantitative and qualitative angle. The quantitative angle is referred to as breadth of knowledge, where the main concern is the amount of vocabulary that a second language learner needs (Nassaji, 2004). Knowing a word, however, requires more than just familiarity with its meaning and form. Depth of knowledge refers to the quality of vocabulary knowledge – in other words, how well a learner knows a word (Richards, 1976).

Breadth of knowledge refers to the quantity of words learners know at a particular point in time (Nation & Waring, 1997). The challenge of acquiring a vocabulary that is large enough for successful communication in a variety of settings has been the focus of much recent research (Lightbown & Spada, 2006). Any second language learner needs approximately 2000 words to make conversation, 3000 word families to read and understand text and 10 000 word families to interpret academic texts (Lightbown & Spada, 2006; Richards, 2000). According to Foley and Thompson (2003), the upper limit of a learnt vocabulary can comprise as many as 50 000 words. At the start of learning a second language, the most basic vocabulary is learnt first. This refers to words that occur frequently in texts (Tran, 2006). Coady (2000) believes a group of 2000 to 3000 high-frequency words should be studied until they become sight words.

Over the years, estimates of student vocabulary size have varied greatly, hindered in part by issues such as the types of vocabularies being considered (e.g., receptive/productive or oral/print). Depending on how they approached such issues, early vocabulary researchers reported figures ranging from 2,500 to 26,000 words in the vocabularies of typical grade 1 students and from 19,000 to 200,000 words for college graduate students (Beck & McKeown, 1991). As researchers began to define more clearly what they meant by vocabulary size, the estimates became more precise. At the present time, there is considerable consensus among researchers that students add approximately 2,000 to 3,500 distinct words yearly to their reading vocabularies (Anderson & Nagy, 1992; Anglin, 1993; Beck & McKeown, 1991; White *et al.*, 1990).

Perhaps a more useful way to approach the issue of vocabulary size is to consider the number of different, or unique, words in the typical texts that students read in schools. But this approach also raises questions. For example, what counts as a unique word? Is the possessive form of a word different from the original word and therefore unique? Can it be assumed that a student who knows the word *laugh* also knows the words *laughed, laughing,* and *laughter*? Drawing on a database of more than 5 million words taken from a sample of school texts used in grades 3 through 9, Nagy and Anderson (1984) grouped unique words into families. The students' knowledge of the root word would help them determine a related word's meaning when they encounter that word in a text. To be included in a family, the relationship of a word had to be "semantically transparent." That is, the meaning of the related word can be determined by using knowledge of its root word and the context of text. Therefore, words within a family related to the root *laugh* can include *laughed, laughing,* and *laughter* but not *laughingstock.* Based on this definition, Nagy and Anderson estimated that school texts from grades 3 through 9 contain approximately 88,500 distinct word families. Clearly, acquiring meanings for this many words is a formidable task.

Yet, somehow most students *do* steadily acquire a large number of new words each school year. To understand the magnitude of this accomplishment, consider what learning this number of words would require in terms of instruction. To directly teach students even 3,000 words a year would mean teaching approximately 17 words each school *day* (e.g., 3,000 words/180 school days). Estimates vary, but reviews of classroom intervention studies suggest that, in general, no more than 8 to 10 words can be taught effectively *each week.* This means no more than approximately 400 words can be taught in a year (Stahl & Fairbanks, 1986). Using a simple calculation, 3,000 - 400 = 2,600, produces the conclusion that students must find ways other than direct classroom instruction to learn words.

So how do students acquire so many new words? An extensive body of research indicates that the answer is through *incidental learning* – that is, through exposure to and interaction with increasingly complex and rich oral language and by encountering lots of new words in text, either through their own reading or by being read to (National Reading Panel, 2000). However, such incidental encounters cannot ensure that students will acquire in-depth meanings of specific words (Fukkink & de Glopper, 1998). For some words, such as those that are crucial for understanding a literature

selection or a content area concept, most students need to have *intentional* and *explicit* instruction. Each of these ways to acquire vocabulary is discussed in chapter 3.

A crucial year for the inception of vocabulary acquisition in a second language in South African schools is Grade 4. It is in this year that learners enter the Intermediate Phase with its eight Learning Areas. English First Additional Language is taught as a separate learning area for the first time. Learning Outcome 6 of this learning area explicitly states that learners must know and be able to use the vocabulary of an additional language (Lessing & De Witt, 2003). This results in learners having to acquire between 2 000 and 3500 common spoken words, by the end of Grade 4 (SA, 2002), as Coady (2000) and Nation and Waring (1997) suggest.

Depth of vocabulary knowledge refers to the quality of lexical knowledge – in other words, how well a learner knows a word or the quality of the learner's vocabulary knowledge (Read, 1993). To know a word well, a learner must have knowledge about its pronunciation, spelling, morphological features, its syntactic and semantic relationships with other words in the language, including collocation and knowledge of antonymy, synonymy and homophony (Coady, 1993; Gu & Johnson, 1996; Nassaji, 2004). Table 2.1 outlines the knowledge that a learner must have when he/she has depth of vocabulary knowledge about the word *desert*, for example.

Table 2.1: Example of depth of knowledge for word: desert (OED, 1999:387)

Word: desert

Word features	Explanation of feature	Example
Pronunciation	How to say the word correctly. Most dictionaries include phonological spelling of words to aid correct pronunciation.	dɪ'zɜ:t (phonological/IPA transcription of desert in OED, 1999:387)
Spelling	Correct order and number of letters in the word	desert
Morphological features	Internal structure of the word	desert

Word features	Explanation of feature	Example
Syntactic and semantic relationships	Set of rules that govern how the word is combined to form phrases and sentences	1. verb: to desert / deserting / deserted You can just drive off and desert me here, in the middle of nowhere. 2. noun: a desert He was lost in the African desert. 3. adjective: desert conditions/desert island Plants are dying in these desert conditions.
Collocation	Grouping of words that commonly occur together	verb: to desert someone noun: The sands of the desert; adjective: desert conditions; desert island
Antonyms	Words with the opposite meaning	verb: to be loyal to someone noun: paradise adjective: ideal conditions; populated island
Synonyms	Words with the same meaning	verb: turn one's back on; strand; drop noun: wasteland; barren land adjective: dry; barren; empty; desolate
Homophones	Words that sound the same, but have different spelling and meanings	Dessert (noun): pudding

Depth of knowledge is rarely achieved in the first few years of acquiring a second language (Nassaji, 2004). As learners have to acquire between 2000 and 3500 common spoken words by the end of Grade 4 (SA, 2002), the focus for beginner learners is on quantity and not quality. Learners who do have some depth of vocabulary knowledge are often avid readers of English texts (Nation & Waring, 1997).

2.4.4 Receptive vs. productive vocabulary

Productive word knowledge is usually defined as what one needs to know about a word in order to use it in speaking or writing; receptive word knowledge is the word knowledge needed to understand a word while reading or listening (Segler, 2001). Other terms used more or less synonymously include active/passive vocabulary/word knowledge, production/reception, productive/receptive vocabulary and comprehension. Nation and Waring (1997) see reception as including production plus 'unmotivated' vocabulary, which consists of words not known well enough to be used productively, and words not needed in daily communication.

A commonly held notion is that productive knowledge is more elusive, more difficult to learn, and possibly more fragile (Melka, 1997; Segler, 2001). Another assumption is that reception always precedes production, and that a word is accordingly either receptively or receptively and productively known (Melka, 1997). Hence, a second language learner can understand complicated instructions given verbally but can only create very simplistic elementary texts and spoken sentences.

Melka (1997) suggests that the distance between reception and production should be interpreted as numerous degrees of vocabulary knowledge. Melka proposes the following stages:

1. Imitation (or reproduction without assimilation).
2. Comprehension.
3. Reproduction with assimilation.
4. Production.

To sum up, when a learner is at the first and second stage of reception, he/she grasps the meaning of a word. The word thus contributes to breadth of knowledge. When the learner is at the third and fourth stage proposed by Melka (1997), he adds to his depth of knowledge as he can use the word to express meaning, which implies that he has knowledge about the word's pronunciation, spelling, morphological features and its syntactic and semantic relationships with other words in the language. Depth and breadth of vocabulary together with receptive and productive vocabulary are four different but interrelated levels of vocabulary knowledge.

2.4.5 Different types of word learning

Armbruster, Lehr and Osborn (2001) have identified four different types of word learning. These four types are set out in Table 2.2:

Table 2.2: Different types of word learning (Armbruster et al., 2001)

Type of word Learning	Explanation
Learning of a new meaning for a known word	The learner has the word in his/her receptive vocabulary but he/she is learning a new meaning for it. For example, the learner knows what a ***branch*** is, and is learning about both ***branches*** of rivers and ***branches*** of government.
Learning the meaning for a new word representing a known concept	The learner is familiar with the concept but he/she does not know the particular word for that concept. For example, the student has had a lot of experience with baseballs and globes, but does not know that they are examples of ***spheres.***
Learning the meaning of a new word representing an unknown concept	The learner is not familiar with either the concept of the word that represents that concept, and he/she must learn both. For example, the learner may not be familiar with either the process or the word ***photosynthesis***.
Clarifying and enriching the meaning of a known word	The learner is learning finer, more subtle distinctions, or connotations, in the meaning and usage of words. For example, he/she is learning the differences between ***running, jogging, trotting, dashing*** and ***sprinting***.

It is clear that the four types of learning listed in Table 2.2, vary in difficulty. According to Armbruster *et al.* (2001), one of the most common, yet challenging type of learning is the third type where the learner has to learn a new word for an unknown concept.

2.5 Issues in vocabulary learning

Since the early 80's, the number of studies dealing with vocabulary in L2 learning has steadily increased and in a parallel way, there has been a reconsideration of the role vocabulary plays in language teaching (Pujol, 2008). When the focus is solely on vocabulary there are issues that influence how learners acquire words in their second language. The role of age as well as the role of a learner's first language is discussed in the following section.

2.5.1 The role of age in vocabulary learning

Vocabulary learning in any L2 is covered by recent literature which deals with vocabulary learning in children as well as vocabulary learning in adults. According to researchers however, the age factor, as it relates to L2 vocabulary learning, is not a matter that receives a great deal of attention (Pujol, 2008). Most studies that deal with language learning and age-related constraints, concentrate on phonology and morphosyntax. There are several reasons given by researchers why the role of age and vocabulary has not been as researched as the role of age in phonology and morphosyntax. One of the widely-agreed upon reasons is that, contrary to syntax or phonology, the learning of vocabulary is a never-ending process, while grammar is not. Although there is consequently a lot of research to be done on the role of age in vocabulary learning, the studies that have been conducted, have yielded important findings.

There are widespread beliefs and conceptions on the topic. For example, it is a popular belief that the pronunciation and vocabulary are two aspects that children will learn more efficiently in the first stages of learning an L2. In two studies researchers found that both teachers and parents believe that children younger than 12 have a special ability to learn pronunciation, and that of all the linguistic components, they would basically learn vocabulary, as grammar structures would be too difficult (Pujol, 2008). These beliefs and conceptions may or may not correspond to what actually takes place. Empirical studies on the topic provide hard evidence. The studies on the role of age in L2 vocabulary learning can be categorised into studies carried out in naturalistic settings, and studies conducted in formal settings.

Studies in naturalistic settings mostly reveal that younger learners do not perform as well in learning vocabulary as adolescent and adult learners in the short term. One study in particular found that older learners in an immersion context in Canada acquired more vocabulary in the same amount of time than did younger learners, as evaluated in a Picture Vocabulary Test (Cummins & Swain, as quoted by Pujol, 2008). In spite of this initial advantage of older learners, research has shown that learners who start learning their L2 at a young age, will most probably overtake older learners with regards to vocabulary knowledge over time. The age of around 6 is deemed by researchers in a naturalistic setting to be a sensitive period for vocabulary learning in a second language. One study even found that it took less time for six to eleven year old learners to acquire an elementary

vocabulary in their L2 than it took learners who were older than eleven. This sensitive period can also be seen, not as a critical age for L2 vocabulary learning, but as an optimal age (Pujol, 2008).

Studies in formal settings also show that older learners perform better than younger learners in the short-run. With specific language courses, researchers found that adolescent and adult learners retained vocabulary better than young learners. Thus, it seems that in natural and formal settings, rate of vocabulary learning increases with age. If the amount of exposure time is held constant, older learners learn faster than young ones. In the long term in studies conducted in formal settings, older learners keep their advantage in contrast to what happens in naturalistic settings. Researchers from different countries came to the conclusion that an early start does not necessarily mean a lasting benefit (Pujol, 2008). There are, however, weaknesses in many of the studies, such as the fact that the majority did not extend for a long period of time. The researchers also made use of different procedures, different methods, different contexts and different measures that can lead to results that are not conclusive. According to Pujol (2008), the role that age plays in vocabulary learning will only be accurately assessed when more longitudinal studies have been done.

2.5.2 The role of the L1 in L2 vocabulary learning

According to Schmitt (2008), there is no doubt that the L1 exerts a significant influence on the learning and use of L2 vocabulary in a number of ways. Research has pointed out that in many cases lexical errors were judged to be attributed to L1 influence. Learners also typically make use of their L1 in learning an L2, most noticeably in the high usage of bilingual dictionaries. Psycholinguistic studies have also demonstrated that the L1 is active during L2 lexical processing in both beginning and more-advanced learners (Schmitt, 2008).

Many modern teaching methods treat L2 in isolation from L1 (Liu, 2008). Although it is not always encouraged to use the L1 in second language learning, given the ever-present nature of L1 influence, it seems sensible to exploit it when it can benefit learners. One case where there is a clear advantage is in establishing the initial form-meaning link. Researchers found that more newly learned words could be recalled using L1 translations than L2 context, particularly for less-proficient learners (Schmitt, 2008). Lotto and de Groot (1998) found that L2-L1 word pairs lead to better learning than L2-picture pairs for relatively experienced foreign language learners.

There are also convincing psycholinguistic arguments why the establishment of the initial form-meaning link might benefit from the use of the L1. L1 is present in L2 learners' mind and the L2 knowledge that is being created in their mind is connected in all sorts of ways with their L1 knowledge. It has been hypothesized that the initial form-meaning link consists of the new L2 word form being attached to a representation of the corresponding L1 word which already exists in memory (Hall, as quoted by Schmitt, 2008). A second language learner is likely to short-cut the process of observing a new word's various references and collocations by mapping the word directly onto the L1. After this initial stage, however, the advantages of meeting the new lexical item in L2 contexts become important to enhance contextual word knowledge, and so the value of the L1 lessens (Liu, 2008). Thus, it can be argued that using the L1 may be appropriate at some stages along the vocabulary learning process, but not others, which suggests using different teaching methods at different stages of vocabulary learning (Schmitt, 2008; Liu, 2008).

2.6 Vocabulary learning strategies

Vocabulary learning strategies can briefly be defined as steps taken by learners to discover, retain and use new vocabulary (Catalan, 2003). This section firstly, defines the term vocabulary learning strategies, secondly discusses the extensive taxonomy of Schmitt and lastly, discusses vocabulary learning strategies supported/required by OBE.

2.6.1 Defining vocabulary learning strategies

Learning strategies have been broadly defined as any set of operations or steps used by a learner that will facilitate the learning, storage, retrieval or use of information (Segler, 2001). They make learning more enjoyable and effective (Brits, 1994).

Vocabulary learning strategies constitute a subclass of language learning strategies (Segler, 2001; Segler *et al.*, 2002). Vocabulary learning strategies (VLS) can be defined as knowledge about the mechanisms (processes, strategies) used for learning vocabulary, and the steps or actions taken by learners (a) to find out the meaning of unknown words; (b) to retain them in long-term memory; (c) to recall them at will; and (d) to use them in oral or written mode (Catalan, 2003). Research has found that explicit de-contextualized learning of vocabulary through strategies can help develop

English language skills and especially vocabulary in the early stages of second language acquisition (Nassaji, 2004; Schmitt, 1997; Tran, 2006). These strategies should not be considered inherently good; they are dependent on the manner in which they are implemented. The effectiveness with which VLS can be taught and used depends on a number of variables, including proficiency level, text, language modality, background knowledge, context of learning, target language and learner characteristics and culture (Schmitt, 1997).

2.6.2 Schmitt's taxonomy of vocabulary learning strategies

Oxford (as quoted by Segler *et al.*, 2002:410) devised a classification system for language learning strategies. She grouped the strategies into two main categories, direct and indirect. Direct strategies are those that focus on explicitly studying language by, for example, memorization. Indirect strategies are applied when language is learnt as a by-product of other actions, such as talking to other learners. Within each category, the language learning strategies are organized into groups: direct (memory/cognitive/compensation) and indirect (metacognitive/social/affective). Segler adapted Oxford's classification system specifically for classifying VLS (Segler, 2001). Segler's system consists of four strategy groups from both the direct and indirect categories: Memory group, Cognitive group, Metacognitive group and Social group (Segler *et al.*, 2002). VLS, which relate new material to existing knowledge, fall into the Memory Strategies (MEM) group. Cognitive Strategies (COG) display the common function of manipulation or transformation of the target language by the learner. Metacognitive Strategies (MET) involve a conscious overview of the learning process and making decisions about planning, monitoring or evaluating the best ways to study. Lastly, Social Strategies (SOC) use interaction with other people to improve language learning. Neither Oxford's nor Segler's systems include a strategy group that describes the kinds of strategies used by a learner when faced with discovering a new word's meaning without resorting to another person's knowledge. Schmitt (1997), therefore, added a fifth strategy group to Segler's system called Determination Strategies (DET).

Schmitt (1997) also refines Segler's system by classifying VLS into two groups. The first group is called Discovery strategies. The strategies in this group are used for the initial discovery of a word's meaning. The second group is called Consolidation strategies, which are used to remember newly learnt words after the initial discovery. When encountering a word for the first time, learners must

use their knowledge of the language, contextual clues, and reference material (DET), or ask someone what the meaning is (SOC). Of course, after initial contact with the word, learners have to gain knowledge about the word class, spelling and collocation of the word so that the newly learnt word can be used in the productive vocabulary. To gain this knowledge, VLS from the SOC, MEM, COG or MET can be used.

Schmitt (1997) developed a comprehensive taxonomy of individual VLS, organized by the classification systems of Oxford and Segler. Schmitt included 58 individual VLS in this taxonomy. Compared to other classification taxonomies, Schmitt's taxonomy (Table 2.3) is the most extensive, and has the advantage of being organized around an established scheme of language learning strategies (Segler, 2002).

Table 2.3: A taxonomy of vocabulary learning strategies (Schmitt, 1997:207-208)

Strategy Group	VLS
Strategies for discovering the meaning of a new word	
Determination Strategies (DET)	Analyse part of speech Analyse affixes and roots Check for home language equivalent Analyse any available pictures or gestures Guess from context Bilingual dictionary Monolingual dictionary Word lists Flash cards
Social Strategies (SOC)	Ask the teacher for a home language translation Ask the teacher for a paraphrase or synonym of new word Ask the teacher for a sentence including the new word Ask classmates for meaning Discover new meaning through group work activity
Strategies for consolidating a word once it has been encountered	
Social Strategies (SOC)	Study and practise the meaning in a group Teacher checks students' flash cards or word lists for accuracy Interact with native speakers
Memory Strategies (MEM)	Study word with a pictorial representation of its meaning Create an image of word's meaning Connect word to a personal experience Associate the word with its coordinates Connect the word to its synonyms and antonyms Use semantic maps

Strategy Group	VLS
	Use 'scales' for gradable adjectives Peg method Loci method Group words together to study them Group words together spatially on a page Use new word in sentences Group words together within a storyline Study the spelling of a word Study the sound of a word Say a new word aloud when studying Create an image of the word's form Underline initial letter of the word Configuration Use keyword method Affixes and roots (remembering) Part of speech (remembering) Paraphrase the word's meaning Use cognates in study Learn the words of an idiom together Use physical action when learning a word Use semantic feature grid
Cognitive Strategies (COG)	Verbal repetition Written repetition Word lists Flash cards Take notes in class Use the vocabulary section in textbook Listen to tape of word lists Put English labels on physical objects Keep a vocabulary notebook
Metacognitive Strategies (MET)	Use English-language media (songs, movies, newscasts, etc.) Testing oneself with word tests Use spaced word practise Skip or pass new word Continue to study word over time

In Table 2.3, there are five strategy groups: determination strategies, social strategies, memory strategies, cognitive strategies and metacognitive strategies. One VLS from each group will subsequently be discussed in greater detail. These five VLS adhere to two criteria: the researcher's personal preference and her familiarity with each strategy as she has used it in teaching vocabulary to second language learners. The five strategies are: guess from context (DET), ask teacher for a

home language translation (SOC), use keyword method (MEM), written and verbal repetition (COG) and testing oneself with word tests (MET).

2.6.2.1 Discovery strategy: Guess from context (DET)

This strategy is one of the determination strategies in the discovery dimension. Guessing an unknown word's meaning from context has been widely promoted by researchers as it has been seen to fit in more comfortably with the communicative approach than other, more discrete discovery strategies (Schmitt, 1997). During this strategy, learners employ lexical inferencing where they make informed guesses about the meanings of unknown words based on the available linguistic and non-linguistic cues in the text (Nassaji, 2004). In other words, learners have to deduce a word's meaning through looking at the surrounding words in a written text. However, context should be taken to mean more than just textual context, since contextual clues can come from a variety of sources. Pictures have been shown to be useful if learners focus on them. In case of a discourse, gestures or intonation can also give clues to meaning (Schmitt, 1997). According to Sokmen (1997), textbooks have emphasized inferring the meaning of words from context as the primary vocabulary skill, thus rating this strategy as most important. Some studies even suggest that home language learners learn most of their vocabulary in this way (Nation & Waring, 1997). The strategy of guessing an unknown word's meaning from the context can be a major way of acquiring new vocabulary, but it also has prerequisites (Schmitt, 1997). First, the learner must have a certain level of language proficiency in order to use this strategy, including the ability to decode accurately the orthographical form (spelling) of new words. Second, the learner must have adequate background knowledge of the subject and a strategic knowledge of how to effectively go through the inferencing process. In addition, the context itself must be rich enough with clues to enable guessing, with the most easily utilizable clues being in close proximity to the target word. Tran (2006) advocates this strategy, as he considers reading superior to direct instruction in terms of acquisition of reading skills, vocabulary as well as grammar and writing.

A positive feature of this strategy is that learners have to read texts in order to implement it. Extensive reading helps to develop sight vocabulary, general vocabulary and the knowledge of the target language (Tran, 2006). Texts are readily available and learners are not solely dependent on teachers to provide them with the contexts needed for this strategy. Learners come in contact with

different English texts in their everyday lives, such as advertisements, magazines, pamphlets, billboards and the Internet. Learners can also use this strategy outside the school environment in their own time and place when they come across a context with unfamiliar words. Another positive feature of this strategy is that it is a strategy that learners can keep on using for the rest of their lives as they come across words that they do not know.

Some of the negative features of this strategy are: not just any text can be used; it is not effective for learners who do not have a threshold of 3000 words in the language to be learnt; it is a very slow process and guessing from context does not necessarily result in long-term retention (Groot, 2000). This learning strategy can only be successful when the material that the learners read, are appropriate for the amount of words that they already know (Tran, 2006). According to Nassaji (2004), learners need good vocabulary knowledge to be able to successfully derive word meanings from context. The phrase 'good vocabulary knowledge' is rather vague. Nation and Waring (1997) and Gu and Johnson (1996) more accurately say that learners will only benefit from this learning strategy, when they have reached the threshold of 3000 words. As the number of words refers to their breadth of knowledge, learners also need depth of knowledge. Without it they will not be able to derive enough clues from the context of a text to acquire new vocabulary. Teachers should not plan to use this vocabulary learning strategy until their learners have reached the threshold of 3000 words in the second language. One can conclude that this strategy is not ideal for beginner ESL learners, as they generally know fewer than 3000 words of a second language (Lightbown & Spada, 2006).

In the researcher's experience, the majority of second language learners at Grade 4 level are not able to successfully derive word meanings from context, as they easily become demotivated when they read a text and are unable to understand many of the words. This strategy is also a slow process, considering that many second language learners have a limited amount of time such as one period of 50 minutes a day to formally learn a body of words (Sokmen, 1997). Grade 4 learners do not have enough time to read through a variety of texts. They rather need to learn the words that they need for basic communication (frequently used words), without having to sift through texts to find them. Lastly, this strategy does not necessarily result in long-term retention (Fan, 2003; Laufer, 2003; Lightbown & Spada, 2006; Sokmen, 1997). Even if a learner is exposed to a word in a rich context where there are lots of clues to the meaning of the word, acquisition does not automatically result

the first time. What it takes to guess the meaning of an unfamiliar word is not necessarily what it takes to store it in one's memory. According to Sokmen (1997), one reason for not storing the word in memory is because the most immediate need, that of comprehension, has been met. Sokmen (1997) has concluded that more and more research points to the ineffectiveness of using this strategy for vocabulary learning and the need to accompany it with explicit vocabulary instruction strategies.

2.6.2.2 Discovery strategy: Ask teacher for a home language translation (SOC)

The meaning of an unknown word can be discovered by asking someone who knows. Teachers of a second language are often in this position, and they can be asked to help in a variety of ways, such as giving the home language translation of a word, if they know it (Hickman *et al.*, 2004; Schmitt, 1997).

Positive features of this strategy are that home language translations have the advantage of being fast, easily understood by learners, and make possible the transfer of all the knowledge a learner has of the home language word onto the ESL equivalent (Hickman *et al.*, 2004). The teacher can also turn this into an enjoyable strategy if words are translated in a humorous way by using stories or examples.

Negative features are that the teacher must know the learner's home language, and that most translation pairs are not exact equivalents, so that some erroneous knowledge may be transferred. This strategy can also lead to poor time management as the teacher is constantly supplying individual learners with words and not facilitating the activity at hand or attending to the rest of the class. Lastly, the learners can become more and more dependent on the teacher's knowledge. This dependent word learning can become an obstacle if the learner does not learn of any other way to discover the meaning of an unknown word (Hickman *et al.*, 2004).

2.6.2.3 Consolidation strategy: Use keyword method (MEM)

This strategy is one of many memory strategies, traditionally known as mnemonics. This involves relating the word to be retained with some previously learned knowledge, using some form of imagery or grouping (Fritz, Morris, Acton, Voelkel & Etkind, 2007; Wyra, Lawson & Hungi, 2007).

Memory strategies help learners to learn faster and recall better because they aid the integration of new material into existing cognitive units and because they provide retrieval clues (Fritz *et al.*, 2007; Schmitt, 1997). This integration involves the kind of elaborative mental processing that is necessary for long-term retention. The keyword method is a vocabulary learning strategy where the learner finds a word in his/her home language which sounds just like the target ESL word (i.e., the Afrikaans word *raai* (guess) for the English word *arise)*. Then an image combining the two concepts is created, such as a question mark getting up from a bed. When the ESL word *arise* is later heard, the sound similarity invokes the created image which prompts the ESL word's meaning. A number of studies have found that the keyword method is highly effective in enhancing the recall of words (Sokmen, 1997).

A positive feature of this strategy is that learners find it to be an especially enjoyable way to learn vocabulary. It can be assumed that when learners enjoy creating these images, stronger links are set up since they require the learner to do deeper mental processing as they integrate the new word with a familiar one (Sokmen, 1997).

A negative feature of this strategy is that it is too time-consuming for a learner to use this strategy to retain a large number of words (Sokmen, 1997). It can be assumed that once a word has become connected in the mental lexicon of a learner, the keyword images would eventually be discarded. For beginner learners at the Grade 4 level, who still need to learn frequently used words, it would be too time-consuming to learn words needed for basic communication with this strategy.

2.6.2.4 Consolidation strategy: Drill-and-practise (COG)

The drill-and-practise cognitive strategy is similar to the memory strategies as the learners purposefully try to memorize new vocabulary. Unlike the keyword method, cognitive strategies focus on repetition and using mechanical means to study vocabulary (Schmitt, 1997). This strategy mostly adds to a learner's breadth of knowledge as the learners practise a word's pronunciation and spelling, but it involves very little knowledge about its stylistic and morphological features, or its syntactic and semantic relationships with other words in the language (Gu & Johnson, 1996; Nassaji, 2004). Depth of knowledge is rarely achieved by using the drill-and-practise strategy (Nassaji, 2004).

The drill-and-practise strategy is a cognitive strategy in the consolidation dimension, also known as verbal/written repetition. Drill-and-practise is a strategy where learners do mental exercises that are performed regularly and with constant repetition (Cronje & Herselman, 1998). According to Yu, Liu and Chan (2005), most learning can be greatly enhanced by providing learners with drill-and-practise learning activities that are directly related to learning objectives. Drill activities concern factual memorization and practise concerns the development of skill fluency (Grabe & Grabe, 1996). The drill-and-practise strategy is used for learning new vocabulary because it provides practise for newly learnt words as the learners' initial exposure to new words is seldom sufficient for an adequate level of mastery (Grabe & Grabe, 1996; Joseph, 2006; O'Dell, 1997). Studies researching the number of exposures necessary to learn a word have results ranging from five to sixteen or more (O'Dell, 1997; Russel, 1979; Schmitt, 1997). Research suggests that the role of the drill-and-practise strategy may be more important than many teachers realize, as it is imperative for the automatizing of sub-skills such as word recognition (Cronje & Herselman, 1998; Matthew, 2004; Yu, Liu & Chan, 2005). In order for a person to perform complex intellectual tasks such as reading, many of the skills needed to perform those tasks (sub-skills), need to become atomized (Cronje & Herselman, 1998; National Reading Panel, 2000). Learners need to know and recognize a large number of words in a text before they will be able to fluently read and understand it.

A positive feature of this strategy is that it allows learners the opportunity to be repeatedly exposed to new words. Learners can also enjoy the game-like feature of this strategy when they are encouraged to keep score of how many words they have correct during the course of drill-and-practise activities. Another positive feature is that it contributes to learners' breadth of vocabulary knowledge. By using this strategy, learners can acquire a large number of words in a short amount of time, due to the constant repetition (Fan, 2003; Joseph, 2006).

The first negative feature of the strategy is that the constant repetition can lead to boredom among learners. The boredom causes lack of concentration; as a result, no learning will take place. The second negative feature is that depth of vocabulary knowledge is rarely achieved, which results in learners not having in-depth knowledge about the words that they learnt in this way (Nassaji, 2004). Lastly, it is very time-consuming to set up, as the teacher has to select the words and the type of activity for this strategy.

2.6.2.5 Consolidation strategy: Testing oneself with word tests (MET)

Testing oneself with word tests is a metacognitive strategy. According to Schmitt (1997), metacognitive strategies are used by learners to control and evaluate their own learning, by having an overview of the learning process in general. This strategy is concerned with more efficient learning. Testing can be done in a number of ways. The learner can create a simple test, which he completes after learning a number of words. Whether or not he will study the words again or use another strategy depends on the results of his own test. Learners who are focused on acquiring new vocabulary use this strategy to learn the largest number of words in the shortest amount of time (Schmitt, 1997). In the researcher's experience, learners in Grades 4 to 7 do not use this strategy often. One reason might be that the learners are not concerned with the evaluation of their own learning, but rather focus on completing the task at hand as instructed by the teacher.

A positive feature of this strategy is that it is an efficient and fast way for a learner to find out if he/she is acquiring new vocabulary. It is efficient because he tests himself and knows what to include in the test, and it is fast because only one person is involved in the testing procedure (writing and marking). Testing oneself gives input into the effectiveness of one's choice of learning strategies, provides positive reinforcement if progress is being made or signals to switch strategies if it is not.

A negative feature of this strategy is that it is not suitable for all learners, as a learner has to have self-discipline to test and retest himself/herself during the course of learning new words.

2.6.3 Vocabulary learning strategies and the learning outcomes for the Language Learning Area

Outcomes-based education (OBE) forms the foundation of the curriculum of South Africa (SA, 2002). OBE is set within the constructivist theory and is characterised by learners' creating their own knowledge and understanding through active engagement with realistic tasks in authentic contexts using actual tools (SA, 2002). This is done by setting outcomes to be achieved at the end of the process. The outcomes encourage a learner-centred and activity-based approach to education. The Revised National Curriculum Statement (RNCS) (SA, 2002) builds its Learning Outcomes for

Grades R-9 on the critical and developmental outcomes that were inspired by the Constitution and developed in a democratic process. The critical outcomes envisage learners who are able to:

- Identify and solve problems and make decisions using critical and creative thinking;
- Work effectively with others as members of a team, group, organization and community;
- Organise and manage themselves and their activities responsibly and effectively;
- Collect, analyse, organize and critically evaluate information;
- Communicate effectively using visual, symbolic and/or language skills in various modes;
- Use science and technology effectively and critically, showing responsibility towards the environment and the health of others; and
- Demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation.

The Language Learning Area is one of the eight learning areas. In a multilingual country like South Africa it is important that learners reach high levels of proficiency in at least two languages and that they are able to communicate in other languages (SA, 2002). The Learning Area for each of the eleven official languages is presented in three parts: Home Language, First Additional Language and Second Additional Language. When learners are learning English as their second language, referred to in this study as ESL, they do so in the English First Additional Language learning area (SA, 2002). It is within the English First Additional Language RNCS policy document that guidelines are given on vocabulary acquisition for the Intermediate Phase, Grades 4-6 (SA, 2002). Learning Outcome 6 of this learning area explicitly states that learners must know and be able to use vocabulary of an additional language (Lessing & De Witt, 2003). It is in Grade 4 that learners have to understand between 2000 and 3 500 common spoken words in context as prescribed in the curriculum statement (SA, 2002) before they are able to use English to reach other outcomes such as reading and viewing (Learning Outcome 3) and writing (Learning Outcome 4) (SA, 2002). For each Learning Outcome in the policy document, a number of Assessment Standards have been devised to act as guidelines of achievement for each grade. Table 2.4 lists the vocabulary-related Assessment Standards of the Learning Outcomes for Grade 4 learners of English First Additional Language.

Within the national policy document there is no prescriptive strategy for vocabulary learning. Every learner needs vocabulary knowledge in order to achieve any one of the six outcomes, even though

its acquisition is only mentioned in two of the thirty-nine Assessment Standards in the policy document. What the policy document does emphasise, is that knowledge, skills and values must be integrated as a central principle of the Language Learning Area Statement (SA, 2002). For knowledge to be integrated, it must first be acquired. In order to acquire English vocabulary, VLS must be used. As no VLS are prescribed, it can be assumed that the teacher and learners can make use of any strategy as long as they attain the Learning Outcome. Some of the COG strategies in Schmitt's taxonomy are based on rote learning such as drill-and-practise. Where the current outcomes-based South African educational policy shows a marked shift away from rote learning in favour of problem solving (SA, 2002), care should be taken not to neglect essential basic knowledge and skills. Drill-and-practise is a learning strategy through which learners can acquire these basic knowledge and skills in the OBE classroom.

Schmitt's taxonomy of VLS (see Table 2.3) can be applied in OBE, as many of the strategies are ideal for reaching the Learning Outcomes through the Assessment Standards. The VLS are listed in Table 2.4 as they correspond with the Assessment Standards.

Table 2.4: VLS supported by OBE as required by Assessment Standards

Learning Outcome	Assessment Standard	Vocabulary Learning Strategy
LO3: Reading and viewing	Understands the vocabulary and discusses the choice of words, imagery and sound effects in poems, stories and multimedia texts (e.g. rhythm, rhyme, alliteration, word pictures, humour)	Any DET or SOC strategy can be used as none is prescribed. Teacher selects most suitable strategy, for example guess from context. DET: Guess from context SOC: Discover new meaning through group work activity

Learning Outcome	Assessment Standard	Vocabulary Learning Strategy
LO6: Language structure and use	Works with words:	Any COG or MEM strategy can be used as none is prescribed. Teacher selects most suitable strategy, for example:
	Uses prefixes, stems and suffixes to form words	MEM: Affixes and roots (remembering)
	Explores the origin of words	MEM: Study the sound of a word
	Records words in a personal dictionary	COG: Keep a vocabulary notebook
	Uses phonics and spelling rules to spell words correctly	COG: Listen to tape of word lists COG: Drill-and-practise MEM: Study the spelling of a word MEM: Study the sound of a word
	Checks spelling in a dictionary	COG: Use the vocabulary section in textbook

2.7 Conclusion

Vocabulary learning is a task that involves active participation and collaborating with classmates, together with personal, quiet, self-reflective periods. When new words are integrated with past knowledge, learners realize that their past experiences are valuable and that they have the skills to process degrees of meaning, image, and make concrete a huge body of words in another language (Sokmen, 1997). The goals of vocabulary learning must be more than simply covering a certain number of words on a word list. One must examine how VLS can help realise one's concept of what it means to know a word (Brits, 1994). Teachers and learners are not always aware of the power of consciously using VLS for making learning faster, easier, and more effective and even more fun. Teachers, therefore, need to help their learners develop an awareness of vocabulary learning strategies and enable them to use a wider range of appropriate strategies (Brits, 1994).

Chapter 3 focuses on vocabulary instruction and its different methods such as incidental word learning and intentional, explicit instruction.

CHAPTER 3: VOCABULARY INSTRUCTION

3.1 Introduction

Of the many compelling reasons for providing learners with instruction to build vocabulary, none is more important than the contribution of vocabulary knowledge to reading comprehension. Indeed, one of the most enduring findings in reading research is the extent to which learners' vocabulary knowledge relates to their reading comprehension (e.g., Anderson & Freebody, 1981; Baumann, Kame'enui, & Ash, 2003; Becker, 1977). Most recently, the National Reading Panel (2000) concluded that comprehension development cannot be understood without a critical examination of the role played by vocabulary knowledge. Given that learners' success in school and beyond depends in great measure upon their ability to read with comprehension, there is an urgency to providing instruction that equips learners with the skills and strategies necessary for lifelong vocabulary development.

In 1997 Sokmen noted that the acquisition of vocabulary will assume an important, if not the central role in second language acquisition in the 21st century (Sokmen, 1997). With this shift of emphasis, the teacher of the current 21st century is faced with the challenge of how best to help learners acquire vocabulary in their second language, in the case of this study, English. This chapter takes a closer look at instruction for vocabulary development as well as different methods for vocabulary instruction. The choice of words to instruct is another focus point. The chapter concludes with a section on computer-related instruction, specifically the vocabulary quiz feature of the CAMI Reader software programme.

3.2 Instruction for vocabulary development

Over the past two decades, research has revealed a great deal about the kind of vocabulary instruction that is most effective for helping learners comprehend what they read (e.g., Baumann, Kame'enui et al., 2003; Beck & McKeown, 1991; Blachowicz & Fisher, 2000; Nagy & Scott, 2000). Based on its analysis of this research, the National Reading Panel (2000) concluded that no one single instructional method is sufficient for optimal vocabulary learning; therefore, effective instruction must use a variety of methods to help learners acquire new words and increase the depth

of their word knowledge over time (Hunt & Beglar, 2005; Nagy, 1997; Sokmen, 1997; Laufer, 1997). Effective instruction includes opportunities for both incidental word learning and intentional word teaching.

The National Reading Panel says the following about the role of vocabulary in reading instruction:

1. There is a need for direct instruction of vocabulary items required for a specific text.
2. Repetition and multiple exposures to vocabulary items are important. Learners should be given items that will be likely to appear in many contexts.
3. Learning in rich contexts is valuable for vocabulary learning. Vocabulary words should be those that the learner will find useful in many contexts. When vocabulary items are derived from content learning materials, the learner will be better equipped to deal with specific reading matter in content areas.
4. Vocabulary tasks should be restructured as necessary. It is important to be certain that learners fully understand what is asked of them in the context of reading, rather than focusing only on the words to be learned. Restructuring seems to be most effective for low achieving or at-risk learners.
5. Vocabulary learning is effective when it entails active engagement in learning tasks.
6. Computer technology can be used effectively to help teach vocabulary.
7. Vocabulary can be acquired through incidental learning. Much of a learner's vocabulary will have to be learned in the course of doing things other than explicit vocabulary learning. Repetition, richness of context, and motivation may also add to the efficacy of incidental learning of vocabulary.
8. Dependence on a single vocabulary instruction method will not result in optimal learning. A variety of methods was used effectively with emphasis on multimedia aspects of learning, richness of context in which words are to be learned, and the number of exposures to words that learners receive (NRP, 2000:4-4).

During their analysis of vocabulary research, the National Reading Panel (2000) conducted an exhaustive inquiry into vocabulary instruction techniques, also known as vocabulary instruction methods. The inquiry yielded 21 different methods, each distinguishing itself from others by its

differences rather than its similarities. A scheme for categorising the methods resulted in the following simplified taxonomy of methods for vocabulary instruction set out in Table 3.1:

Table 3.1: Taxonomy of methods for vocabulary instruction (NICHHD, 2000:17)

Method	Explanation
Explicit Instruction	Learners are given definitions or other attributes of words to be learned. They are given external clues to connect the words with meaning.
Indirect Instruction	Learners are exposed to words or given opportunities to do a great deal of reading. It is assumed that learners will infer any definitions they do not have.
Multimedia Methods	In these methods vocabulary is taught by going beyond text to include other media. Semantic mapping and graphic representations of word attributes are among these methods. Newer developments like hypertext go beyond the single medium of text in attempts to enhance vocabulary learning. The use of the computer and any software are included in these methods.
Capacity Methods	These methods attempt to reduce the cognitive capacity devoted to other reading activities by practising them to make them more nearly automatic. These methods assume that the additional capacity freed up can be used for vocabulary learning. These methods work to allow learners to concentrate on meanings of words rather than their oral representations.
Association Methods	Learners are encouraged to draw connections between what they do know and words they encounter that they do not know. Associations can be semantic, contextual or based on imagery.

It is important to note that the taxonomy in Table 3.1 describes the reviewed research at a general level only as there are many methods that combine elements that would place them in more than one category. Incidental word learning (indirect instruction), intentional explicit instruction as well as computer-related instruction (multimedia methods) were used in this study. Subsequently, only these three methods are discussed in the following sections.

3.3 Incidental word learning

Incidental word learning, also known as indirect instruction can be defined as a vocabulary instructional method where the meanings of new words are acquired subconsciously as a result of repeated exposures in a range of contexts, where the conscious focus is not on form, but on message (Segler, 2001). The aim of incidental word learning is to attract learner attention while minimizing any interruption to the communication of meaning (Hunt & Beglar, 2005). According to researchers,

the majority of vocabulary is learned indirectly through everyday experiences (Hunt & Beglar, 2005; Williams & Morris, 2004; Segler, 2001; Nagy, 1997).

Although this learning is called *incidental,* children's opportunities for word learning often reflect conscious choices on the parts of parents, family members, and teachers to use language in ways that invite children to ask and answer questions and to hear and read words that expand their vocabularies.

3.3.1 Incidental word learning through oral language

Logic suggests that the more oral language experiences children have in their early years, the more words and word meanings they acquire. It is the kind and extent of these early oral language experiences that profoundly affect children's later reading and school success. Young children whose experiences include hearing a lot of language and being encouraged to use and experiment with language themselves tend to achieve early reading success; children who have limited experiences with language often have trouble learning to read, and as they progress through school, they remain at risk for reading and learning problems (Dickinson & Tabors, 2001; Storch & Whitehurst, 2002).

3.3.2 Oral language experiences at home

The word-knowledge gap between groups of children begins long before the children enter school. Hart and Risley (1995) found, for example, that 3- year-olds in higher socioeconomic status (SES) families had vocabularies as much as five times larger than children in lower SES families. Children in higher SES homes engaged in many interactive discussions with their parents. Their parents helped build the children's language use and knowledge through extensive repetitive and interactive talk, such as the following: Child: *Look! I painted.* Parent: *You painted the whole picture by yourself?* By expanding upon and repeating the child's statement as a question, the parent signals a request for the child to tell more. In contrast, Hart and Risley (1995) found that children in lower SES families had many fewer such experiences. These children more often heard imperatives such as, "Get down!" or "Don't do that!" This last point is important in light of research showing that the sophistication of language children hear and participate in is a stronger predictor of their later vocabulary knowledge than is the number of words that they hear and speak (Weizman & Snow,

2001). For learners without extensive oral language experiences, both English-speaking and English language learners, it's especially important to hear oral English that incorporates the vocabulary they will encounter in school texts.

3.3.3 Oral language experiences at school

Once children begin school, the teacher talk they hear throughout the day poses opportunities to familiarize them with the kind of oral language that promotes vocabulary growth. Yet, researchers have found that talk in primary and elementary school classrooms is often limited to commonly recognized words and largely involves concrete talk about the "here and now" (Dickinson & Tabors, 2001; Snow, Tabors, Nicholson, & Kurland, 1995). Concrete talk in the form of display questions (e.g., *What colour is this? How many are there?*) has been observed to be prevalent in both preschool (Dickinson & Tabors, 2001) and in elementary classrooms (Snow *et al.*, 2000; Dickinson & Smith, 1994).

To counteract these frequently reported patterns, one group of researchers designed and implemented an intervention called PAVEd for Success (for the two primary features of the programme: phonological awareness and vocabulary enhancement) with classes of preschool children (Schwanenflugel *et al.*, in press). Analyses of the interventions show that children in classrooms in which teachers consistently engaged children in interactive teacher-child talk and storybook reading ended up with larger vocabularies than did children who served as controls.

As important as oral language experiences are, they are not sufficient by themselves to ensure the kind of vocabulary growth that will lead to improved reading comprehension. One reason is that most oral language – the kind of language we use in daily conversations with people we know – lacks the varied word use found in written language. Hayes and Ahrens' (1988) analysis demonstrated the difference in word use in oral and written language. These researchers found that children's books contained almost twice as many infrequently used or rare words than even adult conversation among college graduates. And it's the exposure to infrequently used or rare words that learners need if they are to acquire the vocabulary that will enable them to comprehend their increasingly complex school texts. For example, whereas we might say we're *putting* salt on our

food, a character in a children's book might be described as *sprinkling* salt on his. We may refer to a storm *coming*, but in a children's book, the storm might *threaten* or *loom on the horizon*.

3.3.4 Incidental word learning through teacher read-alouds

Because children's books often contain rich and descriptive language, reading them aloud to learners can be an excellent way to focus their attention on words. It's not surprising, then, that reading aloud children's books has been found to increase the vocabularies of learners from preschool through the elementary grades (e.g., Dickinson & Smith, 1994; Elley, 1989; Penno, Wilkinson, & Moore, 2002; Robbins & Ehri, 1994; Stahl, Richek, & Vandevier, 1991). However, reading aloud by itself is not sufficient to either build vocabulary or to increase comprehension. To understand a story, learners must relate their existing knowledge to the words and ideas in the story. This can be a challenging task, especially for young children with limited oral vocabularies (Whitehurst *et al.*, 1994). Some researchers contend that the real value of reading aloud activities for vocabulary growth lies not in the reading alone, but in the teacher-learner talk that accompanies the reading.

The value of talk around book reading lies in the way it can promote learners' familiarity with new, or rare, words (Dickinson & Smith, 1994). Beck and McKeown (2001) emphasize that it is through the talk surrounding read-aloud activities that learners gain experience with "decontextualized" book language – that is, the language that represents ideas and concepts.

3.3.5 Incidental word learning through wide reading

A number of researchers have found that once learners are reading on their own, the amount of time they spend reading is one of the best predictors of their vocabulary size (e.g., Herman, Anderson, Pearson, & Nagy, 1987; Miller & Gildea, 1987). Cunningham and Stanovich (1991) found, for example, that even after accounting for general intelligence and decoding ability, reading volume (amount of time spent reading) contributed significantly and independently to vocabulary knowledge for learners in grades 4, 5, and 6. Cunningham and Stanovich (1998) argue further that if most vocabulary is acquired incidentally, then the only opportunities for learners to acquire new word meanings occur when they are exposed to new words in written or oral language that is outside their existing vocabulary. Given the findings of Hayes and Ahrens (1988) about the frequency of

rare words in printed materials as compared to oral language, it is evident that this exposure to new words will happen more often as a result of reading rather than of engaging in most kinds of oral language activities. Beyond providing exposure to a range of new and unfamiliar words, reading widely contributes to vocabulary growth by offering learners opportunities to make connections among familiar words and unfamiliar but semantically related words – word families. As part of the study mentioned earlier, Nagy and Anderson (1984) found that of the 10,000 or so "new" words that grade 5 learners encounter in their reading, some 4,000 are derivatives of familiar words; that is, compound words and words with suffixes or prefixes, and another 1,300 are inflections of familiar words.

3.3.6 The kinds of reading necessary to produce vocabulary growth

Some researchers suggest that almost any reading will produce vocabulary growth (Krashen, 1993). Others contend that, if learners consistently select texts below their current reading levels, even wide reading won't result in measurable vocabulary growth (Carver, 1994). Nor is reading text that is full of unfamiliar words likely to produce large gains in word knowledge (Shefelbine, 1990). For learners to get the most out of wide reading, the conclusion of most researchers is that they should read for various purposes and read texts at various levels of difficulty. Learners should read some text simply for enjoyment and some text that challenges them (National Reading Panel, 2000). Researchers who have observed learners reading independently in classrooms also suggest that teacher guidance to learners in selecting books can make independent reading periods productive. Teachers can direct learners to books at appropriate reading levels and point out books that might be of interest to individual learners (Anderson, 1996). In addition, setting aside time for learners to talk with each other about what they read can contribute to the effectiveness of independent reading time (Anderson, 1996).

3.3.7 Positive features and limitations of incidental word learning

Incidental word learning has a number of positive features. Firstly, when learners acquire new vocabulary through the indirect instructional method of independent reading, it encourages learners to develop vocabulary learning strategies, such as anticipation and inference. These strategies

become increasingly profitable as learning processes because they lead to an attitude of self-reliance that is a hallmark of proficiency (Sun & Dong, 2004).

Secondly, independent reading does not only support vocabulary development but also spelling, grammar and writing development (Tran, 2006; Groot, 2000). Hunt and Beglar (2005) share this view as they have found that well elaborated semantic knowledge, which includes developing knowledge of usage, collocations and other lexico-grammatical characteristics, is primarily gained through meeting words in context rather than through explicit instruction (Hunt & Beglar, 2005).

Indirect instruction also has limitations. Firstly, beginner second language learners most need threshold-level second language vocabulary to be able to read texts on their own (Gu & Johnson, 1996; Sokmen, 1997). Knowing 98% of the vocabulary in a text is necessary for both unassisted comprehension and to provide enough coverage to give learners a reasonable chance to infer the meaning of unknown words (Hunt & Beglar, 2005; Laufer, 1997). Beginner learners do not yet have threshold-level vocabulary and with the exception of graded readers, rarely know 98% of the vocabulary in a text.

Secondly, the chances of retaining the meaning of a word by reading alone vary from 5 to 20%. This indicates that extensive reading cannot be expected to result in dramatic increases in vocabulary growth over short periods of time (Hunt & Beglar, 2005).

Thirdly, vocabulary gains from reading are often partial and probably acquired incrementally. New words may be quickly forgotten unless reinforced through review or large accounts of additional reading (Waring & Takaki, 2003; Lawson & Hogben, 1996; Sokmen, 1997). What it takes to guess the meaning of an unfamiliar word is not necessarily what it takes to store it in learners' memory. According to Nagy (1997), only sustained exposure to comprehensible input can lead to a high rate of vocabulary growth necessary for successful language learning.

Fourthly, a high volume of reading is needed to acquire new vocabulary by reading alone. High volume reading, such as a book a week at the learner's level, can be a daunting task especially for low proficiency or young beginner learners (Waring & Takaki, 2003). Another study on vocabulary acquisition from reading shows that pick up rates of unfamiliar words range from 1-5 words in a text

of over 1 000 words (Hill & Laufer, 2003). If one considers the time it would take for a learner to read 1000 words, it is clear that the incidental word learning method is very time consuming (Sokmen, 1997; Groot, 2000). The second language classroom is constantly under pressure to cover a range of different knowledge and skills of the English language such as grammar, speaking and writing (Groot, 2000; Laufer, 1997). It is nearly impossible for high volume independent reading to take place in the classroom. Wide reading may not be an effective method for teaching the specific words that learners need to comprehend a particular literature selection or a particular content area textbook. Another limitation is that wide reading alone cannot ensure that learners develop the kind of word-learning strategies they need to become independent word learners. For these kinds of word learning, many learners require intentional, explicit instruction.

Lastly, inferring word meaning is also an error-prone process as learners seldom guess the correct meaning of unknown words (Sokmen, 1997). This can be frustrating to learners as it is difficult to undo the possible damage done by incorrect guessing.

3.4 Intentional, explicit instruction

Explicit instruction is a vocabulary instructional method where learners are given definitions or other attributes of words to be learned and external clues to connect the words with meaning (NICHHD, 2000; Hunt & Beglar, 2005). This aids learners in acquiring in-depth knowledge of words they are reading and hearing, which is important when learners want to use words accurately in speaking and writing. The more learners pay careful attention to various aspects of words, and the more they form rich and numerous associations with existing knowledge the higher the chances are that vocabulary will be retained (Hill & Laufer, 2003).

Research indicates that the intentional, explicit teaching of specific words and word-learning strategies can both add words to learners' vocabularies (Tomeson & Aarnoutse, 1998; White *et al.*, 1990) and improve reading comprehension of texts containing those words (McKeown, Beck, Omanson, & Pople, 1985; Stahl & Fairbanks, 1986; NICHHD, 2000; Hunt & Beglar, 2005; Tran, 2006). Pre-instruction of vocabulary can also increase the salience of target vocabulary, ensure more repetition in terms of input and possible output, and allow learners to meet vocabulary in both partially decontextualised and fully contextualised settings. This combination of decontextualised

and contextualised settings has been found conducive to second language vocabulary acquisition (Zimmerman, as quoted by Hunt & Beglar, 2005:30).

When specific instruction of vocabulary is extended over a period of time, the learners actively work with the words and the repeated exposure aids the retention of the newly learnt words. The more learners see, hear and work with specific words, the better they seem to learn them (NICHHD, 2000; Kolich, 1991; Sokmen, 1997). When learners work with words in for example, a word-focussed task, it is more beneficial for vocabulary acquisition than a receptive awareness of these words induced by reading (Hill & Laufer, 2003; Laufer, 1997; Sokmen, 1997). Various studies create a range of 5 – 16 encounters with a word in order for learners to truly acquire it (Sokmen, 1997). Explicit instruction is a method that can create these multiple encounters through diverse activities. According to Hunt and Beglar (2005), programmes that incorporate explicit vocabulary instruction have been found to be more effective for vocabulary development than those that rely exclusively on indirect means.

3.4.1 Choosing words for instruction

A learner's vocabulary knowledge consists of words and their meanings. One of the concerns of instruction for vocabulary development is choosing words for instruction. The question of which specific words to teach has no simple – or widely agreed upon – answer. Many teachers turn to the teacher's editions that accompany their comprehensive reading programmes. Virtually all of these teacher's editions include lists of words deemed important for each selection in the programme, along with activities for teaching those words. Based on analyses of such lists, however, Hiebert (in press) suggests that many of the recommendations are very rare words – those that can be expected to occur once or fewer times in a million words of school texts. In a comprehensive reading programme, however, the words targeted for direct instruction often are *so rare* they are unlikely to occur again in the texts learners read over a school year – including texts that are part of the reading programme. Further, many of the targeted words may occur only once in the particular selection that learners are reading.

In addition, the teacher's editions of comprehensive reading programmes often ignore words that *are* used commonly in texts but have different meanings in discussions of different subjects, such as

volume (science: a measurement of a space; music: degree of loudness; literature: one book in a set of books); *solution* (social studies: the answer to a problem; science: one substance dissolved in another); and *meter* (literature: poetic rhythm; mathematics: a unit of length; science: a device for measuring flow). Some learners will need help with such words because they aren't aware of subject-specific differences. To assist teachers in making word-choice decisions, researchers have proposed several criteria (Beck, McKeown, & Kucan, 2002; Biemiller & Slonim, 2001; Hiebert, in press; Nation, 2001). According to O'Dell (1997) and White (1988), the compilers of word lists use set criteria to select words which generally include the following seven issues:

- **Frequency of use**: The more frequently a word is used, the sooner the word should appear on the word list.
- **Coverage**: Words with a broader coverage should be introduced first in a word list, for example *go* should be introduced before *travel*.
- **Range**: Words found in a variety of text types should be included in a word list before those that are common only in a restricted range of text types. The words specific to biochemistry, for example, should not be introduced to learners who are not going to come in contact with the subject as the words have a very small range.
- **Availability**: Words that are easily available to native speakers should be included in a word list for second language speakers even if they are not particularly high frequency words. White (1988:48) illustrates this concept by giving the example of the desirability of teaching the words *salt* and *pepper* together, making the point that the word pepper is just as available to a native speaker as salt, even though it has a much lower frequency.
- **Learnability**: Words that are easy to learn should be presented earlier in the syllabus than those that are harder to learn. Factors affecting how easy words are to learn are: whether they are similar to words in the learner's first language; whether their meaning can be easily demonstrated; their regularity and whether they contain elements which are already familiar to the learners from the knowledge of English which they have already acquired.
- **Opportunism**: Words that are relevant to the learners' immediate situation should be included in word lists. For example, it will be appropriate to teach beginners the word *whiteboard*, despite its low frequency, coverage, and so forth.

- **Centres of interest**: Words which are likely to interest learners in a particular group should be included; for example, Grade 4 learners are usually very interested in animals, and so words such as *ranger* and *game reserve* can be included in their word list.

In general terms, these criteria focus on two major considerations:

- Words that are important to understanding a specific reading selection or concept.
- Words that are generally useful for learners to know and are likely to encounter with some frequency in their reading.

3.4.2 Importance

Words serve different purposes in language. Function words are words that cue a reader or speaker to the structure of the sentence: *are, that, a, to, or, the, of,* and so forth. Function words make spoken language meaningful and written language coherent and readable. Content words are the words that communicate meaning in text (Stahl & Nagy, 2000). Clearly, learners must know both kinds of words to understand what they read. Fortunately, the number of function words in English is fairly limited – 107 words have been found to account for approximately 50 percent of the total words in texts (Zeno, Ivens, Millard, & Duvvuri, 1995) – and most learners learn these words as part of their oral language development. Therefore, beyond beginning reading, these words are not good candidates for intentional instruction (Kamil & Hiebert, in press). Unfortunately (for instructional purposes), the number of content words is virtually unlimited. Because of this, the second criterion for word selection, the usefulness of a word – the frequency with which it is likely to appear in text – must be considered.

3.4.3 Usefulness and frequency

Beck *et al.* (2002) propose that teachers should place major consideration on words' usefulness and frequency of use. To help in this endeavor, they categorized words into three tiers:

- Tier One consists of words such as *clock, baby*, and *happy* whose meanings learners are likely to know.

- Tier Two is made up of words such as *fortunate*, *maintain*, and *merchant* that are "likely to appear frequently in a wide variety of texts and in the written and oral language of mature language users" (2002:16), but whose meanings learners are less likely to know.
- Tier Three is made up of words such as *irksome, pallet,* and *retinue* that appear in text rarely. Although these rare words are often unknown to learners, their appearance in texts is limited to one or two occurrences, and because they are often specific to particular content, learners can use the context of texts to establish their meaning.

Beck *et al.* (2002) suggest that for instructional purposes, teachers should ignore Tier One and Tier Three words and concentrate on Tier Two words. Their argument is that most learners already know Tier One words and that Tier Three words should be taught at point of contact, or as they occur in reading. Tier Two words, however, appear often in learner texts, so they are the words that can add most to learners' language knowledge. Tier Two words include: (1) words that are characteristic of mature language users and appear frequently across a variety of contexts; (2) words that lend themselves to instruction and that can be worked with in a variety of ways so that learners can build in-depth knowledge of them and their connections to other words and concepts; and (3) words that provide precision and specificity in describing a concept for which the learners already have a general understanding (Beck *et al.*, 2002).

Teachers can identify Tier Two words by deciding whether their learners already have ways to express the concepts represented by the new words. Beck *et al.* (2002) propose that teachers ask themselves whether their learners will be able to explain the new words by using words they already know. If so, this suggests that the new words offer learners more precise or sophisticated ways of referring to concepts they already know something about. Guidelines such as these are useful, but in the complex and diverse settings that are South African classrooms, they need to be applied with sensitivity to the needs of learners. Further, it should be remembered that the Three Tier model assumes that learners are fluent readers of Tier One words. As is evident in studies of learners' fluency, however, such fluency cannot be assumed (Pinnell *et al.*, 1995). When learners are not fluent with Tier One words, using context to figure out Tier Three words will be difficult.

3.4.4 Teaching specific words

Research suggests many different methods for teaching specific words related to specific texts as well as specific sets of words related to particular topics. Graves (2000) identifies three types of word-learning tasks facing learners:

- Words that are synonyms for words that learners already know;
- Words that learners know at some level but that have multiple meanings, such as *attention*, *channel*, and *practice*; and
- Words that represent concepts that may be new to learners, such as *liberty*, *biome*, and *probability*.

For each type of learning task, one instructional strategy is highlighted from the many that are available (Graves *et al.*, 2004; Stahl, 1999). These strategies are simply examples; an instructional strategy is not limited to a particular type of task. In effective instruction, teachers employ a variety of strategies.

3.4.5 Teaching unknown words: synonyms

Connecting important selection words to familiar synonyms before learners read can be an efficient and minimally disruptive way to help them get the most from reading. Teachers can provide this instruction economically by writing on the board sentences that contain the target words and providing quick definitions that use synonyms learners are likely to know. For example, for the word *benevolent*, the teacher might write, "The benevolent king was loved by his people." Then she can either give a simple definition for *benevolent* ("kind") or ask learners to determine the meaning from the context of the sentence. Such activities can give learners the background they need to understand the word when they see it in the text (Graves *et al.*, 2004).

Teachers also can use synonyms as part of point-of-contact teaching for particular words as learners are reading. For example, if a teacher notices that learners seem puzzled by a word in a passage, she can quickly say, for example, "benevolent means kind" and move on. If necessary, the teacher might expand the definition, but not to the extent that it disrupts the flow of the reading.

3.4.6 Teaching multiple-meaning words: semantic maps

Semantic maps can be an effective means to expand learners' knowledge of words with which they are already familiar but which have multiple meanings or are part of an extensive network of related words (Johnson & Pearson, 1984; Pittelman, Heimlich, Berglund, & French, 1991). A semantic map is a graphic organizer that is organized around a word that represents an important concept (e.g., *movement*). On the map, related words are clustered around the target word according to criteria that teachers or learners choose. These criteria might include such features as similar or dissimilar attributes, connotative or denotative meanings, or even shared linguistic components.

3.4.7 Teaching words for new and complex concepts

One method for teaching words for new and complex concepts focuses on having learners identify critical attributes associated with a word (Frayer, Frederick, & Klausmeier, 1969). Teachers lead learners in a discussion where they compare and contrast essential features and examples of a concept. For example, an essential feature of a globe is that it is a sphere or ball-like and not flat. An example of a globe is a globe of the earth. A map is not an example of a globe because maps are flat. Learners can identify features and examples for a concept after a teacher-led discussion. This activity can be aided with a visual representation, such as a four-square concept map (Eeds & Cockrum, 1985).

3.4.8 Teaching independent word-learning strategies

Graves (2000) notes that if learners are to be successful in understanding unfamiliar vocabulary in their reading, they need to learn *about* words not simply acquire new words. Instruction that supports independent word-learning strategies guides learners in how to go about determining the meanings of unknown words. *Independent word-learning strategies* are procedures that teachers can model and teach explicitly to learners to show them how to go about determining the meanings of unknown words (Baker, Simmons, & Kame'enui, 1998).

Several researchers have found that directly teaching word-learning strategies can help learners become better independent word learners (Baumann, Edwards, Boland, Olejnik, & Kame'enui,

2003; Blachowicz & Fisher, 2000; National Reading Panel, 2000). The effective word-learning strategies they have identified include how to use dictionaries, how to identify and use context clues, and how to use word-part information (morphological analysis).

3.4.8.1 Using dictionaries

Instruction in dictionary use that simply has learners look up words and write definitions seldom produces in-depth word knowledge (Scott & Nagy, 1997). This is not to say that dictionaries are not important aids to word learning. It means that instruction must show learners how to use the definitions they find in a dictionary. Effective dictionary instruction includes teacher modelling of how most effectively to look up an unknown word and thinking aloud about how to select which is the most appropriate definition for a particular context (Graves et al., 2004).

3.4.8.2 Identifying and using context clues

Context clues are clues to the meaning of a word that are contained in the text and illustrations that surround it. Context clues can include definitions, examples, and restatements, as well as charts, pictures, and type features. In one study, middle school learners who were taught to identify and use specific types of both linguistic information (words, phrases, sentences) and nonlinguistic information (illustrations, typographic features) were then able to use this information to unlock the meanings of unfamiliar words in text (Baumann, Edwards et al., 2003). Not all contexts are helpful. In some cases, the context can be of little assistance in directing readers toward the specific meaning of a word. Beck, McKeown, and McCaslin (1983) called these "nondirective contexts." Here's an example of such a context: "We heard the back door open, and then recognized the buoyant footsteps of Uncle Larry." The context for buoyant is unhelpful because a number of possible meanings could fit the word, including heavy, lively, noisy, familiar, dragging, and plodding. Another example of a nondirective context is "The police arrived to arrest him for the dastardly deed of bringing donuts and coffee to the homeless people in the park." Here the context is misleading because dastardly is used sardonically. Therefore, the context offers no clue to help determine its meaning.

3.4.8.3 Using word-part clues/morphology

Morpheme is the name for meaningful word parts that readers can identify and put together to determine the meaning of an unfamiliar word. Knowledge of morphemes and morphology, or word structure, plays a valuable role in word learning from context, because readers can use such knowledge to examine unfamiliar words and figure out their meanings (Carlisle, 2004).

It is estimated that more than 60 percent of the new words that readers encounter have easily identifiable morphological structure – that is, they can be broken into parts (Nagy, Anderson, Schommer, Scott, & Stallman, 1989). Researchers have focused considerable attention on the value of teaching roots, prefixes, and suffixes for purposes of vocabulary development.

Root Words

Nagy and Anderson's (1984) analysis of printed school English made clear that a large number of words that learners encounter in reading are derivatives or inflections of familiar root words. Several researchers have argued, in fact, that focusing vocabulary instruction on acquiring root words is an effective way to address the large number of words that learners must learn each year (e.g., Anglin, 1993; Biemiller & Slonim, 2001). One researcher suggests that learners acquire about 1,200 root word meanings a year during the elementary school years (Anglin, 1993). Other researchers place that number at about 600 root word meanings per year from infancy to the end of elementary school (Biemiller & Slonim, 2001).

Prefixes and suffixes

The presence of a prefix at the beginning of a word requires that a reader attend to it immediately. Fortunately, a relatively small number of prefixes are used in a large number of words. Indeed, nine prefixes account for 75 percent of words with prefixes (White, Sowell, & Yanigihara, 1989). Further, prefixes tend to be spelled consistently and have a clear lexical meaning, which makes prefix instruction and learning at grades 3 through 5 both fairly straightforward and useful. Although there is general agreement on the value of teaching prefixes, there is less agreement on the value of teaching suffixes. Stahl (1999) contends, for example, that because many suffixes have vague or

unhelpful meanings, they can often confuse more than help learners. Learning that -ious means "state or quality of " may not help learners learn the meanings or much about words such as ambitious or gracious. Some suffixes, such as –less ("without") and -ful ("full of "), are more "stable," or obvious, in meaning and thus easy for learners to understand and apply to words.

The most frequently occurring suffixes in printed school English are inflectional endings such as -s, -es, -ed, -ing, -en, -er, and -est. Most young learners use these endings in their oral language and so should have few problems learning and using them. Derivational suffixes such as -y, -ly, -ial, and -ic appear in fewer than 25 percent of all the words that contain suffixes, but they also can be useful to teach. For example, knowing the meanings of the –ial ("relating to") and -y ("being" or "having") suffixes can aid in figuring out rare words such as exponential and unwieldy (White et al., 1989).

To be most effective, word-part instruction should teach learners the meanings of particular word parts as well as a strategy for when and why to use them. In a project where fifth graders became more adept at using word parts within new words, teachers taught word parts through a four-step lesson (Baumann, Edwards et al., 2003). The successful instruction did not require learners to recite the meanings of word parts they encountered. Rather, it involved having them read texts with words that use the word parts and gave them opportunities to learn about word origins, derivations, and usage. Such a slant toward words can stir learners' interest in learning more about language and building word consciousness.

3.4.9 Developing word consciousness

Word consciousness is an awareness of and interest in words, their meanings, and their power (Anderson & Nagy, 1992; Nagy & Scott, 2000; Graves & Watts-Taffe, 2002). Word consciousness involves knowing that some words and phrases can simultaneously feel good on the tongue and sound good to the ear. Learners who are word conscious enjoy words and are eager to learn new words. Curiosity about words includes learning the histories of words such as knowing that words have come into English from many different languages including Hindi (e.g., *dungaree*, *pundit*, *juggernaut*, *khaki*), Russian (e.g., *tundra*, *sputnik*), and Chinese (e.g., *typhoon*, *kowtow*), as well as from the better known sources of Latin and Greek.

Word consciousness also means learning about the ways in which words are used figuratively such as *idioms* (e.g., on the same boat, get ahead of one's self) and learning the pleasures of playing with words. Word play – jokes, puns, riddles, tongue twisters, and so forth – is critical to the vocabulary development of all learners but especially for English language learners who often focus on the literal meanings of words.

Through activities such as Hink Pinks that use rhyming words (e.g., an impertinent young man is a *rude dude*) or homophones (e.g., define a *flower flour* or a *brake break*), learners can play with words and understand underlying concepts. Teachers have available any number of books (e.g., Espy, 1982; Johnson, 1999) that can be used for a host of inventive and diverse word play activities. In addition, they can access numerous websites that contain word games, identify words that are new to English (e.g., *blog*), focus on Latin and Greek elements in English, and have rhyming dictionaries.

3.4.10 Positive features and limitations of intentional explicit instruction

There are a number of positive features of explicit vocabulary instruction. Firstly, explicit instruction enhances noticing words and provides opportunities for recycling newly learnt words through different activities. These two factors permit learners to integrate newly met vocabulary effectively into long-term memory (Hunt & Beglar, 2005). Vocabulary retention is enhanced when learners temporarily isolate words from their context and elaboratively process them. This is necessary because learners may simply choose to ignore many of the unknown words or phrases which they encounter through reading alone. When teachers use rehearsal techniques to explicitly teach learners new vocabulary, it produces better retention than indirect instruction (Joseph, 2006).

Explicit instruction is secondly, especially helpful for less proficient, or beginner learners who find it difficult to increase their vocabulary size through inferring unknown word meaning. For these learners a lack of high frequency vocabulary may result in the 'beginner's paradox', a cycle in which limited lexical knowledge discourages reading and, simultaneously, a lack of reading restricts vocabulary growth (Hunt & Beglar, 2005; Laufer, 1997). Explicit instruction is most effective for enlarging learners' knowledge of high frequency, general academic vocabulary and essential technical vocabulary (Hunt & Beglar, 2005; Tran, 2006). When learners have acquired these high

frequency words, they are more able to learn words through other methods such as independent reading (Nagy, 1997).

Thirdly, this method of instruction avoids faulty word analysis by helping the learners with the correct definition and usage of new vocabulary. Through explicit instruction learners will not have partial or fully incorrect inferences and attributes about words which may take years to unlearn (Joseph, 2006).

Explicit instruction also has limitations. Firstly, an average English dictionary has a vocabulary of around 54 000 word families (Nation & Waring, 1997). It is impossible to explicitly instruct such a large amount of words. As one of the goals of explicit instruction is to help learners acquire in-depth knowledge of words, it is also a slow time consuming process that promotes small, incremental gains in vocabulary growth (Hunt & Beglar, 2005; Groot, 2000). The overuse of explicit instruction can lastly, limit learners' ability to use vocabulary in novel contexts (Hunt & Beglar, 2005).

3.5 Computer-related instruction

Although the National Reading Panel (2000) cites computer technology as a promising method for increasing vocabulary, little research yet exists to provide direction for computer-related instruction. A few studies (Davidson, Elcock, & Noyes, 1996; Heller, Sturner, Funk, & Feezor, 1993; Reinking & Rickman, 1990) suggest some possibilities for ways that computers might assist in vocabulary learning. Wood (2001) suggests, for example, that the greatest potential of computer technology lies in certain capabilities that are not found in print materials.

3.5.1 Capabilities of computer-related instruction

Computer-related instruction can be used because it has certain capabilities that paper and pen do not possess. These capabilities include:

- **Game-like formats**

Such formats may be more effective at capturing learners' attention than textbooks and workbooks.

- **Hyperlinks**

Clickable words and icons placed in online text can offer learners opportunities to encounter new words in multiple contexts by allowing them quick access to text and graphics. When they are well designed, such extensions can add depth to word learning, particularly in the area of content-specific words.

- **Online dictionaries and reference materials**

Devices that allow learners to click on words to hear them pronounced and defined may extend learners' understandings of new words.

- **Animations**

Animated demonstrations of how the human heart works or what life was like in Ancient Egypt may hold learners' interest, and when combined with audio narration or text captions and labels, they offer potential for word learning.

- **Access to content-area-related websites**

These websites, such as those operated by NASA, the Smithsonian, various museums, and numerous libraries, allow learners quick access to photographs, maps, and voice-over narration and text that may both reinforce content-area vocabulary and relate new words to existing concepts.

Studies have shown vocabulary learning gains with computer use as compared to traditional methods or when computers are used as an additional aid (NICHHD, 2000). Different computer application technologies could also bring to bear many different media which could add a number of different modalities to the teaching of vocabulary and help to ensure more effective vocabulary learning. Examples of these different application technologies are the electronic dictionary and interactive storybook programmes.

An electronic dictionary can be used for vocabulary instruction because these dictionaries are easier and more convenient to use than printed dictionaries. Some are furthermore packaged with grammar and usage texts as well as thesauruses, which allow learners to search multiple resources (Hunt & Beglar, 2005). Some electronic dictionaries offer advanced searches, provide multimedia annotations, such as illustrations and video that assist in vocabulary instruction.

An interactive storybook programme is another example of a computer-related technology. Such a storybook is viewed on a computer screen where the format of the conventional book has been retained with page-turning facilities. Features such as reading the story aloud and whole word and/or

phrase pronunciation, accompanied by the highlighting of words or phrases, or segmented pronunciation, cued by clicking a mouse-pointer may be incorporated in these storybooks (Trushell, Maitland & Burrell, 2003).

3.5.2 Positive features and limitations of computer-related instruction

Computer-related instruction has positive features. More and more research is being done on second language vocabulary instruction with the aid of these methods, especially computer technologies (Groot, 2000; Segler *et al.*, 2002). Vocabulary instruction can be enhanced in the following ways:

- Teachers can use computer technologies to prepare vocabulary activities of high quality and visual appeal (Selwood & Pilkington, 2005; Osguthorpe & Graham, 2003; Hennessy *et al.*, 2005).
- Teaching materials on vocabulary can be shared through computer networks and reused by other teachers which reduces preparation time and creates more time for the teacher to facilitate learning (Selwood & Pilkington, 2005; Osguthorpe & Graham, 2003).
- Teachers report that computer technologies make the creation of interactive and engaging vocabulary activities possible that could motivate learners (Selwood & Pilkington, 2005).
- Computer technologies create the opportunity for computer-assisted assessment of vocabulary activities. This enhances vocabulary instruction as the computer gives immediate feedback to learners and encourages self-correction. Assessment with the help of computer technologies saves the teacher time that he/she can utilise in a productive manner, such as by assisting struggling learners (Lamprecht, Nel & Swart, 2005; Hennessy *et al.*, 2005).

Computer-related instruction also has limitations. Firstly, it is possible for learners using computer-related technologies for learning to get attracted by the diversity of the information, which leads to the problem of wandering attention. According to Sun and Dong (2004), the rich clues in the multimedia environment might benefit learners with high capability but disturb and distract inefficient or beginner learners.

Secondly, the computer revolution of the 1980's created an environment of rapid expansion in which the production of multimedia educational software outstripped researchers' ability to validate its

effectiveness. Therefore, there is a prolific supply of multimedia educational software without any research documenting the effectiveness of those instructional programmes (Kolich, 1991; Herring, Notar & Wilson, 1998). Kolich (1991) and Sokmen (1997) agree that most vocabulary software is decidedly lacking in a variety of exercises and rarely adds to a learner's breadth and depth of vocabulary knowledge. According to these researchers there is a need for programmes that specialize in useful vocabulary, provide expanded rehearsal and engage the learner on deeper levels and in a variety of ways as they practise vocabulary. The CAMI Reader is a vocabulary software programme that aims to meet these demands.

3.6 CAMI Reader software programme

The CAMI Reader software programme was created by a company which started to design South African educational software in 1984, introducing a 'practise for skills' approach to learning (www.camiweb.co.za). With this approach the software aims to offer the learner various expanded rehearsal techniques to engage the learner on deeper levels and in a variety of ways as they gain different language skills. These expanded rehearsal techniques classify the CAMI Reader as drill-and-practise software as it consists of repetition activities according to a fixed pattern where the learner receives immediate feedback with correction of incorrect responses (Cronje & Herselman, 1998). Drill-and-practise has the advantage of developing lower order thinking skills and enabling learners to use their vocabulary in higher order thinking skills such as analysis, synthesis and evaluation (Bloom as quoted by Cronje & Herselman, 1998:311). Drill-and-practise software combines these benefits with those of e-learning as it develops lower order thinking skills through activities while being adaptable to the needs of individual learners in a variety of contexts.

The main goal of the CAMI Reader is to ensure that learners read with accuracy and understanding (www.camiweb.co.za). In order to reach this goal, the software includes the following features:

- **Phonics** involves a series of comprehensive phonics exercises with auditory instructions.
- **Reading and comprehension** include reading material, which is grade-defined according to word usage, length of text and the comprehension questions relating to it. Learners are able to access reading pieces which are well suited to their ability.

- **Grammar and vocabulary** cover all areas of grammar including parts of speech, vocabulary, word usage, spelling, synonyms, antonyms, challenging word games and much more.
- **Flash reading** tests the learner on spelling words from the reading text.
- **Word recognition** is an excellent exercise in scan reading.
- **Anagrams** are an exercise involving the analysis and synthesis of words found in the reading piece.
- **Eye movement trainers** include four different viewers (scopes) each with their own dynamic speed settings.
- **Open text editor** allows any text to be entered into the system as a reading piece, from a newspaper article to a text from other learning areas and even in other languages.
- **Individual learner settings** for each exercise can be extensively tailored for each learner in terms of font type, size, foreground colour, background colour, speed of reading, pass requirements, number of spelling words and more.
- **Sound recording desk** has been designed so that the teacher can record the sound associated with any word. Individual words can be studied for pronunciation and elocution.

In the following section, the grammar and vocabulary feature are discussed. It is the only feature of the CAMI Reader that contains activities specifically designed for vocabulary instruction.

3.6.1 Grammar and vocabulary feature

This feature is divided into two sections, grammar and vocabulary. The grammar section is organised under six headings:

- **Word derivation** (diminutives, plurals, antonyms, synonyms, degrees of comparison, gender, prefixes and suffixes, abbreviations and acronyms);
- **advanced vocabulary** (professions and trades, words denoting places, difficult terms, countries, people and ways);
- **own spelling lists**;
- **parts of speech** (verbs, adjectives, adverbs, pronouns, conjunctions, prepositions, and interjections);
- **nouns** (common nouns and proper nouns); and

- **verbs** (modal verbs and principal parts of verbs).

The vocabulary section consists of three sets of vocabulary quizzes and a vocabulary builder. As the focus of this study is vocabulary acquisition, only the vocabulary section of the grammar and vocabulary feature is discussed.

The vocabulary quiz section was specifically designed for vocabulary acquisition (www.camiweb.co.za). This section is structured in three sets with Sets One and Two containing nine quizzes and Set Three seven. Each quiz tests fifteen words in a multiple choice question format. Each answer counts five to ten points so that learners can accumulate a hundred points with the fifteen questions. With each question, the learner has three options to help him/her get to the right answer (Diagram 3.1).

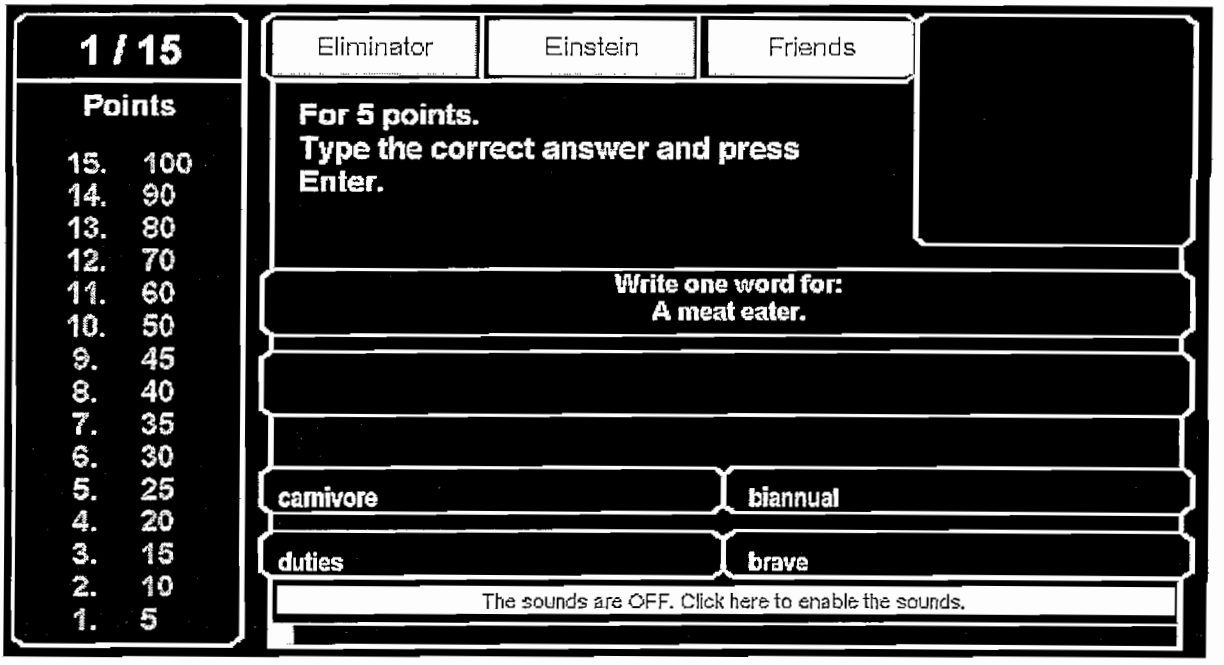

Diagram 3.1: Vocabulary quiz

The learner can choose the 'Eliminator' button. The programme then eliminates two incorrect choices, which leaves the learner with one correct and one incorrect choice. The second option is the 'Einstein' button. The programme then supposedly connects to Albert Einstein and he suggests the

right answer, which the learner then only has to choose. Lastly, the learner can choose the 'Friends' button. The programme displays a bar chart with most of the learner's imaginary friends voting for the correct answer. With each choice the programme immediately gives the learner feedback on whether the answer is right or wrong, and also gives the correct answer if the learner choses the incorrect one.

The selection of vocabulary is an important ingredient of vocabulary knowledge. The CAMI Reader includes word lists for the vocabulary feature. The word lists contain verbs, nouns and adjectives. These three are parts of speech, which are usually taught first to beginner learners (Kilfoil & Van der Walt, 1997). A learner can also easily construct a sentence with words from these three groups. When inquiring about the choice and number of words in the word lists as well as the assignment of words to levels, no answer could be given. It would appear that the levels do not vary in difficulty and that all levels have words that are frequently used such as *urgent* and words that are less frequently used such as *audacious*. The word lists do not contain any words from the 315 Dolch words. It can be presumed that the compiler of the CAMI Reader word lists wanted to include words which the majority of learners do not know, which excludes the Dolch words, as many of them are sight words such as *and* and *only* (par. 3.3.3). It is difficult to deduce the criteria the compiler used for selecting the words by studying the word lists, as the criteria are not explained by the programme. It can be presumed that the compiler selected words based on personal choice.

3.6.2 How CAMI Reader aids ESL vocabulary knowledge

The different features of the CAMI Reader software programme such as reading and comprehension, word recognition, anagrams and flash reading create opportunities for learners to encounter collocations, register, grammatical properties, morphological behaviours, associative meanings and semantic features of words (par. 3.3). These opportunities are, however, incidental as the programme was designed to promote the overall reading abilities of learners and not only to improve their vocabulary. CAMI Reader nevertheless expands two levels of vocabulary knowledge: breadth and depth. According to Sokmen (1997), most available vocabulary software packages succeed only to broaden a learner's breadth of knowledge (par. 3.3.1). With a wordlist consisting of 705 words, the CAMI Reader would definitely expand the number of words that a learner recognises through the range of activities (breadth of knowledge). The CAMI Reader also has adequate features

for broadening a learner's depth of knowledge (par. 3.1). Table 3.4 illustrates how the different word features necessary for depth of knowledge are addressed by a CAMI Reader activity. When a learner practices these listed activities, he/she gains depth of knowledge about a certain word, as illustrated in Table 3.2.

Table 3.2: How CAMI Reader addresses depth of knowledge

Word features	CAMI Reader feature that addresses word feature	Example of activity
Pronunciation	Sound recording desk feature	Learners click on a certain word and listen to the pronunciation through earphones
Spelling	Flash reading tests feature	Type the flashed word and press enter
Morphological features	Grammar feature	Drag the words next to the appropriate definition
Syntactic and semantic relationships	Grammar and vocabulary feature	Sentence construction: Learners have to arrange jumbled words into a sentence
Collocation	Grammar and vocabulary feature	Sentence construction: Learners have to arrange jumbled words into a sentence
Antonyms	Grammar and vocabulary feature	Give the antonym of maximum. Learners choose between four words.
Synonyms	Grammar and vocabulary feature	Give the synonym of pretty. Learners choose between four words.
Homophones	Grammar and vocabulary feature	With what do you fly: plane, plain, pane, pain? Learners choose between four words.

Of the eight word features needed to have depth of knowledge about a certain word, the CAMI Reader provides ample opportunity for all, proving that this software programme has the ability to improve a learner's breadth and depth of knowledge. When a learner uses this software programme, his/her receptive vocabulary needed for reading instructions and texts can change to productive vocabulary as the learner becomes more competent in using newly acquired words in a variety of contexts (par. 3.3.2).

The vocabulary quiz section in particular adds to a learner's breadth and depth of knowledge. Firstly, when a learner has worked through all 25 quizzes with 15 target words in each, the learner should have acquired 375 words that add to his/her breadth of knowledge. However, the way in which the multiple choice questions are asked also adds to a learner's depth of knowledge, for example:

- Put in the antonym using a prefix
- Give the plural of...
- Give the opposite of...

For these questions a learner has to know what an antonym, plural and opposite is, and when the learner discovers the correct answer, the word is not only learnt with its spelling and meaning, but also, for example, with its antonym, plural or opposite.

CAMI Reader creates opportunities for learners to acquire, broaden and deepen their ESL vocabulary knowledge. Knowing a word in its full sense is nevertheless a process and the more learners do CAMI Reader activities, the more exposure they will get to ESL vocabulary.

3.7 Conclusion

Vocabulary undoubtedly plays an important, if not central role in second language learning. The National Reading Panel (2000) found that a variety of vocabulary instructional methods must be used for effective vocabulary instruction. Three different methods were discussed in this chapter, namely incidental word learning, intentional, explicit instruction and computer-related instruction. Within these three methods, issues were raised such as the importance of oral language and wide reading as part of incidental word learning. How to choose words for instruction, teaching independent word-learning strategies and developing word consciousness are important issues when using the explicit instructional method. The vocabulary quiz of the CAMI Reader software programme was discussed as an example of computer-related instruction designed to aid vocabulary acquisition. The positive features as well as limitations of each of the three instructional methods were lastly discussed at the end of each section. The need for vocabulary instruction research is great. According to researchers, their knowledge of vocabulary acquisition exceeds their knowledge of how best to teach it. This chapter aimed to shed some light on vocabulary instruction. Chapter 4 focuses on the research design and methodology of this study.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter details the methodology used to conduct this study. It includes a rationale for using quantitative and qualitative methods, it documents the design, participants, data collection procedure and the data analysis. The aim of the study was to analyse two vocabulary instructional methods relevant for Grade 4 learners. More specifically the methods were computer-related instruction and intentional explicit instruction.

4.2 Rationale for using quantitative and qualitative methods

Quantitative research is generally used to answer questions about the relationships between measured variables with the purpose of explaining, predicting and controlling phenomena. In contrast, qualitative research is generally used to answer questions about the complex nature of phenomena, often with the purpose of describing and understanding the phenomena from the participants' points of view (Leedy & Ormrod, 2001; Lankshear & Knobel, 2004; Mac Naughton *et al.*, 2001). In this study both a quantitative and a qualitative method were used. The quantitative method consisted of a quasi-experimental design which included pre- and post-tests. The qualitative method consisted of focus group interviews. The purpose of the quantitative method was to analyse the results of pre-and post-tests of two groups of participants who were subjected to different instructional methods, to determine whether the instructional methods assisted vocabulary learning and ultimately, what combination of instructional methods is more useful. The qualitative method was employed to obtain information on how the participants experienced the methods of instruction.

4.3 Quantitative method

Section 4.3 provides further detail about the quantitative method used in this study. The experimental design, participants, variables, measuring instruments, data analysis and statistical procedures as well as the procedure of the method are discussed.

4.3.1 Experimental design

A quasi-experimental nonrandomised pre-test post-test delayed post-test control-group design was used in this study. This design has five characteristics (Leedy & Ormrod, 2001; Lankshear & Knobel, 2004; Mac Naughton, 2001):

1. Participants in already existing groups are compared with regard to two or more treatment conditions
2. there is no random assignment to treatment conditions;
3. independent variables are being manipulated;
4. it is often used for evaluating some sort of intervention; and
5. data often comprise test scores calculated before the intervention and again after the intervention.

The research design for this specific study is illustrated in Table 4.1

Table 4.1 Research design

Time sequence	Monday	Tuesday	Friday	One week	Friday
Group E	Pre-test Y1	Experimental treatment: CAMI	Post-test 1 Y2		Post-test 2 Y3
Group C	Pre-test Y1	Control group: Explicit instruction	Post-test 1 Y2		Post-test 2 Y3

This design was chosen for two reasons. Firstly, the school in which the research was done could not disrupt classes by randomly assigning participants to two different groups for the duration of the study. Such a disruption would have had a ripple effect on all the Grade 4 learners and teachers. Much time would be wasted with learners not being certain in which class they were or where they should go. This could have led to a chaotic atmosphere in the corridors of the school which might prevent effective teaching and learning for the school as a whole. The second reason was ecological validity.

It could be argued that a true experimental design with random assignment of learners to treatment groups would make the findings more generalisable from the point of randomisation of individual differences (Lankshear & Knobel, 2004). However, Leedy and Ormrod (2001) argue that fully randomised experimental designs often lack ecological validity due to the inauthentic environments in which studies are carried out. Furthermore, with a true experimental design generalisation is only possible if the population has exactly the same characteristics as the sample. This quasi-experimental design was appropriate for this research and as more ecologically valid generalisations could be made to real classroom environments. Authentic classroom situations were used with authentic pupils who were presumably learning English with a motivation to achieve learning outcomes. The quasi-experimental design was thus selected to provide findings that were close to everyday classroom settings.

4.3.1.1 Positive features of the experimental design

The quasi-experimental nonrandomised control-group design has a number of positive features, inter alia objectivity, wider applications and quick data collection and analysis. This method does *not rely* on the researcher's interpretation, but on the scores of the tests. The researcher collects and analyses numerical data using statistical procedures, which leads to objectivity rather than opinions (Mac Naughton *et al.*, 2001).

As this research involved two intact classes, the findings would be close to everyday classroom settings. This enables the researcher to consider wider applications of the research findings. Although the researcher cannot apply the results of this study to any other field except ESL vocabulary acquisition, nor to any other grade or group outside the two Grade 4 groups who participated in the study, the quasi-experimental design was nevertheless the design best suited for the aim of this study. The data collection of this method is also relatively quick compared to qualitative methods (Johnson & Onwuegbuzie, 2004). In this study, the data collection took place over three days altogether. Data analysis is lastly relatively less time-consuming because of the availability of statistical software (Johnson & Onwuegbuzie, 2004).

4.3.1.2 Limitations of the experimental design

The quasi-experimental nonrandomised control-group design has a number of limitations, inter alia that the participants are not randomly assigned, generalisation of findings is limited and objectivity is not easy to achieve. The problem with not being able to randomly assign participants to treatment groups is that many other factors may be systematically related to the groups and the effect of these factors are not controlled (Mac Naughton *et al.*, 2001). For example, with two intact classes there is no guarantee that there are the same number of academic achievers, as well as boys and girls in each class. Random assignment of pupils to treatment groups would have made the findings more generalisable from the point of randomisation of individual differences.

4.3.2 Participants

There were 49 participants in this study. Twenty-two were boys and twenty-seven girls. All the participants were in Grade 4 in an Afrikaans primary school in the Limpopo Province. The participants were not chosen individually but as members of two intact Grade 4 classes in the school. One class was the English class taught by the researcher and the other class was also an English class, taught by a colleague who agreed to participate in the research. Two intact classes were thus used, as the school in which the research was done could not disrupt classes for the duration of the study. Such a disruption would have negatively influenced the timetable and programme of the rest of the teachers and participants in the school.

Participants completed a biographical questionnaire about their age, home language, and number of English-speaking friends.. Descriptive statistical procedures were used to organise and summarise the biographical data so that it was easier to interpret (Lankshear & Knobel, 2004; Leedy & Ormrod, 2001). Summaries of the biographical data of the participants are depicted in Tables 4.2 to 4.4.

Table 4.2 Age of participants

Age	Number of participants
9	1
10	46
11	2

From Table 4.2 it can be inferred that only one of the participants was 9 years old. 46 participants were 10 years old and two of the 49 participants were 11 years old. The average age of the participants was 10 years.

Table 4.3 Home language

Home Language	Number of participants
Afrikaans	42
English	3
Sotho	3

Table 4.3 indicates that the majority of participants spoke Afrikaans as their home language, 3 participants spoke English and three participants spoke Sotho as a home language.

Table 4.4 Number of English-speaking friends

Number of English-speaking friends	Number of participants
0	19
1	13
2	13
3	2
5	2

Table 4.4 shows that 19 participants indicated they had no English-speaking friends. 13 participants had one English-speaking friend and 13 participants had two English-speaking friends. Only four participants indicated that they had more than three English-speaking friends.

As Tables 4.2, 4.3 and 4.4 indicate, most of the participants in this study were 10 years old, spoke Afrikaans as their home language and had only one or two English-speaking friends.

4.3.3 Variables

In this study the dependent variable was the improvement in vocabulary learning the Grade 4 participants showed when they were exposed to the two different instructional methods. The independent variable was the method of instruction; two methods, computer-related instruction in the form of the CAMI Reader software programme and intentional explicit classroom-based instruction, were analysed. The presence of other variables was acknowledged, but the researcher was only interested in the above-mentioned variables.

4.3.4 Measuring instruments

Three versions of a vocabulary test were designed as measuring instruments. The versions were named pre-test (Addendum 2), post-test 1 (Addendum 3) and post-test 2 (Addendum 4). All the participants wrote these three tests. The purpose of the tests was to determine the vocabulary knowledge of Grade 4 learners. The pre-test was written so that any initial between-group differences could, in some way, be taken into account in determining whether any post-treatment difference was due to the treatment, pre-existing differences, or some combination of these. Care was taken not to test the same words in the same section in every test but to rotate as many words as possible between the three sections. Participants wrote the pre-test a day before the treatment, post-test 1 one day after the treatment and post-test 2 seven days after post-test one.

The tests had an identical format with three sections (also Addendum 1, 2 & 3):

1. In the first section 12 questions were asked in a multiple-choice format with four options given under each question. Each question was set in the form of a sentence requiring the use of one of the target words. The main aim of this section was to test the breadth of knowledge and receptive vocabulary knowledge, as the participants only had to recognise the correct word from a list of four (par. 2.4.3). Of the four options given under each question, one was correct

and three incorrect. The incorrect answers were the same part of speech, for example noun or verb, as the correct answer. The following example was taken from post-test 2 (Addendum 4):

The outside of something can also be called the _____. (answer: b)
a) roof b) exterior
c) inside d) larder

2. In the second section the participants had to complete six sentences by filling in a word in an empty space. The main aim of this section was to again test the breadth of knowledge and receptive vocabulary knowledge (par. 3.3). The level of difficulty in the second section increased as the participants had one word bank for all six sentences and there were not four choices under every question as with the first section of the test. A word bank was supplied with 10 words that the participants could choose from. The ten words were also chosen from the 30 words to be studied (Addendum 1). The following example was taken from post-test 1 (Addendum 3):

Word bank

Frightened	*exterior*	*dancers*	*interior*	*immortal*
Lend	*soldiers*	*mortal*	*brave*	*Eskimos*

2.1 The little boy was very _____ to stand up to the school bully.

3. In the third section the participants were given six words and instructed to use each one in a sentence so that the meaning of the given word became clear. The main aim of this section was to test the depth of knowledge and productive vocabulary knowledge as the participants had to use each word in his/her own sentence. Without depth of knowledge about the given word, participants will be unable to construct a grammatically correct sentence (par. 2.4.3). As the participants were required to use the word in a context, their productive vocabulary knowledge was also tested (par. 2.3.4). The following example was taken from the pre-test (Addendum 2):

*3.1 colleague:*_____

Each question of the first two sections had only one correct answer. In the third section each sentence that the participants constructed was read and evaluated individually to see if the participant used the target word correctly. Each of the three tests tested 24 of a total of 30 words. Six different words were omitted in each test because of time limitations. The omitted words were selected randomly.

4.3.4.1 Validity of the three tests

Validity refers to the meaningfulness of the measuring instruments (Lankshear & Knobel, 2004; Leedy & Ormrod, 2001). It is concerned with a judgement regarding how well the three tests measure what they claim to measure. Validity takes on different forms. Face and content validity are important in this study.

- **Face validity** is the extent to which, on the surface, the three tests appear to test the vocabulary knowledge of the participants (Mac Naughton *et al.*, 2001). The three tests had face validity as they had the format of a test with which the participants were familiar. On seeing the tests, the participants immediately recognised them as tests. The three tests also contained 24 questions about ESL vocabulary, starting with a multiple-choice section, which also enhanced the face validity (Leedy & Ormrod, 2001).

- **Content validity** is the extent to which the content of the three tests covered a representative sample of the vocabulary being measured (Mac Naughton *et al.*, 2001). The three tests had a high content validity as their questions reflected the vocabulary knowledge that the participants had been learning with the different VLS. The tests had three sections, which differed in order to test whether the participants could not only recognise a word (breadth of knowledge), but use it as well (depth of knowledge). Each test tested 24 out of the 30 target words, which indicates that the tests definitely contained a representative sample of the vocabulary learnt with the two treatments (Mac Naughton *et al.*, 2001).

4.3.4.2 Reliability of the three tests

Reliability refers to the consistency of the scores of the tests (Lankshear & Knobel, 2004; Leedy & Ormrod, 2001). The reliability of the three tests was statistically determined using the Cronbach Alpha procedure. According to Nunally and Bernstein (1994), intercorrelated items in each test may be summed to find an overall score for each participant. The Cronbach Alpha coefficient estimates the reliability of this type of scale by determining the internal consistency of the test or the average correlation of items within the test (Nunally & Bernstein, 1994). The Cronbach Alpha coefficients for the three tests are given in Table 4.5.

Table 4.5 Cronbach Alpha coefficients

Test	Cronbach Alpha coefficients
Pre-test	0,74
Post-test 1	0,84
Post-test 2	0.84

As the Cronbach Alpha coefficients of all three tests are higher than 0.7, data yielded by the measuring instruments of this study can be viewed as reliable (Nunally & Bernstein, 1994).

Data analysis and statistical procedures

Inferential statistical procedures were used in this study to help the researcher make decisions about the data (Lankshear & Knobel, 2004; Leedy & Ormrod, 2001). The two most common statistical procedures performed in a study that compares two groups that are not randomly assigned, are the t-test and the analysis of covariance (ANCOVA) procedure (Wright, 2006). These procedures were also carried out in the present study. Independent and dependent t-tests were performed. The independent t-test was performed to determine if the two groups could be compared at pre-test level. Dependent t-tests were performed on the gain scores (post-score minus pre-score) for Group E and Group C. ANCOVA was done to partial out the effect of differences in ability as measured by the initial score. As data were not collected by means of random sampling in this study, the practical significance was also calculated. This section gives a broad outline of these three procedures.

4.3.5.1 T-test

A t-test is any statistical hypothesis test in which the test statistic has a student's t-distribution *if* the null hypothesis is true. It is applied when sample sizes are small and the assumption of normality holds (Press *et al.*, 1992). This study made use of the independent and the dependent t-tests. The independent t-test is used when two groups are compared. The independent t-test was calculated in the following way (Lowry, 2007):

$$t = \frac{\overline{X}_1 - \overline{X}_2}{s_{\overline{X}_1 - \overline{X}_2}}$$

where

$$s_{\overline{X}_1 - \overline{X}_2} = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

Where s^2 is the unbiased estimator of the variance of the two samples, n = number of participants, 1 = group one, 2 = group two. Note that in this case, $s^2_{\overline{X}_1 - \overline{X}_2}$ is not a pooled variance. For use in significance testing, the distribution of the test statistic is approximated as being an ordinary student's t distribution with the degrees of freedom calculated using:

$$\text{D.F.} = \frac{(s_1^2/n_1 + s_2^2/n_2)^2}{(s_1^2/n_1)^2/(n_1 - 1) + (s_2^2/n_2)^2/(n_2 - 1)}.$$

This equation is only used when the two sample sizes are unequal and the variance is assumed to be different.

The independent t-test was the first t-test calculated on the pre-test data to determine if the two groups were similar and if they could be compared (par. 5.3.1). The dependent t-tests were used where there was more than one measurement on each respondent (e.g., before and after measurements). The dependent t-tests were calculated in the following way (Lowry, 2007):

$$t = \frac{\overline{X}_D - \mu_0}{s_D/\sqrt{N}}.$$

For this equation, the differences between all pairs must be calculated. The average (X_D) and standard deviation (s_D) of those differences are used in the equation. The constant μ_0 is non-zero if the average of the difference tested is significantly different than μ_0. The degree of freedom used is N-1. This equation is used when the samples are dependent; that is, when there are two samples that have been matched or "paired". In this study, the results of the pre-test, post-test 1 and post-test 2 were paired for Group E and Group C.

All comparisons between the pre-test and post-tests 1 and 2 were dependent t-tests as they measured the difference between the pre-test and post-test 1, post-test 1 and post-test 2 and the pre-test and post-test 2. The purpose of each t-test is summarised in Table 4.6.

Table 4.6 Purpose of each dependent t-test

Group	Purpose
E & C	To determine if there was a statistical improvement between the pre-test and post-test 1
E & C	To determine if there was a statistical improvement between post-test 1 and post-test 2
E & C	To determine if there was a statistical improvement between the pre-test and post-test 2

4.3.5.2 ANCOVA procedure

The second step of the data analysis was the ANCOVA procedure. ANCOVA is a general linear model with one continuous explanatory variable (pre-test) and another factor (group membership). ANCOVA tests whether certain factors have an effect after removing the variance for which quantitative predictors (covariates – the pre-test) account. ANCOVA is a merger of ANOVA and regression for continuous variables.

This statistical procedure was performed to determine whether Group E and Group C showed an improvement after the treatment they received. The inclusion of covariates can increase statistical power because it accounts for some of the variability (Press *et al.*, 1992: 618).

4.3.5.3 Practical significance (effect sizes)

Statistical inference draws conclusions about the population from which a random sample was drawn, using the descriptive measures that have been calculated (Ellis & Steyn, 2003). In this study the data were not obtained from random sampling (par. 4.3.1). The data can as a result be considered to be small subpopulations, and statistical inference and p-values are not relevant. Instead of only reporting descriptive statistics in this study, effect sizes or practical significance were calculated. Practical significance is a large enough difference to have an effect in practise (Ellis & Steyn, 2003; Steyn, 2000; Steyn, 2002). Many different effect sizes exist but this study made use of the effect size for the difference between means of two populations. In this study, Group E and Group C represented the two populations.

The effect sizes for the t-tests were calculated in the following way:

$$d = \frac{\left|\overline{x}_1 - \overline{x}_2\right|}{s_{\max}}$$

where $\left|\overline{x}_1 - \overline{x}_2\right|$ is the difference between $\overline{x}_1$ and $\overline{x}_2$ without taking the sign into consideration and S_{max} the maximum of S_1 and S_2 the sample SDs. Here the direction of the difference is not important.

The effect sizes for the ANCOVA procedure were calculated in the following way:

$$d = \frac{\left|\overline{x}_i - \overline{x}_j\right|}{\sqrt{MSE}}$$

where $\sigma_i = \sigma_j$ for all i, j and MSE the mean square error of analysis of covariance.

Cohen (quoted by Ellis & Steyn, 2003) gives the following guidelines for the interpretation of the effect size in the current case:

a) small effect: d=0.2

b) medium effect: d=0.5

c) large effect or practically important: d=0.8

4.3.6 Data collection procedure

In this study two classes or treatment groups were used, Group E and Group C. Group E was the experimental group and Group C the control group. The two groups received different treatments during the data collection procedure. Group E was exposed to the computer-related method of vocabulary instruction in the form of the vocabulary quiz feature of the CAMI Reader software programme. Group C received intentional explicit vocabulary instruction. Both groups had to learn 30 new vocabulary words over a time frame of two periods of 45 minutes each. At the particular primary school, 45 minutes was the normal length of one period. In the context of this particular school and the ability of the Grade 4 learners involved, it was a realistic goal to learn 15 new ESL vocabulary words in one period of 45 minutes. The usual practise of Grade 4 teachers, at this specific school, was to teach about 10 new words to Grade 4 learners in one period. In other words, it can be expected that the average Grade 4 learner should be able to learn 30 new ESL words in two periods, totalling 90 minutes. Pre- and post-tests were used to determine what vocabulary participants know and what they have learnt.

4.3.6.1 Group E: Experimental group

Group E wrote the same pre-test as Group C to determine the participants' knowledge of the words. The day after the pre-test, the group moved to the computer room where each learner logged onto his/her own computer. The participants received instructions from the teacher to open vocabulary Quiz 1 of the CAMI Reader software programme. The Quiz was in multiple-choice format and gave participants the opportunity to practise 15 new words (par.3.6 for a detailed description of the CAMI Reader software programme). After the participants completed Quiz 1, they had to continue to Quiz 2. Quiz 2 gave the participants the opportunity to practise 15 additional new words. Once participants completed Quiz 2, they had to return to Quiz 1 and redo the activity. Group E had two periods which amounted to 90 minutes in the computer room where they had to repeat Quiz 1 and Quiz 2. Each time the participants repeated a Quiz, they tried to improve their score out of 15. Group E used four vocabulary learning strategies while completing Quiz 1 and Quiz 2 (par. 2.6.2).

They were:

Monolingual Dictionary, Connect the word to its synonyms and antonyms, Written repetition and *Testing oneself with word tests.*

Group E wrote post-test 1 one day after their treatment and post-test 2 seven days after post-test 1.

4.3.6.2 Group C: Control group

Group C wrote a pre-test to determine the participants' knowledge of the words. The day after the pre-test, the teacher of the class chose the following three vocabulary learning strategies (VLS) to teach the 30 new words to the participants:

- Ask the teacher for a paraphrase or synonym of new word;
- Study word with a pictorial representation of its meaning; and
- Use physical action when learning a word.

The strategies were selected by the teacher according to his personal preference and what he thought would aid his specific class in acquiring new words. The strategies were also typical OBE strategies as they included problem solving (ask the teacher for a paraphrase or synonym of new word) as well as creative thinking skills (study word with a pictorial representation of its meaning; use physical action when learning a word). Both problem solving and creative thinking can be closely linked to the critical outcomes of OBE (SA, 2002) (par. 2.6.3).

Firstly, the 30 words were divided into two groups. Words which could not easily be represented with pictures or actions, such as *colleague*, were in the first group and words, which could easily be represented with a picture or physical action, such as *Aborigine*, were sorted into the second group. The words from the first group were explained by the teacher using them in sentences so that the meaning became clear and he also gave synonyms of the words. Thus, the strategy of paraphrasing or giving a synonym of the word to be learnt was utilised. Words from the second group were taught by using the second and third VLS. Drawings and physical actions were used to explain the remainder of the 30 new words to the participants. The word *exterior*, for example, was explained by

drawing a block with an arrow pointing to the outside of the block with the word exterior clearly visible. *Bright* was explained with the physical action of the participants squinting while bringing their hands up to cover their eyes and saying the word bright at the same time. The physical actions were then converted into a game. The word would be cried out and the participants had to make the physical action with which the word was explained. The challenge of the game was to remember each physical action and to do one after the other in a different order. As stated previously, the VLS were used in a time frame of two periods which amounted to 90 minutes.

Group C wrote post-test 1 one day after their instruction and post-test 2 seven days after post-test 1.

As the last step of the procedure, the researcher scored each of the 147 tests with the aid of a memorandum for sections 1 and 2. With the third section, the researcher used her own discretion to decide if a participant used the given word correctly in a sentence. To assure a measure of objectivity in the third section, a colleague at the school randomly selected five tests from the pre-test, five tests from post-test 1 and five tests from post-test 2 of Group E and Group C. She then looked at the third section of each of these selected tests to make sure that the correct scores were allocated. The colleague also checked the reliability and consistency of the researcher who marked the tests. After marking each test, the total correct answers were added together and this total was written at the top of each test.

4.4 Qualitative method

Focus group interviews were used to obtain information on how the participants experienced the different methods of instruction. This section defines focus group interviews and discusses the positive features and the limitations of this design. The participants, data collection procedure and data analysis are also discussed.

4.4.1 Focus group interviews

A focus group interview is a discussion where the researcher is actively encouraging of and attentive to group interaction (Barbour, 2005; McLafferty, 2004). Participants are asked to engage in focus groups because they have something in common with each other and something in which the

researcher is interested. In this study all the participants in the focus groups were in Grade 4 in a specific school. Three focus groups were held with different participants from Group E and three focus groups were held with different participants from Group C. The purpose of these focus group interviews was to determine how the participants experienced the different instructional methods. Did they enjoy the methods or not? How did they experience learning new words in this way? The researcher played the role of facilitator of a group discussion between participants, as the objective was not primarily to elicit the group's answers but to stimulate discussion (McLafferty, 2004). It is through group interaction that the researcher could draw conclusions about the topics at hand. Care was taken by the researcher not to impose her own perceptions about the different instructional methods on the participants and to enable the participants to express their view freely.

4.4.1.1 Positive features of this design

The positive features of focus groups interviews are that they create opportunities for uninhibited discussion, inaccessible aspects can be explored, it is a flexible method and it yields large amounts of qualitative data. Groups who know each other, as is the case in this study, offer participants a relatively safe environment in which they can share their experiences in an uninhibited discussion (Barbour, 2005). Because the learners knew each other as well as the researcher, the discussions during the interviews were uninhibited. With a focus group, aspects can be explored which would otherwise prove inaccessible such as the participants' attitudes towards the different instructional methods, for example what they liked and disliked. It is a very flexible and adaptable method as there is no set of prescriptions on how a focus group interview should take place (Barbour, 2005; Gobo, 2005; Parker & Tritter, 2006; McLafferty, 2004).

With this study, the researcher facilitated the focus group interviews in such a way that they generated data that could not be collected with the quantitative method. Focus groups are seen to yield large amounts of qualitative data in exchange for relatively little face-to-face researcher contact (Parker & Tritter, 2006; McLafferty, 2004). In this study this was also the case.

4.4.1.2 Limitations of the design

Limitations of focus groups are: not all participants take part in the interviews; they are difficult to analyse; there is a lack of consistency in make-up and content; and they are time-consuming. The first limitation of a focus group interview is that participants may not always be keen to engage with each other or alternatively may know each other so well that interaction is based on patterns of social relations that have little to do with the research intent of the focus group (Parker & Tritter, 2006). In this study not all of the learners took part in the discussions and some only replied when the researcher asked them a question directly. Secondly, it is difficult to analyse focus group data as it includes incomplete and interrupted speech (Parker & Tritter, 2006). Thirdly, there can be a relative lack of consistency in make-up and content (McLafferty, 2004). Although the researcher tried as facilitator to steer all six of the focus group interviews into the same direction, it was very difficult to generate the same discussion with six different groups of learners. Lastly, focus group interviews can be time-consuming (McLafferty, 2004). As the purpose of the interviews was to generate discussion, the process could not be hurried. There must be enough time for all participants to make a contribution in the interview.

4.4.2 Participants

Three focus group interviews were held with participants from Groups E and C, respectively. Thus, six focus group interviews in total were conducted. Each group consisted of 5 participants. According to McLafferty (2004), such small groups are called mini-focus groups. The groups were limited to 5 participants, as the fewer participants in a group, the more likely they will interact (McLafferty 2004). The nonprobability purposive sampling technique was used to select participants from three distinct groups in Groups E and C. All the chosen learners participated voluntarily. The results of participants' pre- and post-tests were used in this sampling technique. The first group consisted of participants who had learnt many new words; the second group of participants who learnt an average number of new words and the last group of participants who learnt very few new words. All the interviews were recorded on cassette tape to enable the researcher to refer back to each interview when analysing the data.

4.4.3 Procedure

The researcher was able to make use of a private office for the focus group interviews. The participants were called to the office one group at a time, starting with the three groups from Group C and continuing to the three groups from Group E. The learners were personally called at a time convenient for the participants and researcher. At the beginning of the interviews, the researcher explained the purpose of the interviews to the participants and stated that the interviews were recorded. The participants were also assured of the confidentiality of the interviews and asked by the researcher if they wanted to take part in the interview. All the participants of all the groups gave their consent. The focus group interviews were conducted leisurely to facilitate uninhabited discussion. Topics introduced by the researcher were:

- Likes about the instructional method
- Dislikes about the instructional method
- The element of enjoyment

4.4.4 Data analysis

Thematic analysis was used to analyse the data collected through the focus group interviews. Thematic analysis can be described as a method for identifying, analysing and reporting experiences, meanings and the reality of the participants in this study (Braun & Clarke, 2006; Mac Naughton *et al.*, 2001). These experiences, meanings and realities are interpreted by means of themes. A theme captures something important about the data in relation to the research questions and represents some level of patterned response within the data. The themes of the focus group interviews were closely linked to the topics introduced by the researcher (par. 4.4.3).

In this method the researcher played an active role in identifying themes and reporting them. The thematic analysis was done through the following phases (Braun & Clarke, 2006):

- Transcribing data and noting down initial ideas.
- Coding interesting features of the data, such as the element of enjoyment, in a systematic fashion.

- Collating codes into themes, gathering all data relevant to each theme.
- Reviewing themes to make sure they correlated with purpose of focus group interviews.
- Ongoing analysis to refine the specifics of each theme, generating clear definitions.
- Selection of vivid, compelling extract examples and relating back of the analysis to the research question.

A positive feature of thematic analysis is that it is not a complex method, and is relatively easy to learn and do (Braun & Clarke, 2006). It can also generate unanticipated insights and is very flexible. It was successfully used in this study to analyse data from the focus group interviews.

A limitation of this method of data analysis is again its flexibility. Although flexibility was mentioned as a positive feature, it can also be a limitation as flexibility can lead to a wide range of analytic options. This can lead to confusion about which data to focus on. To reduce confusion, the researcher identified the themes before the interviews and used them as focus points.

4.5 Ethical aspects

Throughout this study, the participation of the learners was voluntary. The results of the pre-test and of post-test 1 and post-test 2 were confidential and the scores of the tests were not important for their English marks at the particular school. From the learners' point of view, they were at ease when they wrote the tests as they knew that they were for the researcher's purposes only. The tests also took place at a convenient time for the learners. The learners were not forced to take part in the focus group interviews and the researcher explained the purpose of the interviews clearly to the participants. There were no physical dangers or risks involved in this study. The Department of Education in the specific province as well as the headmaster and governing body of the school where the research took place, received formal letters asking permission to conduct the research at the specific school. All the parents of the participants signed letters of consent that their children could take part in the study. The participants themselves also signed letters of consent to indicate their voluntary participation in this study.

4.6 Conclusion

The method of research is very important as it provides an overall structure for the procedures that the researcher follows, the data that the researcher collects and the data analysis that the researcher conducts (Leedy & Ormrod, 2001). Chapter 4 presented a detailed description of the research method used in this study, differentiating between the quantitative method and the qualitative method used. The biographical information of the participants was summarised. The data collection procedure and data analysis of both the quantitative and qualitative methods were discussed. The results of the thematic analysis as well as the results of the t-tests and ANCOVA procedures are examined in Chapter 5.

CHAPTER 5: PRESENTATION OF RESULTS AND DISCUSSION

5.1 Introduction

Chapter 5 provides a detailed description of the results of the statistical analyses of the data together with the thematic analyses of the focus group interviews. The results of the statistical analyses and focus group interviews were used to address the following research questions posed in Chapter 1:

- What improvement, if any, did the control group (Group C) show when they were exposed to direct, explicit vocabulary instruction, when tested immediately after instruction as well as when tested one week later?
- How did the learners of Group C experience explicit instruction?
- What improvement, if any, did the experimental group (Group E) show when they were exposed to computer-based vocabulary instruction via CAMI, when tested immediately after instruction as well as when tested one week later?
- How did the learners of Group E experience computer-based instruction?
- How did the two groups compare with regard to performance on the tests written immediately after instruction as well as one week later?
- What are the implications of the results for teachers' selection of vocabulary instructional methods for Grade 4 learners as well as vocabulary learning, in general?

An overview is firstly given of the background variables and then the statistical analyses and thematic analyses used in this study. Thereafter, the tabulated results of the statistical analyses together with the results of the focus group interviews are discussed for Group C, and then for Group E. The comparison between the results of the two groups will follow and the chapter concludes with a section on the implications of the results for the selection of vocabulary instructional methods and as well as vocabulary learning in general.

5.2 Overview of background variables

There are three background variables that play a role in this study:

- Age
- L1, and
- Number of English speaking friends

There are widespread beliefs and conceptions about the role of age in vocabulary learning. Some studies have found that parents and teachers believe that children under the age of 12 have a special ability to learn vocabulary and pronunciation of a second language. Research in naturalistic settings has shown that the age of 6 is an optimal age for vocabulary learning and that learners who start learning a second language at a young age, overtake adult learners with regards to vocabulary knowledge over time. In this study 46 of the 49 participants were 10 years old (see Table 4.2). This is the average age of a Grade 4 learner. As Grade four is the year in which learners have to acquire a large amount of L2 vocabulary, it is clear that the Department of Education also has the conception that Grade four is a well chosen year for L2 vocabulary acquisition as the learners are between the age of 6 and 12.

According to researchers there is no doubt that the L1 exerts a significant influence on the learning and use of L2 vocabulary in a number of ways (Schmitt, 2008). The most important influence is the way learners use their L1 to learn new L2 vocabulary during L2 lexical processing. There is a clear advantage in using the L1 to form the initial form-meaning link. Researchers have found that L2-L1 word pairs lead to better learning than using the L2 exclusively (Lotto & de Groot, 1998). In this study 42 of the 49 participants spoke Afrikaans as their home language (see Table 4.3). The fact that the majority of learners are Afrikaans speaking has implications for the choice and variety of instructional methods that should be used to assist vocabulary learning in a formal classroom setting. One of the vocabulary learning strategies the control group (Group C) were exposed to, was *ask the teacher for a paraphrase or synonym of the new word* (par. 4.3.6.2). It is with this strategy that Afrikaans could have been used to explain new words, especially if the new L2 word was very similar in form and sound than the L1 word, for example *carnivore* (L2) is very similar in form and sound to the Afrikaans (L1) translation *karnivoor*.

The last background variable that played a role in this study was the number of English speaking friends that the participants had. According to Table 4.4, only 4 of the 49 participants indicated that they had more than three English speaking friends. This might indicate that the majority of the

participants had a lack of exposure to incidental vocabulary learning opportunities. When a learner watches an English programme on the television, he/she is involved in their L2 in a receptive way as only listening is required. Having an English friend results in exposure to the L2 on a much deeper level, as the learner is required to engage in conversation, thereby involving him/her on a productive level as not only listening is required when playing with one's friend, but talking as well (par. 2.4.4).

5.3 Overview of quantitative and qualitative results

The next section discusses the findings of the statistical analyses and the thematic analyses of the focus group interviews.

5.3.1 Statistical analyses

As discussed in Chapter 4, the two most common statistical procedures performed in a study that compares two groups that are not randomly assigned, are the t-test and/or the analysis of covariance (ANCOVA) procedure. When using a before-after design with two groups, researchers often think that both procedures produce the same result. According to Wright (2006), this is not the case. These two statistical procedures are based on different assumptions and produce different results. The dependent t-test procedure is preferred when the interest is more in the amount of gain in either of the conditions or when comparing groups before treatment, while the ANCOVA procedure is preferred when the interest is solely in the comparison between two groups after treatment (Wright, 2006). In this study both the t-test and ANCOVA procedures were used.

Firstly, it had to be established whether the two groups were similar in their vocabulary knowledge at pre-test level. The independent t-test was used to compare the results of the pre-tests of Group E and Group C. The independent t-test is generally used for comparisons before treatment (Wright, 2006 – also see par. 5.3.1).

Secondly, it had to be established if the treatments that the two groups received resulted in vocabulary learning. Dependent t-tests were used for this purpose. Dependent t-tests made use of the results of the pre-test, post-test 1 and post-test 2 of the different groups to determine the vocabulary gain for each group. The dependent t-tests were performed separately for each group and did not

include any comparison between the groups. The purpose of each dependent t-test is set out in Table 5.1.

Table 5.1 Purpose of each dependent t-test

Dependent t-test	Purpose
Post-test 1 – Pre-test	To determine if there was a statistical improvement or practical significant difference between the pre-test and post-test 1
Post-test 2 – Post-test 1	To determine if there was a statistical improvement or practical significant difference between post-test 1 and post-test 2
Post-test 2 – Pre-test	To determine if there was a statistical improvement or practical significant difference between the pre-test and post-test 2

Thirdly, a comparison between post-test 1 and post-test 2 of the two groups was needed, not to determine which method was better than the other, but to determine which combination of methods will work best when, where and how. The ANCOVA procedure had to be used here as it tested whether certain factors (the groups) have an effect after removing the variance for which the quantitative covariates (pre-test) account (par. 5.7.1). The ANCOVA procedure is generally used for comparisons between two groups after treatment has been completed (Wright, 2006:675).

5.3.2 Thematic analyses of focus group interviews

The thematic analyses sections in this chapter provide a detailed discussion of the results of the focus group interviews held with selected participants from Group E and Group C (par. 5.5.4; par. 5.6.4). Three focus group interviews were held with fifteen learners from Group E and three focus group interviews were held with fifteen learners from Group C. The learners were chosen by means of the nonprobability purposive sampling technique (par. 4.4.2). The researcher compared the scores of each participant's pre-test, post-test 1 and post-test 2. On the basis of how their scores improved from the pre-test to post-test 1 and post-test 2, the researcher divided Group E into three groups and Group C into three groups. Those who achieved high scores in post-test 1 and post-test 2 were grouped together, those who achieved average scores in post-test 1 and post-test 2 were grouped together, and lastly, those who achieved low scores in post-test 1 and post-test 2 were grouped together. From each of the three groups the researcher randomly selected five learners who voluntarily participated in a focus group interview.

The first focus group was made up of five learners who learnt many new words (high scores), the second focus group consisted of five learners who learnt an average number of new words (average scores) and the last focus group of five learners who learnt very few new words (low scores). In other words, three interviews were held with the grouped participants from Group E and three interviews were held with grouped participants from Group C. After the interviews were held, the data were transcribed and analysed using the thematic analysis method (par. 4.4.4). The tabulated results of Group E and Group C are presented together with the statistical analyses for Group C and Group E, respectively.

5.4 Comparison of prior vocabulary knowledge of Group E and Group C

The independent t-test was used to determine if Group E and Group C were similar with reference to their prior knowledge of the vocabulary to be learnt (see Addendum 1 for word list). It was important to determine whether the two groups were similar in such a way that they could be statistically compared on their learning of vocabulary. The independent t-test was used because two groups were compared by means of one measurement (scores of pre-tests). Table 5.2 summarises the results of the independent t-test:

Table 5.2: Similarity of Group E and Group C with reference to prior vocabulary knowledge

Group	N	Mean value (between 0 and 24)	Standard deviation	P value	*d* value
E	25	10.36	4.3	0.928	0.02
C	23	10.26	3.19		

From Table 5.2 it can be inferred that the two groups do not have the same number of participants (N) because intact classes were used. Group E had 25 participants and Group C had 23 participants. The average scores that the two groups achieved for the pre-test (mean) were 10.36 out of 24 for Group E and 10.26 out of 24 for Group C. It is clear that the average only differs by 0.10. The p-value for these two groups was 0.928 [$t_{(47)}$= 0.928; p>0.05]. There thus was no statistically significant difference between the two groups. This indicates that the participants of the two groups had similar prior knowledge of the 30 ESL vocabulary words (see Addendum 1). The effect size (d= 0.02) according to Cohen (quoted by Ellis & Steyn, 2003:51) also indicates that this difference is of

no educational or practical significance. The conclusion can thus be drawn that the participants of Group E and Group C were similar in their lack of ESL vocabulary knowledge.

5.5 Vocabulary learning and retention of Group C

Group C was exposed to direct explicit vocabulary instruction in the form of three vocabulary learning strategies (VLS) (par. 4.3.6.2). The learners received the treatment in the classroom, facilitated by the teacher. The dependent t-tests compared the results of the pre-test written before the treatment and the two post-tests (post-test 1 and post-test 2) written after the treatment. The results of these dependent t-tests enabled the researcher to reach a conclusion about whether effective vocabulary learning took place.

5.5.1 The immediate gain in vocabulary learning by means of direct explicit instruction

To determine the immediate gain in vocabulary learning by means of direct explicit instruction, a dependent t-test was performed to determine whether there were statistically significant improvements or practical significant differences between the pre-test and the first post-test (Post-test 1) of Group C. The results of this dependent t-test are summarised in Table 5.3.

Table 5.3: Immediate gain in vocabulary learning

Group	Pre-test Mean Score	Post-test 1 Mean Score	Mean Difference	Standard Deviation	p	*d*
C (N=23)	10.26	15.13	4.87	4.78	p<0.0001	1.02

Post-test 1 was the second vocabulary test written by the participants one day after the treatment. As can be seen in Table 5.3, the average (mean) of the scores of Group C improved by 4.87. The p value was smaller than 0.0001. This indicates that the post-test 1 scores of Group C improved statistically significantly when compared to the scores of the pre-test. The effect size calculated for Group C was 1.02. According to Cohen (quoted by Ellis & Steyn, 2003:51), this is an indication of a large effect of practical importance (par. 4.3.5.3). It can thus be concluded that the ESL vocabulary knowledge of Group C improved after direct explicit vocabulary instruction.

5.5.2 The delayed effect in vocabulary learning by means of direct explicit instruction

To determine the delayed effect in vocabulary learning by means of direct explicit instruction, a dependent t-test was performed to determine whether there were statistically significant differences between the pre-test and the second post-test (post-test 2) of Group C. The results of this dependent t-test are summarised in Table 5.4.

Table 5.4: Delayed effect in vocabulary learning

Group	Pre-test Mean score	Post-test 2 Mean score	Mean difference	Standard deviation	p	*d*
C (N=23)	10.26	16.04	5.78	3.55	p<0.0001	1.63

Post-test 2 was written seven days after the treatments. As can be seen in Table 5.4, the average (mean) of the scores of Group C improved by 5.78. The p value was smaller than 0.0001. This indicates that the post-test 2 scores of Group C improved statistically significantly when compared to the scores of the pre-tests. The effect size calculated for Group C was 1.63. According to Cohen (quoted by Ellis & Steyn, 2003:51), this is an indication of a large effect of practical significance (par. 4.3.5.3). It can thus be concluded that the ESL vocabulary knowledge of Group C improved after the treatment they received.

5.5.3 The retention of vocabulary by means of direct explicit instruction

To determine the retention or long-term gain or effect in vocabulary learning by means of direct explicit instruction, a dependent t-test was calculated to determine whether there was a statistically significant difference or practical significant difference between the first post-test (post-test1) and the second post-test (post-test 2) of Group C. The results of this dependent t-test are summarised in Table 5.5.

Table 5.5: Retention of vocabulary

Group	Post-test 1 Mean score	Post-test 2 Mean score	Mean difference	Standard deviation	p	*d*
C (N=23)	15.13	16.04	0.91	2.86	P=0.14	0.32

As can be seen in Table 5.5, the average (mean) of the scores of Group C improved by only 0.91. The p value for Group C was 0.14. This indicates that there was no statistically significant difference between the post-test 1 and post-test 2 scores of Group C. The effect size calculated was 0.32. According to Cohen (quoted by Ellis & Steyn, 2003:51), this is an indication of a small practical significance (par. 4.3.5.3). It can thus be concluded that Group C retained their learnt vocabulary knowledge seven days after the treatment, as their score improved, although not significantly so.

5.5.4 Results of the thematic analyses: Group C

Group C learnt the new vocabulary in the classroom where the teacher used three different vocabulary learning strategies (par. 4.3.6.2):

- Ask the teacher for a paraphrase or synonym of new word;
- Study word with a pictorial representation of its meaning; and
- Use physical action when learning a word.

In the three focus group interviews it was interesting to note that all the learners reported that the teacher drew pictures and used gestures together with explanations to teach them the new words.

> "*The teacher only drew pictures and made funny movements about the words. That's what he did and then we remembered the words.*" (Participant 3, focus group 4).

It was interesting to note that the learners did not mention that the teacher explained many of the new words by giving synonyms or paraphrasing. It is possible that the pictures and gestures with which the learners learnt the new words made such an impression that they forgot to comment on the other learning strategy of paraphrasing. In all three the focus group interviews held with the

learners from Group C, they only referred to two of the three VLS. While conducting the interviews, the researcher paid close attention to the responses of the participants. Similar responses were grouped when the data were transcribed and these responses were sorted into themes. Table 5.6 lists three themes that emerged from the interviews, with the number of participants whose contribution supported the particular theme.

Table 5.6 Themes emerging from Group C focus groups

Theme	Focus Group 4 (5 participants)	Focus Group 5 (5 participants)	Focus Group 6 (5 participants)
Enjoyed two vocabulary learning strategies (study word with a pictorial representation of its meaning and use physical action when learning a word)	5	5	5
Learnt new words with the VLS	1	5	5
Wanted to learn new words with these two VLS in future	5	1	5

5.5.4.1 Enjoyment

Firstly, all 15 learners (i.e., three groups of 5 learners each) interviewed commented that they enjoyed studying a word with a pictorial representation as well as physical actions. This is supported by the following quotations ("it" refers throughout the quotations to the two VLS in Table 5.6):

- "*It was a lot of fun!*" (Participant 2, focus group 4)
- "*It was better because it felt like a game.*" (Participant 1, focus group 5)
- "*It was the best English period of the year..... I like to draw...*" (Participant 4, focus group 5)
- "*It was enjoyable...*" (Participant 3, focus group 6)
- "*It was very nice...*" (Participant 2, focus group 6)

5.5.4.2 Learnt new words

Eleven of the 15 learners agreed that they learnt new words with the VLS. Only one learner from focus group 4 commented that she learnt new words with the strategies of learning a word with a gesture and learning a word with a picture. This is supported by the following quotations:

- *"It helped a lot to learn the new words. We did a lot better in the second test (pre-test 1)."* (Participant 1, focus group 5)
- *"I can remember words like carnivore and atlas."* (Participant 4, focus group 5)
- *"...we remember it (the words) better for a long time..."* (Participant 5, focus group 6)

5.5.4.3 Use vocabulary learning strategies in future

Lastly, 11 of the 15 learners wanted to learn new words in future with these two vocabulary learning strategies. This is supported by the following quotations:

- *"...we want to learn words in this way again..."* (Participant 4, focus group 4)
- *"I choose the teacher (to learn new words like these again in the same way)!"* (Participant 3, focus group 4) .
- *"I want to learn all my new words this way."* (Participant 2, focus group 6)

From the information tabulated in Table 5.6 together with the responses of the participants, it can be concluded that the majority of the participants who participated in the focus group interviews enjoyed two vocabulary learning strategies (study word with a pictorial representation of its meaning and use physical action when learning a word), learnt new words with these VLS and wanted to use these VLS to learn new words with in the future. Enjoyment is the strongest theme for Group C, as all the participants in the three focus groups commented on it. The participants were in other words able to learn new words and were motivated enough by their success to want to use the VLS again in the future. As these VLS are supported by OBE (par. 2.6.3), teachers who use them in class adhere to the guidelines of the Department of Education. It can also be assumed that the inclusion of these two VLS will enhance the level of enjoyment in a class. Enjoyment enhances vocabulary learning (par. 2.6.2.3).

5.6 Vocabulary learning and retention of Group E

Group E used the vocabulary quiz feature of the CAMI Reader software programme for vocabulary learning. This method of instruction falls in the category of computer-related instruction (par. 3.5)

although it also has features of incidental word learning (par. 3.3). The participants used the computer in a game-like format to complete a vocabulary quiz. There was no intervention by the teacher at any stage of the treatment, and participants had to complete the quiz independently. Thus, it can also be categorised as incidental word learning as the meanings of new words were acquired without any direct instruction, but by means of repeated exposure in a computer context. The CAMI Reader is a drill-and-practise software programme (par. 3.6) and the treatment was carried out in the computer room instead of the classroom, which was the accepted procedure in the specific school with its computer room facility.

5.6.1 The immediate gain in vocabulary learning by means of the vocabulary quiz

To determine the immediate gain in vocabulary learning by means of the vocabulary quiz, a dependent t-test was performed to determine whether there were statistically significant improvements or practical significant differences between the pre-test and the first post-test (Post-test 1) of Group E. The results of this dependent t-test are summarised in Table 5.7

Table 5.7: Immediate gain in vocabulary learning

Group	Pre-test Mean Score	Post-test 1 Mean Score	Mean Difference	Standard Deviation	p	*d*
E (N=25)	10.36	16.50	6.24	3.69	p<0.0001	1.69

Post-test 1 was the second vocabulary test written by the participants one day after the treatment. As can be seen in Table 5.7, the average (mean) of the scores of Group E improved by 6.24. The p value was smaller than 0.0001. This indicates that the post-test 1 scores of Group E improved statistically significantly when compared to the scores of the pre-tests. The effect size calculated for Group E was 1.69. According to Cohen (quoted by Ellis & Steyn, 2003:51), this is an indication of a large effect of practical significance (par. 4.3.5.3). It can thus be concluded that the ESL vocabulary knowledge of Group E improved after the treatment they received.

5.6.2 The delayed effect in vocabulary learning by means of the vocabulary quiz

To determine the delayed effect in vocabulary learning by means of the vocabulary quiz, a dependent t-test was performed to determine whether there were statistically significant differences between the pre-test and the second post-test (post-test 2) of Group E. The results of this dependent t-test are summarised in Table 5.8.

Table 5.8: Delayed effect in vocabulary learning

Group	Pre-test Mean score	Post-test 2 Mean score	Mean difference	Standard deviation	p	*d*
E (N=25)	10.36	16.65	6.44	3.43	$p<0.0001$	1.46

Post-test 2 was written seven days after the treatment. As can be seen in Table 5.8, the average (mean) of the scores of Group E improved by 6.44. The p value was smaller than 0.0001. This indicates that the post-test 2 score of Group E improved statistically significantly when compared to the scores of the pre-tests. The effect size calculated for Group E was 1.46. According to Cohen (quoted by Ellis & Steyn, 2003:51), this is an indication of a large effect of practical significance (par. 4.3.5.3). It can thus be concluded that the ESL vocabulary knowledge of Group E improved after the treatment they received.

5.6.3 The retention of vocabulary by means of the vocabulary quiz

To determine the retention or long-term gain or effect in vocabulary learning by means of the vocabulary quiz, a dependent t-test was calculated to determine whether there was a statistically significant difference or practical significant difference between the first post-test (post-test1) and the second post-test (post-test 2) of Group E. The results of this dependent t-test are summarised in Table 5.9.

Table 5.9: Retention of vocabulary

Group	Post-test 1 Mean score	Post-test 2 Mean score	Mean difference	Standard deviation	p	*d*
E (N=25)	16.50	16.65	0.15	2.92	p=0.79	0.05

As can be seen in Table 5.9, the average (mean) of the scores of Group E improved by only 0.15. The p value for Group E was 0.79. This indicates that there was no statistically significant difference between the post-test 1 and post-test 2 scores of Group E. The effect size calculated for the group was 0.05 for Group E and 0.32 for Group C. According to Cohen (quoted by Ellis & Steyn, 2003:51), this is an indication of a small practical significance (par. 4.3.5.3). It can thus be concluded that Group E retained their learnt vocabulary knowledge seven days after the treatments, as their scores improved, although not statistically significantly so.

5.6.4 Results of the thematic analyses: Group E

Group E learnt the new vocabulary in the computer room where they independently used the CAMI Reader software programme to practise new vocabulary with a vocabulary quiz. Similar responses collected with the three focus group interviews were grouped when the data were transcribed and these responses were sorted into themes. Three themes emerged, namely boredom, that the participants learnt new words with CAMI and that they wanted to work with CAMI again. Table 5.10 lists these themes with the number of participants whose contribution supported the particular theme.

Table 5.10 Themes emerging from Group E focus groups

	Focus group 1 (5 participants)	Focus group 2 (5 participants)	Focus group 3 (5 participants)
Found repetition of activities boring (boredom)	5	5	0
Learnt new words with CAMI	5	5	5
Wanted to work with CAMI in future	0	5	5

5.6.4.1 Boredom

The first theme that emerged from focus groups 1 and 2 was that of boredom (boredom was not mentioned or a problem with group 3). As the participants had to use a drill-and-practise strategy to learn the new words, they had to repeat two vocabulary quizzes for 90 minutes (2 periods of 45 minutes each). This led to boredom, which was also mentioned in the literature review as a negative feature of the drill-and-practise vocabulary learning strategy (par. 2.6.2.4). All the participants of groups 1 and 2 commented that they found the repetition that they had to do on their own, very monotonous. This is supported by the following quotations:

- "*The tests with the repetition were very boring. I had to do it by myself over and over!*" (Participant 3, focus group 1; rest of group nod in agreement)
- "*We know how to spell words and the repetition was boring.*" (Participant 4, focus group 1)
- "*I didn't like doing it (CAMI) over and over again. That's boring.*" (Participant 5, focus group 1)
- "*....I also think it (CAMI) was boring...*"(Participant 2, focus group 2)
- "*CAMI was very boring and not so nice.*" (Participant 5, focus group 2)

5.6.4.2 Learnt new words with CAMI

The second theme that emerged from the interviews held with the three groups from Group E was that the participants felt that they did learn new words by using CAMI. This theme is supported in studies on the drill-and-practise strategy. According to these studies it improves the learners' breadth of vocabulary knowledge (par. 2.6.2.4). This is the only theme where comments were received from all 15 participants interviewed. This is supported by the following quotations:

- "*CAMI helped me to know words better.*" (Participant 2, focus group 1)
- "*After I did CAMI, I got full marks for the paper test (post-test 2)!*" (Participant 1, focus group 1)
- "*I learnt the new words well...*" (Participant 2, focus group 1)

5.6.4.3 Wanted to work with CAMI in future

The last theme that emerged from the focus group interviews held with Group E was that the majority of participants wanted to use CAMI again in the future to learn new words. In focus group 1 not one of the participants mentioned that they wanted to use CAMI in future. In focus groups 2 and 3, however, all the learners agreed that they wanted to make use of CAMI again. This is supported by the following quotations:

- *"CAMI is the easy way to learn new words. When I'm working with CAMI, I think faster and get the words quickly into my head."* (Participant 3, focus group 2)
- *"I want to work with CAMI again in English."* (Participant 2, focus group 3)
- *"I think CAMI is a good way to learn new words, even if it is boring, because then you do it over and over because it helps you to remember."* (Participant 4, focus group 3)
- *"Can we do CAMI again before the exam?"* (Participant 5, focus group 3)

From the information tabulated in Table 5.10 as well as the responses of the participants, it can be concluded that the majority of the participants who participated in the focus group interviews found the repetition of the activities boring, learnt new words with CAMI, and wanted to work with CAMI in future. All the participants commented on the fact that CAMI helped them to learn new words. Hence, this is the strongest theme for Group E. It would seem as though the participants felt that the repetition, though boring, resulted in their acquiring new words and it seems to be for this reason that they want to make use of CAMI again. One participant asked if he could use CAMI again before the exam. By asking this question, he emphasised that he felt CAMI is a good way to do exam preparation. The participants were in other words able to learn the new vocabulary at the right level as they felt that they learnt new words and wanted to use the CAMI reader vocabulary quizzes again in the future. These themes that emerged can be closely linked to the positive and negative features of the drill-and-practise vocabulary learning strategy as discussed in section 2.6.2.4.

5.7 Comparison of Group C and Group E

The two different treatments Group C and Group E underwent, were based on different instructional methods. Group C learnt the new vocabulary with direct explicit instruction from their teacher,

while Group E used the vocabulary quiz feature of the CAMI Reader software programme to independently learn the new vocabulary in a drill-and-practise fashion. The purpose of this study is not to determine which vocabulary instructional method is better than the other, but to determine the optimal combination of vocabulary instructional methods for Grade 4 ESL learners. In order to find the optimal combination, it is important to compare the two treatments with each other to find the positive features and limitations of each. Two comparisons were made, one statistically by using ANCOVA, and the other thematically by comparing the results of the focus group interviews.

5.7.1 Statistical comparison

An analysis of covariance (ANCOVA) was performed on the data in order to compare the results of post-test 1 and post-test 2 of the two groups with each other. This comparison was essential for this study as it was used to determine the optimal combination of vocabulary instructional methods. This procedure was performed twice on the data in order to determine if the mean performance of the two groups differed statistically significantly from each other in the two post-tests. One ANCOVA procedure was performed for the two groups comparing the results of post-test 1 and another ANCOVA procedure was performed for the two groups comparing the results of post-test 2. The results of the analysis are depicted in Table 5.11.

Table 5.11 Results of ANCOVA analysis

	Group E mean	Group C mean	Mean difference	MSE	p	*d*
Post-test 1	16.6	15.2	1.4	4.1	0.2461	0.69
Post-test 2	16.8	16.1	0.7	3.5	0.5132	0.35

As can be seen in Table 5.11, the adjusted mean of the two groups for post-test 1 differed by 1.4 and the p-value was large. The effect size (*d*), however, was 0.69 which indicates that the difference between the two groups was of medium practical significance, according to Cohen (quoted by Ellis & Steyn, 2003:51) (par. 4.3.5.3). Steyn (2006:21) describes a medium difference as one which can be seen by the naked eye. He continues that the effect size values of 0.2 for small, 0.5 for medium and 0.8 for large (par. 4.3.5.3) should only be regarded as a guideline. In the context of this study, 0.69 could be regarded as a medium difference closer to a large or practically significant difference.

It can thus be concluded that Group E did marginally better in post-test 1 than Group C. It is thus plausible that the computer-related indirect method produced better post-test 1 or immediate results than the direct explicit instructional method.

The adjusted mean of the two groups for post-test 2 differed by only 0.7, with the p-value being large. The effect size (*d*) was 0.35, indicating a small difference of no practical value between the two groups (par. 4.3.5.3). Thus, there was no statistical difference between the results of post-test 2 for Group E and Group C.

Even though Group E did marginally better in post-test 1 than Group C, there was no difference in their results for post-test 2, thus in delayed or long-term effects. This indicates that there was no difference over the long term between the computer-related indirect method and direct explicit instructional method. The participants were able to learn new vocabulary with both methods. An important difference between the two methods was that the computer-related indirect method had an immediate effect after one day, but not a delayed effect after seven days. A limitation of the study was that the delayed effect was tested after seven days and not over a longer period. However, the practical situation in the school did not allow a longer period of time for this purpose.

5.7.2 Thematic comparison of three focus groups

The three focus groups held with participants from Group E and Group C was selected using the nonprobability purposive sampling technique (par. 4.4.2). The first focus groups in Group E and Group C were learners who achieved high scores in post-test 1 and post-test 2 (focus groups 1 and 4). The second focus groups in Group E and Group C were learners who achieved average scores in post-test 1 and post-test 2 (focus groups 2 and 5). The third focus groups in Group E and Group C were learners who achieved low scores in post-test 1 and post-test 2 (focus groups 3 and 6). It is important to compare the first, second and third focus groups in Group E and Group C with each other to determine what the similarities and differences were in the experiences of the participants in Group E and Group C. Table 5.12 summarises the experiences of the different focus groups according to the different themes that emerged during the focus group interviews:

Table 5.12: Comparison of experiences of three different focus groups of Group E and Group C

	Group E	Group C
Focus groups 1 and 4 held with learners who achieved high scores	▪ Found CAMI boring ▪ Definitely learnt new words ▪ Did not want to work with CAMI in future	▪ Enjoyed the VLS ▪ Did not learn new words ▪ Wanted to work with the VLS in future
Focus groups 2 and 5 held with learners who achieved average scores	▪ Found CAMI boring ▪ Definitely learnt new words ▪ Wanted to work with CAMI in future	▪ Enjoyed the VLS ▪ Definitely learnt new words ▪ Did not want to work with the VLS in future
Focus groups 3 and 6 held with learners who achieved low scores	▪ Did not find CAMI boring ▪ Definitely learnt new words ▪ Wanted to work with CAMI in future	▪ Enjoyed the VLS ▪ Definitely learnt new words ▪ Wanted to work with the VLS in future

The high achieving focus group participants of Group E and Group C did not have similar experiences. Participants from Group C enjoyed the treatment while those from Group E found it boring. This might be due to the fact that high achieving learners learn quicker than the rest of the class, which would explain why they get bored quickly with repetition. Group E's participants felt that they definitely learnt new words but they did not want to work with CAMI again in the future, while Group C's participants experienced that they did not learn new words but that they wanted to work with the VLS again in the future. This might indicate that the focus group 4 participants of Group C had more positive experiences with their classroom treatment than the focus group 1 participants of Group E had with CAMI, even though they did not think they learnt new words.

The average-achieving focus group participants of Group E and Group C had a similar experience. Both the participants of focus group 2 and 5 felt that they definitely learnt new words with the different treatments. The participants of Group C found the treatment enjoyable while Group E's participants found CAMI boring, but it is interesting to note that even though the participants of Group E found CAMI boring, they wanted to use it again in future, while Group C's participants did not want to use the VLS again in the future even though they were of the opinion that they learnt new words. This might indicate that the average learner experienced that he/she learnt new words with the different treatments, but that only the participants of focus group 2 recognised that they could utilise CAMI to learn new words in the future.

The low-achieving focus group participants of Group E and Group C had very similar experiences. Firstly, none of the participants from focus group 3 indicated that they found CAMI boring. It could be possible that they had a positive experience while working with CAMI, which could be similar to the experience of enjoyment of the participants of focus group 6. They also possibly liked the repetition and immediate feedback from the computer and did not lose face in front of stronger learners. The participants of focus groups 3 and 6 felt that they had learnt new words and that they wanted to work with CAMI and the classroom-based VLS in the future. This might indicate that the lower achiever in both Group E and Group C were very open to any strategy to improve their vocabulary. It could also be possible that the lower achievers had on average a much smaller vocabulary than the average or high achiever. Therefore, the low achievers in focus group 3 and 6 experienced that they definitely learnt new words.

5.8 Conclusion

According to the dependent t-tests, learners from both Group C and Group E acquired new vocabulary through direct explicit instruction and computer-related indirect methods. The results of post-test 1 written immediately after the experimental treatment by the participants from Group E were better than the results of the same post-test for Group C as calculated by the ANCOVA statistical procedure. The results of post-test 2 written by the participants from Group E and Group C were the same as calculated by the ANCOVA statistical procedure. In other words, the computer-related indirect method resulted in better short-term vocabulary learning but after seven days there were no statistical difference between the number of words that both Group C and Group E learnt. One possible explanation may be that the vocabulary quiz of the CAMI Reader enabled the learners to learn the words at a receptive level only and not a productive level (par. 2.4.4). It also added to their breadth of knowledge and not their depth of knowledge. This was in contrast with the design of the vocabulary quiz. The CAMI Reader had adequate features for broadening a learner's depth of knowledge (par. 2.4.3 and Table 3.2). The results of the post-tests indicated, however, that these features did not result in increasing the depth of knowledge of the participants. In other words, the learners only grasped the meaning of the words at a level where they would be able to recognise the words while reading or listening (receptive word knowledge), but would not be able to use the words when writing or speaking (productive word knowledge) (par. 2.4.4).

Another explanation may be based on Bloom's taxonomy. This taxonomy is a framework for classifying statements of what is expected or intended of learners as a result of instruction (Bloom, *et al.*, 1956; Krathwohl, 2002). The taxonomy divides the cognitive domain into six levels: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. The categories are ordered from simple to complex and are arranged in a cumulative hierarchical framework; achievement of the next more complex skill or ability requires achievement of the prior one (Krathwohl, 2002). With the repetitive nature of drill-and-practise activities, the level of learning falls into the Knowledge category which is the lowest on Bloom's taxonomy. Group E's learners did not have a deep understanding of the vocabulary that they learnt because they improved their average (mean) with only 0.2 from post-test 1 to post-test 2 over seven days (see Table 5.9). Group C, on the other hand, improved their average (mean) with 0.9 from post-test 1 to post-test 2 over seven days (see Table 5.5). The three vocabulary learning strategies used in the direct explicit method might have resulted in the learners' in Group C learning the vocabulary on both the Knowledge and the Comprehension level. With regards to the four levels of vocabulary knowledge, it could be possible that Group E acquired the new words on a receptive level only and acquired breadth of knowledge, while Group C acquired the new words on a receptive and productive level and acquired not only breadth, but depth of knowledge too. These assumptions are made based on the fact that Group C was able to improve their average with 0.9 over seven days.

By analysing the data collected with the six focus group interviews, it is clear that the participants felt that they had learnt new words with the direct explicit instructional method and the computer-related indirect instructional method (see Table 5.13). The majority of the participants of both groups also mentioned that they would like to make use of the different methods to acquire new vocabulary in the future. The main difference from the participants' perspective is that all the participants from Group C found their instructional methods very enjoyable whereas the majority of participants from Group E found the drill-and-practise method of the CAMI Reader very monotonous. It would seem as though the low achieving participants of focus groups 3 and 6 had the most positive and similar experiences with the different treatments (Table 5.13). According to Sokmen (1997:247), enjoyment can result in a deeper level of vocabulary learning, in other words, not only on the Knowledge level of Bloom's taxonomy but also on the Comprehension level.

When learners really know a word, they know everything about that word and are able to use it in a variety of contexts (par. 2.4.2). True knowledge about a word is synonymous with depth of vocabulary knowledge on the Knowledge and Comprehension levels of Bloom's taxonomy. The computer-related indirect method resulted in improving only the breadth of knowledge of the learners in Group E on the lowest level of Bloom's taxonomy. The ANCOVA procedure indicated that there was no practical difference between the results of the second post-tests of Group E and C. Therefore, both methods can be used successfully to facilitate ESL vocabulary knowledge.

As the computer-related indirect method mostly added to the participants breadth of knowledge on a receptive level, this method can be used when introducing learners for the first time to a large number of new vocabulary words (par. 3.3.7; par. 3.5.2). This method would also be perfect for use in very large classes as the learners work independently and the teacher has the minimum input. In the absence of a teacher, learners would still be able to acquire new vocabulary, be it on the Knowledge level.

The direct explicit instructional method can best be used to teach new words on a deeper level, so that learners will be able to use these new words, not only on a receptive level, but on a productive level as well (par. 3.4.10). This is usually a slower process, where the class work together as a unit with the teacher at the pace of the medium-achiever. The high achievers may be frustrated with the slower pace, while the low achievers may struggle to keep up. As the teacher determines the pace and level of enjoyment, the success of this instructional method is dependent on the motivation, skill and experience of the teacher. In this study, the teacher was able to present the VLS in a game-like fashion, which made it very enjoyable to the Grade 4 learners. This will not always be the case, as all teachers are not focussed on making class fun for their learners.

A combination of the two vocabulary methods would benefit ESL Grade 4 learners, as they would then have the chance to learn a large number of new words on the Knowledge level independently, and they would be able to deepen their knowledge about these words with direct explicit instruction. This statement is supported by the National Reading Panel (2000) who concluded that no one single instructional method is sufficient for optimal vocabulary learning; therefore effective instruction must use a variety of methods. The researcher has also experienced that Grade 4 learners enjoy working on the computer and like the different environment of the computer laboratory as opposed

to their familiar classroom. Some learners also work very efficiently on their own, while others work better in class with the teacher. By using both methods, all the learners will have a chance to work in the manner of their preference. It is up to the teacher to plan the vocabulary activities for his/her learners in such a way that it includes both direct explicit instruction and computer-related indirect instruction.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

As a grade 4 learner enters the English First Additional Language class, the teacher comes face to face with a big challenge. Although the learners have come into contact with English in the Foundation Phase, this is the first time that they are formally instructed in their second language. Within days the learners are expected to write paragraphs, ask questions and do speeches or dialogues in English on a level appropriate for Grade 4 learners as prescribed by the Revised National Curriculum Statement (SA, 2002). However, very few learners have an adequate vocabulary for completing these tasks successfully.

Vocabulary learning is very important in Grade 4 as this is a crucial year where ESL is taught for the first time as a separate learning area, English First Additional Language. By the end of Grade 4, learners should have acquired between 2000 and 3500 common spoken words (SA, 2002). Thus, there is a need for effective vocabulary instructional methods to help teachers and learners reach the vocabulary learning goal as set out by the Department of Education (par. 1.2).

The purpose of this study was to analyse vocabulary instructional methods relevant for Grade 4 learners. This final chapter of this study consists of a summary of the literature review done on vocabulary learning and vocabulary instruction, a summary of the findings and concludes with limitations and recommendations.

6.2 Summary of literature review

In Chapters 2 and 3 literature reviews were done on vocabulary learning and vocabulary instruction. This section is a summary of the two chapters.

6.2.1 Vocabulary learning

For purposes of this study, vocabulary was defined as knowledge of words and word meanings in both oral and print language and in productive and receptive forms. More specifically, vocabulary

referred to words that learners must know to read increasingly demanding text with comprehension (par. 2.2). Grade 4 is a crucial year where learners have to acquire between 2 000 and 3 500 commonly spoken words in order to gain the necessary knowledge and skills needed in the learning area of English First Additional Language (ESL) (SA, 2002). Reading research has persistently found that the extent of students' vocabulary knowledge relates strongly to their reading comprehension and overall academic success (par. 2.3). It has become increasingly important for teachers and learners to find ways to efficiently increase vocabulary knowledge. Hulstijn and Laufer (2001) developed the Involvement Load Hypothesis which proposes that incidental tasks inducing higher involvement from the learners is likely to produce better vocabulary retention effects (par. 2.4.1). Teachers can use this hypothesis to structure vocabulary tasks in such a way that it will most probably lead to learners acquiring more words in less time.

Vocabulary knowledge is very complex. Knowing a word in its fullest sense is much more than being able to identify it by sight and sound (par. 2.4.2). It is a matter of degree rather than an all-or-nothing proposition. Breadth and depth of knowledge are two dimensions of knowing a word (par. 2.4.3). Breadth of knowledge refers to the quantity of words learners know at a certain point in time. Depth of knowledge refers to the quality of lexical knowledge – in other words how well a learner knows a word. This includes knowledge about a word's pronunciation, spelling, morphological features, syntactic and semantic relationships, etcetera (Table 2.1). Depth of knowledge is rarely achieved in the first few years of acquiring a second language, and the focus of Grade 4 teachers should be more on quantity than on quality of lexical knowledge. Receptive and productive vocabulary are two more dimensions of vocabulary knowledge. Receptive vocabulary includes words that we recognize when we hear or see them and productive vocabulary includes words that we use when speaking or writing. To know a word in its full sense includes being able to use it on a receptive and productive level.

There are various important issues to consider when learning vocabulary. The first is the role of age in vocabulary learning. There has not been a lot of research done on the topic. There are, however, widespread beliefs and conceptions like children acquire vocabulary better than adolescents or adults (par. 2.5.1). Studies have found that this is not necessarily the case, but that there is an optimal age for L2 vocabulary learning which is around 6 years old. The second issue is the role that the L1 plays in the learning of L2 vocabulary (par. 2.5.2). It has been found useful to use the L1 in

the initial stages of L2 learning, to create the initial form-meaning link, however it is also important for learners to use words in L2 context to enhance contextual word knowledge. Research has found that different teaching methods should be used at different stages of vocabulary learning for optimal word acquisition. A combination of methods will yield the best results.

The computer-related indirect method and the direct explicit instructional method used in this study encompassed different vocabulary learning strategies (VLS). Without a learning strategy there are no guidelines or steps for learners to facilitate the acquisition, storage, retrieval or use of information (par. 2.6). When the information to be acquired consists of a great number of new ESL words, a vocabulary learning strategy is imperative. Studies have found that explicit decontextualised learning of vocabulary through strategies can help develop English language skills and especially vocabulary in the early stages of second language acquisition (par. 2.6.1). Schmitt (1997:203) developed a comprehensive taxonomy of 58 individual VLS (par. 2.6.2). The taxonomy was set out in Table 2.3. Five of the 58 VLS were discussed with the positive and negative features of each, namely:

- Guess from context;
- Ask teacher for an L1 translation;
- Use keyword method;
- Written and verbal repetition; and
- Testing oneself with word tests.

Schmitt's taxonomy of VLS can be applied in current South African classrooms as many of the strategies are ideal for reaching the Learning Outcomes through the Assessment Standards (Table 2.4). Teachers and learners are not always aware of the power of consciously using VLS for making vocabulary learning more efficient.

6.2.2 Vocabulary instruction

The National Reading Panel (2000) has found that comprehension development, central to academic success, cannot be understood without a critical examination of the role played by vocabulary knowledge. The ability to read with comprehension is paramount in the scholastic and adult careers

of the learners of today. Thus, there is urgency to providing instruction that equips learners with the skills and strategies necessary for lifelong vocabulary development (par. 3.1).

No one single instructional method is sufficient for optimal vocabulary learning; therefore effective instruction must use a variety of methods to help learners acquire new words and increase the depth of knowledge over time. Effective instruction includes opportunities for both incidental word learning and direct explicit instruction.

Incidental word learning is an instructional method where the meanings of words are acquired subconsciously as a result of repeated exposures in a range of contexts (par. 3.3). Incidental word learning can take place through oral language, oral language experiences at home, oral language experiences at school, teacher read-alouds and through wide reading by learners themselves. Many researchers argue that the majority of vocabulary is learnt with this method. Incidental word learning often cause avid readers to learn more and more vocabulary, while slow readers struggle to learn new vocabulary incidentally, causing them to lack motivation to read challenging texts.

Direct explicit instruction is the second instructional method discussed in chapter 3 (par. 3.4). Learners are given definitions or other attributes of words to be learned. The teacher plays a central part in this method which is very effective to expand learners' depth of knowledge about a word. As the teacher plays a central role, it is important which words are selected for this method of instruction. The criteria for selection of words focus on two criteria; words that are important to understanding a specific reading selection or concept and words that are generally useful for learners to know and are likely to encounter with some frequency in their reading. Apart from teaching certain words, it is also important to teach independent word-learning strategies such as using dictionaries, using context clues and using morphology to find the meaning of unknown words. Once learners have learnt these independent strategies, they are able to keep adding new words to their own vocabularies well beyond the classroom.

Computer-related instruction is the third instructional method used for vocabulary learning (par. 3.5). Although little research yet exists to provide direction for this method, it has capabilities that are not found in printed materials such as game-like formats, hyperlinks and animations. The CAMI Reader software programme is an example of software that could be used as computer-related

instruction. The programme was bought by a primary school in the Limpopo province to improve the English skills of their learners. The programme includes a grammar and vocabulary section designed for ESL. The section was designed not only to broaden the learners' breadth of vocabulary knowledge, but also their depth of knowledge (Table 3.2). A vocabulary quiz feature formed part of the section. In this study learners used this vocabulary quiz to independently learn new vocabulary.

6.3 Summary of results

In the first chapter of this study, six research questions were posed in order to analyse vocabulary instructional methods relevant for Grade 4 learners. The summary of results will be discussed separately for each group, followed by a comparison.

6.3.1 Group C

The control group learnt the new vocabulary with direct explicit instruction. Three different VLS were used by the teacher namely:

- Ask the teacher for a paraphrase or synonym of new word;
- Study word with pictorial representation of its meaning; and
- Use physical action when learning a word.

The dependent t-tests performed on the data of Group C, indicated that the learners learnt new vocabulary with this instructional method. Their scores increased by 4.87 from the pre-test to the first post-test (Table 5.3), and by 0.91 from the first post-test to the second post-test seven days later (Table 5.5). The results of the second post-test indicated that the learners retained their learnt vocabulary knowledge. The instructional method succeeded in its aim to teach the learners new vocabulary.

The group had a very positive experience with this instructional method. After the thematic analysis of the three focus group interviews conducted with selected learners of this group, it became clear that most of the learners found the method very enjoyable. They were also under the impression that they learnt new words with this method and would like to use it again in future (Table 5.6).

6.3.2 Group E

The experimental group learnt the new vocabulary by means of computer-related indirect instruction. The learners of this group used the vocabulary quiz feature of the CAMI Reader software package independently to learn the 30 new vocabulary words. Every learner worked on his/her own on a computer in the computer room of the school where the study took place.

The dependent t-tests performed on the data of Group E, indicated that the learners learnt new vocabulary with this instructional method. Their scores increased by 6.24 from the pre-test to the first post-test (Table 5.7), and by 0.51 from the first post-test to the second post-test seven days later (Table 5.9). The results of the second post-test indicated that the learners retained their learnt vocabulary knowledge. This instructional method also succeeded in its aim to teach the learners new vocabulary.

The majority of the group found this instructional method very monotonous. After the thematic analysis of the three focus group interviews conducted with selected learners of this group, it became clear that most of the learners found the method boring and did not enjoy the repetition it entailed. They were, however, all convinced that they did learn new vocabulary with this method (Table 5.10).

6.3.3 Comparison of two methods

The purpose of this study is not to determine which instructional method is better than the other for vocabulary learning, but to determine the optimal combination of vocabulary instructional methods for Grade 4 ESL learners. By comparing the two methods, it is possible to find the positive features and limitations of each. The instructional methods were statistically compared by using the ANCOVA analysis and also thematically compared by using the results of the focus group interviews.

According to the results of the ANCOVA analysis, Group E did marginally better in the first pre-test than Group C (par. 5.6.1). It is probable that the computer-related indirect method produced better immediate results than the direct explicit instructional method. One possible explanation may be that

the vocabulary quiz of the CAMI Reader enabled the learners to acquire the words on a receptive level only and only added to their breadth of knowledge. They could remember the vocabulary better than Group C after one day, but did not learn the words on a deep enough level to reach the same scores in the second post-test. According to researchers (Fan, 2003; Joseph, 2006), drill-and-practise contributes only to learners' breadth of knowledge as they are repeatedly exposed to the words. There was no statistical or practical difference between the results of the post-test 2 scores of the two groups. Even though Group E did better in the first pre-test than Group C, there was no difference between their scores in the second post-test.

Although Group C did not do better in either of the post-tests when compared to Group E, it is interesting to note that the average scores of Group C improved with 0.9 from the first post-test to the second post-test (see Table 5.11). The average of Group E improved with only 0.2 (see Table 5.11). In other words, more learners in Group C managed to improve their score a week after the treatment, than learners in Group E. These results could suggest that the VLS used in the classroom method facilitated the learning of the new vocabulary in such a way that the learners remembered the words better seven days after the treatment than one day after the treatment. One possible explanation may be that the learners became more attentive to usage of the newly acquired words in the world around them after the treatment. Because they had had initial exposure to the words in class by means of VLS, other exposures in different contexts may have led to their increased scores. No parallels could be drawn between this explanation and the reviewed literature on the VLS used in the classroom method.

The CAMI Reader or computer-related indirect method resulted in broadening the learners' breadth of knowledge as well as their receptive knowledge. It would seem as though the direct explicit method succeeded in broadening the learners' depth of knowledge as well as their breadth of knowledge.

The main difference between the thematic analysis after the focus group interviews of the two groups, was that the learners of Group C found the direct explicit instructional method enjoyable, while Group E found the computer-related indirect method very boring. Boredom was the only negative theme that emerged from the interview. It was listed as a negative feature of the drill-and-practise vocabulary learning strategy (par. 2.6.2.4). Learners from both groups did, however, want to

use the same instructional method in future. It can be argued that the element of enjoyment resulted in better retention of vocabulary (Sokmen, 1997:247).

6.4 Limitations of the study

The present study offers several findings about ESL vocabulary instructional methods. Yet, there are some limitations to the study as well. Firstly, generalisation of findings is limited to the specific context in which the study was conducted as a result of the chosen design and the fact that not all primary schools in the province have bought the CAMI Reader software programme.

A second limitation is that the design of the qualitative method of this study was based on focus group interviews. The limitations of the design of focus group interviews were discussed in chapter 4 (par. 4.4.1.2). One limitation that could be emphasised is that only 15 participants were interviewed in Group E and only 15 participants in Group C. The findings of the thematic analysis were based on the comments and attitudes of the 15 learners of every group. The findings would have been more accurate if all 49 learners had taken part in focus group interviews.

A third limitation to this study is that 49 participants were used. When one considers that the school in which the study was conducted has about 1200 learners, the number of participants seems almost insignificant. There were five Grade 4 classes in the school and the results would have been more reliable if all five classes had been used. Unfortunately, only two of the five Grade 4 teachers were willing to participate in the study as the others wanted to adhere to their planned schedule of work as set up in the beginning of the year.

The fourth limitation is that the treatments and collection of data were done in a timeframe of nine days. When one considers that the learners spend on average one year in a grade, nine days is a short time. The study could have taken place once a term, in other words four times a year, which would have given a better indication of how learners improved not only their breadth of vocabulary knowledge, but also their depth of vocabulary knowledge. This was not possible at the specific school where the research was conducted, as the manager of the English department decided against the inclusion of in-depth vocabulary activities once a term. Emphasis was rather placed on oral activities to develop the learners' fluency and confidence in the language. It would have been

unethical for the researcher to do vocabulary activities for this study without the consent of the manager of the English department at the specific school.

A fifth and final limitation is the design of the vocabulary tests. The pre-test, post-test 1 and post-test 2 were designed by the researcher. Although the reliability of the tree tests were confirmed by the Cronbach Alpha procedure (par. 4.3.4.2), it became clear towards the end of the study that the tests would have been of more value if the questions had been clearly sorted into two categories: those that tested breadth of knowledge and those that tested depth of knowledge.

6.5 Recommendations of the study

This study analysed vocabulary instructional methods relevant for Grade 4 learners. As the computer-related indirect method (CAMI) did result in broadening the breadth of vocabulary knowledge of the learners, it can be recommended that teachers should include CAMI in initial vocabulary sections of their English first additional language learning programme in Grade 4, provided that the school already has CAMI available. As stated earlier, it is not recommended that CAMI should be the only vocabulary learning strategy to which the learners are exposed, but that it must play a supportive role. Direct explicit vocabulary instruction has also been proven in this study to result in vocabulary learning. Teachers should choose vocabulary that should best be instructed with this method, i.e. vocabulary that Grade 4 learners will encounter frequently and important words (par. 3.4.1). Teachers should be motivated to not only directly and explicitly teach vocabulary, but also vocabulary learning strategies (Table 2.3). It is the opinion of the researcher that the majority of the VLS have seldom been used in any English class in the specific school. The implementation of new VLS might have a positive influence on the quality and quantity of vocabulary learning of the Grade 4s at the specific primary school and might help them with vocabulary learning for the rest of their lives.

The findings of this study support the findings of the National Reading Panel (2000), that a combination of methods is most effective for teaching vocabulary. Both the direct explicit instructional method and the computer-related indirect method resulted in vocabulary learning. The computer-related method can best be used to increase the breadth of knowledge as well as the receptive vocabulary of learners, while the direct explicit instructional method can best be used to

increase the depth of knowledge and the learners' productive vocabulary. In Grade 4, which is one of the first years of ESL, it can be recommended to focus on quantity rather than quality (par. 2.4.3). The teacher should continuously use indirect methods to expose learners to a large range of vocabulary and carefully select important and frequent vocabulary to instruct in the direct explicit method. It is the responsibility of the teacher to find the balance between the two instructional methods to effectively instruct ESL in his/her own Grade 4 classroom.

6.6 Conclusion

Fluency in English is a necessity for functioning effectively in a global and information society. An adequate and rich vocabulary is an important prerequisite for fluency in English. The sheer number of new vocabulary words that should be acquired in Grade 4, calls for effective instructional methods to help teachers and learners to reach the vocabulary acquisition goal as set out by the Department of Education. This Grade 4 vocabulary goal is one of the foundations for English fluency which is crucial for effective communication in the South African and global society. The purpose of this study was to analyse vocabulary instructional methods relevant for Grade 4 learners. It is clear that a combination of the direct explicit instructional method together with the computer-related indirect instructional method will be more successful than using one method alone.

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ADDENDUM 1 – WORDLIST

1. Aborigines	2. Atlas
3. Autumn	4. Biannual
5. Brave	6. Bright
7. Carnivore	8. Colleague
9. Cup	10. Dancers
11. Difficult	12. Dine
13. Displease	14. Duties
15. Easy	16. Eskimos
17. Exterior	18. Frightened
19. Gourmet	20. Grass
21. Herd	22. Horse
23. Immortal	24. Indirect
25. Kitchenette	26. Lend
27. Parson	28. Peppers
29. Plane	30 Preacher

ADDENDUM 2 – PRE-TEST

Vocabulary Pre-test Name:_____

Let's see if you can answer the following 24 questions! Good luck!

Question 1

Multiple Choice: Choose the correct answer

1.1 We cannot see the wind. The wind is...			
A	visible	B	invisible
C	indirect	D	mortal
1.2 Which season comes before Winter?			
A	Summer	B	Autumn
C	Winter	D	Spring
1.3 Which group of people lives where it is really cold?			
A	Business men	B	Red Indians
C	Eskimos	D	Farmers
1.4 I will _____my ruler to you Sally!			
A	borrow	B	lend
C	take	D	tickle
1.5 When someone is not afraid of anything, he is....			
A	slow	B	indirect
C	scared	D	brave
1.6 The little dwarf cooks his meal in his little..			
A	hat	B	kitchenette
C	bathroom	D	abyss
1.7 When my mom calls me, the ___, _____ rings.			
A	radio	B	alarm
C	satellite	D	telephone
1.8 What is the synonym for effortless?			
A	hard	B	difficult
C	fun	D	easy

1.9 The purpose of a lawnmower is to cut...			
A	flowers	B	weeds
C	grass	D	leaves
1.10 Danny's father works at the church every Sunday. He is a..			
A	driver	B	engineer
C	parson	D	pioneer
1.11 These vegetables can be red, yellow or green and can be used in salads or on pizza.			
A	tomatoes	B	peppers
C	pumpkin	D	artichokes
1.12 Most people travel to other countries in a _____.			
A	plain	B	pane
C	pain	D	plane

(12)

Question 2

Evaluate all the words in the word bank and use the correct one to complete the following sentences.

Aborigines	dictionary	biannual	annual	Zulus
teacher	atlas	carnivore	duties	preacher

2.1 When you want to find a map of a country, you look in an _____

2.2 _____ means that something happens twice a year.

2.3 A lion is called a _____ because it eats meat.

2.4 In our house, my _____ are to feed the dogs and water the plants.

2.5 The _____ live in the Australian outback.

2.6 I like to listen to our _____ on a Sunday, delivering his sermon.

(6)

Question 3

Use the following words in sentences so that the meaning becomes clear.

3.1 colleague:_____

_____

3.2 dine:_____

_____

3.3 displease:_____

3.4 exterior:

3.5 gourmet:

3.6 immortal:

(6)

Total: 24

ADDENDUM 3 – POST-TEST 1

Vocabulary Post-test 1 Name:_____

Let's see if you can answer the following 24 questions! Good luck!

Question 1

Multiple Choice: Choose the correct answer

1.1 Father uses the _____ to show me where China is			
A	atlas	B	brochure
C	TV guide	D	chart
1.2 What is the antonym of dull?			
A	clear	B	bright
C	grey	D	sunny
1.3 Two people working at the same place are called _____			
A	comrades	B	collages
C	neighbours	D	colleagues
1.4 My family and I love to _____ at the Spur			
A	deliver	B	dance
C	dine	D	sing
1.5 As class leader, my _____ are to open the windows, clean the class and keep the children quiet.			
A	duties	B	duty
C	hobbies	D	questions
1.6 The _____ come from Australia.			
A	Aborigines	B	Irish
C	Indians	D	Eskimos
1.7 My grandmother only drinks tea with a _____ and saucer.			
A	bowl	B	cup
C	mug	D	jug
1.8 What is the antonym of difficult?			
A	hard	B	complicated
C	tricky	D	easy

1.9 John is a _____ because he likes to eat good food			
A	gourmet	B	champion
C	carnivore	D	Eskimo
1.10 A lot of cattle is called a _____			
A	bunch	B	herd
C	flock	D	group
1.11 A small kitchen is called a _____			
A	lounge	B	hut
C	kitchenette	D	dishwasher
1.12 A jockey rides on a _____.			
A	zebra	B	horse
C	camel	D	pony

(12)

Question 2

Evaluate all the words in the word bank and use the correct one to complete the following sentences.

frightened	exterior	dancers	interior	immortal
lend	soldiers	mortal	brave	Eskimos

2.1 The little boy was very _____ to stand up to the school bully.

2.2 The troupe of _____ entertained the people.

2.3 The beautiful _____ of the house can be seen from across the street.

2.4 The magician doesn't want to die and drank a potion to become _____.

2.5 Peter did not mind to _____ his ruler to Sally.

2.6 Only _____ can build igloos from ice.

(6)

Question 3

Use the following words in sentences so that the meaning becomes clear.

3.1 biannual:_____

_____

3.2 carnivore:_____

_____

3.3 grass:_____

3.4 invisible:_____

3.5 preacher:_____

3.6 autumn:_____

(6)

Total: 24

ADDENDUM 4 – POST-TEST 2

Vocabulary Post-test 2 Name:_____

Let's see if you can answer the following 24 questions! Good luck!

Question 1

Multiple Choice: Choose the correct answer

1.1 Father uses the _____ to show me where China is			
A	atlas	B	brochure
C	TV guide	D	chart
1.2 What is the antonym of dull?			
A	clear	B	bright
C	grey	D	sunny
1.3 Two people working at the same place are called _____			
A	comrades	B	collages
C	neighbours	D	colleagues
1.4 My family and I love to _____ at the Spur			
A	deliver	B	dance
C	dine	D	sing
1.5 As class leader, my _____ are to open the windows, clean the class and keep the children quiet.			
A	duties	B	duty
C	hobbies	D	questions
1.6 The _____ come from Australia.			
A	Aborigines	B	Irish
C	Indians	D	Eskimos
1.7 My grandmother only drinks tea with a _____ and saucer.			
A	bowl	B	cup
C	mug	D	jug
1.8 What is the antonym of difficult?			

A.	hard	B	complicated
C	tricky	D	easy
1.9 John is a _____ because he likes to eat good food			
A	gourmet	B	champion
C	carnivore	D	Eskimo
1.10 A lot of cattle is called a _____			
A	bunch	B	herd
C	flock	D	group
1.11 A small kitchen is called a _____			
A	lounge	B	hut
C	kitchenette	D	dishwasher
1.12 A jockey rides on a _____.			
A	zebra	B	horse
C	camel	D	pony

(12)

Question 2

Evaluate all the words in the word bank and use the correct one to complete the following sentences.

frightened	exterior	dancers	interior	immortal
lend	soldiers	mortal	brave	Eskimos

2.1 The little boy was very _____ to stand up to the school bully.

2.2 The troupe of _____ entertained the people.

2.3 The beautiful _____ of the house can be seen from across the street.

2.4 The magician doesn't want to die and drank a potion to become _____.

2.5 Peter did not mind to _____ his ruler to Sally.

2.6 Only _____ can build igloos from ice.

(6)

Question 3

Use the following words in sentences so that the meaning becomes clear.

3.1 biannual:_____

_____

3.2 carnivore:_____

3.3 grass:_____

3.4 invisible:_____

3.5 preacher:_____

3.6 autumn:_____

(6)

Total: 24

ADDENDUM 5 – LANGUAGE EDITING STATEMENT

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LANGUAGE EDITING STATEMENT

13 November 2008

This serves as confirmation that the Master's dissertation

An evaluation of a drill-and-practise software programme for ESL vocabulary acquisition within the context of OBE and e-learning

by
Kristien Andrianatos

has been edited for language correctness.

HM VAN DER WALT
Member: SA Translators' Institute
Member: Professional Editors' Group

ADDENDUM 6: CERTIFICATE OF CORRECTNESS OF BIBLIOGRAPHY

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CHECKING OF BIBLIOGRAPHY

Hereby I declare that I have checked the technical correctness of the Bibliography of the MEd. dissertation of Ms K Andrianatos.

Yours sincerely

Prof CJH LESSING

ADDENDUM 7: CERTIFICATE OF STATISTICAL CONSULTANT SERVICES

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20 August 2008

To whom it may concern

Re: Dissertation Ms. K. Andrianatos, student number: 13132873

We hereby confirm that the Statistical Consultation Service of the North-West University has analysed the data and assisted with the interpretation of the results.

Kind regards

SM Ellis

DR. S M ELLIS (Pr. Sci. Nat)
Head Subject Specialist