

Vocabulary Proficiency as a Marker of Academic Success:
A Small-Scale Investigation of Undergraduate Writing within a Discipline

By

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Abstract

The predominance of vocabulary has long been recognised as one of the language related factors that contributes to academic success. This mixed method study measured vocabulary use in the writing produced by first year undergraduate students, in two introductory classes of applied linguistics. The resulting *vocabulary profiling* revealed that higher scoring assignments demonstrated higher vocabulary proficiency. Information obtained from interviews supported the viewpoint that students who wrote well and achieved academic success, possessed good language and vocabulary proficiencies. The findings suggest interventions designed to support new students as they adapt to the academic language demands of a discipline should include some form of diagnostic assessment to determine needs, but in-class, department-specific support, focused on academic writing, may be the most beneficial.

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Chapter 1: Introduction

1.1 Background to and Impetus for the Thesis

Recent vocabulary research has confirmed the general intuitive feeling that many teachers and researchers have long harboured about vocabulary: the more words that are known and used well, the better. Elder and von Randow (2008) commented that “the size of a student’s lexicon functions as an effective predictor of academic success” (p. 177). Douglas (2010) concurred and stated that students who excelled in their studies were ones with “an apt, varied and accurate written vocabulary” (p. 205). Nation (2001) in his wide ranging research on vocabulary, determined that a minimum of 95% of words in a text were required to be known before readers could properly comprehend what they were reading. The implications of this research for university students are great. It demonstrates the centrality of vocabulary to academic studies in many disciplines, and indicates the importance of understanding, and being able to use, a range of specific and academically focused vocabulary in order to achieve academic success.

In order to assist students and teachers in determining the type of vocabulary that should be learnt, several researchers created academic vocabulary lists in the 1970s which were eventually combined into The University Word List in 1984 by Xue and Nation (as cited in Nation, 2001). This list of academic vocabulary comprised words that occurred frequently in academic texts in addition to the 2,000 high frequency word families that appeared in the General Service List (West, as cited in Nation, 2001). The University Word List was superseded by Coxhead’s (2000) Academic Word List (AWL) which is discussed further in Section 2.8, Academic Vocabulary in Chapter 2 of this thesis. The

AWL was created by the analysis of a 3,500,000 word corpus of academic texts where words were included on the basis of their frequency and range. The resulting list consisted of 570 word families, ranked and divided into 10 sub-lists according to frequency. Coxhead calculated that the 570 word families which make up the AWL represented approximately 10% coverage of academic texts. She reasoned that for any student wishing to comprehend academic texts, specific targeted learning of the AWL would make sense.

During my short time as an ESL teacher at a community college, I was required to teach the AWL to intermediate level students as part of a strictly enforced curriculum. It was reasoned that learning academic vocabulary would provide the students with a solid language base so they could continue with further studies in English. These same students struggled with stringing words together to compose a coherent email to me, yet each week they were given a long list of academic words which they were expected to learn. The words were presented in isolation from other parts of the curriculum so there was no opportunity for students to practise them in context, let alone reinforce their learning of them. Students' receptive knowledge of the vocabulary was tested by multiple choice questions and fill-in-the-gap exercises, but their productive knowledge was not tested. My students made poor progress in learning these words perhaps because they were not at all relevant for the budding hairdressers and office workers in my classes. It became apparent to me though that the students who knew a lot of words performed well, and those who used many repetitions, forgot transitions and misplaced function words did not do so well in assignments. I felt that some sort of vocabulary

instruction was required but that there had to be a better way to incorporate the teaching of relevant vocabulary into the intermediate level curriculum.

My instinct about vocabulary teaching was further fuelled when I became a graduate student and was assigned to work as a teaching assistant (TA) in the university's writing centre. I tutored many international students and non-native speakers of English who struggled with the meanings of individual words which they were expected to know for their courses, or who needed help to incorporate appropriate transitions and function words into their writing. Many of the native speakers of English whom I tutored displayed poor vocabulary proficiency too, and often had few alternatives to draw from when word choice was being discussed for their assignments. The philosophy of the writing centre was that students should be helped to improve their writing process overall and that tutors should not address fine detail editing needs. Unfortunately many of the students who booked appointments needed assistance with micro-level editing, of which vocabulary use was a big part. So although a service was provided to help these students, it did not focus on the area where they needed it the most.

My second year assignment was as a classroom TA for the department's first year introduction to applied linguistics courses. There I saw how having low-level language proficiency, especially a lack of proficiency in vocabulary, affected students' abilities to meet the course requirements. Some students, native and non-native speakers of English alike, lacked awareness of the appropriate vocabulary to use in written assignments and the correct academic register to use it with. Others struggled with the course readings

and the finer nuances of the vocabulary displayed there. It seemed that many of the students I encountered, both in the writing centre and in the classroom, were not adequately prepared for the language demands of university and that their lack of language proficiency, if left unsupported, would be a detriment to their studies and would prevent them from achieving their full academic potential. This appeared to be an area where there were few research studies that focused on the vocabulary proficiency of both native and non-native speakers of English in the university environment.

1.2 Research Questions

In order to add to the research being generated in this area (for example, that of Morris & Cobb, 2004 and Douglas, 2010), in this thesis I will investigate the predominance of vocabulary as one of the language related factors that contribute to *academic success*, defined in terms of achieving a passing grade on a first year undergraduate applied linguistics course. I will focus particularly on vocabulary that is used in students' writing and I will also explore some of the ways in which students can be assisted to cope with the language demands of university courses. This will be achieved by addressing the following overarching research questions:

- 1) Is vocabulary proficiency a determining factor in the academic success of students in a first year undergraduate introduction to applied linguistics course?
- 2) What sorts of interventions could be introduced to help students to adapt to the academic language demands of a first year undergraduate introduction to applied linguistics course?

In order to answer the general, overarching research questions for this thesis, I have restated them as specific, narrower research questions, each one of which addresses a particular aspect of the thesis enquiry:

- 1) What are students' perceptions of the vocabulary and language requirements for writing in applied linguistics?
- 2) How well do students meet the vocabulary and language requirements of writing in applied linguistics?
- 3) Are there interventions that could be used or introduced to help students-at-risk?
- 4) What characterizes the vocabulary of 'good' and 'poor' writers as demonstrated in the productive vocabulary profiles collected from this course?

In order to answer these research questions, I divided my thesis into two distinct phases of data collection and analysis namely, Phase 1 Interviews and Field Observations and Phase 2 Vocabulary Profiling. These phases will be described fully in Chapter 3, Methodology and Method.

1.3 Definition of Terms

Vocabulary studies describe language speakers in many different ways. In this thesis I shall use the terms first language (L1) English speaker to indicate someone who speaks English as a mother tongue, and second language (L2) English speaker to indicate someone who speaks English as an additional language to a mother tongue.

1.4 Organization of the Thesis

The remainder of this thesis is organized into four chapters. Chapter 2 presents a theoretical review of vocabulary research, focusing on the importance of vocabulary in academic achievement and the ways in which vocabulary is defined and measured. It investigates the challenges of the transition to university, for first year students, from the perspective of acquiring the correct academic language and it reviews current research which aims to alleviate this problem. Chapter 3 explains the methodology of the study and the methods used in data gathering and analysis. Chapter 4 presents the results of each of the phases with a discussion which consolidates the findings. Chapter 5 concludes the thesis by discussing its limitations and suggesting ideas for further research in this area. It is hoped that this thesis will contribute to a better understanding of challenges facing applied linguistics undergraduates as they learn to adapt to university and cope with the language demands of applied linguistics courses, provide more data for vocabulary research generally, and provide substance to the requirement for subject specific research in areas of academic vocabulary.

Chapter 2: Theoretical Review

2.1 Introduction

In this chapter I will outline the theoretical framework on which this thesis is based by exploring current research literature in the broad areas of vocabulary research and the transition of students to university. Many themes, grounded in different research frameworks, are woven together in the pursuit of answers to my research questions. I will first consider the importance of vocabulary in language by summarizing key research which has focused on child language development and its importance to future academic study. This is combined with an overview of the role of vocabulary in reading comprehension. I will then define and explain important concepts in the area of vocabulary research generally, specifically the definition of key terms and how different aspects of vocabulary knowledge can be measured, including vocabulary profiling to measure productive vocabulary within texts. This will lead onto a discussion of the nature of academic vocabulary and the challenges that new undergraduate students face on entering university, not only to adapt to their new environments, but also to meet the demands of university-level academic work. Finally, I will discuss how they can be helped to obtain the required language standards in order to achieve their academic potential.

2.2 Vocabulary Development in Childhood and the Connection with Reading

The importance of L1 childhood vocabulary development has been the focus of many studies. One of the better known and controversial vocabulary studies, first published in the mid 1990s, was undertaken by Hart and Risley (2003). In their landmark piece of

research they observed 1 and 2 year old children from a range of socio-economic backgrounds within their home environments. The children were studied for an hour each month over a period of 2½ years and the vocabulary they were exposed to, and produced, was recorded. Hart and Risley found that the children from lower socio-economic backgrounds were exposed to, and produced, two thirds less vocabulary than children from higher socio-economic backgrounds and that also children from the lower socio-economic group were adding new words more slowly to their lexicons. This amounted to an ever increasing gap in the vocabulary growth curves of children from different socio-economic backgrounds, which Hart and Risley claimed, with almost tabloidesque sensationalism, would result in a “30 million word gap by age 3” (p. 5).

The research was continued as many of the families were recruited for another study where the children’s school performance at grade 3 (age 9 to 10) was measured. Hart and Risley (2003) noted that the data gathered from this further study indicated that vocabulary use at age 3 was a strong predictor of language proficiency at age 9 to 10 and concluded that, without interventions, it would be practically impossible for the lower performing children to catch up with their more advanced peers (p. 5). This was undoubtedly an important study in terms of drawing attention to the issues of childhood vocabulary development and future academic success, but many researchers have indicated disagreement with the methodology of the sampling of the original study and have criticised Hart and Risley for imposing their own class based assumptions onto the data. It has been suggested that perhaps socio-cultural factors affected families’ vocabulary production, particularly under observation, in that some families may have

been more willing to talk than others (for further discussion of this see for example, Edwards, 2009). Another notable criticism of the study was made by Nation (n.d.) and concerned the vocabulary measurement method that Hart and Risley used. This will be discussed further in this chapter in Section 2.6, Vocabulary Measurement.

Despite the controversies of Hart and Risley's (2003) study, it has been acknowledged by many researchers that the connection between childhood vocabulary and future academic achievement is an important one. Biemiller (2003) studied the connection between vocabulary knowledge and reading proficiency and emphasized the importance of children acquiring an extensive vocabulary. He even went as far as to advocate the explicit teaching of vocabulary in schools suggesting that it should be taught for "at least half an hour a day" (p. 330) through extensive reading. His research had shown that by age 8, a gap in vocabulary size of approximately 4,100 root words existed between children who placed in the lowest quartile and those who placed in the highest quartile. This equated to almost 60% of the highest quartile vocabulary size. Rather alarmingly, Biemiller noted that this difference in vocabulary size persisted through elementary school and that, "unfortunately, slower learners do not catch up" (p. 328), as there is not the mechanism in schools to help them to do so. This is an important point because, if there is no opportunity for these children to catch up as they progress through the school system, the implication is that many of them will fail to achieve marks in high school that would allow them to enter university. Those that do enter university with poor vocabulary proficiency will continue to struggle with the increased language demands

that are placed on them there, that is, unless suitable interventions are introduced to help them.

2.3 Vocabulary and Reading Comprehension

The significance of reading comprehension and its relationship to vocabulary development has been explored by many researchers with respect to children and first language (L1) acquisition, with strong positive correlations reported (Beck, McKeown & Omanson, as cited in Paribakht & Wesche, 1996), but of equal relevance to this thesis is the impact of reading comprehension on second language (L2) vocabulary development. This is an important consideration because of the heavy reading load required in many university courses, but especially in applied linguistics where this study is situated. Nation (2001) examined how many words a reader needed to know to be able to comprehend a text. Studies have shown that, not surprisingly, comprehension improved as more words were known, but it appeared that the ideal threshold for unassisted reading comprehension was 98% (cf. Hirsch & Nation, 1992; Hu & Nation, 2001, Nation, 2001). This meant that 98 out of every 100 words would need to be known by the learner, which amounted to a text containing only 1 unfamiliar word every 5 lines (p. 148); a high goal to achieve. Nation conceded that was a tough task and stated that a 95% coverage level might be adequate for most learners. At this level, learners would need to have a vocabulary size of around 4,000 word families. This would consist of 2,000 high frequency general service words, the 570 Academic Word List (AWL) words (as described in Chapter 1, Introduction and further discussed in Section 2.8, Academic Vocabulary, in this chapter) and around 1,000 technical words, plus proper nouns and

low-frequency words (p. 147). From this we can see that the vocabulary burden on L2 learners in an academic environment is a high one.

Researchers have tackled L2 vocabulary acquisition from many different angles, but Paribakht and Wesche (1996) have focused much of their research on how L2 learners can effectively acquire new vocabulary through enhanced reading techniques. They called their technique “Reading Plus” (p. 163) and it involved learners reading extended texts at a level just above their difficulty level, after which they had to complete a series of exercises where different levels of mental processing such as selective attention, recognition, manipulation, interpretation and production of targeted words were tested. Paribakht and Wesche found that not only did students learn more words by this method but also they achieved a “greater depth of knowledge of those words” (p. 167). They concluded that “varied vocabulary activities, which correspond to different levels of mental processing, may be a key to effective vocabulary instruction” (p. 168) for L2 learners. This relates to Webb’s (2005) research and becomes more relevant when we consider vocabulary measurement and testing. Aspects of this are discussed further in Section 2.6, Vocabulary Measurement.

A thorough examination of vocabulary acquisition is beyond the scope of this thesis, although the importance of what it means to know and understand a word will be discussed in Section 2.5, Knowing a Word. Firstly though, in order to adequately explain methods of vocabulary measurement, it is necessary to consider some key definitions and assumptions.

2.4 What is a Word?

One of the issues that vocabulary researchers have had to grapple with is what actually constitutes a word, for as Read (2009) noted, “A basic assumption in vocabulary testing is that we are assessing knowledge of *words*” (p. 17). While the precise definition of a word, on a theoretical level, is an issue that linguists continue to wrestle with, for applied linguists the problems are more practical. In order to assess knowledge of vocabulary, it is necessary to be able to find some way of defining what it is, measuring knowledge of it and then accurately counting it.

One way of classifying vocabulary items is by dividing them into function words and content words. Function words are those words which carry out grammatical functions, such as articles, prepositions, pronouns and conjunctions. They are often thought of as providing structure to the language, rather than adding to its meaning, however they have widespread use and make up the most frequent 50 word forms in English (Schmitt, 2010, p. 54). Content words such as nouns, verbs, adjectives and adverbs, in contrast, do convey meaning and as Read (2009) stated, it is knowledge of these words that is generally focused on during vocabulary testing (p. 18). It is unclear whether vocabulary assessments concentrate on content words purely because they convey meaning and are therefore considered more important, or because the testing of function words is deemed difficult, but Schmitt (2010) noted the focus on content words could “be misleading if not handled properly” (p. 55). He asserted that students often find function words difficult to learn and that this reason coupled with their high frequency of occurrence in English made them worthy of more attention. This view was supported by Morris and

Tremblay who noted that more proficient ESL learners used a higher percentage of function words in their writing (as cited in Morris & Cobb, 2004, p. 77).

Content words take on different inflections depending on the role they occupy in a sentence. For example, *wait* could appear as *waits*, *waited* and *waiting*; and *society* might become *societies*, *society's* and *societies'*. These inflectional endings when added to a base form change neither the word class nor the meaning of the word. In vocabulary research the base form of a word and its inflections are known as lemmas and generally, when counting vocabulary, it is lemmas that are counted rather than individual words. Sometimes though inflections together with derived forms of a word change the word class and add a different meaning to its base form, creating a word family (Read, 2009, p. 18). For example, *stimulate* has the inflections *stimulated*, *stimulating* and *stimulates*, but also the derivations *stimulant*, *stimulation* and *stimulative*. Together this group of words all sharing a common meaning, albeit in different forms, comprise the word family for *stimulate* (Schmitt, 2010, p. 8). There is often a degree of overlap between lemmas and word families and it is important to be clear about the distinction that is being made between them. Measuring one or the other will result in a different estimate of vocabulary size so it is essential to know which one is being used. Often this distinction is not made clear in research, and as Read (2009) cautioned, “some researchers are counting word forms while others focus on word families” (p. 19). Nation, (as cited in Schmitt, 2010, p. 192) suggested that the choice of lemma or word family as the unit of measurement would depend on what was being measured. He advised using word families for receptive use, as learners can generally recognize one or more forms of the

same word family and appreciate their relationship. He proposed using lemmas, or even word forms, for productive use to indicate the greater degree of mastery and higher level of accuracy that is required to use a word; knowing the productive use of one word does not necessarily mean knowing the others in the same word family. Schmitt contended that Nation's proposal would not be beneficial for vocabulary research as a whole as researchers would still be using different methods and it would be difficult to make comparisons between their research. Schmitt proposed that counting lemmas would be the optimum measurement because, "it is relatively easy to lemmatize words and they are unambiguous to interpret" (p. 193). The implications of this choice will be considered further in Section 2.6, Measuring Vocabulary.

2.5 Knowing a Word

Traditionally the notion of what it means to know a word has been divided into receptive and productive knowledge. In fact, so ingrained is this distinction in vocabulary research that Waring (1999) referred to it as "part of the folklore surrounding vocabulary acquisition" (section 1.1). Nation's (2001) much lauded classification, which had been updated from an earlier version (Nation, 1990), placed receptive and productive knowledge of a word within the categories of form, meaning and use (Table 2.1). He explained that:

Receptive vocabulary use involves perceiving the form of a word while listening or reading and retrieving its meaning. Productive vocabulary use involves wanting to express a meaning through speaking or writing and retrieving and producing the appropriate spoken or written word form. (p. 24)

It should be noted that some researchers (for example, Meara; Corson & Laufer, as cited in Nation, 2001) have sometimes preferred to use the terms passive and active vocabulary, indicating a slightly different focus in meaning, but in this thesis I will use the terms receptive and productive vocabulary.

Table 2.1

What is Involved in Knowing a Word (Nation, 2001, p. 27)

Form	spoken	R	What does the word sound like?
		P	How is the word pronounced?
	written	R	What does the word look like?
		P	How is the word written and spelled?
	word parts	R	What parts are recognisable in this word?
		P	What word parts are needed to express the meaning?
Meaning	form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	concept and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	constraints on use (register, frequency ...)	R	Where, when, and how often would we expect to meet this word?
		P	Where, when, and how often can we use this word?

Note: In column 3, R=receptive knowledge, P=productive knowledge.

Both Read (2009) and Schmitt (2010) warned that Nation's (2001) classification, while comprehensive, posed problems for teachers and vocabulary researchers alike. Schmitt contended that the practical application of it in assessment terms would not be possible as the "test battery would probably be too long and complex for research purposes" (p. 18) and he advised vocabulary researchers to focus only on particular areas and "carefully consider the limitations and implications of their choices" (p. 18). Read described an alternative viewpoint, that of a developmental scale representing partial knowledge which was firstly proposed by L1 researchers (Dale, as cited in Read, 2009, p. 27) and then adopted by L2 researchers. Following on from this, Melka (as cited in Read, 2009, p.154) proposed that receptive knowledge and productive knowledge of a word lay at either end of a continuum and that learners would progress along the continuum, from receptive to productive, as they achieved mastery of a word. However, he also acknowledged that stages along the continuum were not absolute and that there was a degree of overlap between them. Schmitt noted that little is known about how learners progress along the continuum and provided an example of his own knowledge of Japanese to illustrate this. He stated there were certain Japanese phrases he had learnt in spoken form that he had a very good mastery of, and could produce with ease, but that he could recognize only a few of their corresponding written characters. He concluded that while receptive knowledge might be achieved before productive knowledge in many situations and therefore progress linearly along the continuum, it was not always the case (p. 82). This view is supported by Meara (as cited in Schmitt, 2010, p. 81), who proposed a more multi-dimensional, rather than straight-line, model for receptive and productive mastery of a word. He suggested that the differences in receptive and

productive vocabularies might be as a result of the differences in the connections between them within a person's lexical network. Productive vocabulary is more prominent in this network and can activate other lexical items, but receptive vocabulary requires an external stimulus for it to work. As a result, a word that is known receptively could be used as a result of its links with the rest of the person's lexicon but for a word to be used independently it would need to be known productively. An in depth review of the literature concerning the differing viewpoints of receptive and productive vocabulary acquisition and knowledge is beyond the scope of this thesis but suffice to say, it is an area subject to much debate and ongoing research. Of relevance to this thesis though is the consideration that definitions of receptive and productive vocabulary will have consequences on the method that is chosen for vocabulary measurement.

2.6 Vocabulary Measurement

Generally vocabulary measurement has been segregated into receptive and productive measures, with the emphasis being on receptive measures, perhaps because these are easier to design and control in the classroom (Webb, 2005). Standard receptive vocabulary tests have included, for example, Nation's (1990) Vocabulary Levels Test and the Eurocentres Vocabulary Size Test (Meara, as cited in Read, 2009), which are both measures of learners' receptive vocabulary size. The Vocabulary Levels Test was originally designed by Nation in the early 1980s as an aid for teachers to devise suitable vocabulary learning programs for their students, but it has now been widely adopted by researchers as well as teachers. It consisted of exercises where learners were given word definitions which they had to match to words. The definitions, and therefore the

difficulty of each exercise, was ranked according to the vocabulary level (first 2,000 words, 3,000 words, 5,000 words, University vocabulary and 10,000 words) that was being tested (Read, 2009, p. 119). Read found validation evidence to support its use but stated that, given its widespread acceptance as an informal diagnostic tool, and its potential use as a more formal research instrument, more research on it was required. The Eurocentres Vocabulary Size Test was developed by Meara and colleagues at the University of London in the 1980s and was a computerized checklist test. Learners indicated whether they knew the meaning of a word or not, and non-words were also included to provide a basis for adjustment if learners over-estimated their vocabulary knowledge. It has been used as a placement test and as a measure of receptive vocabulary size, though the benefit of including non-words has been questioned (Shillaw, as cited in Read, 2009). Advantages included the ease of its administration and that it was simple for learners to complete, meaning that a lot of test items could be included in short periods of time. However, both these tests assessed vocabulary size rather than quality, breadth or depth of vocabulary knowledge.

Research studies investigating both receptive and productive vocabulary knowledge are rare to date, though Webb (2005) examined the effects of receptive and productive learning tasks on increasing vocabulary proficiency. In his study, Japanese learners of English were required to learn different items of vocabulary using receptive and productive methods and the learners' knowledge of these items was then measured by various receptive and productive tasks. Webb challenged the commonly held assumptions that receptive learning was more effective for increasing receptive

knowledge and productive learning contributed more greatly to productive knowledge and suggested, based on the results of his study, that productive learning was more effective in promoting both receptive and productive knowledge (p. 49). He stated that learners, by developing their productive knowledge of words, could produce large gains in their receptive knowledge too and asserted that this supported the value of using multiple tests when measuring vocabulary knowledge (p. 50). This represented an intriguing new direction in vocabulary research and is one which should be investigated further.

2.7 Vocabulary Measurement of a Text

Vocabulary measurement of a text can be divided into intrinsic and extrinsic measures. Intrinsic measures are those that can be calculated from within the text itself and include, for example, the total number of words and the number of different words used. Extrinsic measures are those measures which are external to the text and include comparing the text to various outside sources such as word frequency lists (Douglas, 2010, p. 99).

2.7.1 Intrinsic Measures

Intrinsic vocabulary measures can calculate effective vocabulary use that is, how well the available vocabulary is being used in a written text, and they are measured by lexical richness. Lesser used measures of lexical richness include lexical originality where one writer's text is compared to the rest of a group and the percentage of words used only by that writer is calculated, lexical density which calculates the ratio of content words to

function words in a written text, and lexical sophistication which calculates the percentage of 'advanced' words in a text. These methods are all considered unstable (Laufer & Nation, 1995, p. 309) as they rely on group composition or the subjectivity of the researcher, making comparison between different studies problematic.

One calculation of lexical richness widely adopted by vocabulary researchers is lexical variation, or the type/token ratio (TTR), which measures the ratio between the different words in a text (types) and the total number of running words (tokens). The TTR can be between 1.0 and zero, with 1.0 indicating total diversity and zero indicating no diversity at all. The calculation of the TTR is based on the premise that a writer with a larger vocabulary will have a large lexicon of words to draw from, and will therefore demonstrate a higher TTR in his writing. Although this measure has been extensively used, perhaps because of its ease of use, it has been subject to much criticism. Laufer and Nation (1995) noted that its value was dependent on how words were classified. If word families were counted as one word, the resulting TTR would be much lower than if each derivative of a word were counted as a separate word. They also noted that this calculation method merely counted each word used, with no indication given about that word's quality or rareness. Schmitt (2010) also noted its shortcomings, and concurred with Laufer and Nation that it did not indicate appropriateness of word choice. He recommended that the TTR, if used at all, should be included as part of a suite of lexical measures and not be relied upon as the only measurement (p. 214).

The main criticism of the TTR though is that it is severely affected by text length (see Schmitt, 2010; Read, 2009; Laufer & Nation, 1995 and Malvern & Richards, 1996). Longer texts will have a lower TTR than short texts because as the text length increases, the pool of words available to the writer decreases. The writer has fewer types to draw on as he continues and could theoretically reach the point where his entire vocabulary is exhausted, resulting in a TTR of zero. The implications of this are that for the TTR to be a valid measure of lexical density, it would need to be calculated for texts of the same length. This issue was at the root of Nation's (n.d) critique of Hart and Risley's (1995) study. Whilst querying their research methodology, along with others (for example, see Edwards, 2009), Nation's main objection was that an increasingly long list of word types did not equate to a measure of vocabulary size. He asserted that each time Hart and Risley gathered data from the children in their study they were merely adding to the number of tokens, so naturally the number of types would increase. Children in the lower socio-economic status families produced fewer tokens than children from the high socio-economic status families, a factor which Hart and Risley took to be an indication of a lower vocabulary size and therefore slower vocabulary growth. However, as Nation contended, the sample sizes, that is the number of tokens, were not equal therefore the method of measurement was invalid and the conclusion that Hart and Risley drew from this study, that children from lower socio-economic status families have smaller vocabulary sizes, was incorrect.

One way of overcoming the problem of text length when calculating the TTR was proposed by Malvern and Richards (1997) who took a variation of the TTR and used it as

the basis for developing another measurement of lexical diversity. They built a mathematical model based on probabilities of lexical diversity, and proposed that the formula for the lexical diversity (D) for an individual could be derived by placing it on a probability curve, where TTR was plotted against total tokens, and finding the best fit. They noted that, “It is this curve as a whole which is characteristic of the individual rather than any particular value of TTR on it” (p. 65) and that, because the whole curve is being considered rather than any one particular point on it, it is not therefore dependent on token size. Schmitt (2010, p. 213) commented that this method of TTR calculation is now one which is widely accepted among vocabulary researchers.

2.7.2 Extrinsic Measures and Vocabulary Profiling

Advances in technology in the past few decades have meant that texts can now be analysed quickly and easily by computer, and corpus linguistics has contributed greatly to the possibilities of research in this area. Corpus linguistics uses naturally occurring texts which are stored in electronic form to analyse language use. The focus is on analysing texts which represent language used in authentic contexts rather using those that have created especially for research purposes (Conrad, 2005). One of these uses is by creating word frequency lists to aid vocabulary learning. The frequency list on which many of these studies are based is the General Service List of English Words (GSL), a list of the 2,000 most frequently used words in English (West, as cited in Nation, 2001, p.11). Although it was created in the middle of the last century, it has not yet been bettered and is still significant in research today. More recently, a frequency list of academic word usage has been created. The Academic Word List (AWL) was compiled

by examining words used in academic texts in a range of subject areas and ranking them according to frequency (Coxhead, 2000). Learners can use the AWL to target their vocabulary learning to ensure they are prepared to read academic texts. The AWL is discussed further in Section 2.8, Academic Vocabulary. Frequency lists are the basis of vocabulary profiling and are one of the most widely used extrinsic vocabulary measures.

Laufer and Nation (1995), in their groundbreaking study, proposed using frequency lists to measure lexical diversity. Their Lexical Frequency Profile (LFP) measured the proportion of words from each frequency level in a text. It measured the first 1,000 most frequent words, the second 1,000 most frequent words, those words featured in the University Word List (updated by the use of the AWL in later versions), and words that were not in any of the lists. Laufer and Nation used word families as the base unit of measurement and justified this choice by stating their view that it reflected how learners themselves viewed new words (p. 312). The participants in their study were English language learners at two different universities who were categorised into three different proficiency levels. They all produced two pieces of writing for the study which were then processed by the LFP. Laufer and Nation claimed that profiles over 200 words were stable (although they did not expand on their definition of stable), and that the LFP was sensitive enough to be able to distinguish between learners at the different proficiency levels (p. 314). They noted its validity was verified as it correlated with an independent vocabulary measure. They emphasized its focus on lexis measurement and concluded that it was a “useful diagnostic tool as well as a sensitive research tool” (p. 319).

Despite Laufer and Nation's (1995) claims, the LFP has not escaped criticism. Smith (2005) questioned the LFP's sensitivity in respect of its ability to distinguish between groups of learners of different proficiencies and Laufer and Nation's assertion that the LFP was stable over 200 words, noting that they gave no further explanation of this. Based on his own small-scale research study, Smith concluded that the LFP was able to separate students into broadly defined proficiencies, as long as there was a distinct gap in their proficiencies. He noted there was some overlap in individual cases where proficiencies were close together, which would reduce the accuracy of the LFP as a diagnostic tool. He also found that shorter texts were more stable than longer ones and concluded that the LFP was more suited for use with low-level learners who produced short texts containing high frequency words. It should be noted however, that his conclusions were based on the profiles of just 47 research participants.

Additionally, Meara (2005) tested the LFP's robustness and assessed the strength of Laufer and Nation's (1995) claims by running a series of Monte Carlo simulations. He devised a computer program, based on a mathematical model of word frequencies, to select random 'words' (computer data) and to generate thousands of dummy texts. In what he himself admitted was a "harsh evaluation" (p. 46) he claimed that the LFP did not reliably distinguish between the vocabulary proficiencies of different learner groups, and Laufer and Nation's contention that different texts written by the same author would produce a strong correlation could not be verified. He strongly questioned some of their methodology and data analysis and queried their reporting of certain correlations. He did state though that he welcomed the focus on the measurement of productive vocabulary,

an area in which he admitted much more empirical research was required. In response to his criticisms, Laufer (2005) quite reasonably suggested that Meara might have misinterpreted the initial argument. She asserted that the LFP was designed to be a measure of “lexical use in writing” (p. 583) and not an estimate of a writer’s productive vocabulary size and therefore that Meara’s argument was flawed. She argued that using computer-simulated data, however accurately the algorithms had been calculated, could not produce the same effects as using data gathered from real learners because vocabulary use and choice is unpredictable and no computer program could reflect that. She rejected the idea that certain aspects of her and Nation’s original data analysis were inaccurate by recalculating some of the original correlations, and concluded by reaffirming that the LFP was a valid and reliable vocabulary measurement tool.

Despite these controversies, the LFP has been used by many researchers, most notably Cobb (2002) who has made VocabProfile, an amended version of the program, available on his Lextutor website (www.lexutor.ca). As well, it appears to be increasingly used by researchers for different uses, not just for examining L2 learners’ profiles. For example, Morris and Cobb (2004) explored the notion that the LFP could be used as part of a diagnostic testing procedure for TESL candidates who all had native speaker or near native speaker proficiency in English. They calculated vocabulary profiles for entrance essays written by TESL students from diverse language backgrounds (both L1 and L2 speakers of English) and correlated the profiles to students’ scores from two compulsory grammar courses. Morris and Cobb calculated that an ideal vocabulary profile, one which corresponded to a student successfully passing the course, would include a K1

score of less than 85% and an AWL score of over 5%. They noted that candidates who had been refused admission to the TESL program had K1 percentages of at least 80% and low AWL percentages. Although Morris and Cobb concluded that though the correlations were significant, they suggested they were not strong enough for the VocabProfile program to be used as a stand-alone diagnostic test but commented though that certain aspects of the vocabulary profile could provide diagnostic information that could benefit individual students (p. 85). They recommended that, because of its low cost and ease of use, vocabulary profiling should be incorporated as part of a suite of assessment instruments as it was particularly effective at distinguishing differences in proficiencies of L2 speakers of English that were not necessarily revealed in oral interviews. Douglas (2010) also used vocabulary profiling programs to investigate the lexical richness in undergraduate university students' writing which he compared to various measures of academic success. He was specifically interested in the differing profiles of L1 speakers of English, compared to those of L2 speakers and his study is discussed further in this chapter in the section The Transition to University.

Research on vocabulary profiling programs has increased in recent years and there are now several available. P_Lex (Meara & Bell, as cited in Miralpeix, 2007) was designed to assess the lexical richness of short texts produced by L2 learners by calculating the amount of vocabulary beyond the most frequent 2,000 words the texts contain. It is claimed that it works better with very short texts than the LFP and that the mathematical algorithm it is based on is more sophisticated and thus capable of producing more accurate results. Schmitt (2010) noted it was "an ingenious method of estimating total

vocabulary size from a single sample of participant written output” (p. 210) and recommended its use for calculating vocabulary profiles for low-level learners. V_Size is a newer vocabulary profiling program developed by Meara and Miralpeix but as yet there is little research written about it. It is based on Zipf’s Law applied to the distribution of vocabulary and it will be discussed more fully in Chapter 3, Methodology and Method.

Finally, to conclude this vocabulary measuring section, an innovative method of measuring productive vocabulary has recently been advocated which transcends the restrictive paradigm of normal vocabulary measurement. Meara and Olmos Alcoy (2010) applied a counting methodology, the Petersen estimate, which is normally used in ecology field research for estimating populations of animals in the wild, to productive vocabulary measurement. By using this method, researchers are able to extrapolate an estimate of an animal population based on a small captured sample. Meara and Olmos Alcoy referred to their method as “trapping words” (p. 227) instead of trapping animals. Despite it being a strikingly unconventional approach, they described it as “very much in the spirit of Paul Nation’s thinking outside the box approach to vocabulary testing” (p. 225). Although their study was a small one, in which they applied this method to a series of written texts produced by two small groups of intermediate and advanced learners of Spanish, they discovered that the Petersen estimate distinguished between the vocabulary sizes of the two groups of learners and gave a valid productive vocabulary estimate for each one. Meara and Olmos Alcoy admitted the study contained various limitations, and that further research was required, however they reasoned that word trapping might

overcome some of the shortcomings of other productive vocabulary measurement techniques and as such, would be worth exploring in the future.

The area of vocabulary measurement has been aided enormously by corpus linguistics and advances in technology that have meant that new and increasingly innovative vocabulary measuring methods have been, and are continuing to be, developed. However, there is still no overall agreement about how productive vocabulary may be measured. This could be because of its nature, in that it is an important factor in language proficiency but is difficult to isolate from other important factors. Meara (1995) wrote sixteen years ago that vocabulary research was “seriously short of good tools to assess productive vocabulary abilities” (p. 33), but it seems that now those tools are being developed. Hopefully further research will add to their validity and provide vocabulary researchers with the means to continue to assess productive vocabulary proficiency. The research for this thesis is focused on university students within applied linguistics, and their vocabulary proficiency, so the nature and use of academic vocabulary is of particular interest.

2.8 Academic Vocabulary

There has been a plethora of research in recent years concerning the importance of vocabulary use in academic environments. In her original, much cited study, Coxhead (2000) calculated that the 570 AWL word families provided coverage of 8.5% to 10% of running words in academic texts and that knowledge of the entire AWL of 570 word families would make the difference between 80% and 90% comprehension of a text. The

first three sub-lists, consisting of 180 word families, amounted to a 6.6% difference alone (Coxhead & Nation, 2001, p. 255). Coxhead also noted that more than 82% of words in the AWL were of Graeco-Latin origin. Corson (1997) suggested that words of Graeco-Latin origin were difficult to learn, as they were non-concrete, referred to abstract concepts and occurred with low frequency (p. 696). He stated they were mostly literary words not generally encountered in normal conversation, which made their acquisition a challenge for L1 English speakers and L2 learners alike. He described this challenge as a lexical bar and noted that, as these words were difficult for learners to retrieve from their mental lexicons in time for use in an exchange, more frequent words with subtle differences in meaning were often substituted instead. He gave the example of *stop* instead of *abolish* legislation (p. 698). Coxhead and Nation supported Corson's views and suggested that it would be highly beneficial for learners to spend time explicitly learning academic vocabulary, with particular focus given to word part analysis to understand the Graeco-Latin affixes of a word. It should be noted that technical vocabulary differs from academic vocabulary in that it is subject specific and generally more concrete in concept. Coxhead and Nation stated that its coverage is around 5% of running words in an academic text. There is agreement that more research on subject specific technical vocabulary, and the way that academic vocabulary is used as part of discipline specific discourse is required (p. 267). It has also been suggested that, while much of the focus on the academic word list has concentrated on its ability to help students with learning receptive vocabulary for reading academic texts, a productively focused list to help with writing would be of great benefit too (Paquot, as cited in Douglas, 2010, p. 55).

An interesting piece of academic vocabulary research focused specifically on vocabulary use in applied linguistics (Vongpumivitch, Huang & Chang, 2009). In it, the researchers conducted a frequency analysis of AWL words by creating a 1.5 million word corpus from empirical research studies published in five applied linguistics journals. They discovered that AWL word forms accounted for 11.17% of their corpus, a figure slightly higher than the 9.3% coverage in Coxhead's Arts sub-corpus and the 8.5% to 10% usually quoted for academic vocabulary coverage generally (Coxhead and Nation, 1991). They suggested this finding cemented the importance of AWL vocabulary in applied linguistics and noted particularly that as the majority of these word forms come from the first two AWL sub lists, applied linguistics students who wish to increase their vocabulary knowledge should concentrate on learning words from these two sub lists. Although this study was undoubtedly valuable as it provided more data for a discipline specific analysis, it appeared the authors were using word forms rather than word families as their basis of measurement (p. 34) which seemed to be incongruous as the AWL was based on word families.

Academic vocabulary research has generally focused on either ESL students as a group or second language learners generally, but it is now becoming more important to be able to assess the vocabulary of a much less homogenous population including L1 English speakers. This is specifically the case in a university context where students now enter university from many different backgrounds.

2.9 The Transition to University

The transition from school to university, while a new and exciting time for some, can also be fraught with problems and difficulties for many. New university students have to learn how to adapt academically and socially to their new environments, in effect to forge new academic identities, but they are given few clues about how that may be achieved. The profile of universities has changed enormously over the past few decades in that they are no longer solely the elitist academic teaching institutions they once were and this means they are further removed from students' experiences of school. Today's universities are "characterised by an economically driven agenda" (Scanlon, Rowling & Weber, 2007, p. 233) resulting in increased class sizes, fewer contact hours between lecturers and students, and lecturers being pressed to focus more on their own academic research than on teaching. Additionally Scanlon et al. noted that lecturers teaching first-year classes tended to be increasingly casualised, with no university base, resulting in them being on campus infrequently and making them harder to contact. This perceived inaccessibility of lecturers meant that students could not apply past school experiences to university, especially in terms of the relationships they had formed with their teachers at school. This made it harder for students to develop their new academic identities resulting in "identity displacement and a sense of loss for past learning situations" (p. 232). Additionally, the increased diversity of the student population in terms of increasing numbers of international and mature-aged students has meant that not all students have shared experiences that will help them at university. They "lack the all important 'knowledge of' the university context, having instead only naïve 'knowledge about' the university" (p. 230).

The result of these economically driven changes and constraints are that lecturers require and expect from students a level of independence that they are not ready for. Scanlon et al. (2007) noted this was especially so in the area of academic expectations, where students in their study reported that many course requirements such as reading lists and assignment schedules were posted online by lecturers but that no additional explanation of these requirements was given in class time. Another source of frustration noted by students in Scanlon et al.'s study was that they were expected to complete assignments with little guidance from their lecturers but then, when they performed badly, they were given very little feedback about how they might improve for next time. This "lack of communication between students and lecturers was one of the constraints on student identity formation" (p. 234). As a result, students relied on each other for support and "it was this interaction that proved to be critical in identity formation" (p. 237).

The problem of creating a new academic identity becomes much more difficult when studying in another language. As part of their research on academic acculturation Cheng and Fox (2008), interviewed a number of L2 students to investigate their views on successful acculturation to the university environment. They found from their study that students discovered many different ways of acculturating but these were not necessarily as a result of language or of disciplinary learning (p. 327). Some students took refuge in their own language and sought out like-minded L1 speakers with whom they could study and exchange thoughts, while others preferred to immerse themselves in English speaking environments. All students indicated difficulty in their academic acculturation at some point but all relied on some form of support, whether it was informal such as

attending study groups with classmates and friends, or more organised in terms of using institutional support such as the university writing centre.

One point that was highlighted in Cheng and Fox's (2008) study was that of mismatched agendas. Often it appeared that services provided by the university designed to assist in acculturation and provide support, fell short of students' expectations which resulted in dissatisfaction and frustration. It could be argued that this viewpoint is not exclusive to L2 students but is one shared with L1 English speakers as well. Cheng and Fox advised therefore, that when universities provided courses and services to help with academic acculturation these should be designed with students' needs in mind in order for them to be deemed successful. They concluded by stating, "Acculturation does not (and cannot) evolve as a one-way transmission from a community of specialists to novices" (p. 327). From this we may infer that that services, supports and interventions put in place to help students need to be considered very carefully. It might be that they could work informally as well as formally and perhaps might take a less traditional format.

In another study where the importance of interventions was highlighted Haas (1994), followed an undergraduate biology student during her four years of university and explored her developing identity as a scientist. In her second year the student, Eliza, demonstrated a mismatched agenda from her subject in that she had to write a research paper but did not appear to view it as proper science work, in the way that she considered labs and tests proper work. Although she was a conscientious student, she prepared and wrote the paper at the last minute and approached it with what Haas considered to be

quite a cavalier attitude. Hass commented on the apparent disconnect and wondered whether it “may have seemed to her an exercise that was quite unconnected to the real world of science” (p. 63). However, at the start of her third year Eliza began a work study job in a lab run by one of her professors where her direct supervisor was a graduate student in the same department who supervised and mentored her. This coincided with, and perhaps can be attributed to, Eliza’s emergence as a developing scientist as she received individual guidance from her supervisor but was also able gradually to understand and join in general discussions in the lab. Haas noted that perhaps it “contributed to her awareness of the social and rhetorical dimensions of discourse” (p. 67) in that she no longer viewed writing, recording and discussing as non-science work. This was an intervention of sorts and a timely one as it helped Eliza in developing her identity as a scientist in order to successfully negotiate her final two years of undergraduate studies.

The issue of interventions was reflected in another research study which was based on L2 students who were admitted to university on the basis of language residency requirements (Fox, 2005). That is, they needed to have attended an English medium high school for a specified period of time (3, 4 or 5 years), which enabled them to forgo the requirement to achieve a predefined mark in English language proficiency tests to gain admittance. Unfortunately, students who had gained entry to university this way often struggled with the language requirements of their courses. However, because they had been admitted to university by the language residency requirement route, they were unable to access any formal language support provided by the university, such as English

for Academic Purposes or English for Specific Purposes classes, and consequently they became frustrated and angry about their lack of progress (p. 104). There was no specific intervention available to help them and as a result, these students were at a high risk of not completing their programs, or of completing them but with low Grade Point Averages. Fox, citing research by Roessingh and Field (2000), advocated the introduction of interventions at key times to support these students which would enable them to reach their full potential at university and would increase their retention rates (p. 109), a view which was echoed by Douglas (2010). This idea was supported by one of the professors interviewed for Fox's study who recommended that all students, including L1 English speakers, some of whom struggled with the language requirements of the program as well, should be given a diagnostic assessment to identify any areas of strength and weakness in language proficiency so that those students might be supported with suitable interventions. Fox noted that the timing of interventions is key and that assisting a student from the beginning of their university career is crucial to help them succeed (p. 110).

As previously mentioned, Douglas (2010) investigated the vocabulary profiles of undergraduate university students and focused on those students who belonged to Generation 1.5. Roberge (2009) had defined this group as individuals "who immigrate as young children and have life experiences that span two or more countries, cultures and languages" (p. 4). They tend to have a home language other than English, and though seemingly fluent in oral English often struggle with advanced level written and academic language. Douglas found there was a strong correlation between vocabulary knowledge,

particularly lexical richness, and students' academic success at university and that "students who possessed an apt, varied and accurate written vocabulary are the same students who excelled in their studies" (p. 205). His study found though, that Generation 1.5 students did not perform as well as their L1 English speaking peers and he recommended sweeping changes within the school curriculum to help them achieve their academic potential. He strongly suggested that as immigration policy had brought these students and their families to live in Canada it would be "educational neglect" (p. 212) on behalf of policy makers for them not to be helped. He also recommended interventions at key points in students' academic careers where the language burden increases exponentially. He identified these as at Grade 4 where the focus becomes more on reading to learn rather than learning to read, at Grade 9 when language starts to be used more metaphorically and therefore is used to convey more abstract ideas, and at 1st year university level where large volumes of reading are required but with little scaffolding or support provided (p. 211).

Douglas (2010) did not recommend the Diagnostic English Language Needs Assessment (DELNA) which will be discussed in the next section. It would seem, however, to provide an excellent solution to this particular problem. The widely varying backgrounds of first year students in English speaking universities today means that any form of diagnostic assessment and intervention would need to apply to all students, L1 and L2 English speakers alike. One way that this could be achieved is through a post-entry diagnostic assessment such as DELNA.

2.10 Diagnostic English Language Needs Assessment (DELNA)

Post-entry diagnostic testing is not new though it has recently been gathering more interest at many universities. It has taken place at the University of Surrey in the UK since the mid 1990s where it mostly targeted L2 speakers of English (Fulcher, 1997), although the university website stated that L1 English speakers were invited to take advantage of the diagnostic testing and subsequent interventions and were welcome to attend all courses and tutorials (University of Surrey Language Support Institute). It stated that all types of writing were supported though it did seem to be specifically focused on international students and those students who were writing theses, and writing for more advanced projects than normal course writing.

One specific diagnostic assessment which has been attracting considerable attention is DELNA, which was introduced to the University of Auckland, New Zealand in 2002. It was introduced as a reaction to the increased diversity of the student population, where students were entering university from many different backgrounds, and with diverse academic literacy needs (Read, 2008). There were increased numbers of international students but also recent migrants and mature students, many of whom, along with students entering directly from high school, had less than ideal academic English proficiency. It was recognised within the university community that the English language proficiency requirements in place at that time were too low for the standard required for academic study (Read, 2008, p. 181). An additional problem existed though as recent migrants, many of whom were L2 speakers of English, could not be required to take English proficiency tests as, under New Zealand law, they were classed as residents

and therefore had to be given the same rights as New Zealand citizens (Elder & von Randow, 2008, p. 175). Also, many students were reluctant to use the support services already in place within the University environment, either through embarrassment to be singled out or lack of belief that they actually needed the support. DELNA was therefore introduced as a means to provide support to all students by testing their language proficiency after arrival at university. It became compulsory for all first year students in 2007, although it had not achieved full rollout by the time Read reported on it in 2008. A lot of effort was put into garnering the support of the university administration in its implementation and introducing it to students as something helpful and non-threatening. For example, it was called an “assessment” rather than a “test” and emphasis was given to students’ personal choice in terms of how they reacted to their assessment and which interventions they chose to use (Read, 2008, p. 182).

DELNA is divided into two parts, screening and diagnosis. Screening is a straightforward 30 minute computerised assessment, consisting of an academic vocabulary exercise and a speed-reading exercise. It is designed to quickly and effectively filter out native speakers and proficient users of English (Read, 2008. p. 183). Students who score below a certain amount in the screening are deemed to potentially require language support and are invited to take the diagnosis, a 2 hour long paper based assessment which consists of a listening exercise, a reading comprehension and a short essay writing section. If, as a result of completing the diagnosis, a student is considered to need further support then there are various interventions available to them. They could take a credit course in academic language skills, attend a short non-credit course,

workshop or self study program or they could attend a discipline specific language tutorial linked to particular courses and available in some subjects (Read, 2008, p. 187). Often a student's department will determine that a particular intervention should be taken. Students who require interventions are advised of the decision face-to-face by a language adviser with assistance and counseling provided. This was felt to be an important aspect of the DELNA process following feedback from an earlier study (Bright & von Randow, 2004). Throughout the whole assessment process, emphasis is placed on the equal partnership between the university and the student and that the assessment is there to help the student rather than to penalise them.

Although DELNA screening has been compulsory for all first year students since 2007, of the 1208 students who were screened in that year and were recommended to return for further assessment in the DELNA diagnosis stage, only 504, or 42%, did so (Read, 2008, p. 186). Read considered the reasons for this relatively low uptake and concluded that it was as a result of enforcement of the DELNA diagnosis being department specific. Some departments actively encouraged their students to participate, withholding first assignment grades until they had done so, other departments Read felt, lacked the resources or the wherewithal to implement such procedures. This was especially the case in the Faculties of Arts and Science where students were often enrolled in degrees with courses in several different departments which complicated follow up because of the number of students involved. However, Read remained optimistic that that as DELNA was rolled out more completely across the university, a greater take up would be achieved.

Another issue which should be considered is that, of the students who returned for the DELNA diagnosis, whether they proceeded to the interventions they were recommended to take and what the reasons for not doing so were. This matter was considered in a study undertaken with a small group of students who had taken the DELNA assessment before it became compulsory (Bright and von Randow, 2004). Students in this study reported that they did not have time to take extra courses or workshops, as their workload was already taxing them enough as it was and many felt that the onus should have been on their own department to help them and to provide them with support, rather than moving them on to a central language support centre. As a result, the majority of students in this small study did not follow up with the interventions that were recommended to them. This would appear to be another example of mismatched agendas (Cheng & Fox, 2008) and seems to add support to the argument that if something is not compulsory, there will be many reasons why it is not done.

This viewpoint was reflected in the experience of implementing the Diagnostic English Language Assessment (DELA) at the University of Melbourne (Ransom, 2009). As a result of restructuring the undergraduate curriculum, the university administration recommended that from a certain time all new undergraduates achieving below a certain standard on English proficiency exams (including those for native speakers) should take a post entry diagnostic assessment. However, unlike at the University of Auckland, it seemed that no central driving authority was coordinating the implementation of DELA. This, coupled with the fact that the purpose of the assessment was not clearly communicated to many university faculty meant they did not understand its purpose and

saw it as yet another task in an already busy workload, so its implementation was fragmented. Not surprisingly, non-compliance of students taking the assessment was a major issue. Students balked at the paper based test format and did not accept that they might need any interventions. There was an expectation gap too in that students felt their departments should provide language support, mirroring the findings of Bright and von Randow's (2004) study. Additionally, there was no real consequence for students who refused to take the assessment, something which caused faculties to report that it was difficult to advise students that it was a "compulsory" requirement (Ransom, p. A-21).

It has since been recommended that DELA should be a compulsory requirement rather than voluntary one, and for it to be implemented with the full support and commitment of the institution with repercussions for non-compliance. Interestingly though, the Melbourne model did allow for more departmental flexibility in choosing appropriate interventions for their students. Perhaps for all universities, a centrally implemented compulsory model with those departmental options would be the optimum solution. Read (2008) noted that "in terms of presentation, as DELNA assessment has become the norm for first-year students, it is increasingly accepted as just another part of the experience of entering university" (p. 186). This is the stage that other universities need to aspire to reach. Or, as examples in Fox (2009) and Fox and Hartwick (2011) suggest, adopt models of assessment that are tied directly to curricular and classroom learning.

2.11 Conclusion

As has been discussed in this chapter, many vocabulary studies in the past have focused on either L1 English speakers or on L2 learners of English, and on either receptive or productive methods of vocabulary acquisition or measurement. However, the increasing cultural and linguistic diversification of universities has meant that this polarisation is no longer useful. In order to measure vocabulary proficiency and ascertain its importance in a university environment, it is necessary to be able to consider the entire student body without artificially dividing it along language lines. By using productive vocabulary profiling, which recent research has demonstrated is adaptable enough to be used with both L1 and L2 English speakers, along with classroom observations, field notes and semi-structured interviews, I will provide further data to add to the research being generated in this area. Although this thesis is situated within applied linguistics it is hoped that its findings will be relevant to all departments particularly those with writing intensive programs. The methodology of my thesis will be discussed in the next chapter.

Chapter 3: Methodology and Method

3.1 Introduction

The objective of this thesis is to investigate the relationship between vocabulary proficiency and academic success in a first-year introductory course in applied linguistics. The overarching or general research questions, as discussed in Chapter 1, have been broken down into a series of specific research questions each of which will address a particular aspect of the overall research aim. The specific research questions (keeping their original numbering from Chapter 1, Introduction, to facilitate quick referencing) will be further explained in this chapter along with chosen research inquiry methods for each one. In order to explain my research design, I will use Smart's (2008) distinction between methodology and method. *Methodology*, according to Smart, is composed of and encompasses the underlying philosophy of the research design. It determines the knowledge base on which the fundamental research question of a study is situated and where it is grounded, whereas *method* details the actual procedures that were carried out to answer that question (p. 56). Accordingly, in this chapter, I will first explain the overall methodology of this thesis and then describe the methods used for its individual phases.

3.2 Thesis Methodology

I designed this thesis as a mixed method study in order to optimize the triangulation of the results. A mixed method study, according to Tashakkori and Teddlie (1998), is one "that combine[s] the qualitative and quantitative approaches into the research methodology of a single study" (p. 17). As such, my study includes quantitative and

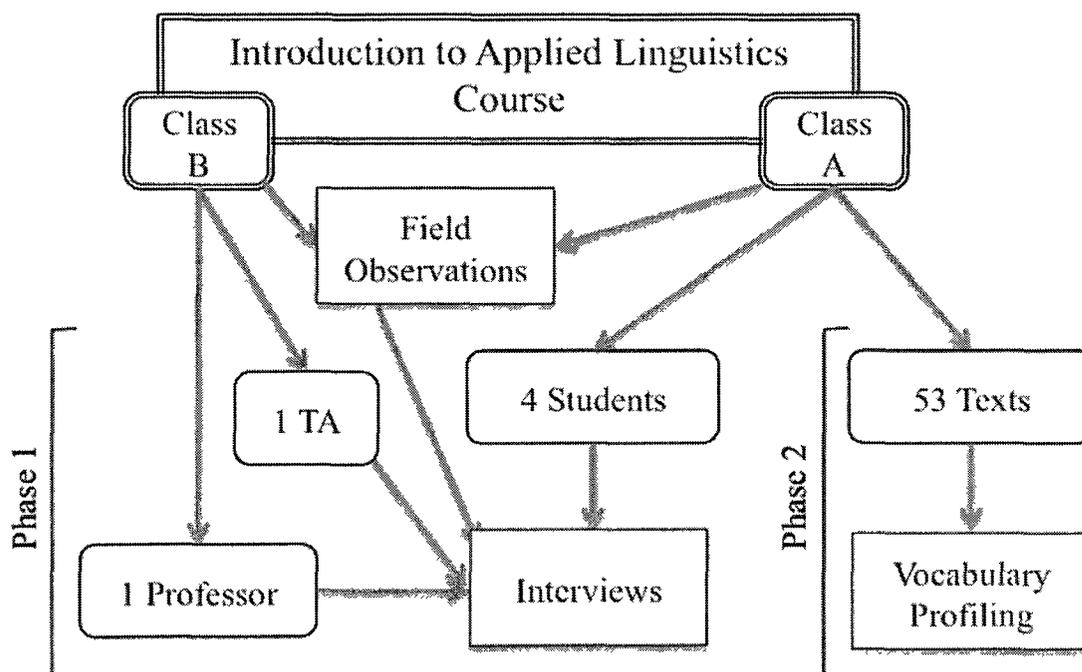
qualitative components in both the data collection and the analysis of findings phases. The quantitative and qualitative phases of the research were conducted at the same time and, as neither one was considered to be dominant this research study can be described as a “parallel/simultaneous study” of “equivalent status design” (Creswell, as cited in Tashakkori & Teddlie, 1998, p. 18).

Triangulation, the act of “drawing upon various kinds and sources of information for analysis” (Duff, 2008, p. 30), was achieved in this thesis by “methodological and data triangulation” (Denzin, as cited in Merriam, 1998, p. 247), that is, by using a variety of data sources and methods including interviews, observational field notes and productive vocabulary profiling. Merriam (1998) advised that it is preferable to use a variety of investigative approaches to tackle research questions as these often reveal so much more than a single data source. By virtue of cross checking and comparing data, any errors associated with one particular data source, or one method, can be highlighted and noted. However, she warned that “different kinds of data may yield somewhat different results because different types of inquiry are sensitive to different real-world nuances” (p. 248). Researchers therefore, should not expect to arrive at the same result by each different method, but rather should embrace the diversity of the results and use these to gain further insights into the research questions. Following Merriam, in my final analysis, I will therefore endeavour to explain any differences between the results achieved from the different methods of inquiry and to reflect on their inconsistencies in an illuminative way (p. 248).

3.3 Research Design

The research design for this thesis is illustrated in Figure 3.1. As can be seen, it is divided into two main phases which are each grounded in a particular methodology and which represent a different area of information gathering and investigation. The phases are 1) Interviews and Field Observations (i.e., classroom observations and field notes) and 2) Vocabulary Profiling. The research was centred on a first year undergraduate introduction to applied linguistics class (Class A) and additional data were also obtained from another introductory applied linguistics class (Class B). Additionally, I used field observation notes I gathered during my TA assignments to augment and provide background information to my study.

Figure 3.1 Research Design



3.4 Research Participants

The research participants consisted of 4 students from Class A who were interviewed as part of Phase 1 of the thesis. They were all male and were all L1 speakers of English who were majoring in applied linguistics. Additionally, I interviewed a professor, who had experience of teaching the introduction to applied linguistics courses, and a TA in order to gain instructors' perspectives of students' use of language and vocabulary proficiency in their writing and in the general classroom environment. I also include myself as a participant in this study. Through my work as a TA and the contact I had with students in the classroom, I gained insights which are different to those I would have experienced as an external observer. This is an important consideration because, as Abdulhamid (2011) noted, "Many researchers now recognise that they are not neutral but are profoundly invested in their studies" (p. 79).

3.5 Research Instrumentation

An overview is given in Table 3.1, below, of the research instruments that were used in this thesis. The research instruments consisted of two vocabulary measurement programs and a statistical package, which were all used in phase 2 of the thesis.

In the following sections of this chapter I will describe the phases of the thesis, their associated methodology, the specific research questions they were designed to investigate, and the methods I used to gather and analyse the data they produced.

Table 3.1

Research Instrumentation

Research Instrument	Factor Being Measured
VocabProfile, Classic VP English v.3 (Cobb, 2002).	Vocabulary profile of a text shown as the percentages of each of high frequency vocabulary, AWL vocabulary and off-list vocabulary.
V_Size Program (Meara, 2011).	Vocabulary profile of a text shown as percentages divided into 500 word frequency segments as well as estimated productive vocabulary size.
Statistical Package for Social Sciences 19 (SPSS 19, 2011).	Statistical analysis for Phase 2: Vocabulary Profiling.

3.6 Phase 1: Interviews

Ethics clearance was received from Carleton University Research Ethics Board under project number EC11-1045 to interview student participants. The ethics clearance form is appended (Appendix A). Students from Class A (see Diagram 3.1) were interviewed in order to elicit their views on language use within the course to investigate the following specific research questions:

- 1) What are students' perceptions of the vocabulary and language requirements for writing in applied linguistics?
- 2) How well do students meet the vocabulary and language requirements of writing in applied linguistics?

Additionally, the professor and TA were interviewed in order to address the following research questions:

- 2) How well do students meet the vocabulary and language requirements of writing in applied linguistics?
- 3) Are there interventions that could be used or introduced to help students-at-risk?

3.6.1 Interview Methods

Lofland and Lofland (as cited in Charmaz, 2006) noted that, “an interview is a directed conversation” which “permits an in-depth exploration of a particular topic or experience and, thus, is a useful method for interpretive inquiry” (p. 25). I chose to use a semi-structured interview framework as I felt that planning the questions beforehand and then working to guidelines would help me “to avoid blurting out loaded questions and to avert forcing responses into narrow categories” (Charmaz, 2006, p. 18).

In order to recruit participants for the study, the entire introduction to applied linguistics class (Class A), which represented all those students who were registered on the university computer system at the end of the course, was emailed with an explanation of the study and a request for interview participants, with a suitable time period allowed for responses to be submitted. Four students volunteered to be interviewed, which was a low number of respondents, although not entirely unexpected for this method of acquiring participants. I decided not to alter my strategy and try to acquire more interview participants as I noted Merriam’s (2008) remarks that, “The validity, meaningfulness,

and insights generated from qualitative inquiry have more to do with the information richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size” (p. 245). I felt that the four self-selected interview participants would provide relevant and valuable insights.

Each student participant was interviewed individually for approximately thirty minutes using the series of questions in Appendix B as a guide. As stated previously, the interviews followed a semi-structured format. The questions were used to provide a framework for the interview, but in all cases conversations were allowed to develop freely, although I noted Creswell’s (1997) observation that “a good interviewer is a listener rather than a speaker during an interview” (p. 125). The interviews were audio-recorded and then transcribed before being analysed. Each interviewee was assigned a case name (S1, S2, S3 or S4) to maintain the anonymity of his responses.

The interviews for the professor and the TA followed the same method as for the student participants. The questions which formed the basis for their interviews are included in Appendix C. Due to time and location constraints, the professor was interviewed via series of emails where questions were posed and he replied with written responses, with further clarification being requested as necessary. The professor also made available to me various handouts and information sheets which he had prepared for students as part of the course materials. These clarified and highlighted some of his interview responses.

3.6.2 Interview Data Analysis

The interview transcriptions were analysed by using grounded theory principles to code them. These differ from quantitative logic in that no preconceived ideas are searched for in the data rather, “we learn through studying our data” and by doing this, create a frame on which to build the analysis (Charmaz, 2006, p. 46). The first initial coding phase is where “the openness of initial coding should spark your thinking and allow new ideas to emerge” (p. 46). Consequently, during the initial coding and following Charmaz’s guidelines, I worked quickly and efficiently, relying on instinct rather than a previously created coding system. I focused on coding actions and used action words and gerunds to describe them. At this stage I did not look for themes, nor look for my research questions to be answered, but concentrated instead on recording the actions as effectively as I could (p. 48).

I followed the initial coding by using clustering coding in order to condense and consolidate the main ideas, and then used concept mapping to develop the themes which had emerged. Again, I followed Charmaz’s (2006) guidelines by working quickly and did not concentrate too much on the individual themes or categories. For the student interviews, I achieved this by using different coloured pens to mark out different themes in each of the interviews and then incorporated these into a concept map with each of the themes forming a sub-cluster. It was only when all data from each of the interviews were entered onto the final concept map that any sort of pattern began to emerge. This provided me with a “direct visual, as contrasted with a solely mental, image” from which I could start to analyze the data (Charmaz, 2006, p. 87). The concept maps on which I

based my analysis are appended (Appendix D). The transcripts for the professor and TA interviews were analysed in a similar way although the themes which emerged from their interviews were more compact and were recorded on a power point slide which is appended (Appendix E). The themes which emerged from this phase of the thesis are presented in Chapter 4, Findings and Discussion.

3.7 Field Observations

I supplemented Phase 1, the interviews section of the thesis, with my own field observation notes. The methodology for this aspect of my thesis is grounded in qualitative research which “generally emphasizes the importance of examining and interpreting observable phenomena *in context*. These contexts tend to be naturally occurring ones” (Duff, 2008, p. 30). During my time as a TA in both introduction to applied linguistics courses I attended classes and held office hours. I made notes based on my observations of student participation during class and during my own interaction with students at other times. My notes primarily focused on general observations about class and student interaction with each other, with the TAs and the professor. I used this experience to generate responses for the following specific research questions:

- 1) What are students’ perceptions of the vocabulary and language requirements for writing in applied linguistics?
- 2) How well do students meet the vocabulary and language requirements of writing in applied linguistics?
- 3) Are there interventions that could be used or introduced to help students-at-risk?

Creswell (1997) advised field researchers to determine the role they would take as observers. He suggested that the role could evolve from one where the researcher started as an outsider but moved towards becoming an insider as the observations progressed (p. 125). Although my role in the courses where I was a TA changed, in that I was unknown by the students in the beginning and gradually became known to them over time, I think the nature of my position was that I remained an outsider. This quite possibly informed my findings, in that my observations were arrived at from the point of view of an outsider even though as I learned more about the students I was observing, I became sympathetic to their circumstances. This could be seen as both a strength and weakness of the study in that I was viewing the situation from changing perspectives but that ultimately, I remained detached.

3.8 Phase 2: Vocabulary Profiling

Phase 2 of my thesis used vocabulary profiling in order to address the following specific research question:

- 4) What characterizes the productive vocabulary profiles demonstrated in this course between 'good' writers and 'poor' writers?

In applied linguistics courses, students' ability, and consequently their academic success, is measured by the writing they produce. In Class A, students were required to write 2 mini-papers and because they were written in a real life situation, rather than as part of an exam, and on a topic of the students' own choosing I reasoned they would provide excellent examples of students' writing abilities and therefore of their vocabulary proficiencies.

I chose 2 vocabulary profiling programs to use in this phase of my thesis. The LFP developed by Laufer and Nation (1995) and the V_Size program developed by Meara and Miralpeix (accessed 2011). Although the LFP was developed for use with L2 speakers, it has also recently been used for analysis of L1 speakers' texts in an interesting development of its original use (Morris & Cobb, 2004; Douglas, 2010). The V_Size program has been used to examine the profiles of L2 learners of English (Miralpeix, as cited in Meara & Miralpeix, n.d.) but as yet, very little other data has been published to substantiate it. Although the methodology behind each of these programs is different, they both purport to achieve similar aims in that they are both extrinsic lexical frequency measures and they both seek to overcome the restrictions imposed by TTR calculations in measuring lexical variation. I felt it would be informative to see how these programs compared to each other by using them both to analyse the same series of texts.

3.8.1 Preparing the Data for Analysis

This phase of my thesis used text files which were created as part of Weinstein's (2011) specialised undergraduate writing corpus. Weinstein's corpus was compiled from writing samples gathered from a first year applied linguistics course (Class A, as shown in Diagram 3.1). As part of the course assignments, students were required to write 2 mini-papers, the first of which was submitted in week 6 of the course and the second which was submitted in week 10. The mini-papers could be on any topic of the students' choosing that had been covered in the course and were restricted to a maximum of 3 pages. Weinstein gathered 97 papers to create the corpus and classified them into four groups, according to the mark each paper had been awarded. As previous researchers

had noted (Laufer & Nation 1995; Meara, 2005; Smith, 2005), there was uncertainty whether the LFP accurately distinguished between user groups of similar proficiencies, so I chose to use the highest and the lowest scoring groups in order to have a maximum potential proficiency gap. The high scoring papers had received 9, 9.5 or 10 marks out of 10 and there were 25 papers in this category. The low scoring papers had received 5, 5.5, 6, or 6.5 marks out of 10 and there were 28 papers in this category. Weinstein had stripped the papers of any identifying features, scanned and then converted them into text files as part of the corpus creation. I reviewed the text files to correct any spelling errors, of which there were very few, and amended incorrectly capitalized words (for example, in one text file certain school subjects were erroneously capitalized) and any other typing errors so that those words could be assigned to their correct categories.

Initially, I analysed each text in its entirety, believing that would provide a better representation of each student's vocabulary profile. However, the various studies that had used vocabulary profiling (particularly Smith, 2005; Morris and Cobb, 2004, and Douglas, 2010), had all analysed texts of a standard, short length, normally 300 words. Smith (2005) examined the LFP and discovered it to be more stable with shorter texts, 300 being the optimum length. Concern was also expressed that V_Size would not work effectively with very long texts (P. Meara, personal communication, 16 May 2011). So, following these researchers and to ensure comparison between studies, I decided to curtail texts to 300 words. I used the first 300 words of each text unless there was a very obvious introduction, in which case I started counting words from immediately after the

introduction. Once the 300 word sample files had been created, they were ready to use in the vocabulary profiling programs.

3.8.2 The Lexical Frequency Profile (LFP)

The LFP is based on Heatly and Nation's (1994) Range program which was modified and updated by Laufer and Nation (1995). It is a measure of lexical diversity and compares the written text being analysed to frequency profiles based on the GSL and the AWL. It divides the vocabulary used in the text into 4 different categories: the first 1,000 frequency band (1K), the second 1,000 frequency band (2K), words in the AWL and all the remaining vocabulary not in any of these lists (Off-List). It is reasoned that learners with low vocabulary proficiencies will produce texts with vocabulary mostly from the 1K category whereas more advanced learners will use less frequent vocabulary from the higher bands.

I used an online version of the LFP developed by Cobb (2002), Web VP v.3 Classic, accessed from www.lex Tutor.ca. This works in exactly the same way as Laufer and Nation's (1995) LFP, but with the advantage of online accessibility and some nice features including a colour coded output screen, and the calculation of additional ratios including the TTR, as well as the percentage of Graeco-Latin words in a text. After viewing the initial output from the program where the vocabulary is classified into the 4 bands (1K, 2K, AWL and Off-List), the user has the opportunity to reclassify any words and rerun the program. The program itself replaces all figures with the word "number" which is then classified as a 1K word. Also, it reclassifies all proper nouns that it

recognises into the 1K band. I reclassified proper nouns that the program did not recognise, including terms specific to applied linguistics such as *Audiolingual* and *Suggestopedia*, as 1K words. The percentage of words in each category for each text from the output screen was entered into a file using the computer program Statistical Package for the Social Sciences 19 (SPSS 19) for further analysis.

3.8.3 The V_Size Program

The V_Size Program, is a profiling program used to analyse texts also by dividing the vocabulary in them into different bands, but it additionally gives an estimate of the productive vocabulary size of the writer who produced the text. It is based on theories derived from Zipf's Law (as cited in Meara & Miralpeix, n.d.) which stated that, in language, a direct relationship exists between the rank order of an event and the size of an event. Applied to vocabulary particularly, this can be interpreted as meaning that a direct relationship can be established between a word's occurrence in a corpus and its rank order on a frequency list that has been compiled from that corpus. V_Size exploits this theory and works on the principle that texts generated from a vocabulary of a certain size will be depicted by a characteristic profile. So a series of theoretical profiles can be created, which are stored within the computer program, and can be compared to actual texts to predict their writers' productive vocabulary sizes.

I downloaded version 2.0 of the V_Size Program from www.lognostics.co.uk/tools (Meara, 2011). Texts are entered into the program in a similar way to the LFP and the user is then presented with an interim output screen. This shows how the words in the

text have been divided into 5 different categories: the first 500 most frequent words (Band A), the second most frequent 500 words (Band B) and so on up to Band E which contains words outside the most frequent 2,000 words. The user has the opportunity to reclassify words assigned to Band E only into different bands. The V_Size Program manual (Meara and Miralpeix, n.d.) recommended that while proper names and figures should be reclassified as Band A words, other words should be reclassified only with extreme caution. Once the user has reclassified any words, the vocabulary profile is calculated. This is done by comparing the vocabulary in each text to a theoretical profile. The program reports how closely the actual data has matched the theoretical data by calculating an error figure for each band. The lower the error figure, the more closely the actual data has matched the theoretical data (P. Meara, personal communication, 11 May 2011). The program calculates a final profile for the text and from this estimates a productive vocabulary size, all of which is displayed on a final output screen. The percentage of words in each category and the estimated productive vocabulary size from the output screen for each text were entered into an SPSS 19 data file for further analysis.

3.8.4 Vocabulary Profiling and Citations

One aspect of the writing which I had not considered before reviewing the text files was the treatment of citations and whether they should be included, or excluded, from the analysis. They are an integral part of writing in applied linguistics and as such, an expected part of academic papers. So, to include them in the text files for analysis would be recognition of their importance and natural place in writing for this discipline. It could be argued that each quote has been selected by a student writer for a particular

reason, perhaps reflecting a thought that they could not express as eloquently themselves, and that they would not have included such a quote if they did not feel comfortable with that choice of words. However, it could also be argued that such expressions do not reflect the student writers' own word choice, nor style of writing and as they do not come from the students' own productive lexicon they should not be included. Also, names and citations would behave very differently from ordinary text and so would affect the estimated productive vocabulary size in the V_Size Program (P. Meara, personal communication, 16 May 2010), and perhaps, for this reason, citations should be excluded.

In order to test these hypotheses I took a sub-sample of 5 papers each from the low-scoring group and the high-scoring group. I removed the citations (researchers names, years and page numbers in brackets) and direct quotes (those in inverted commas) and then analysed these texts in both the LFP and the V_Size Program. For all the other papers, I kept the citations in tact in the text files for analysis. The results of this sub-test and all the findings from this phase of the thesis are discussed in Chapter 4, Findings and Discussion.

The methodology and methods for my thesis, which were described in this chapter, explained how the data were gathered from a variety of sources using qualitative and quantitative techniques, in accordance with the thesis's design as a mixed method study. The data findings and analysis are discussed in the next chapter.

Chapter 4: Findings and Discussion

4.1 Introduction

In this chapter I will describe the findings from each of the phases of my thesis. Whilst the findings will be reported separately, the discussion for each will touch on overlaps between the different phases and begin to create an emerging picture of the factors affecting language proficiency, particularly the use of vocabulary, in the introduction to applied linguistics classes which were studied for this thesis.

4.2 Phase 1: Interviews

4.2.1 Findings from Student Interviews

The themes that emerged during the interviews with the students from the introduction to applied linguistics course were recorded on the concept maps I used during this phase of the analysis (see Appendix D). The themes were: 1) the interviewees' definitions of what vocabulary was, what they considered to be good vocabulary and poor vocabulary and their perceived use of it (Appendix D – Theme 1), 2) how that perception translated to their own writing for the mini-papers required for the introduction to applied linguistics course in terms of using good vocabulary as a foundation for good writing (Appendix D – Theme 2), and 3) how they had used any feedback they had received about their writing, and language and vocabulary use, as a result of completing the mini-papers required for the course assignments (Appendix D – Theme 3). As mentioned in the previous chapter, the interviews were semi-structured but the conversation was allowed to flow, and so the interviews developed freely. As a result of this tactic, all four

interviews developed a distinct flavour and touched on different aspects of language use in writing for applied linguistics.

Theme 1: What is good vocabulary? How is it used (in general)?

All four interviewees were in general agreement about what vocabulary was and what it meant to have a good and a poor vocabulary. Their comments are shown in the concept map in Appendix D (Theme 1). They offered various definitions such as vocabulary being “your own personal dictionary” (S1) or the “words you have in your mind” (S2). They agreed as well that there was a productive vocabulary element that was integral to the definition too, as they emphasised the need to “understand, use and say” (S4) these words, and that it mattered “how well you can use them” (S3). They all rated their own vocabulary as being “pretty good” (S4) or “proficient” (S2) or, as S3 described it, “average to above average for a university undergraduate student”. When asked what it meant to have a good vocabulary, they used various ways to describe it but there was general agreement that a good vocabulary allowed you to use different words to describe subtle aspects of the same thing. S4 used the example of describing colours and said someone with a good vocabulary would be able to clearly describe the nuances between all the shades of red, for example. S1 stated that a good vocabulary meant being able to clearly express your own thinking. S2 echoed this idea and said it allowed you to describe abstract concepts such as emotions as these were much harder to describe clearly and in depth than concrete items. He gave the example that an emotion such as *happy* requires more words, and is more complicated to describe, than a tangible object such as *computer*. There was general agreement among the interviewees about what it

meant to have a poor vocabulary with the main features described as having to use the same words for many different situations and being limited in the way you can express your thoughts. S4 touched on the idea that it also meant not being able to vary the register that you use, and having to rely instead on colloquial words and generalizations, and not being able to adapt those to use a formal or academic tone.

Theme 2: How do I use 'good vocabulary' to write my own papers?

In terms of writing the papers for the introduction to applied linguistics course, the interviewees all appeared to adopt good practices and they all reflected on the importance of good vocabulary as a foundation for good writing. Their comments are shown in the concept map in Appendix D (Theme 2). They revealed that they considered the assignment instructions carefully, and paid attention to the guidelines and to learning to write to the correct format. They noted it was important to find “the right academic tone” (S2) and to “write formally” (S4). They all stated that, as a formal register was required for academic writing, they took care with their word selection and tried to find specific words that reflected the nuances of what they were trying to say. S1 talked about the importance of using correct transitions and function words, and said he selected these carefully in order to make his writing flow. He related his experience of taking a university level writing course in high school, during which the students were able to spend time exploring these aspects of constructing a paper and learning how to use them for maximum effect, and stated he felt this had helped him enormously with university level writing. All four students mentioned they deliberately used discipline specific vocabulary in their writing that they had learned through reading the articles required for

the course. Although none of them had set out to learn this vocabulary intentionally, they had absorbed it through reading and through class discussions, and they all emphasised the importance of using it in their writing in order to demonstrate their understanding of the subject to their instructors. One student talked about the different vocabulary he used in writing for applied linguistics compared to his other courses, particularly subjects where a more skeletal, scientific writing style was required. He noted that in writing for applied linguistics, “I can build it, give a flow to it ... add some words to make the paper seem a lot nicer to read” (S3).

As is shown in the concept map in Appendix D – Theme 2, all four interviewees mentioned editing a paper as being as important as writing the paper itself and all spent an equal amount of time on this stage of writing and in S3’s case, much longer than writing the initial draft of the paper. Two students mentioned that they sometimes used a thesaurus during editing, but only to confirm a word selection rather than to search for new words to use. They also considered style and tone (S1) and repetition (S4). S3 considered word order and flow, and said he spent a lot of this time removing words and paragraphs to make his writing more succinct. In fact, all four students did mention removing text at the editing stage and “cutting down the words used” (S4), but it should be noted that they were asked specifically about their experiences of writing the mini-papers for the introduction to applied linguistics course. The mini-papers were short assignments, only 3 pages long, and a concise writing style was required to complete them successfully.

Theme 3: How did I use feedback on my papers to improve my writing?

As is shown in the concept map in Appendix D – Theme 3, all interviewees took note of the feedback on their mini-papers such as the instructor's comments and notes concerning language use and either tried to incorporate it in the writing of the second mini-paper, or stated they would refer to it for future assignments. This was either done in an organised way by keeping copies of all assignments to refer to them at later dates, or just by general awareness as S4 explained, "I know now not to use that word". All responded positively to the support they had received from the professor and the TAs during the course. S2 actively sought out that support and used sessions with the professor and one of the TAs to great effect by not only improving his writing but, as he explained, by completely changing as a person and growing within the discipline. When asked to explain further he drew parallels with the way his identity changed (Scanlon et al., 2007) as he realised how he was adapting to his new environment and establishing a new academic identity. When the interviewees were asked whether they felt they improved from writing the first mini-paper to the second, they had quite varying answers. S1 said that he did not notice much difference as due to time pressures and other constraints he had actually performed better on the first mini-paper. S2 said he had "definitely experienced personal growth" as did S3 who said "I felt myself really starting to pay attention to how I was writing, not just what I was writing". S4 said he felt he improved each time he wrote something, but in the particular case of this course, he felt that there was no discernable growth for him between the two mini-papers as they were written within just a few weeks' of each other, so there was not enough time for "absorbing and reflecting". He felt sure that he would notice a difference from one

course to the next, over a period of several months or even years, but not within a few short weeks.

4.2.2 Discussion of Student Interviews

The semi-structured interview format, along with the principle of grounded theory analysis used in these interviews allowed the interviews to flow according to the individual interests of the interviewees. It was interesting to note that, although I had not considered the possibility of exploring students' concepts of identity at university, one of the interviewees acknowledged it as being an important aspect of his development during the course, and used it as an example, along with a discussion of other language related skills, of how he was able to improve from the first mini-paper to the second. Scanlon et al. (2007) discussed the feeling of loss of continuity experienced by many students in the transition to university, but S2 seemed to be thriving under those circumstances. He described it as a disconnect and explained, "without that disconnect you're not going to grow, the training wheels have to come off the bike eventually". He had learned that interacting with the professor and the TAs, and making the most of their support, had provided him with the tools he needed to forge his new academic identity.

Two interviewees, in their description of what constituted a good vocabulary spoke about abstract words and words which described feelings and emotions and concluded that these sorts of words were definitive features of a good vocabulary. All interviewees agreed that a poor vocabulary meant that thoughts and feelings could not be described very well. In a study exploring the interpretative language of adults, Whyte (as cited in

Corson, 1997, p. 682) found that adults who were readers of an average standard used words with more abstract and psychological referents in their descriptive language, but adults who were poor readers used words with many more concrete sensory referents. Another study confirmed the link between language skills and the higher level thinking skills that university students are required to display which are generally manifested in the expression of metalinguistic or metacognitive functions (Olson, as cited in Morris & Cobb, 2004, p. 78). The interviewees' replies indicated that they not only appreciated these explanations but they understood them well enough to apply them within their own work in the applied linguistics course.

Corson (1997) discussed the importance of Graeco-Latin words in academic vocabulary. These tend to be lower frequency, more literary words which are often used to convey the slight differences in meaning that are not generally found in high frequency words. Corson stated that if students do not know many Graeco-Latin words they might be tempted to use higher frequency words which will mask the subtle nuances that they are really trying to express. The interviewees all explained the importance of needing to know many words that essentially mean the same thing, in order to be able to express slight variations in their meaning. They commented this was especially so in academic writing where it was necessary to write clearly and concisely in a more formal style. Morris and Cobb's (2004) research confirmed that a good knowledge of academic words, most of which are of Graeco-Latin origin, the ability to access a formal register, and the possession of a rich, expressive vocabulary results in a better performance in many university courses but particularly those which place metacognitive demands on their

students (p. 86). At least two of the students interviewed for this thesis had expressed an interest in teaching languages and intended to join the TESL program where these types of skills are especially valued.

All four interviewees did appear to have a strong awareness of not only the importance of language use, and particularly vocabulary choice, in writing assignments for the applied linguistics course but they indicated they were able to apply that knowledge and use it in their own writing. They were keenly aware of the importance of using the feedback they received to improve their writing for future assignments and were demonstrating they understood the specific requirements of writing for applied linguistics.

4.2.3 Findings from Professor and TA Interviews

The main issues that emerged during the professor and the TA's interviews were: 1) the professor and the TA's general impressions of student writing in the first year introduction to applied linguistics course and what, in their opinions, distinguished good writing from poor writing, 2) the factors that contributed to good or poor writing as demonstrated in the assignments for the courses, 3) how students could be supported, or what interventions could be used to help them to learn to write for applied linguistics. The concepts, which formed the basis of the findings and discussion below, are illustrated in Appendix E.

As with anything where proficiencies and different abilities are discussed, the results are usually scattered along a continuum and this was the case with the professor and the

TA's general impressions of student writing in the introduction to applied linguistics course. They felt that a very small number of students performed excellently, a few performed badly but that the majority of students wrote papers that were average or below average standard. The TA pointed out that many students had worked hard and were inspired by the course material but were not necessarily able to apply that to their writing. There were various reasons offered as to why that might be the case. Both the professor and the TA felt that many students simply did not appreciate that they could not write for this course in the same way that they had in high school or even for another university course. It was also felt that the majority of students showed a lack of experience in writing for applied linguistics and at this level generally, by relying too much on their own opinions and not citing other research when forming their arguments.

The professor and the TA agreed that good first year papers tended to be well written with a high degree of coherence in the writing. It was not necessarily the case that the arguments in good papers were critically outstanding, although some were very good, but the important point, according to the TA, was that the papers were logical, written with proficient language use and that attention had been paid to editing. It was apparent when time had been taken to achieve this. The professor noted that the less well-written papers often used a more informal register with less complex language structure and contained very little academic vocabulary. The professor felt that word choice was important in terms of students being able to use "the right vocabulary in the right place" and to demonstrate knowledge and understanding of "the genre and register of a discipline". The TA commented that in so many cases the writers of the poorer papers had not really

allowed themselves to engage with the writing. They had rushed the papers and not taken enough time to edit properly.

The professor and the TA did not really reach a consensus about the factors which contributed to good or poor writing. In fact, the more this was discussed in the interviews the more it became clear that there were so many different issues involved. It appeared that language background was important. The TA pointed out that a student who was an L2 speaker of English would have to use a lot more mental energy than an L1 speaker to work through the course readings. The introduction to applied linguistics course contains a high reading load and many L2 students may not have adequate vocabulary to meet those demands. This has a knock on effect to their writing and many do not progress beyond the most basic thinking in their writing because it is such a mentally demanding process. Some L2 English speakers coped with the language requirements of the course very well though. Some of them may have a much better idea of what is expected than L1 speakers do, perhaps because they may have taken English classes which have given them a better awareness of their weaknesses and an understanding of the language that they can apply to their reading and writing for the course. Mature aged students in the course tended to do well in that they grasped what was required quickly and could apply those rules to their writing and, as the professor noted, “those who are more mature think more critically”. There were also a few, very young, L1 English speakers who had entered university straight from high school who wrote very well. Other than recognising that English language instruction varies widely across high schools, it was not really known what made those particular students so

good. Both the professor and the TA agreed though, that while there are many factors involved that contribute to good or poor writing, and while language proficiency is an important factor, it is not a straightforward matter of simply distinguishing between L1 and L2 speakers of English. They both felt it was an area that would benefit from further investigation.

Both the professor and the TA discussed the support that was available to help students understand the requirements for the course assignments. The professor made a great effort to help students by preparing handout sheets, discussing the assignment and answering questions about it in class, arranging peer review sessions during class time, and by being available for consultation by email and in person. The TA provided support in office hours for those students who requested it and spent time breaking down the assignment requirements into stages to help students understand the different aspects of it so that they could work on it themselves. As far as existing support services are concerned, the one mentioned by both the professor and the TA was the Writing Tutorial Service (WTS). Many applied linguistics graduate students work as tutors in the WTS so ostensibly it is a good fit for first year undergraduate applied linguistics students and an excellent place for them to go for help. Both the professor and the TA commented that this does not happen and it would appear to be for several reasons. The professor noted the expectation gap between the services that the WTS offers and the services that the students think they need. As he put it, “they visit the WTS and no one fixes their writing so they become disappointed; they don’t see how reading their writing to someone could help them with the writing”. The TA echoed those thoughts and added that students

confused editing services with writing support services. These findings reflect those of Cheng and Fox (2008) in which they noted that students often experience frustration and dissatisfaction if their expectations are not met by the support services provided for them. Many students, both L1 and L2 speakers of English, wanted someone to review their grammar but did not appreciate the importance of having someone review the overall structure of their papers. The TA also noted that, despite advertising his office hours in class and on the course website, very few students took advantage of that available support.

4.2.4 Discussion of Professor and TA Interviews

It appeared to be the case that, according to the professor and the TA, those students who followed the assignment instructions and took time to write a well-constructed paper did well in the course assignments. Language proficiency was an important factor, with the use of an appropriate register and the inclusion of academic and discipline specific vocabulary being important contributions to a well-written paper. However, it was not really possible to identify from these interviews which other language related factors were important. It appeared that some L2 English speakers struggled with certain aspects of the course requirements just as some L1 English speakers did. It might be that introducing some form of individual diagnostic assessment such as DELNA (Read, 2008) could help to identify those students who would benefit from additional support and to target their individual needs.

When speaking about the support services that could be introduced to assist students, the TA mentioned that a peer support system could be introduced in which first years would be paired with fourth year students who would provide mentoring support and advice and that this might be a helpful discipline-specific service. This would have the advantage of allowing the first year students to build support networks and would assist with their transition not just to university, but also to the particular department in which they are majoring (Scanlon et al., 2007; Cheng & Fox, 2008). Both the professor and the TA were adamant that any discipline-specific support would be much more advantageous than general support. The professor felt that TAs who had attended classes with the students were best placed to provide writing support for the students in the course. This assertion was echoed by the TA who noted that the amount of integration of any support is critical. He added that students who have seen the TA with them in class, and know they are familiar with the subject matter, are much more likely to respond to them than to an unknown tutor who does not share their specialist knowledge. It is interesting to note the mismatched expectations between the service the WTS provides and the service the students think they require. This finding follows Cheng and Fox's (2008) recommendations that support for students should be considered carefully with the students' needs in mind. However, it seems that students are in need of some form of writing support that goes beyond a mere editing service, but perhaps they do not realise what they really require.

The professor and the TA have related that, from their experiences, many students struggle with the language requirements of the applied linguistics course. The factors

contributing to students' difficulties are many and varied and have not really been established through these interviews. It is possible that the professor and TA's comments can be attributed to their lack of knowledge of students' backgrounds and previous exposure to writing in this discipline. Such knowledge might be obtained by administering a diagnostic assessment early on in the course.

Artemeva and Fox (2010), in their study of a first year engineering communication class, used the term "antecedent genre knowledge" (p. 477) to describe students' previous experience of, and exposure to, a genre. Their study reported that students completed a diagnostic assessment at the start of the course, in which they were required to distinguish between different genres reporting on the same subject (for example, a newspaper article, an academic article, a technical report), and then to synthesize the information by writing a short technical report of their own. Most students correctly identified the technical report, but only 7 out of the 62 students in the class were able to write an appropriate technical report and all of those had previous experience of writing in that genre. The majority of students produced high school type essays instead, a genre with which they were previously familiar. The diagnostic assessment helped the instructor determine the direction of her teaching for the course, in that she could build on the students' antecedent genre knowledge of high school essay writing and provide support for them to tackle the writing of technical reports by allowing class time for "discussions in the support of the early assignments" (p. 500). It also addressed a potential expectation gap, in that many students initially felt they should be exempted from an engineering communication course as they were competent speakers of English

and did not need additional instruction. Through completing the diagnostic assessment and then reflecting on their experiences at the end of the course, they were able to recognise that the course gave them knowledge and experience of writing engineering reports, something they had previously been unable to do.

Artemeva and Fox noted that the use of such a diagnostic assessment had implications at both a macro level for curriculum development, and at a micro level for pedagogical interventions within the course (p. 480) but that ultimately, such an intervention eased the students' transition to university and to the discipline itself and meant that they could be better supported by their instructors. It does appear that some additional form of language support is required for students within introduction to applied linguistics courses, but with no real indication of what form that support should take, it may be that diagnostic assessments would provide additional information to help in that decision making process.

4.3 Field Observations

In recording my field observations for this thesis, I was interested to discover any additional facts to support the data from the other two phases of the thesis. These particularly related to 1) students' perceptions and understanding of the language and vocabulary requirements in writing assignments for the applied linguistics courses, 2) how well they dealt with acquiring these skills and so adapted to the courses, 3) how well they used the available support and whether any other support could have been introduced to help their transition to studying in applied linguistics.

In both the applied linguistics courses that I attended as a TA, I noticed the professors made an effort to create a group dynamic and a sense of belonging to the class. Both courses were structured in a similar way with lectures, guest speakers and audio-visual elements and discussions incorporated into the lecture presentations. Students' reactions of course differed; some were attentive, some were not, some wrote notes and asked questions, some did not. In many of the classes I noticed that some students did not take notes, even though one professor expressly told them that some information contained in the exams was delivered through lectures only and would not be available from power point slides posted on the class website.

There did seem to be a general appreciation from students that some attention to discipline-specific language and vocabulary was required for this course and these factors invariably surfaced when the course assignments were being discussed. The students' questions in class indicated they were focusing very much on the detail rather than considering the assignment as a whole as they asked, for example, questions about specific citation format in the reference list, or wanted to know how long exactly their paper should be. In one class where the assignment was being discussed, students were asked what sources they were going to use for their research. Some students appeared to be confused about what was an acceptable academic source and many wanted to use on-line opinion pieces from websites rather than journal articles. They were uncertain about how to use hedging and despite being provided with many examples, the majority of students continued to be boldly assertive in their writing. In one of the classes, when I was discussing the first mini-paper with a student in preparation for her to start writing

the second mini-paper, she expressed surprise that she had been penalised for the language she used with regard to hedging and said, referring to the professor, “I didn’t think she’d be so picky about which words I used”.

Several L2 English speakers did appear to confront the linguistic challenge they were facing. One student wrote in an email by way of introduction, “I am an ESL student and I need a lot of help”. Another asked if she could memorise the power point slides for the first test of the course, rather than “putting them in my words” for the short answer section of the test, because she found the language difficult to learn. Several L2 English students sent emails to me, the other TA and the professor which were difficult to understand and indicated poor language proficiency but which implied a sense of panic about various things. For example, they asked questions about the readings or needed clarification on some of the points made in lectures or a specific interpretation of a power point slide. In each case though, they seemed to be focusing on the detail, perhaps trying to understand specific phrases in the readings or small parts of particular questions, rather than looking at the overall picture. One L1 English speaker asked for guidance in writing a class assignment and admitted, “I’m hopeless at essays”. We worked together for several sessions and looked at which sources to use, how to construct the assignment and how to write in a clear style using applied linguistics conventions. This student received a very good mark for the assignment but in terms of asking for help to achieve this, she was an exception.

Very few students attended TAs office hours for both courses and only a handful emailed with questions and concerns. I was struck by how underutilized these resources were by students, despite the service being advertised by both professors. I estimated that over two semesters, involving two courses of approximately 180 students in total, I saw fewer than 10 students in office hours. One L2 English speaking student expressed distress that TAs would not hold office hours during Reading Week and asked “but what if I have a question, what if I need help” even though she was invited to email with any questions, and up to that point, had never attended office hours. I corresponded by email with perhaps another 10 students. Other students varied in the use they made of the available support. Some formed study groups but most appeared content to attend classes and try to work through things through by themselves.

Ultimately there is only so much that instructors can do to help students to be successful and, as the professor pointed out in his interview, some students had told him they were quite happy to achieve Bs and Cs for his course indicating that not everybody is aiming for perfection. However, many students in the introduction to applied linguistics courses struggled with the language requirements and did not achieve Bs or Cs in those courses yet they were reluctant to use the support services available to them. Fox (2005) stated that low-performing L2 students often work very hard and display anxiousness about course requirements even though it does not help them to succeed. My own field observations as a TA echo those findings and my interview with the other TA (described in the previous section) confirms them. It is as if these students needed to be helped not to work harder but to work smarter.

Many of the findings from the interviews with the professor and the TA are relevant in this section too, especially with respect to the types of support services that students may benefit from. Contrary to the reports of the students in Scanlon et al's (2004) study, I found that students in the introduction to applied linguistics classes were very well supported by their instructors who used a myriad of different techniques to help engage them in the course requirements. One thing instructors could not do within the allocated class time though, was to significantly raise students' language proficiencies.

4.4 Phase 2: Vocabulary Profiling

4.4.1 Findings from Vocabulary Profiling

As mentioned previously, the two programs used for the vocabulary profiling phase of this thesis were Cobb's (2002) version of the LFP, Web VP v.3 Classic and Meara's (2011) V_Size Program, version 2.0. A total of 53 texts were analysed. They were divided into 2 groups consisting of 28 texts in the low scoring category and 25 texts in the high scoring category.

Table 4.1 below, shows the results of the LFP analysis of the texts. It indicates the means and standard deviations for each vocabulary category for both the low scoring group of texts and the high scoring group of texts, and the results of independent samples t-test calculations showing the significance and effect size of the means. It can be seen that the texts analysed from the low scoring group contain, on average, a higher percentage of high frequency vocabulary, but that texts from the high scoring group contain a greater percentage of less frequent vocabulary. Of particular interest is the Off-

List category ($t=-4.48$, $df=51$, $p<0.000$, $\eta=0.58$) indicating a statistically significant difference between means of the groupings, and showing that 34% of the variation in the vocabulary profiling results in this category is accounted for by the composition of the 2 groups. It is also interesting to note that while the higher scoring group contains a higher percentage of words from the AWL than the lower scoring group (10.38% compared to 8.45%, $t=-2.03$, $df=51$, $p<0.05$, $\eta=0.26$), both these figures are still relatively high, perhaps indicating the formal academic nature of the texts being analysed. This notion is also reflected in the mean percentage of Graeco-Latin words for each group. Table 4.1 shows that the mean for the high scoring group was 34.34% and that is was 31.41% for the low scoring group ($t=-2.133$, $df=51$, $p<0.038$, $\eta=0.30$). Again, even the lower of these figures is still relatively high and can be linked to the high occurrence of AWL words in both groups of texts. These aspects of the vocabulary profiling will be considered further in the discussion section below.

Table 4.1

Vocabulary Profiling Results from the LFP Program

	High Scoring		Low Scoring		Difference in Means	t		Effect Size (Eta)	
	Mean	SD	Mean	SD		value	df		
K1	79.87%	3.94	83.86%	4.32	3.99%	3.50	51	$p<0.001$	0.46
K2	3.86%	1.35	3.93%	1.90	0.07%	0.15	51	$p<0.883$	0.13
AWL	10.38%	3.51	8.45%	3.39	1.93%	-2.03	51	$p<0.050$	0.26
Off-List	5.89%	1.62	3.75%	1.82	2.14%	-4.48	51	$p<0.000$	0.58
Graeco-Latin	34.34%	5.46	31.41%	4.55	2.93%	-2.13	51	$p<0.038$	0.30

Table 4.2 shows the results of the V_Size Program analysis. Bands A to E indicate decreasing frequencies of words in 500 word categories. Again, reflecting the results obtained from the LFP, it can be seen that the texts from the low scoring group contain a higher percentage of words from Bands A and B (the more frequent words) but that texts from the high scoring group contain a higher percentage of words from Bands C to E (the less frequent words). Mirroring the results from the LFP analysis, Band E (containing words outside the most frequent 2,000) shows statistical significance between the 2 groupings ($t=-4.59$, $df=51$, $p<0.000$, $\eta=0.58$). The V_Size Program also calculated an estimated productive vocabulary size, the mean of which was 16,944 ($SD=3,348$) for the high scoring group and 12,329 ($SD=4,635$) for the low scoring group ($t=-4.11$, $df=51$, $p<0.000$, $\eta=0.53$). The implications of these figures will be considered further in the discussion section below.

Table 4.2

Vocabulary Profiling Results from the V_Size Program

	High Scoring		Low Scoring		Difference in Means	t value	df	p-value	Effect Size (Eta)
Band A	60.72%	5.30	64.75%	5.18	4.03%	2.80	51	$p<0.007$	0.43
Band B	7.40%	2.18	9.14%	2.16	1.74%	2.92	51	$p<0.005$	0.36
Band C	4.28%	1.99	3.79%	1.37	0.49%	-1.06	51	$p<0.293$	0.22
Band D	3.44%	1.71	3.11%	1.50	0.33%	-0.76	51	$p<0.454$	0.24
Band E	24.16%	4.00	19.21%	3.84	4.95%	-4.59	51	$p<0.000$	0.58

4.4.2 Citations Sub-Test

As mentioned in Section 3.8.4 of Chapter 3, the inclusion of citations in the texts for analysis posed challenges for the interpretation of the vocabulary profiling results. Research studies which had used vocabulary profiling for data analysis (for example, Laufer & Nation, 1995; Morris & Cobb, 2004; Smith, 2005 and Douglas, 2010) had all used texts which were generated under test conditions and therefore did not contain citations. The texts I used for analysis for this thesis were written as part of the assignments required for the course and it was expected that citations would be included. As explained previously, I tested a sub-sample of 5 texts each from the low scoring group and the high scoring group to test the effect that the inclusion of citations would have on the vocabulary profiling analysis. The sub-sample texts were cleaned of all citations but still contained a total of 300 words each. The results are shown in Figure 4.1 for the LFP profiling and Figure 4.2 for the V_Size Program profiling below.

Figure 4.1 *LFP Sub-Test Analysis*

Comparing the means of profiles without citations to those with citations.

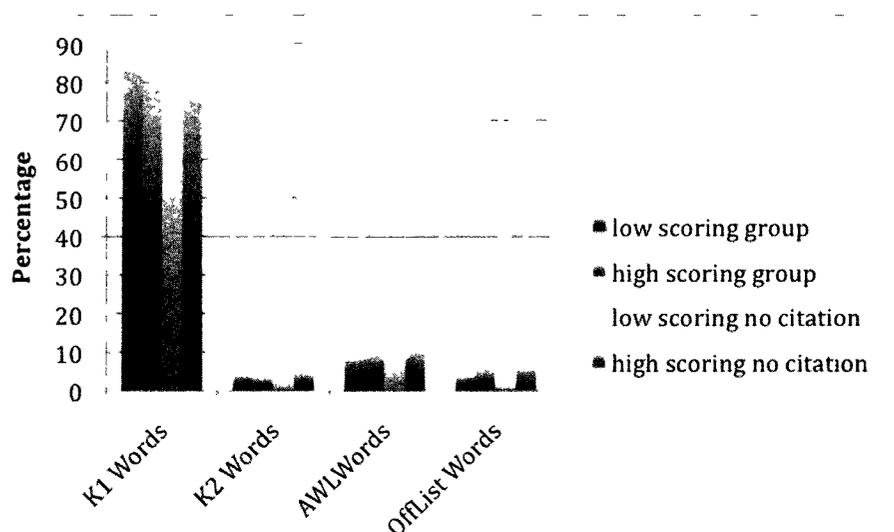
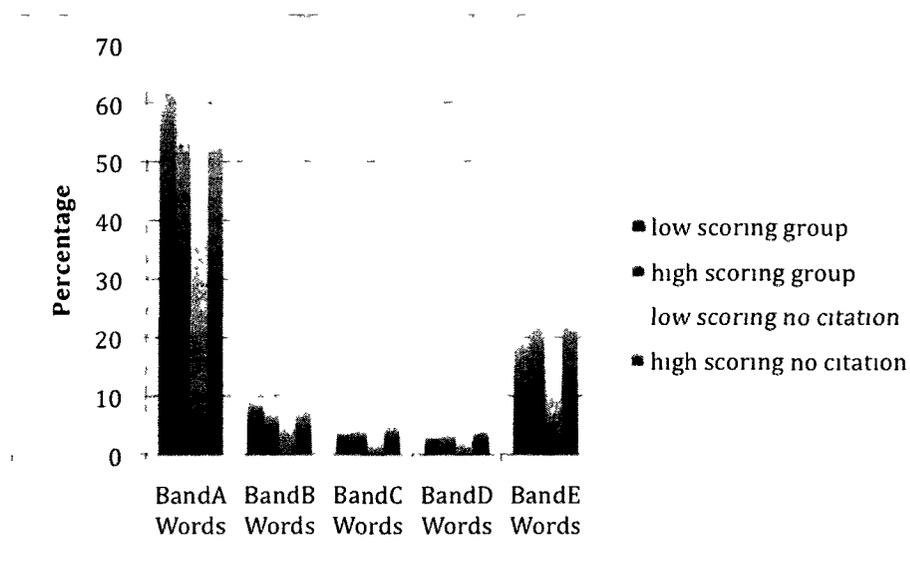


Figure 4.2 *V_Size Program Sub-Test Analysis*

Comparing the means of profiles without citations to those with citations.



In all categories, it can be seen that the differences between the texts containing no citations and those containing citations is slight. The largest difference can be seen in the *V_Size Program* data where the high scoring group shows a difference of 3.12% (60.72% with citations, 57.6% without).

4.4.3 Discussion of Vocabulary Profiling

Both vocabulary profiling programs, in this study, do appear to show a distinction between the vocabulary profiles of the low scoring and the high scoring groups. In both cases it can be seen that the low scoring group of texts contained a higher proportion of high frequency words than the high scoring group, but that this situation was reversed for the less frequent words. It should be noted that while the differences between the mean percentages of the two different categories are relatively small, they are still significant in vocabulary profiling terms. In calculating their ideal vocabulary profile for a prospective

TESL student, Morris and Cobb (2004) determined that it should contain a “K1 score of less than 85% [and] an AWL score of over 5%” (p. 83), yet they also noted that students who had been refused admission to the TESL program showed profiling results with “K1 percentages of well over 90% and low AWL percentages” (p. 84). This difference of around 5% in both categories represented the difference between very good students with, arguably, excellent vocabulary proficiency and those students who were deemed not proficient enough to enter the program. My results, showing a difference of around 4% for the K1 category, and coming from students who have been accepted onto an applied linguistics course, indicate alignment with Morris and Cobb’s findings.

Interestingly though, and where my results differ from Morris and Cobb’s (2004) findings, is that the proportion of AWL words was high for both groups of texts in my study. This can perhaps be attributed to the nature of the texts that were being analysed. They were written as part of a class assignment and students were given several weeks in which to prepare them, so naturally a more formal register was expected and used, than for those papers written in a pressured test situation. This is further indicated by the proportion of Graeco-Latin words which is relatively high in both groups. Graeco-Latin words are generally more formal in nature and, as Coxhead (2000) noted, constitute more than 82% of AWL words.

Some part of the Off-List (LFP) or Band E (V_Size Program) less frequent words can be attributed to the technical nature of some of the texts. One of the guest lecturers to the class spoke about blogging, and communication over the Internet, and many students

were inspired to write about these subjects. I reclassified proper nouns (Internet, Facebook, MySpace) as K1 words and Band A words, along with widely used technical words such as blog, blogging and email, as recommended (P. Meara, personal communication, 16 May 2011), but some others may have remained in the less frequent categories. In both the Off-List and Band E categories though, the high scoring group contains a greater proportion of these words than the low scoring group, still indicating that a higher amount of less frequent words were used by this group and the t-tests confirm the significance of the results from these categories. It could be that these categories of less frequent words represent the more discipline-specific vocabulary included in the texts, and the vocabulary profiling results confirm that the higher scoring group demonstrates a greater proficiency in this area. This is an intriguing aspect of vocabulary profiling research which should be more fully investigated.

The highest productive vocabulary estimate that the V_Size Program can record is 20,000 words (P. Meara, personal communication, 11 May 2011). The highest that texts in this analysis measured was 19,400 words. The V_Size Manual (Meara & Miralpeix, n.d.) noted that the size of estimated productive vocabulary is affected by the dictionary used for analysis. In this study, I used the default dictionary supplied with the program. It was based on a frequency count of word tokens, where variants of high frequency words were classified separately as Band E words, rather than being included with their derivatives as word families. This resulted in the estimated productive vocabulary sizes being perhaps, higher than expected. Schmitt (2010) stated that the vocabulary size of an educated speaker of English would be between 16,000 and 20,000 words (p. 6), so my

results from the V_Size Program would appear to concur with this. This figure must be treated with caution though, because as Schmitt noted, research into L1 English speakers' vocabulary has typically provided widely ranging estimates due to the different methodologies used, and it is an area where it is difficult to determine an absolute figure.

One interesting feature of the estimated productive vocabulary size calculated by the V_Size program was that due to the case numbering system used by Weinstein (2011), it was possible to identify texts which were written by the same student even though they remained anonymous. There were only 12 such pairs of papers in the whole sample, 7 from the high scoring group and 5 from the low scoring group. Of the papers in the high scoring group, 5 demonstrated a higher estimated productive vocabulary measurement for the second text than for the first text, whereas only 2 out of the 5 texts in the low scoring group showed the same pattern. The second text was written several weeks after the first, and after the first had been returned with feedback and discussed in class. A much larger sample of texts is needed to confirm these results, but it may be that the writers of the texts in the high scoring group responded to the feedback they were given to improve their vocabulary and writing for the second assignment, but those in the low scoring group did not. It might be therefore that the V_Size program is sensitive enough to record subtle changes in vocabulary use over a period of weeks which could represent students becoming more comfortable with writing in the discipline.

Although a small sub-sample to test for the effect of the removal of citations was run for each group which showed no discernable difference, the overall effect of including

citations in texts has not really been analysed in this thesis. For example, the number of citations included in each text, and per group, was not analysed. My experience as a WTS tutor and classroom TA showed that weaker writers often relied on long direct quotes to use up space in their papers. They tended to be quite focused on the length of the assignment and spoke about “using words to fill up spaces” rather than concentrating on the quality of the writing they were producing. One student emailed me about an assignment saying, “I’ve written 5 pages and I’m done. Can I hand it in?” This was despite the instructions indicating that papers should be between 6 and 8 pages. Students I tutored in the WTS showed a reluctance to paraphrase from articles or to re-write ideas from them in their own words. Many stated they found it easier to quote directly and were nervous about changing words to paraphrase. It would be informative to conduct further research about the inclusion of citations to see how they affect the vocabulary profiles of the papers.

Some researchers have expressed caution about vocabulary profiling as a vocabulary measurement device. Schmitt (2010) argued that it does not examine the lexical quality of texts or the appropriateness of word choices. It is the case, when interpreting a profile, that the use of less frequent words is considered a marker of a more proficient vocabulary, but it is often the case that an aptly chosen high frequency word will fit more appropriately and make a text more pleasant to read. This is something that can only be judged by an appraisal of a whole text rather than a word by word analysis of it. While Schmitt raises a valid point, other researchers believe that vocabulary profiling, as it becomes more sophisticated, has the potential to be beneficial to researchers and

teachers alike. Morris and Cobb (2004) noted that it was “simple to run, cost effective, and able to get at information that interviews and measures of declarative knowledge do not reveal” (p. 85) and advocated its use as part of a suite of diagnostic assessments.

In conclusion, it can be noted from this study that both the LFP and the V_Size program do appear to be able to distinguish between the different proficiency groups of the texts that were analysed which indicates agreement with Laufer and Nation’s (1995) original claim for the LFP. The conclusions to the thesis are discussed in the next chapter.

Chapter 5: Conclusion

5.1 Summary of Results

In Phase 1 of this thesis I interviewed students, a professor and a TA associated with the introduction to applied linguistics courses. Through these interviews, the importance of vocabulary as a factor in applied linguistics writing was confirmed. The students interviewed expressed awareness of the importance of vocabulary proficiency and selection in their own writing. They stated that they consciously applied advanced vocabulary selection techniques, such as using different words to explain subtle differences in meaning, in their own writing. They were also aware of the importance of learning, and using, discipline-specific vocabulary in an academic, formal register in their writing. The professor and the TA interviewed confirmed the importance of vocabulary proficiency and expressed their opinions that students who wrote well for applied linguistics, and who performed well in the course generally, possessed good vocabulary proficiencies. The vocabulary profiling section in Phase 2 of this thesis supported those findings. The high scoring group of texts displayed a lower proportion of high frequency words than those in the low scoring group, a general indicator of advanced vocabulary proficiency in vocabulary profiling measurement. The mean estimates of productive vocabulary size were higher in the high scoring group as well, providing additional support to these findings.

The issue of support for students was discussed with the Professor and the TA and my own field observation notes provided additional data in this area. It was generally agreed that interventions are needed to support students, but that they should be focused on

discipline specific requirements addressing individual student needs. It was felt that existing services did not fully address students' real and perceived needs. It seemed that the issue of how to support students was more complicated than a simple division along language lines, and that perhaps a diagnostic assessment would go some way to identify the exact requirements.

In summary, and to answer the research questions posed for this thesis, it can be suggested that vocabulary proficiency was a determining factor in the academic success of students in a first year undergraduate introduction to applied linguistics course. The question of the types of interventions that could be introduced to support students as they adapt to the academic language demands required of them has not been absolutely determined; however, it is suggested that diagnostic assessments for first year students would help to ascertain the exact requirements.

5.2 Limitations of the Thesis

There are several methodological limitations I have identified in the construction of this thesis. Just two classes from within one discipline were considered. While it could be proposed that some of the findings generated from these classes might be applied to other classes, it would not be appropriate to generalise to any great extent. The students who were interviewed were self-selected so they cannot be considered a representative sample of the student population of the course. They were all native speakers of English and were excellent writers. It would have been informative to contrast their opinions with L2 speakers of English and also with weaker writers. It would have been useful for another

researcher to review the interview data to add to the objectiveness of its interpretation. In the vocabulary profiling phase of the thesis a relatively small sample of texts covering one genre was measured from just one class. Texts taken from other classes and other genres should be measured in order to provide a consensus. Additionally, while the LFP is a long established vocabulary profiling tool, the V_Size Program is not. More data should be gathered to assess the reliability of the V_Size Program. It was not possible to examine the relationship between the exact grade a mini-paper received and its vocabulary profile, as the text files had already been grouped by Weinstein (2011). If the texts could have been examined in finer detail, rather than as a general grouping, a more precise relationship could have perhaps been established. Finally, while my own involvement in the research as a participant might be viewed as inevitable and a strength by qualitative researchers, such closeness between the researcher and the researched might be perceived as a weakness by quantitative researchers (Creswell, 1997). In any case, it would lessen any generalizations that might be made from the study.

5.3 Further Research

There are many ways in which the investigations started as part of this thesis could be continued. Whilst I mentioned DELNA and other diagnostic assessments, I was not able to use such an assessment in this thesis. It would be informative to combine a DELNA type assessment with vocabulary profiling, and assess their relationship with students' individual marks for a course to investigate whether a more precise relationship could be established. A new vocabulary profiling tool, Web VP/BNC-20, has recently been made available on www.lex Tutor.ca (Cobb, 2010). It uses frequency bandings of 1,000 word

categories, up to and including 20,000 words, but with no AWL category. This is seen as an advantage by Schmitt (2010) as the bandings are based on frequency alone without the artificial division imposed by the AWL. The frequency information is taken from the British National Corpus which is a one hundred million word corpus of contemporary written and spoken English. It is argued that use of this corpus in calculating frequency profiles will reflect a more current usage of English than can be gleaned from the combination of the GSL and AWL currently being used in the LFP (Cobb, 2010; Schmitt, 2010). Further research in this area might also lead to a reconsideration of the AWL (Cobb, 2010; Douglas 2010). Any future vocabulary profiling research would benefit from investigating the profiles produced by the Web VP/BNC-20.

In this thesis I only studied a small sub set of texts to investigate the issue of whether to include citations in vocabulary profiling measurements. However, to establish whether vocabulary profiling could be used for real-life writing, not just writing produced by low-level learners under test conditions, this issue should be explored more fully along with the possibility of using longer text lengths rather than short 300 word samples.

Many research studies investigating vocabulary proficiencies of university level students have been centred on applied linguistics departments or mathematics and engineering departments. However, it would be beneficial to investigate other arts faculty departments such as history or philosophy where the reading and writing workload is traditionally high. In general, the more discipline specific vocabulary data that can be collected, the more beneficial it will be for vocabulary research as a whole.

5.4 Implications of the Thesis

Previous research (Scanlon et al., 2007; Cheng & Fox, 2008) has shown that the transition from high school to university can be a difficult time for students. As several of the studies outlined in Chapter 2, the theoretical review of this thesis explained, many students enter university with inadequate language proficiencies which makes it difficult for them to achieve the required academic language standard demanded at university level, and this can compound the difficulties they experience with acculturation. The number of L2 English speakers and Generation 1.5 students entering English medium universities has highlighted these issues. Recent research (Fox, 2005) has revealed that, due to the way that language is taught and tested in the school system, and due to the changing admission focus of universities as they try to attract a more diverse range of students, it is increasingly likely that students' language weaknesses will not be exposed until they enter university.

This thesis was situated in an applied linguistics course which arguably attracts those students who are interested in language and might therefore be considered to have good language competencies. However the interviews with the professor and the TA revealed that many students struggled with the academic language demands of the course. At a macro level, a diagnostic tool, such as DELNA or a suite of instruments which incorporated vocabulary profiling, implemented at university level for first year students could help to identify all students at risk as soon as they begin their studies and could be beneficial for students and the university community as a whole. However, there are also micro-level interventions which would be relatively straightforward to introduce.

In considering the findings from this thesis, I would recommend that the introductory course in applied linguistics incorporates more written assignments so that students receive direct assistance in learning to appreciate the specific language requirements of writing in the discipline. Instructors for example, could require students to write four mini-papers, one every three weeks perhaps, with specific guidelines given in terms of subject matter and format. It would be hoped that feedback and class discussions would help students to improve their writing as they progressed through the assignments. Feedback given should include reference to the language used, particularly the vocabulary, in the assignments as this thesis has shown that it is important for students to understand the significance of discipline-specific and academic vocabulary. I do not recommend the explicit teaching of AWL vocabulary, but it would be beneficial to raise students' awareness of the AWL, something which is particularly important for L1 English speakers who may not have previously encountered it and who may not have known of its significance in their academic reading requirements. Naturally the extra assignments would increase the marking requirements of the course, but it might be that the appointment of an additional TA to the course could help reduce that burden. It might be opportune for the TAs to run interactive workshops, as part of the course, where students could be assisted not only with writing the assignments, but could be given much more of an insight in understanding academic writing conventions and, for example, how university writing differs from high school writing. Such workshops could include a credit to ensure attendance or be linked to the mini-paper grades.

In terms of providing support for students in other areas, the services the WTS provides could be expanded to incorporate the requirements of L2 English speakers and those L1 English speakers who require more direct help with their writing. This does not mean that the overall philosophy of the WTS should change, as there are certainly many students who have benefited from the service it currently provides, but perhaps that more consideration could be given to editing, vocabulary selection and other more micro-level aspects of the writing process. It might also be beneficial to establish links from the WTS to individual departments, as in that way, students would benefit from WTS tutors having department specific knowledge about the writing requirements for particular courses.

From my own perspective as a teacher, when I next return to an ESL classroom, I may focus less on AWL vocabulary for intermediate level L2 speakers, and place more focus on the vocabulary that is relevant to my students' specific, individual needs. Naturally it would be necessary to operate within the curriculum guidelines of the teaching institution, but vocabulary profiling would help to gain an insight into how to target my students' vocabulary learning requirements. The link between vocabulary proficiency and academic success has assured me, that for all students, emphasis on learning the *right* vocabulary is important. What makes it 'right', however, may be far more disciplinary-specific than has been previously argued.

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Appendix A Ethics Clearance Form



Carleton University Research Office

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Ethics Clearance Form

This is to certify that the Carleton University Research Ethics Board has examined the application for ethical clearance. The REB found the research project to meet appropriate ethical standards as outlined in the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* and, the *Carleton University Policies and Procedures for the Ethical Conduct of Research*.

New clearance

Renewal of original clearance

Original date of clearance: 24 January 2011

Date of renewal	18 April 2011
Student researcher	Jane Birkenhead
Status	M.A. student
Supervisor	Professor Janna Fox
Department	School of Linguistics and Applied Languages
Funding status	Non-funded
Project number	EC11-1045
Title of project	Vocabulary proficiency as a marker of academic success: A small-scale investigation of undergraduate writing

Clearance expires: **31 May 2012**

All researchers are governed by the following conditions:

Annual Status Report: You are required to submit an Annual Status Report to either renew clearance or close the file. Failure to submit the Annual Status Report will result in the immediate suspension of the project. Funded projects will have accounts suspended until the report is submitted and approved.

Changes to the project: Any changes to the project must be submitted to the Carleton University Research Ethics Board for approval. All changes must be approved prior to the continuance of the research.

Adverse events: Should any participant suffer adversely from their participation in the project you are required to report the matter to the Carleton University Research Ethics Board. You must submit a written record of the event and indicate what steps you have taken to resolve the situation.

Suspension or termination of clearance: Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.

Leslie J MacDonald-Hicks
Research Ethics Board Coordinator
For the Chair of the Carleton University Research Ethics Board
Prof. Antonio Gualtieri

Appendix B

Sample Interview Questions – Students

Interviews will take a semi-structured format, therefore the following questions are suggestions only. (ALDS1001 is the course code for the introduction to applied linguistics course).

Can you define “vocabulary” for me?

Can you explain what it means to “have a good vocabulary?” And to “have a poor vocabulary?” What are characteristics of each one?

How would you rate your own English vocabulary?

Can you explain how you approached the writing for the mini-papers for ALDS1001?

Which aspects of language did you consider in your writing?

Tone, register, formality of writing?

Vocabulary – “complicated words”, academic words, word repetition?

Grammar – sentence structure, verb tenses, paragraph construction, rules of grammar e.g. where to put prepositions?

What kind of vocabulary is important when you write a paper for ALDS? Do you think about this?

Is there any difference between the vocabulary you choose for a paper in ALDS and the choices you make for your other courses? What’s the same? What differs?

Did you think this during ALDS1001?

Do you think it is important to consider vocabulary (compared to other factors) when writing course papers? Why do you think this?

When you received your mini-papers back, after they had been marked, were any comments made about your use of vocabulary?

Did you notice any difference in your own use of vocabulary from writing the first mini-paper to the second? In what way?

Do you have any other comments, observations or suggestions that you would like to share?

Appendix C

Sample Interview Questions – Professor and TA

Interviews will take a semi-structured format, therefore the following questions are suggestions only. (These questions all refer specifically to writing and papers in the introduction to applied linguistics course – ALDS1001 - even if it is not expressly stated in the question.)

What is your general impression of student writing in ALDS1001?

What, in your opinion, are the characteristics of first year writing compared to, for example, fourth year or graduate writing?

What are the characteristics of good first year papers compared to weaker first year papers?

What part does language proficiency, particularly vocabulary use, play in the construction of a good first year paper?

Of course it depends a lot on individual ability but how well, generally, do non-native speakers of English cope with the writing requirements of ALDS1001? Do you notice a difference in their use of vocabulary compared to native English speakers?

Do you notice any correlation between students who are active participants in class, and the grades they receive for their papers?

Do you notice any trends in the demographic make up of students and their writing in ALDS1001? For example, do older students or those who have had a break between high school and university perform better than those who have come to Carleton directly from high school?

When you grade papers do you provide feedback about a student's use of vocabulary?

What, in your opinion, are the main challenges students face in their writing for ALDS1001?

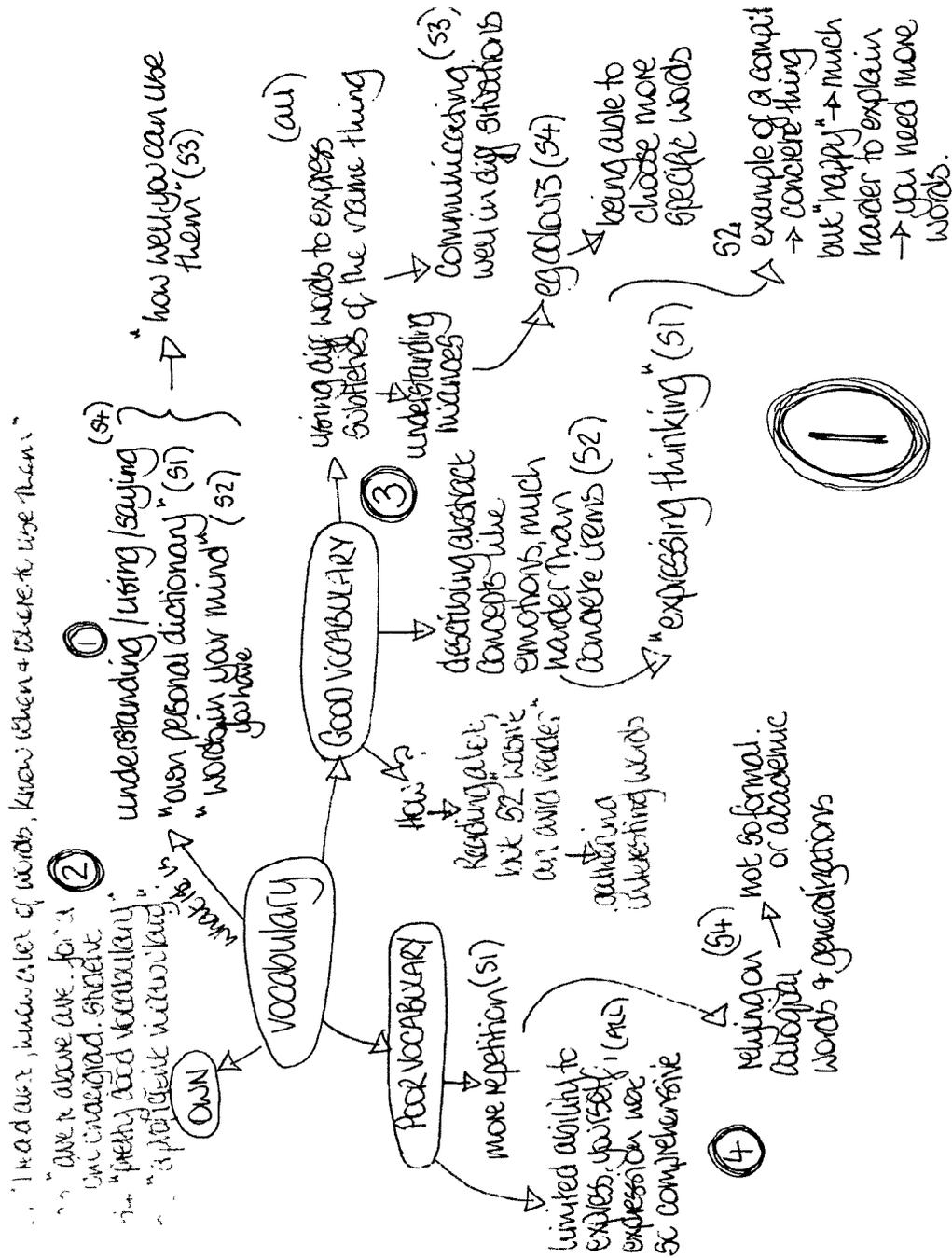
When you teach ALDS1001 do you take any specific steps to help students with their writing?

There are various support services in place on campus to help students with writing assignments (e.g. The Writing Tutorial Service), do you think there are any others that could/should be included?

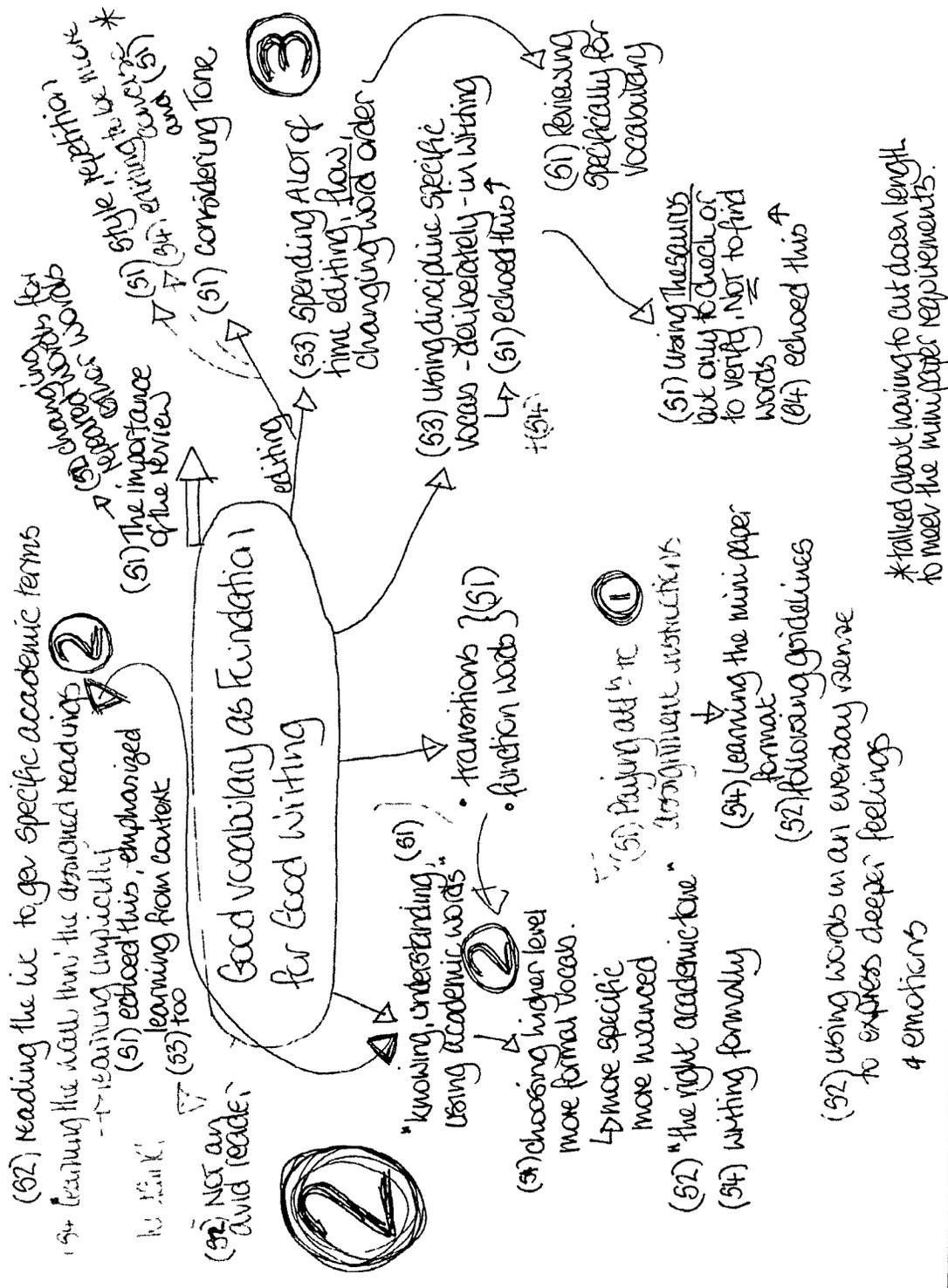
Do you believe that students make adequate use of these services?

Do you have any other comments, observations or suggestions that you would like to share?

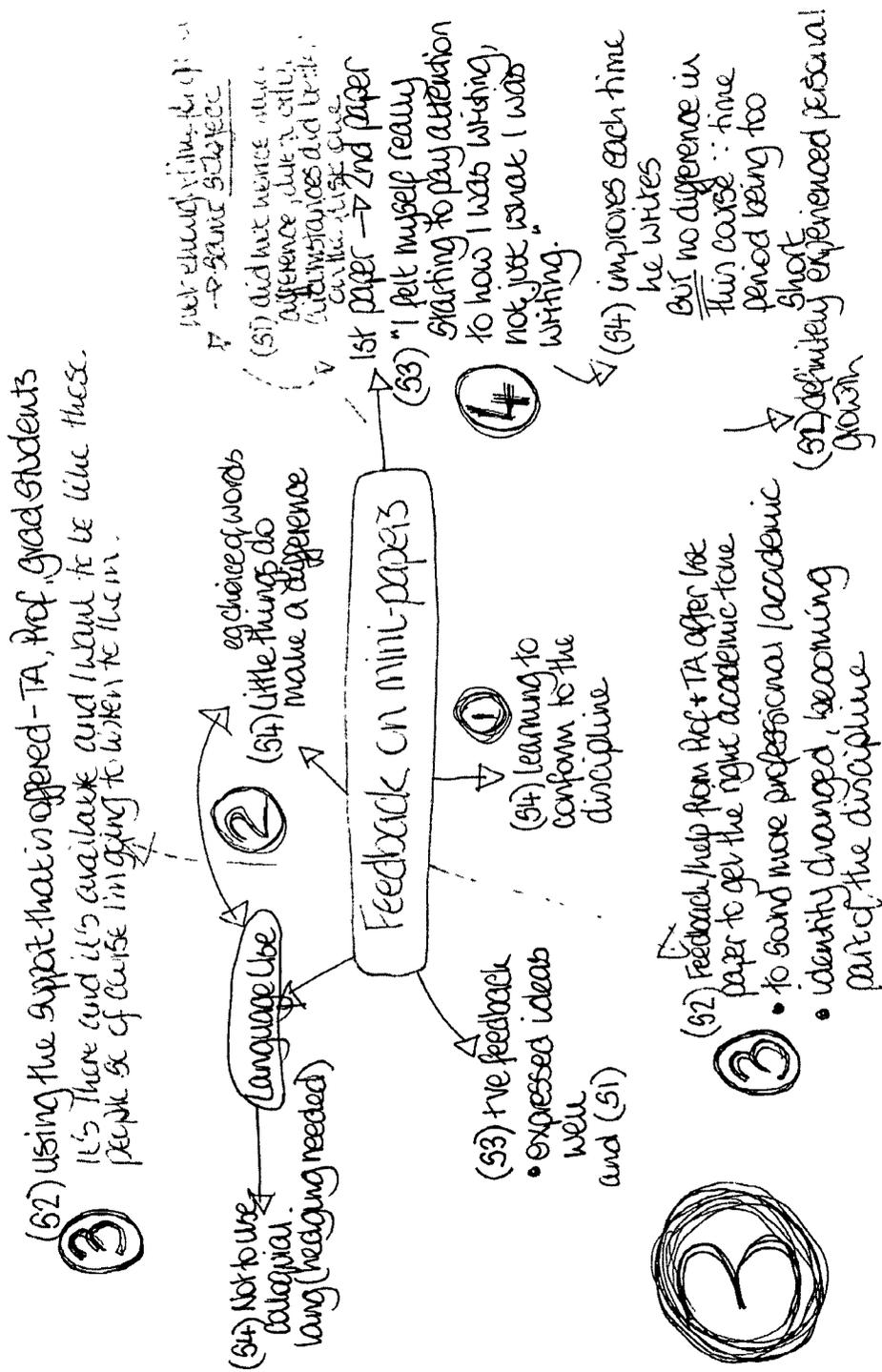
**Appendix D:
Concept Map for Student Interviews - Theme 1**



**Appendix D:
Concept Map for Student Interviews – Theme 2**



Appendix D:
Concept Map for Student Interviews - Theme 3



Appendix E
Concept Map for Professor and TA Interviews

