

Chapter 2

Literature review

2.1 Introduction

This chapter presents a review of research on immersion and its effects on second language learning in general and on vocabulary acquisition in particular. It discusses trends in L2 vocabulary acquisition research and the importance of vocabulary in L2 learning and academic success. The chapter includes a discussion of the importance of vocabulary size in second language reading and ends with a review of the Lexical Frequency Profile and its role in research into vocabulary.

2.2 Immersion

Initially, immersion programmes originated in Canada, but their popularity soon spread to Europe. Today immersion programmes abound all over the world and the term has taken on many aspects and interpretations. The growth in immersion as a viable way of teaching a second or third language has been fostered by, among other factors, globalisation and the desire among many language groups to be taught through a world language such as English or French. The following sections present a brief overview of the original immersion programmes and immersion as it is interpreted in the 21st century.

2.2.1 Immersion programmes – the beginnings

Immersion is defined as a type of bilingual education in which a second language (or languages) is used together with students' native language as a medium of instruction during some part of their primary or secondary education (Genesee, 1983). Research has shown that levels of communicative competence rarely reached through traditional methods of teaching can be achieved by using a foreign or second language as the medium of instruction. Since the establishment of immersion programmes in Canada in 1965, attempts to foster additive bilingualism (§2.2.3) have today become a common phenomenon

worldwide (Obadia, 1998:81). The first programme was a culmination of two years of discussion between interested parties (parents, school authorities and researchers) who sought an improved method of teaching French to English-speaking children in Quebec. This particular community's decision to adopt an immersion programme in French (that is, French was introduced early in the school career, and used to teach all subjects) was strongly influenced by the work of Canadian researchers (Lambert and Tucker, 1972, in Genesee, 1983).

The original immersion programmes were based on the assumption that second language acquisition would occur fastest and most easily if the learner was placed within the target language environment and culture (Cohen, 1994). For this reason, immersion programmes were designed to create native-like learning conditions by increasing the period of time in which learners were exposed to the target language, and at the same time exposing them to the culture of the target-language speakers. The aim of these programmes was to develop functional competence in the second language, while at the same time maintaining and developing the normal levels of first language competence. The major goal was the promotion of fluent oral communication skills but immersion programmes also aimed to foster academic achievement consistent with the learner's academic ability and education level. Cohen (1994) cites evidence that learners who develop bilingual skills in supportive or additive bilingual environments develop both enhanced general nonverbal abilities as well as problem-solving abilities in science (Bamford and Mizokawa, 1991, Kessler and Quinn, 1982, Rosebery, Warren and Conant, 1992, in Cohen, 1994). This is supported by others such as Smyth (2002). A study by Carey and Cummins (1984) underlined the 'unitary nature of academic skills regardless of the medium of teaching' (1984:278). From the results of Carey and Cummins' study into cognitive and behavioural variables, academic achievement and French and English speaking skills of Grade 3 students in an early French immersion programme, they hypothesised that students who did well in English programmes would also do well in French programmes.

The earliest immersion programmes limited instruction in the L2, or target language, to relatively short periods and the focus was on the teaching of basic vocabulary, grammar and communication patterns (Genesee, 1998). What was innovative about immersion was that the target language was used to teach academic subjects. The rationale was that by learning through another language, children would learn

this target language for the same reasons that they acquired their first language: to communicate. Results from research studies have also suggested that bilingualism may have cognitive and linguistic advantages (Cummins, 1976; Lambert, 1962, in Genesee, 1998), and also that immersion does not have a negative influence on native language development or academic achievement (Genesee, 1998).

Hand in hand with these aims to promote fluent oral communication skills and to facilitate academic achievement consistent with academic ability and education level went an increased awareness of and appreciation for the target language group as well as their language and culture, and a maintenance of the child's awareness of and appreciation for his own language and cultural identity.

Initially, immersion programmes ran according to the following principles:

- (a) students were allowed to use their own language in the classroom, at least during the initial stages of the programme;
- (b) students were encouraged to use the second language to communicate, without excessive attention being given to grammatical or structural errors (fluency was emphasised over accuracy);
- (c) both the mother tongue or first language (L1) and the target language or second language (L2) were used as the medium of instruction of content subjects; and
- (d) the teachers were to speak only the language of instruction of their section of the curriculum.

Since the adoption of the first immersion programmes in Canada in 1965, however, various forms of immersion have evolved, differing mainly in the grade levels at which the second language is introduced as the main medium of instruction and in the amount of instruction that is provided in this language. Genesee (1983) refers to Early, Delayed, Late, Partial and Total immersion programmes. However, from an international survey of immersion programmes conducted over a period of two years via questionnaires in English, Spanish and French, Obadia (1998) recorded more than 20 designations for immersion programmes. He notes that today these definitions are often very different from the original immersion concept of being totally submersed in a linguistic culture and environment.

Since its inception in Canada in the sixties, immersion has spread to all parts of the globe. The following section deals with the phenomenon of immersion in a European context, where education frequently takes place through the medium of a second, and sometimes even a third, language.

2.2.2 Immersion in the European context

Various types of immersion programmes have developed in European schools since the mid-twentieth century. These include the European schools (Beardsmore, 1995), the Luxembourg school system and the German-French bilingual schools (Wode, 1995:10). More recently, immersion programmes which promote minor languages such as Catalan (Querol, 1998), Basque (Wode, 1995) and Welsh (Beaudoin *et al.*, 1981; Lebrun and Beardsmore, 1993, in Wode 1995) have also been implemented.

Beardsmore (1995) describes the European schools which provide a model of multilingual education loosely based on immersion. He calls these an example of genuine multilingual education, where the whole school is placed under the same constraints as far as language learning is concerned and where all children can achieve success in at least two languages. These schools have been running for over four decades and today form a network throughout Europe providing multilingual education, specifically to the children of civil servants working for supra-national European institutions. Tuition is initially in the L1 with a gradual move to tuition in both L1 and L2 with the compulsory learning of a third language (L3). These schools have a philosophy which supports additive bilingualism, or even multilingualism, by developing the child's first language and cultural identity, while at the same time promoting a European identity by teaching all students through the medium of two languages and encouraging the learning of up to four languages (Beardsmore, 1995:28; Wode, 1995).

Wode (1995, 1998) uses the term 'immersion' very differently from the Canadians when he refers to the use of English (the target language) to teach only one or two subjects in the curriculum. He claims that 'the Canadian definition is too clumsy for the kind of comparative research aimed at determining whether one can do with less [time spent in immersion]' (Wode, 1995:4). He uses the term far more loosely, referring to a method of promoting a foreign language by using it as the medium of instruction, regardless of the amount of time allotted to it in the curriculum and regardless of whether it is aimed at

majority or minority language students (Wode, 1995, 1998). Hubbard (1998), referring to Wode (1995), talks about 'minimal immersion'.

There are many instances in the European system then, albeit not with the title immersion, where the language to be learned has been used as the language of instruction and where children receive part of their instruction in a language other than their home language. The common feature of all these schools is that children receive part of their instruction in a language other than their own, and one which in many cases may be a third language. Wode (1995) makes the point that it is in fact increasingly exceptional for children to be educated through the medium of their own mother tongue. This adds some support to the belief that, contrary to traditional assumptions, the language of learning does not have to be the mother tongue and that learning unfamiliar languages can be achieved very successfully as a by-product of focusing on subject matter.

Wode (1998) explains how, with the advent of the European Union (EU), which provided for a single European currency, a common foreign and security policy and a more efficient European parliament, residents in countries that were members of this Union were able to take up employment in any other member country. As language policies in Europe have traditionally been monolingual with additional languages being encountered only as subjects at school or university, there was now an increasing demand to revolutionise these policies and to allow children access to more of the languages of Europe, equipping them to take advantage of the improved work and travel opportunities afforded by the EU. Schools, it was felt, should offer a wider range of languages and children should be given the opportunity to learn at least three, including a major world language such as English or French or Spanish.

The Kiel study (e.g. Wode, 1995, 1998) arose from these circumstances in an attempt to answer the question of how *little* immersion is necessary to achieve good levels of communicative proficiency, and whether additional languages can also then be given the benefit of this immersion. Wode and his colleagues in the English Department of Kiel University (Burmeister, 1998; Daniel and Nerlich, 1998; Kickler, 1995) focused on a 'low-dose, late partial immersion' programme, to determine whether English vocabulary learning occurred incidentally while students learned content subjects which were

taught through the medium of English. This immersion programme provided initial impetus for the present study. It is an experimental language programme, modelled on the French-German programme, and introduced to schools by the Schleswig-Holstein government in 1990. The original French-German programme derived from the 1963 German-French friendship treaty which recognised that in order to promote good relations between these two nations, it was important for children to be reasonably fluent in the respective languages. The result was the implementation of a school immersion programme for French in the German education system, with very good results (Wode 1995:15-16).

The Schleswig-Holstein immersion programme was first implemented in five *Gymnasium* type schools (which cater for students planning to attend a university or college) in 1991, and extended to *Realschulen* (vocational schools) in 1992. The programme was introduced to learners in Grade 7 with the intention of eventually expanding it from the top to the lower grades. The programme followed the form of the French-German model mentioned above, but with English as the initial target language. It also allowed for three different options, depending on the degree of immersion involved. Regular English-as-subject teaching starts in Grade 5 when children are ten. They start preparing for immersion by following one of three options. Option A follows the pattern developed for the French-German model: after two years of traditional language-as-subject instruction, at the age of 12 (Grade 7), immersion is introduced, limited to two subjects. Each of these subjects receives one booster period a week for three years. These boosters are designed to enhance oral communication, and are student-centred and activity-based, focusing on meaning rather than form, with the intention of encouraging students to talk in the language without fear or embarrassment (Burmeister, 1998:668). During the two preparatory years the English-as-subject instruction is also given two extra periods a week. Option B features boosters as in A but the number of subjects taught through the immersion language is limited to one, history or geography. In Option C the immersion component is limited to one subject and there are boosters only in grades 7, 8 and 9 (Wode, 1995:18).

The effects of partial late immersion were evaluated by examining several aspects of children's language use: both the development of their English as well as the amount of subject content they had mastered. Wode (1995, 1998) and his colleagues (Daniel and Nerlich, 1998; Kickler, 1995) reported on the results of five groups of Grade 7 children following Option C, classes of immersion children who

were receiving three 45-minute periods per week of history taught through the medium of English, in addition to their four English-as-subject periods. Their progress was compared to that of non-immersion control students: a group from the same school who were not receiving any immersion teaching and a third group as control from a school without an immersion programme. This last was included to control for any bias which may have been caused by the fact that the type of school in which the immersion programmes were first introduced tended to attract a more gifted type of child, and also that the immersion programme itself tended to draw children whose parents were more positive about education in general and about learning a foreign language in particular (Wode, 1995, 1998). In a collaborative study, Hubbard (1998) used data from the Kiel study to evaluate the performance of immersion and non-immersion subjects on a discourse task in the L2 (English).

These researchers reported on written and oral data gathered from students' discussions of a hypothetical problem situation that required a solution (the same activity as was used in the present study). They were particularly interested in whether immersion promoted general aspects of L2 competence such as vocabulary. Wode (1995, 1998, 1999) in particular felt that immersion should provide enhanced opportunities for incidental learning of various aspects of vocabulary. Several measures were used to analyse written and spoken data: the number of lexical types and tokens, how these were spread over the word classes, errors and sources of lexical items (§4.5).

The research findings in the Kiel studies revealed that, in general, the immersion group outperformed the two control groups. Analysing productive vocabulary, Wode (e.g. 1995, 1998, 1999) found that after only seven months, immersion subjects used considerably more words (both types and tokens) than the non-immersion groups. Also, immersion students used more synonyms, and more words that had not been used by any of the other groups as well as more words that had not come from the textbook or interview, or from the wording of the test. Vocabulary and syntax seemed to have benefited more from immersion than phonology and inflectional morphology (Wode, 1998:61). These findings indicate that even a low dose of immersion encourages learners to acquire lexical material, and probably other linguistic elements, solely from oral interactions, and they suggest that immersion students had more opportunities for incidental learning (Wode, 1999:253). Wode determined that it was 'not any superior learning ability that accounts for the performance of the IM [immersion] students but the fact

that IM provides superior opportunities for incidental learning to occur' (Wode, 1999:255).

Daniel and Nerlich (1998) and Kickler (1995) corroborated Wode's findings in their analyses of data from the same study. They found that 11 to 12-year-olds receiving a very low dose of immersion outperformed the controls in the study. Immersion students tended to activate a larger vocabulary, in terms of both number of types and of tokens, than non-immersion students (e.g. Daniel and Nerlich, 1998:655). They also used more diverse words. There was also a good spread of words over all word classes, and IM subjects used more words that had not been used by the other groups. In other words, they drew on additional input sources. Based on the results of a lexical source analysis, Daniel and Nerlich (1998) concluded that immersion students in general could be assumed to have a larger vocabulary than non-immersion students who studied the target language as a school subject only, lending support to Wode's claim that 'IM [immersion] creates better opportunities for students to activate their language-learning abilities than any other teaching methodology today' (1999:256). Hubbard (1998), in his analysis of discourse from the study, also found that immersion subjects were superior on most of the measures used to analyse the students' discourse. He considered moves and acts, functional units and the cline of initiative.

Wode and his fellow researchers believe that, as far as incidental learning of vocabulary is concerned, it is probably the additional input provided in the immersion classroom that allows immersion students to excel. The results described above were particularly impressive in light of the fact that they occurred after only seven months, and that the teachers were untrained in immersion teaching. The question addressed in the present study is how much greater this increase would be after several years of immersion.

The benefits of additional input in the immersion classroom for incidental learning are certainly relevant to the South African situation, which will be discussed at greater length in the next section (§2.2.3). Very little if any explicit vocabulary instruction occurs in the classrooms under investigation and immersion children seem to acquire most of their vocabulary incidentally through contact with mother-tongue English speaking peers and teachers and through contact with English texts. Terminology may be taught in specific subject areas, but immersion students are rarely given any explicit vocabulary

instruction (Granville *et al.*, 1998). According to Swain's (1996) research with Grade 3 and Grade 6 immersion classes, vocabulary teaching did not feature significantly in teaching in the Canadian French-immersion programmes she investigated either. She found that teachers' input was not as linguistically rich as had been expected and that teaching of vocabulary seemed to involve little more than providing the meanings of words in context, without much attention being given to aspects such as structural information or derivations.

Swain (1998) suggests the inclusion of collaborative tasks, which encourage children to use language to reflect on their own language use. Studies conducted by Swain and various other researchers into Canadian immersion programmes (Swain, 1995, Swain and Lapkin, 1995, Tarone and Liu, 1995, in Swain, 1998) found that immersion children were speaking the target language (French) less frequently than had been expected inside the immersion classroom, and even less outside of it. Swain argues for the use of collaborative work to promote output and second language learning (1998:138), and stresses the importance of language learners doing something with their language, such as writing, once they have completed the collaborative tasks. Input from the teacher is vital in this process and the communicative context of the immersion situation is not enough on its own – there must be pushed output as well, in which children are encouraged to think about their language learning processes. She believes that

Situations must be contrived to ensure that students both hear and read the language we want them to learn, and to ensure that students are given the opportunities to be *pushed* beyond their current abilities in the target language through the provision of accuracy, coherence and appropriateness of the immersion language they use.

(Swain, 1996:544)

2.2.3 Immersion in the South African context

Important sociocultural aspects of the original Canadian immersion programmes included the fact that

immersion programmes were initially intended for children who spoke the majority-group language, and there was implicit support for and value given to their L1 and culture, both at school and at home, while acquisition of the L2 was regarded very positively by both learners and parents. In the light of this aspect in particular it can be seen that immersion in the South African context in the 21st century is often very different in nature. Many children of the majority language groups find themselves at the outset of their school career in total immersion – or what Beardsmore (1995) calls submersion – in a second or third language, with their home language being accorded very little value, both inside and outside school (De Klerk, 2000; Granville *et al.*, 1998; Sarinjeive, 1999). This is particularly the case for those children who attend the former ‘Model C’ schools which were reserved for whites in the apartheid era. The term ‘Model C’ derives from the option certain school governing bodies chose from 1990, when schools were opened to all races, and that allowed for integration of black students into historically whites-only schools. Teachers at these school are still predominantly white English or Afrikaans mother-tongue speakers and schools still have more than adequate resources. There is little extra L1 support from teachers who, as predominantly mother-tongue speakers of the immersion (target) languages, have little or no knowledge of the immersion children’s own languages, and until very recently these children were not encouraged to develop these languages further. In addition, although parents may support the education their children are receiving, they themselves may not be equipped to provide the assistance in English at home which schools expect (Hofmeyr, 2000).

This situation could indeed be better termed submersion in that, initially at least, very little heed was paid to developing the learner’s own language. In fact, it was often a case of subtractive rather than additive bilingualism, with punitive treatment meted out to children who spoke their own languages in the classroom, and even in the playground. Subtractive bilingualism occurs when home languages are not maintained and in the process are replaced by the additional language (AL). In an environment that promotes additive bilingualism, on the other hand, students learn the AL while their L1 is simultaneously encouraged or at least maintained (Smyth, 2002:53-54). As De Klerk (2000:202) observes:

Most ...[‘Model C’ schools] are multilingual and multicultural in composition but not in practice, and their ethos is western and white, with many of their educators (still predominantly English-speaking) firmly believing that educational success is only possible

through mastery of English, which is seen as giving access to social and educational mobility and advancement to native and non-native users who possess it as a linguistic tool.

Education policy in South African schools has changed recently, however, and additive bilingualism is currently advocated in the interests of allowing all children access to meaningful education (Barkhuizen, 2002; Bloch, 1999; Granville *et al.*, 1998; Sarinjeive, 1999). This policy aims to promote the development and status of the historically disadvantaged African languages and to reduce the hegemony of English. The new White Paper on Language of 1999 ‘confirms the view that language diversity is a valued resource’ and actively promotes functional multilingualism (De Klerk, 2000:213). The fact is, though, that despite the new language policy demands, the reality in schools is very different. English is seen as the language of power. Kamwangamalu (1998) observes that Samuels (1995, in Kamwangamalu, 1998:280) calls English an ‘open sesame’ which will allow unlimited upward social mobility to children and open doors to career and life opportunities. Other researchers have echoed this point (De Klerk, 2000; Sarinjeive, 1999). It is therefore not surprising that the majority of schools in South Africa, except those that are historically Afrikaans in medium, are English medium, if not in reality at least in name. Many parents favour the ‘straight for English’ policy (De Klerk, 2000; Granville *et al.*, 1998; Hofmeyr, 2000; Sarinjeive, 1999). They perceive that their children need access to English in order to succeed in our society. Denying learners proper access to English means that many leave school lacking in competence in English, the language of power, but with an exaggerated belief in its importance and value: schools have instilled in students a high regard for English without providing them with an adequate knowledge of the language. In their position paper on the Language in Education Policy for South Africa, Granville *et al.* (1998:258) warn against denying people, especially those of the working classes, access to the language that will allow them the most social mobility. In South Africa, English is the language of the educated middle class and it acts as an effective ‘social and economic gatekeeper’ (Granville *et al.*, 1998:259). The authors argue that if everyone was given adequate access to English it would lose its elitist value and could be regarded as a resource for all rather than as a problem to be tackled.

Barkhuizen (2002), too, notes that despite the Constitution’s emphasis on the promotion of

multilingualism and the elevation of the status of African languages, English still enjoys a dominant position in South African education: '[s]tudents in schools want to learn English and their parents agree with them' (2002: 499). This is further supported by a study of Xhosa parents' attitudes to English and English education, and the assimilation of their children into English culture, reported on by De Klerk (2000). African languages cannot compete with the status of English, and we are a long way from realising a multilingual society in South Africa. Against this backdrop, there is often strong resistance to using an African language as language of teaching and learning (LOLT) (Marivate, 1993 and Nkondo, 1982, in Barkhuizen, 2002). This is also a repercussion of history: Bantu Education, which was introduced in 1948 as part of the apartheid policy of separate education of racial groups, emphasised mother-tongue instruction. Although under different circumstances this might have promoted black consciousness and Africanisation, quite the reverse happened. Only suspicion was aroused regarding the policy's intention to subject blacks to whites and to produce an under-educated, semi-literate workforce. This further engendered a belief that English would open the way to advancement (De Klerk, 2000:199; Granville *et al.*, 1998) and, by denying students access to English, this was regarded by teachers and students alike as a deliberate attempt by Apartheid authorities to deny them access to better job opportunities (Sarinjeive,1999).

With this in mind, one can better understand why second language students in South Africa often struggle to master English. Research has shown the value of promoting the mother tongue in order to improve the learning of English, as well as the importance of developing CALP (cognitive academic proficiency) in the L1 before the transition to the L2 can be made. Added to this is evidence that black children fail to master English reading because they have not acquired basic reading skills in their own languages (Cummins, 1991, De Klerk, 1995, Schneider, 1998, in Sarinjeive, 1999; Pretorius, 2002a; Smyth, 2002). Despite this evidence many parents still demand that their children be taught in English from an early age. So it is that in South Africa today, despite the recognition of eleven official languages, the reality is that most parents who are in the position to choose want to have their children taught through the medium of English. Hofmeyr (2000) found in her study that '[t]he higher level of integration in English Model-C schools is a common phenomenon because of the overwhelming desire of black parents to have their children taught English' and also, not to be taught in Afrikaans, although this feeling is not as prevalent as might be expected – in fact, Peel (2000) found that parents did not care so much

about the medium of instruction, as long as the teaching was good. A result of this is, of course, that the black students who are left in the rural and township schools are those from the poorest families. They now face a real threat of becoming an African underclass, which would present added problems (Hofmeyr, 2000). The distinction between types of schools in South Africa is elaborated on in the following paragraph.

As was noted at the beginning of this section, the present situation in South Africa is that the majority of South African schoolchildren find themselves in immersion situations. In the case of black students who now attend the former whites-only 'Model C' schools, this is a state of total immersion (or submersion) in theory, in that all subjects barring additional languages are taught through the medium of English and, for the most part, all interpersonal and administrative communication is conducted in this language as well. Other than pupil make-up, very little has changed in these schools since the early 1990s when black students were first admitted. However, as mentioned above, in rural and township schools which catered historically for black students only and have by and large preserved this *status quo*, the situation is very different: although the medium of instruction is claimed to be English this is in reality not often the case. Quality of input is affected by the fact that teachers are not native speakers of English and teaching is facilitated by frequent code-switching between English and learners' mother tongues. For many learners in rural areas English is tantamount to a foreign language – they encounter very little, if any, English outside the classroom, and in the classroom it is taught by someone with a limited knowledge of the language. Children also have limited opportunities for making any meaningful output. The day-to-day running of the school is frequently conducted in a language or languages other than English, constituting what Hubbard (1998) refers to as 'pseudo-immersion'. The increasingly multilingual nature of almost all classes in South African schools today only complicates matters: several different home languages may be spoken in the same classroom. Where the schools used in the present study fall on the continuum of South African schools is discussed in more detail in §3.2.

It is clear from the three sections above that, in the decades since its first emergence, the concept of immersion has changed considerably and has been adapted to suit various very different situations. Immersion as it is used in the present study is a very different concept indeed from that discussed by

Genesee (1983) in his overview of immersion programmes; and although the present study was originally inspired by Wode's research at Kiel University (1995, 1998), its interpretation of the term 'immersion' differs again from this research.

The following sections discuss the importance for learners of English as a second language of both a basic, high frequency vocabulary, as well as a knowledge of academic vocabulary, and the challenges this presents. The concept of a word as it is used in this study is defined, as are the two types of vocabulary identified in the study, that is, receptive and productive vocabulary.

2.3 The importance of vocabulary knowledge

Coady (1997a) argues that, in order to be successful, instruction of ESL (English as a second language) readers will have to take into account their vocabulary knowledge and especially their sight or receptive vocabulary. He believes that the successful ESL reader employs a psycholinguistic guessing approach. The reader samples the clues in the text and reconstructs a mental representation of what he or she thinks the text says. This analysis by synthesis approach to reading is also known as a top-down model of reading. In contrast, the more traditional view of reading as decoding of letters into sound and ultimately meaning is characterised as a bottom-up model. Typically, ESL learners are poor decoders since their vocabulary knowledge is weak while, at the same time, they are already literate in their mother tongue and are familiar with top-down processing. A good reader has sufficient command over the language to recognise words automatically or to recognise them in context. Poor readers do not have enough sight vocabulary to take advantage of the context.

Davis (1968, 1972, in Nation and Coady, 1993:98) found that, of all the identifiable sub-skills within the overall ability to read, vocabulary was the most important and had the strongest effect. It seems that vocabulary is the most clearly identifiable sub-component of the ability to read. Dealing with vocabulary in the classroom situation still presents many challenges, however, and Manguashca (1993) believes that there is still great scope for research in the area of vocabulary acquisition. It is hoped that the present study will make a contribution in this area, examining as it does the effects of length and quality of immersion on vocabulary size.

2.3.1 The nature of vocabulary knowledge

What constitutes vocabulary knowledge? At this stage there is no absolute consensus on the nature of lexical knowledge, and most researchers agree that it should be seen as a ‘continuum consisting of several levels and dimensions of knowledge’ (Laufer and Paribakht, 1998:367). This could be viewed as moving from a vague familiarity with the word form, to recognising it when it is seen or heard, to being able to use the word correctly in free production (Haastrup and Phillipson, 1984, in Laufer and Paribakht, 1998). Palmberg (1987, in Laufer and Paribakht, 1998:367) placed potential vocabulary (that which the learner has not encountered before but which can be easily understood because the words are cognates of the L1) at the beginning of the continuum with active vocabulary at the other extreme of the continuum and passive vocabulary somewhere in between. Many words, however, remain part of the receptive repertoire and never become part of the free active vocabulary (Pretorius, 2000). The following two sections deal with what it means to ‘know’ a word, and explain the terms receptive and productive knowledge as they are used in this study.

2.3.1.1 The concept of a ‘word’

The concept of what a word is must be clarified from the outset. Over the years, interpretations of this concept have changed. Some researchers (e.g. Carroll, Davies and Richman, 1971, in Bauer and Nation, 1993) regarded a word as a form, with any change in this form (capitalisation, presence of inflectional suffixes, etc.) making the item into a different word, to be counted separately. Other studies (Thorndike and Lorge, 1944, in Bauer and Nation, 1993) considered items with an inflectional suffix to be members of the same word family. Still others (West, 1953, in Bauer and Nation, 1993) counted items with a common base but having a variety of derivational and inflectional affixes as the same word. Today it is commonly accepted that a word family consists of the base word and all its derived and inflected forms which the learner can understand without having to learn each one separately (Bauer and Nation, 1993; Laufer and Nation, 1995; Nation, 1990). As the learner’s knowledge of affixes grows, so the size of the word family will increase. An important principle underlying the idea of the word family

is that once the base word or even a derived form is known, the recognition of the other members of the word family requires very little extra effort.

Bauer and Nation (1993:254) 'set up a series of levels of affixes that could provide a basis for the staged systematic teaching and learning of these affixes for learners reading English'. They hoped that this series of levels would provide a consistent description of what could be considered as part of a word family for readers at different levels of morphological awareness. The present study uses Bauer and Nation's (1993) concept of a word (a 'word family', in other words) as do Laufer and Nation (1995). A word, according to this definition, is a base word and all its inflectional and derivational forms.

2.3.1.2 Receptive and productive vocabulary

Varying views on what really constitutes word knowledge have led to the development of instruments to measure different aspects of lexical knowledge. But despite the differences of opinion, most models of lexical knowledge distinguish between receptive (passive) and productive (active) vocabulary. Crow (1986) defines receptive knowledge as what a learner needs to know to understand a word while reading or listening. Productive knowledge (Laufer, 1994) is what a learner needs to know about a word to use it in speaking and writing. This dichotomy could, however, be regarded as misleading as reading and listening are not passive roles at all. Readers participate actively in the reading process, for instance, by referring to background knowledge schemata and processing strategies in order to understand a passage. However, much more knowledge is needed for productive than for receptive language performance (Nation, 1990:31). Productive knowledge demands a detailed understanding of both the denotative and the connotative meanings of words. Receptive tasks do not always require such specific knowledge of all lexical items involved. Connotative knowledge allows the reader to make judgements about diction, register and so on, which is important for advanced language students but may not be vital if the object of the reading exercise is to grasp the gist of an academic reading passage (Crow, 1986). Most researchers agree that word comprehension does not guarantee correct use of the

word, and that receptive vocabulary usually precedes productive vocabulary. It is generally agreed that a passive vocabulary which is adequate for native-like reading fluency can never be entirely learned but must be acquired through extensive exposure.

If we view learning a second language as progress along the interlanguage continuum from a non-existent knowledge towards native-like competence, without necessarily reaching it, then vocabulary learning should involve a gradual increase in the learner's vocabulary size, as the most striking difference between foreign learners and native speakers is in the quantity of words each group possesses. Laufer (1998) points out that progress in vocabulary knowledge is not only a quantitative issue, as knowledge of words may range from superficial to deep at various stages of learning (Wesche and Paribakht, 1996). But she does consider vocabulary size rather than depth to be of crucial importance to learners (see §2.3.3.1).

Since there is no single test of vocabulary size and depth, Laufer (1998:257) suggests a 'multiple test approach', or a series of tests where each test measures a different aspect of vocabulary knowledge. (This is the method followed on a small scale in the present study.) Laufer (1998) investigates the development of three components of word knowledge: basic receptive (passive) knowledge, i.e. understanding the most basic, frequent meanings of a word, and two types of productive knowledge, controlled (that is, producing a word when prompted to do so by a particular task, such as completing a word when the first few letters are provided) and free (that is, when a learner uses words of his or her own choice, without any specific prompting). She argues that this distinction between two types of productive vocabulary is necessary as not all learners who use low frequency vocabulary when the task demands it will also use it when left to make their own choice of words. These three types of word knowledge are, she believes, the most basic to L2 learning (Laufer, 1998:257). The first type of productive knowledge is also referred to as the cued recall because it requires the learner to find a specific word which fits most appropriately into a particular context. In the second type of productive knowledge, free production, a large part of the context is created by the learner. This will involve activities such as letter writing, giving a speech and so on.

Laufer (1998) took as her subjects two groups of students who were following the advanced English

curriculum at a comprehensive school in Israel. Group 1 comprised 16-year-olds in Grade 10, Group 2, 17-year-olds in Grade 11. She used the Vocabulary Levels Test (Nation, 1990) to measure passive (receptive) vocabulary size, the productive version of the VLT (Laufer and Nation, 1999) for controlled active vocabulary size, and the Lexical Frequency Profile (Laufer and Nation, 1995) for lexical richness in free written expression, that is, to measure free active vocabulary. In the VLT, items are presented in isolation because, as in the present study, the researcher was not interested in learners' guessing ability but in their sight vocabulary.

Results showed that passive vocabulary increased considerably in one year (the difference between the 10th and 11th graders). Controlled active vocabulary had also grown. Laufer (1998) calculated an almost 50 percent increase in word families from Grade 10 to Grade 11. Growth of the two types of vocabulary was not the same, though – there was an 84 percent growth in passive vocabulary and a 50 percent growth in controlled active vocabulary. But there was no significant growth in the free active vocabulary. Even though subjects' passive and controlled active vocabularies had increased, they were still using the same proportion of frequent and non-frequent words in their free productive writing. Correlations showed that learners who had a larger passive vocabulary also had a greater controlled active vocabulary. It also appeared that the larger one's passive vocabulary, the wider the gap between this vocabulary and the controlled active vocabulary.

Laufer measured the relationship between free productive (active) vocabulary as expressed in the beyond-2000-word score with the other two scores. Results indicated that learners who could recognise more words than others and produce them if they were forced to, were not necessarily those who would use more infrequent vocabulary in free expression. The almost non-existent correlation in the group of 11th graders showed that the lack of relationship persisted even after an additional year of instruction. As explained above, the decreasing ratio between passive and controlled active vocabulary in Laufer (1998) indicates that some of the words learnt in the 11th grade did not enter the active vocabulary. This led her to the conclusion that an increase in passive vocabulary will, on the one hand, lead to an increase in a learner's controlled active vocabulary, but, at the same time, will also widen the gap between the two types of vocabulary. When a learner's passive vocabulary is small, it consists of the most frequent words, which are unavoidable in normal expression. Their active knowledge is

reinforced by repeated use of these words. But as passive vocabulary grows, less frequent words are learnt; often, the learner can communicate meaning without using these less frequent words unless he or she is 'pushed' – and these words remain part of the passive vocabulary repertoire only. The larger the passive vocabulary size, the greater the number of words that may not become part of the active lexis: thus, the lower the ratio between the two measures.

Laufer (1994) showed the same trend: gains in passive and controlled active vocabulary were not reflected in the free writing lexical profiles. This underlines the implication that a much larger number of words may have to be learnt passively before some of them are used freely, without prompting. The nature of the classroom may also be such that it does not push learners to stretch their resources and use the words that have been learnt.

Laufer's studies were conducted in an EFL (English as a foreign language) context, but some of these findings, especially those to do with free active lexis, are reflected in the present study which deals with ESL learners. Laufer and Paribakht's later study (1998) found that although EFL students had significantly larger controlled active and free active vocabularies than ESL students this did not make their lexical knowledge superior or inferior to that of ESL students, but rather provided evidence for different developmental patterns of vocabulary development in different language-learning contexts. The researchers also found that the length of residence in an L2 environment seemed to contribute favourably to L2 learning in general, providing as it did through the everyday use of the language huge input and constant challenges to the learners' linguistic resources. This can be extrapolated to the present study and emphasises the potential benefits of length, as well as quality, of immersion for vocabulary acquisition. Exactly how much time was needed to improve the free active vocabulary significantly was not determined, however. This particular study is particularly interesting in that it investigated whether the different developmental rates the researchers found for the different types of vocabulary knowledge reflected the nature of lexical learning or the learning context. Their results showed that both factors are important. This could also be related to the present study, where the emphasis is on the effects of an external variable, immersion, rather than on the nature of vocabulary acquisition *per se*. The value of an immersion situation is clear here, and teachers can contribute to the acquisition of this vocabulary by using activities designed for receptive control only. If the objective is

proficient reading in the foreign or second language, an appropriate study of vocabulary is essential (Crow, 1986).

Laufer (1998) found that the most impressive learning differences between Grade 10 and Grade 11 learners occurred in the University Word List (UWL, §2.3.3.1). This may have been as a result of the fact that students are introduced to more difficult non-fiction, authentic reading material in Grade 11. Her findings support the argument that classroom instruction can provide a favourable context for vocabulary learning, and support the findings of an earlier study she conducted with engineering students, who showed considerable gains in vocabulary knowledge after only one semester of instruction (Laufer, 1995, in Laufer, 1998:265) .

Lack of growth in free active vocabulary among the 11th graders in Laufer's (1998) study indicated that despite impressive gains in passive vocabulary and good progress in controlled active vocabulary size, learners did not put this knowledge to use when left to their own choice of lexis (Laufer, 1998:266). Free active vocabulary seems to reach a 'plateau' beyond which it does not easily progress (Laufer, 1998:266). According to Laufer (1995, in Laufer, 1998), the above-basic vocabulary (what she calls the beyond-2000-word level, or those words on the UWL and above) of first year L2 university students makes up about 13 percent of their vocabulary while that of native speaking high school graduates can be as much as 23 percent. Laufer's (1998) findings suggest that there is scope for improving the beyond-2000-word level score in only one additional year of instruction. Although Laufer is quick to point out that 11th grade pupils should not be compared to university students, it would be expected that more of the former's vocabulary gains would have become part of their free productive vocabulary. Laufer believes that the plateau that their free active vocabulary reached could have been caused by their lack of incentive to use more advanced and less frequent words, which by definition would probably cause more errors. Communicative classrooms tend to encourage fluency rather than accuracy; however, it should be kept in mind that schools tend to emphasise correctness of expression and do not often reward lexical richness. This trend may be fostered in the classroom situation: correction exercises usually focus on alternative structures rather than on alternative vocabulary. Swain (1998; 1995, in Laufer, 1998) and Swain and Lapkin (1995, in Laufer, 1998) claim that students will not progress beyond a given stage of competence unless they are pushed to exploit

all their resources. Output ‘pushes learners to process language more deeply (with more mental effort) than does input ... In speaking or writing, learners “stretch” their Interlanguage to meet communicative goals’ (Swain, 1995, in Laufer, 1998). Laufer (1998) draws attention to the importance then of both input and output, and the value of setting activities for learners that are focused on eliciting the taught, new vocabulary.

2.3.2 Vocabulary size and reading comprehension

Laufer (1986:69) makes the point that ‘[n]o language acquisition can take place without the acquisition of lexis’. She cites research which points to the fact that lexical problems may be even more important than those in phonology and syntax (Meara, 1984, in Laufer, 1986). ‘It has been consistently demonstrated that reading comprehension is strongly related to vocabulary knowledge, more strongly than to other components of reading (Laufer, 1997:20). Several researchers cited by Laufer (Beck, Perfetti and McKeown, 1982; Kameenui, Carnine and Freschi, 1982; Stahl, 1983, in Laufer, 1997) have shown that an increase in vocabulary knowledge can bring about improvement in reading comprehension. Vocabulary has also proved a good predictor of reading success in second language studies (Laufer, 1992; Cooper, 1999). Laufer’s findings revealed significant correlations between two different vocabulary tests (Nation’s 1983 Vocabulary Levels Test and Meara and Jones’ 1989 Eurocentres Vocabulary Test) and L2 learners’ reading scores. Studies by Coady et al. (1993) showed that greater proficiency in high-frequency vocabulary also led to improved reading proficiency.

There are thus clearly strong arguments for encouraging an increase in the vocabulary size of ESL students in the immersion classroom. The following section deals with one of the ways in which this can be achieved: that is, in terms of the role of incidental language learning in the growth of vocabulary in immersion children.

2.3.2.1 The role of incidental vocabulary learning

In 1986 Laufer predicted that the most important source of a possible impetus to vocabulary acquisition research would be the rise of the communicative approach to language teaching, especially the fact that it advocated fluency rather than accuracy and focused on the needs and motivation of the learner. She felt, for instance, that those who advocated supremacy of fluency over accuracy would recognise the importance of lexis over grammar. Communicative activities are those in which learners use the language to do things and to negotiate meaning. Such activities allow and encourage learners to engage in meaningful interactive oral language production. The main goal is to improve fluency, as well as to enhance confidence in social communication skills, dealing with the unpredictable nature of conversation (Ladousse, 1983, 1987, in Nation and Newton, 1997; Swain, 1998) and improving grammatical accuracy. Whether and to what extent a learner's vocabulary knowledge will be extended through communicative activities depends on several factors: the choice of vocabulary and its placement within the textual input of the activity, the teacher's and learners' strategies for arriving at the meaning of unfamiliar items, and the processing demands of the activity.

Negotiation of meaning is important in increasing vocabulary size. A meaningful context which allows learners to make reasonable guesses about the meanings of words, and to remember new items, is also important. There is a good chance that learners will be exposed to the repeated use of new items during the course of the activity. Also, having encountered these items, learners will probably be required to use them productively in the activity. Simcock (1993, in Nation and Newton, 1997) studied a situation in which students read a story in pairs and then, pretending to be the characters, answered pre-set questions about events in the story. She found that children used new vocabulary that was encountered in the reading activity productively and accurately, even when their partners did not ask them about these words. These results suggest that incidental language learning, and specifically vocabulary learning, occurs when the learner's focus is primarily on meaningful performance of a communicative activity. In a study by Newton (1993, in Nation and Newton, 1997), he investigated vocabulary gains through performance of instruction activities, and revealed that the combined vocabulary of a group was much greater than that of any single learner in the group, and that subjects learned from each other. Learners negotiated unknown meanings of the vocabulary in the activities, and helped each other with the learning and use of this vocabulary. Individual learning gains ranged from ten to 20 words and learners made important first steps in acquiring new vocabulary through performing the four communicative activities.

In a later case study of a 21-year-old Taiwanese immigrant to New Zealand, Newton (1995) found that this student did indeed acquire vocabulary through the completion of two types of communication tasks – one type requiring an exchange of information and the other a sharing of information – which were completed over a period of eight days. He does add, however, that the results uncovered as many questions as they answered.

Similarly, a study by Elley (1989) showed that the acquisition of vocabulary can occur in context where attention is on communication and not on the language itself. In two experiments conducted in New Zealand schools, one with a group of seven-year-olds and the other with eight-year-olds, Elley replicated the pilot investigation he had conducted with Pacific Island children in earlier studies (Elley, 1980, Elley and Mangubhai, 1983, in Elley, 1989). The two later experiments were based on the assumption that children will learn vocabulary incidentally from listening to stories read aloud from illustrated storybooks. The procedure of the two experiments differed somewhat: in experiment 1, seven-year-olds were read the same story three times over a period of seven days, by different teachers; in experiment 2, two groups of eight-year-olds listened to two stories each. Group A heard one story three times with an explanation of vocabulary, and the second story without any explanation. The treatments were crossed for Group B. A third group, Group C, was tested at the same time as Groups A and B but listened to neither of the stories.

The findings of these experiments supported Elley's assumptions, and also revealed that teachers' explanations of unfamiliar words as they occurred in the stories more than doubled these gains in vocabulary. He also found that children who had less vocabulary knowledge to start with gained at least as much from listening to the stories as did children who started off with a greater knowledge of vocabulary. In addition, this learning seemed relatively permanent; in the second experiment children were tested on their word knowledge three months after listening to the stories, with positive results. Elley also studied the effects of 'book floods' in which L2 children who were exposed to a range of illustrated story books showed consistently that they learnt the language more quickly (Elley, 1991). Children showed rapid improvement in reading and listening comprehension from reading authentic texts. These studies emphasised the natural acquisition of literacy and showed that gains made were easily transferred to all aspects of the children's use of the L2.

The teacher has a role to play in encouraging activities that will result in indirect vocabulary learning. Research by Elley and Mangubhai (1981, in Nation, 1993:127) showed that the most important of these activities for increasing vocabulary size were sustained listening and reading. Their study showed that sustained reading activities in the course of ordinary classroom lessons resulted in the equivalent of 15 months' increase in a range of language proficiency measures over a period of nine months, compared to learners who were taught by drills in teacher-led lessons. Group work is also useful in encouraging learners to use new items without fear or embarrassment. In the present study the activity used to elicit the written data is a good example of a communicative task, with learners required to convey and elicit information in a letter, to explain and interpret a map and to express their personal experiences in writing.

A case study conducted by Grabe and Stoller (1997) found that extensive reading of newspapers improved vocabulary knowledge and that knowledge of vocabulary does support reading development. Today, many theorists argue that for vocabulary learning to occur, attention must be given to both form and meaning (Ellis, 1995, Robinson 1995, in Huckin and Coady, 1999:183). Schmidt (1993, in Huckin and Coady, 1999) felt that for incidental learning to occur there had to be some degree of attention. Studies have shown that task-based activities can enhance this incidental learning of vocabulary (Parry, 1993, 1997; Joe, 1995). All these factors should be present in the immersion classroom.

Paribakht and Wesche (1997) found that results from meaning-focused L2 instruction programmes such as immersion indicate that aspects of new vocabulary knowledge, such as word recognition and understanding in context – receptive vocabulary, in other words – can be gained through teaching methods that emphasise the global comprehension of meaning (Genesee, 1983). Progress will, however, be slow: there is a role for reading processes in vocabulary acquisition, they believe, but it is unpredictable and not necessarily effective: 'learning from context is still a default explanation' (Jenkins, Stein and Wysocki, 1984:769, in Paribakht and Wesche, 1997:175). Nagy, Herman and Anderson (1987) hypothesised that incidental vocabulary learning from context was an incremental process, but that it does have good results. The findings from their study with L1 schoolchildren confirmed that there was definite learning from context after only one or very few exposures to unfamiliar words in authentic texts.

Incidental language learning occurs when language is learnt as a by-product of the socialisation process rather than for its own sake. Even in classes where the language is being taught as a subject, much of what students acquire is learnt incidentally, as a consequence of the language used by the teacher or other people in the classroom, without any focus on the linguistic structure. Wode (1999:245) uses the term ‘naturalistic L2 acquisition’ to describe this process. He believes that immersion is the method of foreign language teaching that is most likely to encourage incidental learning, as a basic assumption of immersion is that children will acquire the language on their own by using it to learn subject matter – most of what is learned in immersion should thus be the result of incidental learning. Immersion should also promote the more general aspects of the students’ L2 competence, such as general vocabulary, as well as the specific vocabulary of the content material.

Empirical evidence in support of incidental acquisition of vocabulary is rather ambiguous, according to Coady (1997a), and the issue needs further research, particularly in the case of beginners who face a paradoxical situation in which they need to learn enough words so that they can learn vocabulary through reading, but do not have a large enough vocabulary to read well.

From the above it can be seen that processing input for meaning is likely to occur when input is interesting or relevant to the learner. Laufer believes that comprehensibility seems to be severely hampered without vocabulary (Laufer and Sim, 1985). Interest and relevance of the input are created when the content and the activities based on the input ‘strike deep enough’, to use Krashen’s own words (Krashen 1981:103, in Laufer 1986). And what strikes deep is words, not structures.

2.3.2.2 The value of a basic, high frequency vocabulary

Despite the crucial importance of vocabulary to second or additional language learning, many second language learners have in recent years been taught by traditional methods which place little emphasis on vocabulary. Teachers themselves were generally taught by these same traditional methods and their own experiences of learning foreign or L2 vocabulary influence their own attitudes to vocabulary

(Coady, 1997b), although the case for vocabulary teaching and learning has improved somewhat since the 1970s (Wybenga and Baten, 1994). Claims for the usefulness of a basic vocabulary of not more than 1000 to 2000 words have now been replaced by the insight that it is actually the outsiders (those words not appearing in the basic vocabulary) that convey most information, although it is accepted that the basic, high frequency words do form an essential core vocabulary.

Typically, students feel that words are very important and are keen to learn them (Leki and Carson, 1994; Sheory and Mokhtari, 1993, in Coady, 1997b). Teachers, however, tend to believe that words are easy to learn, and that grammar is the challenge. Vocabulary learning is often regarded as a low-level intellectual activity, and both teachers and students are inclined to give it less attention. When they do regard vocabulary teaching as necessary, it is often only a temporary measure used until students can learn vocabulary on their own.

Coady (1993a, in Coady, 1997a) argues that the vocabulary that second language learners acquire from reading can be divided into three developmental categories: words which, regardless of context, have automatically recognised forms or meanings (sight vocabulary); words whose forms and meanings are automatically recognised, but only in context; and words whose meanings, and often forms as well, are unknown to the learner. These have to be inferred from context, looked up in a dictionary or ignored (Grabe and Stoller, 1997). Sight vocabulary consists of medium to high frequency words that have been thoroughly learnt through frequent exposure and even perhaps explicit instruction (Coady *et al.*, 1993). Less frequent words will be learnt through incidental contact in context via extensive reading, but only after a critical level of automaticity has been achieved with high frequency vocabulary (Coady, 1997a:232). This implies that learners must be helped to learn the 3000 most frequent word families, that is, a base word and all its derivational and inflectional suffixes (Bauer and Nation, 1993:265), so that these become automatic. Coady (1997a) advocates that the teaching programme should ensure that learners know the basic 3000 word families so that they are able to acquire vocabulary through extensive reading. Some people (Arnaud and Savignon, 1997; Nation, 1990) have argued for instruction even beyond this level.

This section has underlined the value of a basic vocabulary to reading comprehension in the second

language. As Paribakht and Wesche (1997) have indicated, immersion may certainly foster vocabulary acquisition through incidental learning, but this does not deny the role of the teacher in providing comprehensible and focused input. This is supported by Swain's (1998) output hypothesis. In order to guard against the Matthew effect (Stanovich, 1986:381), that is, 'when the rich get richer and the poor get poorer' because of a lack of lexical knowledge, it may be necessary to actually teach a basic vocabulary of 2000 to 3000 words, as is discussed in the following sections (Nation, 1993).

2.3.3 Vocabulary size and academic success

Today research into various aspects of vocabulary acquisition and vocabulary size is a growing field. The following claims which have to do with vocabulary size are relevant to the present study:

- (a) a student of a foreign or second language must know enough vocabulary to cover 95 percent of the text in order to gain adequate comprehension of a text and to be able to guess the meaning of unfamiliar words from context (Laufer, 1986, 1997; Nation, 1990);
- (b) grouping related forms into word families reduces the learning task considerably (Bauer and Nation, 1993); and
- (c) knowledge of English academic vocabulary is essential for success in academic studies (Corson, 1985, 1997).

The following sections will deal with these claims.

2.3.3.1 Lexical coverage

Research has found that academic ability does not make up for a lack of high frequency vocabulary (Laufer, 1992; Nation, 1993). Laufer (1997) believes that the most important lexical factor in good reading is the number of words that a reader has in his or her lexicon. A vocabulary of 3000 word families (about 5000 lexical items) is necessary for general reading comprehension as this enables the reader to cover 90 to 95 percent of the running words of a text. Below this threshold, reading strategies

are ineffective and readers find themselves reading at the frustration level (Lesiak and Bradley-Johnson, 1983), as discussed below. In another study by Laufer (1992, in Laufer, 1997) she compared the vocabulary level, reading comprehension in EFL and general academic ability of adult EFL learners. Learners below the 3000-word vocabulary level were found to have performed badly, regardless of their academic ability. She claims that even good readers will not perform well in the L2 if their vocabulary level is below the 3000 word family threshold. Xue and Nation (1984) support Laufer in their contention that to be successful in academic studies a learner must be familiar with not only the 2000 high frequency words in the English language, but also with the general academic vocabulary that is common to many academic disciplines (Nation, 1993; Xue and Nation, 1984). According to Xue and Nation (1984), English vocabulary can be divided into two very different groups – a small group of 2000 to 3000 very frequent words with a wide range, and an enormous group of less frequent, narrow range words. Nation (1993) notes that because these two groups are so different in nature, they require very different teaching strategies. He believes that special attention should be given to learning of high frequency words, while students should be equipped with methods of dealing with low frequency words in context when they are encountered.

Xue and Nation (1984) deal with one group of low frequency words which may in fact be quite common in certain specialised fields – the vocabulary of university study. They drew up a list of just over 800 such academic words, using lists from four independent studies as their source. The University Word List (UWL), as they called it, is derived from four word lists: Champion and Elley (1971, in Xue and Nation, 1984) developed a list for the vocabulary sub-test of a university entrance test, the LATOS. This list represents vocabulary that students are likely to encounter in their university studies. The second source was the American UWL (Praninskas, 1972, in Xue and Nation, 1984). This was compiled for non-native speakers of English who were learning the language. It was taken from ten basic university level textbooks used in first year courses.

Once Xue and Nation had combined these two lists, they checked them against two other lists which had been combined using a different set of principles. The Lynn (1973) and Ghadessy (1979) word lists (cited in Xue and Nation, 1984) were created by counting the words that foreign students made notes on in their textbooks. About 70 percent of the words in the Lynn and Ghadessy lists overlapped in the

combined list. The high frequency non-overlapping words in the two lists were then added to the combined list to make up the UWL.

This University Word List provides coverage of eight percent of words in university level academic texts. It assumes that learners already have a knowledge of the most frequent 2000 words of English and includes words that occur frequently in a wide range of academic areas such as philosophy, history, law, biology and accountancy (Nation, 1993:120). The importance of such a knowledge of academic words becomes clear when vocabulary size is related to the ratio of known to unknown words in a text. If a reader of university level academic texts has a vocabulary of 2000 words, he will encounter one unknown word in approximately every eight words; if he has a vocabulary of 2000 words plus the 800 academic words (UWL), however, he will encounter one unknown word in every 20 known words. That is, he will enjoy 95 percent coverage of the text (Laufer, 1986; Nation, 1990). Nation cites another study (Liu and Nation, 1985, in Nation, 1993) which investigated L2 learners' guessing or inferring of word meanings from context, where some learners had 90 percent coverage of text and others 95 percent coverage. Their findings showed that those learners with 95 percent text coverage guessed more successfully. It is therefore postulated that if a reader does not recognise at least 90 percent of running words in a text, he runs the risk of reading at a 'frustration level'. Lesiak and Bradley-Johnson (1983) refer to Johnson and Kress's (1965, in Lesiak and Bradley-Johnson, 1983) distinctions of reading performance into three levels which are relevant here: the independent level (the level at which the reader can read on his or her own, recognises 99 percent of words in context, and enjoys 90 percent comprehension); the instructional level (the level at which the reader can profit from instruction, recognises 95 percent of words in context, and enjoys 75 percent comprehension); and the frustration level (the level at which the student becomes completely unable to handle the materials, recognises 90 percent or fewer words in context, and comprehends only 50 percent of the meaning of the text) (Lesiak and Bradley-Johnson, 1983:8).

Researchers (Laufer, 1997; Nation, 1990) thus agree that general text comprehension demands that learners have a receptive vocabulary of at least 95 percent of the words in a text. This is a slightly different estimation than that of Nation and Hwang (1995, in Huckin and Coady, 1999:184) who claim that learners can get by with recognising about 84 percent of the words in a wide range of written texts,

which they claim a sight recognition of the 2000 most frequent word families of English should allow.

Estimates of the size of vocabulary and the type of words that should be known in order to have 95 percent coverage of text vary from a minimum threshold of 2800 high frequency word families (providing coverage of 95 percent of academic texts), to a wider comprehension enabled by knowledge of about 5000 word families, or 98 percent coverage (Hirsch and Nation, 1992, in Laufer, 1998), to 10 000 word families (99 to 100 percent coverage of university level texts (Huckin and Coady, 1999:185). What this indicates is that a relatively small vocabulary is needed to account for a very high percentage of words in a text (Nation, 1993). If teachers ensure that learners master this important base vocabulary through a variety of approaches, and if reading material is roughly matched to vocabulary level, then comprehension and vocabulary activities will have more chance of success.

Studies by Laufer (1992) support the above. She believes that ‘the language threshold for reading purposes is largely lexical’ (1992:126). Her study with Hebrew and Arabic mother-tongue students on the relationship between reading in an L2 and vocabulary size showed that the ‘minimal number constituting the lexical threshold is 3000’ (1992:129). She used the same definition of a word (i.e. Nation’s 1990 definition; see also Bauer and Nation, 1993) as this present study: a word is actually a word family, or a word and all its inflections and derivations. She used ANOVAs to compare the reading scores of her subjects across various vocabulary levels (below 2000-, 2000-, 3000-, 4000- and 5000-word levels) and found that these reading score differences became significantly higher at the transition from the 2000- to 3000-word level. ‘This suggests that the turning point of vocabulary size for reading comprehension is about 3000 word families [...] the level at which good L1 readers can be expected to transfer their reading strategies to L2 is 3000 word families, or about 5000 lexical items’ (Laufer, 1997:23-24). This translates to the present study: given the fact that at the time of data collection the subjects in the present study were at the threshold of the senior phase or General Education and Training Certificate (GETC) of their education, where accessing of academic texts would become more and more vital to academic success, the size of their vocabulary is of great significance.

2.3.3.2 The importance of academic vocabulary

As the level of schooling progresses, so the levels of abstraction in materials increase and supportive context is reduced. Processing and producing language becomes more cognitively demanding, necessitating the development of CALP if learners are to succeed at school (§2.2.3). The acquisition of CALP (Cummins, 1991, in Sarinjeive 1999; Pretorius, 2002a; Smyth, 2002) may be inhibited in L2 learners. Bilingual children must attain a threshold of linguistic competence in their L1 if they are to transfer these skills successfully to their L2. The Threshold Report (Macdonald, 1990, in Pretorius, 2000), for instance, revealed that there was an immense gap between the words that black South African children knew at the end of their Grade 4 year and words they needed to know to understand their Grade 5 textbooks. Cooper (1999), in her examination of the vocabulary levels of first year university students at Unisa and Vista University, found a relationship between vocabulary levels and academic performance: weaker students had smaller receptive vocabularies, and were particularly lacking in lower frequency words. In the case of L2 readers, there is evidence that reading problems in the L2 are caused fundamentally by their language deficit, especially by their lack of vocabulary (Alderson, 1984, in Laufer, 1997; Bossers, 1991, in Grabe and Stoller, 1997; Hacquebord, 1994). Without an adequate vocabulary these learners are unable to put into practice the reading skills they have already accomplished in their L1. This underlines the critical importance of developing an adequate high frequency vocabulary (2000 to 3000 word families, at least) in the L2 (Laufer, 1992, 1998; Nation, 1993).

Nation (1993) examined the changing relationship between vocabulary size, skill in language use and what he referred to as knowledge of the world, or academic ability. He posited that the development for second language learners began with an emphasis on vocabulary size as the 'essential prerequisite to the development of skill in language use' (Nation, 1993:131). As it develops, this skill allows for a growth in knowledge of the world through the competent use of the language. But if this knowledge of the world is to increase, there has to be an attendant growth in vocabulary. As the learner's knowledge of a particular area of study increases, there is an increase in the opportunity for knowledge-related vocabulary growth. Skill in language use, which includes reading comprehension, is dependent on vocabulary size.

In order to be successful in academic studies, it is necessary to be familiar not only with

the high frequency words of English but also with the general academic vocabulary that is common to many academic disciplines.

(Nation, 1993:120)

Laufer, however, does sound a warning here: her studies (1986, 1992) may have shown a high correlation between vocabulary size and reading comprehension, but this does not imply a causal relationship between the two factors. Also, Qian (1998:27) feels that Nation has neglected the dimension of depth, or quality (that is, the depth of understanding of a word and its collocations, synonyms, where to use it and so on), of vocabulary knowledge.

The work of Corson (1985, 1997) supports this. He argues that communication in specialist knowledge areas of education necessitates the use of particular words, most of which are Graeco-Latin in origin. These words enter a child's productive vocabulary during adolescence – but only under particular circumstances. Such words often have characteristics that make them seem 'bizarre, highbrow and difficult to language users who are not exposed to early and regular contact with them' (Corson, 1985:27). These words are mostly low frequency words, which hampers their activation because learners do not encounter them very often (Corson, 1997:696). Corson contends that there is a 'lexical bar' in the English lexicon which makes it difficult for members of social groups such as the working classes to gain lexical access (that is, the decoding and encoding of language, which employs phonological as well as orthographic processing) to knowledge categories of the school curriculum, in both their oral and written language and possibly even in their thought processes (1985:28). He claims that sociohistorical events have prevented specialist words from becoming a familiar component of the vocabularies of such social groups.

When the lifestyle of broad sections of a population restricts the experiences, activities and language contacts available to some children in society relative to others, and when this phenomenon occurs from generation to generation, then inevitable linguistic dissimilarities are likely to arise between groups.

(Corson, 1985:51-52)

This situation has been perpetuated by present educational and sociological forces. However, this type

of specialist vocabulary is often essential for understanding the secondary school curriculum. Children who come from more advantaged, upper middle class backgrounds are generally more likely to have richer experiences and wider language contacts than poorer working class children. These richer experiences ‘promote certain kinds of conceptual and lexical development’ and reveal to them ‘the conventions for applying words, the “rules” that are necessary for word learning’ (Corson, 1985:52).

Corson’s theory of a lexical bar may have some relevance to the present study. In South Africa, learners of English as a second language are often mother-tongue speakers of an African language. Historically, development of these languages has been consciously neglected (Granville *et al.*, 1998; Sarinjeive, 1999) and as a result these learners may also have been denied access to this specialist academic vocabulary, both because their own languages have not been developed and also because their access to English has been limited. Many of the children who took part in the study came from historically disadvantaged backgrounds; even if they themselves had not experienced an inferior type of education they very often came from homes where parents were subjected to ‘Bantu education’ (§2.2.3). The subjects of this study may thus be disadvantaged in this way – home languages consciously underdeveloped, a lack of books in the home, parents with limited knowledge of English and so on. The results of the questionnaire used in the study revealed that many of the subjects did not read regularly. The subjects were in Grade 7 at the time the data were collected, a crucial stage in the South African school system as it is the final year of primary education and the year in which children are prepared for entry into the secondary phase (§2.3.3.1). In this latter phase there is an emphasis on academic study and content specific terminology, both of which require a sound knowledge of academic vocabulary.

The fact that, in content areas, vocabulary is not only an aspect of the specific language but also an aspect of general knowledge and subject matter discourse, which is not language specific, is borne out in Hacquebord’s (1994) study. She found that minority students did not necessarily share their Dutch peers’ background knowledge. Their problems with reading textbooks in Dutch were thus amplified not only by their language problems but also by their lack of background knowledge. These students were likely to experience a vicious circle: they learnt less because of their language deficiency, and their

language deficiency increased because they ceased learning, unless they were able to develop some survival strategies. This presented what Stanovich (1986) refers to as the Matthew effect, in the sense that those with less knowledge learnt less, or got 'poorer'.

Related to this, Cunningham and Moore (1993) investigated whether the presence of academic vocabulary in comprehension questions could be a factor in determining children's reading comprehension performance. Although their subjects were MT English speakers, this study and its results can be extrapolated to L2 speakers in the light of what has been discussed above. These researchers defined academic vocabulary as 'the concepts and labels for concepts that occur mainly in school' (1993:172). Special terminology for content subjects, specialised meanings of words in particular contexts and some seemingly everyday words that take on more precise meanings in particular contexts would all be included in this category. As they were aware that questions as speech acts are very prevalent in classrooms and affect reading comprehension, that students find academic words difficult, and that such words also occur in content subject instructional materials and practice, they were interested in determining the role of academic vocabulary in questions which tested reading comprehension. They found that comprehension tasks and language-as-subject teaching materials tended to contain large numbers of such academic words.

Subjects in Cunningham and Moore's study were 4th, 5th and 6th grade MT English students from a small Midwestern elementary school. Their findings suggested that if teachers plan to use academic vocabulary regularly in written questions they should ensure that their students understand this vocabulary; if not, they should reword their questions in language that is more familiar to students. Failure to do this may result in students being penalised for wrong answers or for misunderstanding the passage when in fact it is the language of the question that is causing the confusion. They also found that knowledge of academic vocabulary could present a Matthew effect (Stanovich, 1986) for some students: the less vocabulary the students knew, the less they read, and the smaller their vocabulary growth. In support of these findings, Singer and Donlan (1982, in Cunningham and Moore, 1993) showed that instruction of academic vocabulary could improve students' independent reading strategies. Teaching them to translate questions from academic vocabulary into everyday language proved a useful exercise.

All of the above highlights a vital issue: the necessity for learners on the brink of secondary education to be in the process of developing a vocabulary size which includes knowledge of at least the 2000 most frequent English word families and the UWL. This is why these levels have been identified as the focus of the present study. The subjects of the study were at a crucial stage in their education. From this point on they will encounter more and more academic vocabulary in ‘conceptually dense’ (Pretorius, 2002a:189) subject-specific textbooks. It seems reasonable to expect that by the threshold of secondary school (the age of 13 to 14 years) children should ideally have formed a basic vocabulary knowledge of about 3000 word families.

2.4 The Lexical Frequency Profile (LFP) as a measure of vocabulary proficiency

Vocabulary is not usually learned for its own sake. One of the aims of a vocabulary programme is to bring learners’ vocabulary knowledge into active communicative use. When learners are in a position in which they have to make use of what they know (as in the communicative activity used in the present study and in Kiel study), there will be a relationship between direct measures of a learner’s vocabulary size and the richness of the vocabulary in their language production (Laufer, 1991, in Laufer and Nation, 1995). The present study makes use of a measure of lexical richness, the Lexical Frequency Profile (LFP), first proposed to assess lexical richness and vocabulary levels by Laufer and Nation (1995). This measure considers the proportion of high frequency general purpose and academic words in a learner’s writing. In the case of ESL learners, the LFP is regarded as a measure of how vocabulary size is reflected in use. Laufer and Nation (1995) found that the LFP correlated well with an independent measure of vocabulary size. The LFP is thus a reliable and valid measure for use in examining how vocabulary growth is related to vocabulary use.

Laufer and Nation (1995) discuss various measures of lexical richness that have been used by researchers, but which are less relevant to the present study – lexical originality, lexical density, lexical sophistication and lexical variation – and point out the drawbacks of these measures. They then discuss the LFP, which indicates the percentage of words a learner uses at different vocabulary frequency levels, that is, the relative proportion of words from different frequency levels. The different levels of vocabulary considered are the 1000- and 2000-word levels, as well as the UWL which comprises the 836 word families not in the first 2000 words of English (and which is referred to in the present study

as the 3000-word level), but which occur frequently and widely across a variety of written texts from a variety of disciplines (Xue and Nation, 1984), as discussed above in §2.3.3.1.

Laufer and Nation (1995) felt that the LFP offered a more objective tool for measuring lexical richness than other measures. It correlated well with an independent measure of vocabulary knowledge. It focused on lexis and disregarded the influence of grammar. Another advantage today is that it is almost completely computerised. Their study also shows that we can reasonably expect a learner's vocabulary size, as measured by a vocabulary test, to be reflected in the learner's productive use of the language. Laufer tested a group of 18-year-old native speakers of English and found that the percentage of beyond-2000 words was between 25 and 28 percent. In addition, her analysis of texts in a reader for academic purposes revealed that the number of beyond-2000 words made up 35 percent of the text. In her study of L2 speakers' writing improvement over time she found that profiles did indeed change, after one semester and after two (Laufer, 1994). The changes were significant if the vocabulary was described in terms of the proportion of basic 2000 and 'beyond-2000' words.

When determining the LFP of a particular text, the entire calculation is done by a computer program, VocabProfile (§1.7.1; §3.4.2), which compares vocabulary lists to the text to determine which words in the text are and which are not in the lists and to calculate what percentage of the items in the text are covered by the lists. The program marks the words in the text and lists them in types and families, according to the list in which they occur. It also provides information on frequency and coverage. The program defines a word as a base form with its inflected and derived forms, that is, a word family as explained above in §2.3.1.1. VocabProfile can calculate the LFP on the basis of word tokens, word types or word families. Laufer and Nation (1995) consider the latter calculation most revealing as an indication of lexical richness, because it uses a definition of

what should be counted as a word which most closely matches how learners view words: they can see that words and their inflected forms are related.

If the LFP can be shown to bear a relationship to vocabulary size, then it also has value as an indicator of quality of vocabulary use in that it can show the extent to which writers are making the fullest use of their available vocabulary knowledge.

2.5 Conclusion

The purpose of this chapter was to provide a review of the research that has been conducted in the areas of immersion and vocabulary size and growth, and particularly those studies which have been conducted on the effects of immersion on vocabulary size. It also sought to highlight the link between vocabulary size and academic success.