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IN ACADEMIC READING: A COLLECTIVE CASE STUDY

by

Heuwon Kim

A thesis submitted to the School of Graduate Studies and Research

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DEDICATION

I dedicate this thesis to my parents, my sister, and brothers,
who have provided love, support, and inspiration.

ABSTRACT

This study explored ESL speakers' vocabulary comprehension of unfamiliar words. The researcher examined the ways the participants dealt with unfamiliar vocabulary, factors that influenced their vocabulary comprehension strategies, and word retention rates. For data collection, the participants' vocabulary sizes were measured. Also, they were asked to record unfamiliar words that they encountered. Two interviews were also carried out. Finally, a vocabulary achievement test was given.

The findings may help ESL practitioners more effectively facilitate the second language vocabulary development of their students. First, practitioners should be more aware of individual learner differences and similarities in vocabulary comprehension approaches. Second, they can guide their learners to be aware of the benefits of thematically related extensive reading in vocabulary learning. Consciousness-raising about the importance of vocabulary knowledge in text comprehension will increase learner attention to unknown words in text comprehension. Finally, practitioners can guide their learners to be aware of their own learning strategies.

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CHAPTER ONE:

INTRODUCTION

Overview

As an introduction, CHAPTER ONE records the researcher's second language (L2) learning and academic background that have led to this study, an overview of the study, and the organization of the six chapters of the thesis.

Researcher's Background

This research deeply reflects my own L2 vocabulary learning experiences as well as my undergraduate and graduate study of L2 teaching and learning. As an EFL (English as a Foreign Language) learner in Korea, I studied English for seven years, mainly within formal educational settings where instructional method were a combination of grammar translation and audio-lingual approaches. Then I came to Canada to study English in preparation for university studies. After taking pre-university sequences of ESL (English as a Second Language) courses in Canadian university settings as well as learning English in other social contexts, I undertook undergraduate study at the University of Ottawa in the Second Language Teaching program and completed a B. A. I have continued my study of L2 teaching theories and practice at the graduate level. As my L2 ability advances, and as my knowledge about L2 teaching and learning deepens, it becomes clear how crucial L2 vocabulary knowledge is to successful L2 learning in general, and particularly for academic achievement. During my graduate studies, I developed the topic of the present research through my ongoing exposure to issues related to L2 vocabulary teaching and learning and socio-cultural factors.

Overview of the Study

The development of sufficient vocabulary knowledge for successful comprehension of challenging academic texts is one of the most important ongoing tasks facing advanced ESL learners with academic goals. When L2 learners reach more advanced levels of language proficiency, they have already built significant language competence; they know the main English grammar structures and possess a considerable amount of English vocabulary knowledge (Parry, 1997). Their vocabulary size may range from 3,000 most-frequent word families for general text comprehension (Laufer, 1997; Nation, 1990) to 10,000 word families for 99-100% comprehension of academic texts (Hazenbergh & Hulstijn, 1996). However, for full understanding of advanced academic reading materials, they may need to learn more than 40,000 words (Nagy & Herman, 1987). Second language (L2) researchers suggest that vocabulary knowledge plays a crucial role in reading comprehension because those who know more vocabulary are better able to comprehend written texts (Anderson & Freebody, 1981; Beck, Perfetti, & McKeown, 1982; Coady et al., 1995; Haynes & Baker, 1995).

The research literature on vocabulary development in reading shows that advanced L2 learners use different learning strategies with respect to unknown words they encounter during reading. When they encounter new words and perceive them as unnecessary for general comprehension of the text, they tend to pass them without attempting to determine their meanings (Ard & Homburg, 1992; Parry, 1993, 1999; Paribakht & Wesche, 1997, 1999). The primary way advanced L2 learners seek meanings of unfamiliar words is through lexical inferencing; i.e., using available clues to guess the meaning of unknown words within reading contexts (Coady, 1995; Haastруп, 1991; Huckin & Bloch, 1993; Huckin & Coady, 1999; Oxford & Scarcells, 1994; Walker, 1983, Paribakht & Wesche, 1999). They may also consult a dictionary (Atkins &

Varantola, 1997; Hulstijn, 1993; Scholfield, 1982; Tomaszczyk, 1979) or ask native speakers the meanings of unknown words during social interactions (Milton & Meara, 1995). Researchers also report learner differences in their vocabulary learning strategies (Ahmed, 1989; Gu & Johnson, 1996; Moir, 1996; Oxford & Crookall, 1990; Parry, 1993, 1997; Sanaoui, 1995; Paribakht & Wesche, 1999).

An increased understanding of vocabulary comprehension strategies used by L2 learners and associated individual learner variation can have significant pedagogical implications for L2 learners who are pursuing higher education. Second language (L2) learners have an immediate need for vocabulary knowledge development to ensure successful reading comprehension for academic purposes. However, teaching them a great amount of vocabulary in a short time has serious limitations because of pedagogical constraints. Also, “too often pedagogical focus has been on what students should be doing rather than their needs” (Hosenfeld, 1976, p. 128). Research on L2 vocabulary learning should explore learners’ needs in order to provide pedagogical insights into more learner-centered teaching. Continuing research on various learner strategies actually used by learners and solicitation of their perceptions about their strategies will become an important foundation to enhance L2 pedagogy (Schmitt, Michael, & McCarthy, 1997).

As part of ongoing research into incidental vocabulary learning, the present study seeks to understand advanced L2 learners’ strategies for comprehension of unknown words when reading an academic text. The study explores how advanced L2 learners actually handle unknown words in their academic reading, what factors appear to have influenced their uses of vocabulary comprehension strategies, and how well they retain previously unknown words whose meanings they have come to understand while reading. The study is significant to the extent that research on incidental vocabulary learning will benefit from more longitudinal studies done in diverse natural

learning contexts (Huckin & Haynes, 1995). Considering that advanced L2 vocabulary development is a continual process over time, with many individual differences, parallel longitudinal case studies in natural learning situations should more fully reflect actual learning processes and inform our understanding of incidental vocabulary learning and associated learner strategies than would a cross-sectional approach.

Organization of the thesis

This thesis is organized into six chapters. CHAPTER ONE introduces the researcher's background, provides an overview of the study, and presents the organization of the thesis. CHAPTER TWO presents an in-depth analysis of previous research on the topic. Such research deals with what it means to learn a word, reading and vocabulary learning, incidental vocabulary learning in reading, learner strategies in incidental vocabulary learning, and learner differences with respect to each of the foregoing. In this chapter, the literature review is followed by an articulation of the rationale for the study, research questions, and a relevant theoretical framework. CHAPTER THREE explains the research method of the study. The chapter provides information about the research site, participant selection, data collection instruments and procedures, data analysis, the researcher's role, trustworthiness of the study, and ethical considerations. CHAPTER FOUR and FIVE deal with study results. In CHAPTER FOUR: Results (Within-Case Analysis), the performance of individual participants is presented. In CHAPTER FIVE: Results (Cross-Case Analysis), the performance of the four participants is compared. CHAPTER SIX concludes the thesis with a discussion of the research findings, and implications for both research methodology and language teaching. References and appendices are provided at the end of the study.

CHAPTER: TWO

REVEEW OF THE LETERATURE

Overview

In this chapter, several issues are addressed. The major lines of recent research literature related to the topic are discussed first. These include the learning of words, reading and vocabulary learning, incidental vocabulary learning in reading, learner strategies in incidental vocabulary learning, and learner differences with respect to the foregoing. The literature review is followed by explanation of the rationale for the study. Then, the research questions are specified followed by the theoretical framework that guides the study. Finally, the chapter concludes with a summary.

Review of the Literature

The increasing body of L2 research literature in recent years on vocabulary learning and teaching clearly demonstrates the significance of vocabulary knowledge, both as part of L2 proficiency and as a basis for further L2 learning (e.g., Bensoussan & Laufer, 1984; Fraser, 1999; Haynes, 1984; Henrickson, 1999; Huckin & Coady, 1997, 1999; Hulstijn, 1992, 2001; Laufer, 1997; Nation, 1990, 2001; Paribakht & Wesche, 1993; Parry, 1993, 1997; Read, 1993, 2000; Schmitt, 1997, 2000; Schmitt & McCarthy, 1997; Stein, 1993, Wesche & Paribakht, 2000). The researchers have dealt with many issues, including direct and indirect learning and teaching of new vocabulary, incidental and intentional vocabulary learning, vocabulary learning strategies, explicit strategy training with respect to inferencing and dictionary use, and vocabulary assessment. In particular, the researchers have investigated what L2 learners actually do with unknown words when they encounter them during reading: how they find out their meanings, what kinds of knowledge sources they utilize in doing so, and the efficacy of different comprehension strategies.

The literature review in this chapter explores issues and previous studies that are particularly relevant to the topic of this study.

Learning a Word

Vocabulary comprehension is seen by many researchers as an essential very early stage in word learning which is one important reason for studies such as this one focuses on this phenomenon. Vocabulary researchers have attempted to discover what might be involved in learning a word. What constitutes full learning of a word, and how word knowledge develops over time? This has been addressed by both L1 and L2 researchers (deBot, Paribakht, & Wesche, 1997; Brown, 1995; Coady, 1993; Dale, 1965; Gass, 1988; Harley, 1995; Henrickson, 1999; Hulstijn, 1992, 1998, 2001; Levelt, 1993; Meara, 1996; Melka, 1997; Nation, 1990, 2001; Paribakht & Wesche, 1993; Richards, 1976; Schmitt, 2000; Schmitt & Schmitt, 1995; Wesche & Paribakht, 1996). These researchers have attempted to characterize the multi-dimensional aspects of what is involved in knowing a word and how the learning process takes place.

Richards (1976) was one of the first to try to define what word knowledge is. He described various dimensions of word knowledge that native speakers may continue to develop throughout their adulthood. This multi-dimensional model for word knowledge has also been used in describing the learning of L2 vocabulary (Read, 2000). Richards's descriptions showed that learning the complex aspects of a word involve more than simply memorizing its form and meaning(s). According to his early work, knowing a word means knowing:

- The probability of encountering that word in speech or print.
- The limitations on the use of the word according to variations of function and situation.
- The syntactic behavior associated with the word.
- The underlying form of a word and its derivations.

- The network of associations between that word and other words in the language.
- The semantic value of a word.
- Many of the different meanings associated with a word. (P. 83)

Nation (1990, 2001) suggests that knowing a word can involve knowing the form, meaning, and use of a word. Learners should acquire various kinds of word knowledge, including:

- Form: spoken, written, word parts.
- Meaning: form and meaning, concept and referents, associations.
- Use: grammatical functions, collocations, constraints on use: register, frequency.

(Nation, 2001, p.27)

He also claims that knowing all aspects of a word can be characterized in terms of receptive and productive word knowledge, thereby differentiating between recognizability of a word through listening to verbal communication and reading written texts, and productivity through speaking and writing.

According to Hulstijn, (1998), a lexical item in literate adult native speakers' lexicons consists of "semantic, pragmatic, stylistic, collocational, syntactic, categorical, morphological, phonological, articulatory, and orthographic features" (p. 1). A speaker's lexical development takes place in an incremental way (Nagy & Herman, 1987), which may be thought of as "filling various slots" in their mental lexicons although the actual mental organization of the lexicon is unknown (De Bot, Paribakht & Wesche, 1997, p. 316).

Henrickson (1999) suggests that knowing a word involves learning different intentional and sense relations to other words such as paradigmatic relations, antonymy, synonymy, hyponymy, and gradation. She also explores three dimensions of lexical competence: partial-precise knowledge, the depth of knowledge, and receptive-productive knowledge. She suggests that these

dimensions may reflect three vocabulary-learning continua along which lexical development can be described.

Melka (1997) uses the concept of “word familiarity” to describe the degree of vocabulary knowledge, and to distinguish between receptive and productive knowledge. According to him, the first encounter with a word in a written text gives rise to the most elementary knowledge: visual recognition of (part of) a word form in a context, as well as its length. Higher degrees of familiarity yield productive knowledge of a polysemous word, its various meanings, collocations, and idioms. A very high degree of familiarity can yield phonological, morphological, syntactical, situational, and stylistic aspects of knowledge. He suggests that knowing a word is not an all-or-nothing phenomenon. Some aspects of word knowledge may become productive, while others remain at the receptive level.

Researchers have attempted to describe how the complex aspects of word knowledge are developed over time. Dale (1965) suggests four basic stages in L1 word learning (cited in Read, 2000). These include: 1) I never saw it before; 2) I’ve heard of it, but I don’t know what it means; 3) I recognize it in context – it has something to do with ...; 4) I know it. (p. 27). In L2, Paribakht and Wesche (1993) discussed initial word learning in terms of knowledge of word form and ability to recognize and use it. To track early development of knowledge for L2 learners, they developed the *Vocabulary Knowledge Scale* (VKS). In determining the outcomes of word learning, they asked the learners to report their knowledge of the tested words according to the levels of familiarity below:

1. I have never seen this word.
2. I have seen this word before, but I don’t know what it means.
3. I have seen this word before, and I *think* it means _____. (synonym or translation)

4. I know this word. It means _____. (synonym or translation)

5. I can use this word in a sentence. (1993, p.33)

Scoring on this scale above item 2 is based on performance rather than self-report.

Other researchers have attempted to determine the input processing associated with new language learning. According to Gass's (1988) framework as applied to word learning in Wesche and Paribakt (1998), the stages of target language input processing can include: 1) apperception of the form of a 'new' word; 2) comprehension of some or all of its meaning; 3) intake of further processing of the form-meaning relationship and association with previous knowledge; 4) integration or internalization of some of this knowledge; and 5) output or producing the word. Whereas Krashen (1985, 1989) had proposed the notion that "we acquire language by understanding messages" with sufficient 'comprehensible input' (1989, p. 440), Gass emphasizes that it is 'comprehended input,' not just comprehensible input, recognizing learner attention and mental activity with respect to linguistic data available in the environment, that potentially becomes 'intake' for acquisition. In a similar way, Hatch and Brown (1995) suggested that the word learning process consists of: 1) learners' initial encounter with a new word; 2) taking in its form; 3) understanding its meaning; and 4) consolidating the form and meaning in memory.

Vocabulary Learning and Reading

The significant relationship between vocabulary learning and reading has been supported by evidence in both L1 (Nagy, 1988; Nagy, Herman, & Anderson, 1985; Sternberg, 1987), and L2 studies (Day, Omura & Hiramatsu, 1991; Paribakht & Wesche, 1997; Pitts, White & Krashen, 1989; Saragi, Nation & Meister, 1978). Research evidence of vocabulary learning through oral and mixed input has also been well demonstrated (Brown, 1993; Brown, Sagers, & LaPorte, 1999; Ellis & He, 1999). Thus, as Sternberg (1987) claims, one should be cautious in concluding that learning

vocabulary through written contexts is the “best” way. However, the evidence strongly suggests that most new L2 vocabulary learning beyond the first few thousand words takes place through written language (Huckin & Coady, 1999). Especially for learners of more advanced proficiency levels, learning new vocabulary from written discourse can be a primary means because, once learners master the most frequent words, new (less frequent) words are more likely to be found in written language (Schmitt, 2000). To expand their vocabulary knowledge, reading written texts will provide them with better opportunities to learn less frequent words. In the case of post-secondary students studying in their L2, the reading of discipline-specific texts will necessarily present many new, often less frequent and sometimes highly specialized words that they must learn. As a result of such readings, learners will continue to expand their knowledge of new words, and so will be able to understand more difficult texts containing more new words. Therefore, in learning new vocabulary, reading is not only a cause of word learning, but also a consequence (Nation & Coady, 1988; Stoller & Grabe, 1993).

In L1 learning, Nagy, Herman and Anderson’s studies (1985, 1987) with English native speakers showed evidence of vocabulary gain through reading. They asked native-English-speaking school children to read texts that contained words that were presumably unknown to the children. After reading the texts, children were tested with respect to these target words. The researchers attempted to compare their test scores with those of students who did not read the texts. Although the probability of learning a word was as low as five percent in the 1987 study, this performance can improve if learners read large quantities of texts over time.

Several studies have provided evidence of vocabulary learning in L2 through reading. In Saragi, Nation, & Meister (1978)’s study, subjects who did not have Russian language background read an English novel, A Clockwork Orange, that used Russian slang words (*nadsat*). Subsequent

vocabulary test results showed that the subjects receptively knew 75% of the tested *nadsat* words. Another study by Ferris (1988) showed that university students of ESL learned new words by reading. Students were instructed to read the novel Animal Farm by George Orwell. Before and after reading the book, they were tested with respect to the target words. The researchers reported that students showed significantly better test results than the control group of students who did not read the book. The results from other studies have also demonstrated evidence of vocabulary learning from reading (Da, Omura, & Krashen, 1993; Hulstijn, 1992; Pitts, White, & Krashen, 1989).

Some studies have focused on investigating the efficacy of dictionary use in word learning in reading. In Lupescu and Day's study (1993), when Japanese learners used a bilingual dictionary, they had higher scores on a vocabulary achievement test, compared with those who did not use one. On the other hand, Hulstijn's (1993) study showed no significant difference in post-test scores of learners who looked up many more unknown words in a dictionary and those who looked up fewer words.

Paribakht and Wesche (1997) compared gains in word knowledge by university level ESL students through *Reading Only* (RO) and *Reading Plus* (RP) instructional treatments. In the RO condition, the subjects read a core text and two thematically related texts which provided multiple exposures to certain target words, and answered general comprehension questions. The group in RP read only a core text and carried out a sequence of vocabulary exercises using the same target words. Findings showed that both approaches resulted in vocabulary learning. However, the RP group had higher VKS scores on the target words than the RO group. The study results are consistent with those of Hulstijn's (1988) in that word learning in reading contexts can be enhanced by making the target words salient, which pedagogically helps learners understand and retain the

target words better, not only because of multiple exposures to given words, but also due to cognitive “elaboration” of form-meaning relationships through association-making and other mental activity (Hulstijn, 2001).

Although the studies above sufficiently demonstrate learners’ word knowledge gains through reading, some issues still remain unresolved. Horst, Cobb, and Meara (1998) suggested that the above studies provided findings of limited value due to weaknesses in research design and execution. Furthermore, since most of the subjects in these studies were intermediate level learners, insufficient evidence was gathered with respect to word learning performance at beginner and advanced levels. Moreover, these studies employed specific and non-typical activities. By contrast, general reading behavior of learners involves simply “understanding the general meaning of a text, as is often the case in authentic reading situations” (Paribakht & Wesche, 1997, p.196).

Unlike the above experimental studies done in controlled settings over short periods of time, a few studies have attempted to capture word learning longitudinally in more natural learning settings. In Grabe and Stoller’ study (1997), an adult English L1 speaker attempted to learn Portuguese by reading newspapers daily for about 2 hours. The learner, a trained linguist, was fluent in Spanish, which has many structural and lexical similarities to Portuguese. The study showed that learning to read in the L2 in this manner led to gains in vocabulary knowledge. Apparently, the L2 learner gradually expanded his word knowledge through extensive reading and multiple exposures to unknown words. Parry’s case studies (1993, 1997) similarly measured university ESL speakers’ word knowledge development over a semester, as they took a regular course in a non-language discipline. The learners were instructed to carry out their course readings, write down unknown words that caused them any difficulty for reading comprehension and guess meanings of unfamiliar words. Parry reported that the post-test results showed considerable

vocabulary gain on the part of the learners. Also the learners demonstrated motivational benefits toward vocabulary learning from their course reading.

Incidental¹ Vocabulary Learning in Reading

Among L2 vocabulary researchers, ‘incidental’ learning has been discussed as a primary way of acquiring new words while reading. If L2 learners are to be able to learn new words incidentally during reading comprehension, a certain amount of prerequisite vocabulary knowledge is necessary; much of this is perhaps best attained through explicit vocabulary learning (Schmitt, 2000), which is not the case when learning new words through spoken language. Through both explicit and incidental learning, L2 learners should reach a vocabulary size threshold of at least approximately 5,000 word families to be able to comprehend an estimated 98% of words in general written texts (Coady et al., 1993; Hirsh & Nation, 1992; Laufer, 1997, Nation & Waring, 1997). After they reach this stage of L2 ability, they will be able to guess more effectively the meanings of an occasional unknown word or phrase by using reading contexts, to achieve full reading comprehension (Huckin & Coady, 1999). In incidental learning, learners do not intend to learn new words that they encounter in reading contexts; rather, their attention is on meaning comprehension of text (Paribakht & Wesche, 1999). Thus, learning new words comes as a by-product while reading. Huckin and Coady (1999) provide a convincing argument that incidental vocabulary learning through reading has certain advantages because it is contextualized vocabulary learning. This mode of learning is pedagogically beneficial: reading and vocabulary learning occur at the same time, and learners can select their own reading materials according to their own interests.

¹ Here the definition of ‘incidental’ learning refers to actual learning that occurs in the vocabulary learning process during extensive reading, which is different from ‘incidental’ learning used in an experimental study in which the term means that, in a controlled setting, learning takes place incidentally when learners are not told about a later test on some peripheral aspect of the task (e.g., vocabulary).

L2 researchers have demonstrated that the more advanced learners become in their language abilities, the more they are likely to increase their word knowledge incidentally through extensive reading (Coady, 1997; Gass, 1997; Huckin & Coady, 1999). This will be likely for learners whose language learning goal is to support the pursuit of higher education. These learners have already grasped the main grammatical structures of English and have attained a great deal of English word knowledge (Parry, 1997). Still, they have to learn a very large number of infrequent words including academically oriented words, and these are most likely to be encountered through extensive readings. In a study with Dutch L2 university students, as noted earlier, Hazenberg and Hulstijn (1996) demonstrated that, at the beginning of their academic studies, such learners require knowledge of around 10, 000 word families to manage their academic studies. To reach this level and then expand their word knowledge beyond it, academically oriented learners can learn new words ‘incidentally’ by gleaning new words from written text while engaging in meaning comprehension.

Some researchers address the issue of ‘learner attention’ in incidental learning. Regarding the view that reading is only a meaning-focused communicative activity, Schmidt (1993) argues that, in incidental learning, L2 learners probably pay at least some degree of conscious attention to word form in order to achieve success. When learners read written texts, they first focus on the visual aspects of the words (i.e., its graphic form). For L2 learners who are learning new words, the process of decoding a word in order to map its visual form onto possible meanings can be slow. Paribakht and Wesche (1999) likewise argue, based on their research, that how L2 learners interact with new words in the word learning process is “in some fundamental sense not incidental” (p. 25).

Other researchers have suggested that incidental vocabulary learning has much to do with learner memory in cognitive processing (Huckin & Coady, 1999). Ellis (1996) describes the

learning of new words incremental in nature. In this process, backsliding frequently takes place and when one does not use given L2 words for a long time, attrition often occurs. Through both learning and forgetting, an iterative process of transferring lexical information repeatedly from short-term to long-term memory occurs over time until a word becomes sufficiently fixed in long-term memory to become sustained productive knowledge (Schmitt, 2000). According to Lawson and Hogben (1996), the processes of analyzing, rehearsing, and manipulating a new word and its meanings will gradually cause that word (and its meaning) to be better subsumed under a suitable semantic network in long-term memory. Schmitt and Schmitt (1995) also suggest that “mental activities which require more elaborate thought, manipulation, or processing of a new word will help in the learning of that word” (p. 135). A learner’s attention to and elaborative processing of a new word has a strong influence on word learning outcomes (Fraser, 1999; Hasstrup, 1991; Hulstijn, 2001; Joe, 1995; Wesche & Paribakht, 1998).

Research has suggested that incidental learning, which involves a slow and gradual learning process, requires multiple exposures to a new word in various contexts. Schmitt (2000) suggests that with the first exposure, L2 learners may obtain the word form and a single meaning. When exposed to other texts, word features and some other meanings will be consolidated through further encounters with the words. Then, L2 learners’ intuitions of “word frequency, register constraints, collocational behaviors, and appropriate values” of the word will be gradually developed (Schmitt, 2000, p.118). Wesche and Paribakht (2000) also mention that “multiple exposures to words are normally required for L2 vocabulary acquisition, which can be described as the iterative, elaborative, and incremental nature of vocabulary acquisition” (p. 207). According to Saragi, Nation, and Meister (1978), 10 exposures to a new word are necessary for acquisition. Nation (1990) claims that 5-10 exposures are needed for full learning of a word. Some researchers such as

Brown (1995) and Holmes and Lamos (1993) argue that, due to the many variables that might influence learning outcomes, an exposure threshold cannot be easily defined. Possible variables can include the word's frequency and salience, word morphology, cognate recognizability, learner interest and prior knowledge, and the availability of rich contextual clues.

Learner strategies in incidental learning

As noted earlier, research evidence suggests that learners use various strategies to deal with unfamiliar words while reading. Learners often ignore unknown words. However, if they seek to understand them, they may infer the meanings of new words or seek assistance in finding the meaning, either from another person or through use of a dictionary, computer concordance or other source; or they may combine two or three strategies together.

Ignoring

Research findings show that L2 learners often ignore unknown words that they encounter while reading (Laufer & Sim, 1985). Parry (1993, 1997) explored incidental vocabulary learning strategies from academic texts. From her findings, she reported that her participants passed by many unknown words without working on them. If understanding the meanings of a given unknown word is not essential for achieving the desired level of reading comprehension, learners tend to ignore it. In Paribakht and Wesche's study (1999) of incidental learning through reading, the participants ignored approximately half of the unknown words. In examining the reasons for ignoring unknown words, Paribakht and Wesche (1999) found that the participants in their study often perceived unknown words as not closely relevant to the reading task. According to Gass (1999), when considering L2 vocabulary learning as a continual learning process, ignoring may be just another comprehension strategy naturally applied by L2 learners, which may lead to learning

over time. Fraser (1999) noted that, for her participants, training in inferencing resulted in a decrease in the rate of ignoring unknown words.

Inferencing

In incidental vocabulary learning, inferring the meanings of unknown words is considered a predominant strategy during reading comprehension (Huckin & Coady, 1999). This cognitive processing entails surmising the meanings of unknown words by utilizing available linguistic and non-linguistic clues from both the reading context at hand and learners' previous knowledge (Haastrup, 1991). According to Haastrup, if learners infer the meaning of a word successfully, it will facilitate their understanding of the immediate reading context. Also, it will help them to learn the form and meaning of the word. However, although inferencing plays a crucial role in incidental vocabulary learning, how this cognitive processing occurs and what mental activity is involved are not known (Paribakht & Wesche, 1999). Also, there still remains a lack of agreement with regard to the benefits of inferencing in incidental vocabulary learning (Fraser, 1999).

Some researchers have found that L2 learners frequently infer the meanings of unknown words. In doing so, they use linguistic and other knowledge clues (Huckin & Jin, 1987; Nation & Waring, 1997). Chern (1995) found that Chinese EFL learners, especially highly proficient ones, successfully guessed many meanings of unknown words. Fraser (1999) also noted that her francophone participants used guessing to achieve word learning (an overall mean of 28% word gain). Lexical inferencing was likewise the predominant vocabulary learning strategy, when ESL learners tried to identify the meanings of unknown words in Paribakht and Wesche's study (1999). Inferencing is a productive strategy for word learning because in inferencing learners perform a deep mental activity of hypothesis formation and testing of word meaning (Ellis, 1994; Haastrup,

1989). Also, reading contexts can provide psychological and linguistic contexts that may offer the learner a potential “memory hook” for learning new words (Schouten-van Parreren, 1989).

Conditions that may facilitate word retention in inferencing have also been proposed. Making words more salient in varied contexts through thematically related readings will help learners to retain infrequent words (Paribakht & Wesche, 1997; Parry, 1993). According to Brown (1993), learner perception of the usefulness of an unknown word in reading comprehension as well as its actual frequency may determine effective learning outcomes. Therefore, content words such as nouns, verbs, and adjectives will be learned more easily than articles and prepositions (Brown, 1993; Paribakht & Wesche, 1997). Also, clear and sufficient semantic and other linguistic clues will enhance the possibility of correct inferencing of unknown words (Dubin & Olshtain, 1993; Haynes, 1993).

Research has identified a number of knowledge sources used by learners for inferencing. Carton (1971) proposed three main sources that learners used to find out the meanings of unfamiliar words in foreign language learning. These include the morphological and syntactic regularity of the target language, cognates and phonological similarities between two languages, and real-world experiences of the learner that correlate with the text. In Paribakht and Wesche’s study (1999), learners used sentence level grammar (e.g., word order, word class) heavily. The learners also used other knowledge sources such as word morphology, punctuation, and world knowledge. Some learners used multiple sources of information in inferencing (Haastrup, 1991; Paribakht & Wesche, 1997).

The effectiveness of inferencing in reading contexts has been questioned. According to Huckin and Bloch (1995), the idea that L2 learners can rely on reading contexts to decipher the meanings of new words can lead to a serious underestimation of the problems that L2 learners may

have in using the context. Unlike native speakers, L2 learners may or may not always be ready to take advantage of reading contexts. In Stein's (1995) study, 30 educated native speakers of English correctly guessed only 37 % of unfamiliar English words when they responded to an informal survey to guess the meanings of 40 words in contexts. Schmitt (2000) suggests that guessing can be a very difficult task because of text complexity, not because of L2 learners' inability to use reading contexts. Therefore, according to him "a contextual definition does not often work for L2 learners" (Schmitt, 2000, p. 204). Learners' attempts often lead to wrong guesses (Bensoussan & Laufer, 1984; Li, 1988). Laufer (1997) suggests that guessing may not always be an effective comprehension strategy because of "the problems of L2 learners' insufficient vocabulary, wrong interpretations of deceptively transparent words, and learners' inability to guess unknown words correctly" (p. 30).

Appeal for assistance

Research findings show that many L2 learners seek help from external sources, e.g., a dictionary. Luppescu and Day (1993) found that for the Japanese learners in their research study, using a bilingual dictionary helped them retain unknown words better. Parry (1993, 1997) likewise noted that efficient dictionary use resulted in better performance on a subsequent vocabulary test. Knight (1994) also found that learners with access to a dictionary retained more words in both immediate and delayed tests. Fraser (1999)'s research demonstrated the benefits of the combination of inference and dictionary use in learning outcomes, when a dictionary is used to confirm or disconfirm guesses. Using a bilingual dictionary in an appropriate manner has also been found to be beneficial for vocabulary learning and reading development (Bensoussan, 1983; Grabe & Stoller, 1997; Nation, 2001)

Likewise, learners seek help from more competent users of the target language to find out the meanings of unknown words. Schmitt (2000) also sees this as a learner strategy by which L2 learners attempt to improve their vocabulary comprehension. This strategy may have limitations, however, in terms of its requirement for credible and constant informants, and may not lead to the in-depth processing of unknown words normally required for retention.

L2 Learners' Cultural and Linguistic Background

As L2 learners are exposed to linguistic input in ESL contexts, their prior linguistic and world experiences can be transferred in learning new knowledge and skill. L2 written texts are the products of the L2 and its culture, which are inseparably intertwined. When reading, ESL learners may apply their prior linguistic and world knowledge to the interpretation of the meaning of individual words and the text as a whole. L2 learners who lack the schemata of not only graphic cues but also L2 cultural and world knowledge may have significant difficulties. Therefore, L2 learners' cultural and linguistic backgrounds which they may bring into vocabulary comprehension situations can have a great influence on learning L2 vocabulary in terms of their confidence of transferring their cultural and linguistic schemata to incoming language inputs.

Cultural distance

While reading L2 texts and comprehending new words in them, more than prior linguistic knowledge is necessary. There must also be topic or specific world knowledge, which L2 learners may or may not possess. As reading involves interactions between L2 readers' cultural beliefs and assumptions with those of the author from the target culture, for L2 readers written texts can be introductions to new belief systems of the target culture with a varying degree of comprehension, depending on L2 learners' cultural backgrounds and life experiences (Carrell, 1987). In reading L2 texts, L2 readers simultaneously manipulate both linguistic and cultural codes (Carrell &

Eisterhold, 1983). The failure of L2 learners to guess the meanings of unknown words may be deeply related to L2 learners' lack of not only linguistic, but also cultural schema. ESL learners' problems of lack of cultural knowledge in comprehending unknown English words are particularly marked for those who do not have European L1 and cultural backgrounds (Coady, 1978). In her study, Parry (1993) proposed the differences of L2 learners' approaches in written texts such as top-down and bottom-up, especially "by those of different social and cultural backgrounds" (p. 148). In her later study, she also found considerable differences in the vocabulary comprehension approaches to English academic texts between Greek and Korean ESL participants. The Greek participant appeared to use similar vocabulary comprehension strategies to English native speakers, whereas the Korean participant stopped much more frequently on each word to check it in a dictionary. This difference can be due to their individual learning styles, but it can be also due to their educational backgrounds of how vocabulary should be learned in their cultural and academic practices. Also, advanced ESL learners in academic studies are in the process of familiarizing themselves not only new culture of the target language but also with the culture of specific academic disciplines. ESL learners' academic skills in their L1s may or may not be similar to those of L2 academic cultures. Thus, they may have to transfer their L1 academic skills, or if not, they have to learn new academic skills to consummate new learning in a new academic milieu.

Linguistic distance

Linguistic distance between the ESL learner's L1 and the L2 can be a crucial factor in his/her L2 vocabulary comprehension process. If the ESL learner's L1 orthography shares the same orthographic system with English, and "if it is read the same way, such as left to right or up to down, learning English orthography can be much easier" (Schmitt, 2000, p. 17). Also, if the ESL learners' L1 has loanwords from English or vice versa, this factor will facilitate his/her L2

vocabulary learning process. For example, ESL learners with Germanic L1 backgrounds such as German, Dutch, and Swedish can take advantage of their L1 knowledge while ESL learners from other L1 backgrounds, e.g., Sino-Tibetan languages may not. Hancin-Bhatt and Nagy (1994) and Tréville (1996) illustrate how closely French and Spanish are related to English in terms of their cognates and structural similarities, even though sometimes L2 learners from these L1 backgrounds fail to use cognates in learning English. Koda (1989, 1997) finds that L2 learners with related L1 orthographic backgrounds can successfully transfer their L1 knowledge to comprehend new L2 vocabulary, and achieve reading proficiency more rapidly than individuals with unrelated L1 orthographic backgrounds.

Learner differences

Studies show learner differences in the use of vocabulary comprehension strategies. Active and effective learners consciously use a wide variety of vocabulary comprehension strategies (Ahmed, 1989; Gu & Johnson, 1996). Normally, adult learners are thought to be self-directed; therefore, they initiate and evaluate their own learning experiences with or without help from others (Brookfield, 1981). However, in selecting effective strategies for using learning resources, some adult L2 learners are not self-directed (Sanaoui, 1995). Paribakht and Wesche (1999) also reported individual learner differences in L2 vocabulary comprehension strategies; some participants relied on only guessing, a few others heavily used appeals for assistance. Parry (1993, 1997) found in her case studies that the Greek ESL participant used holistic approaches, whereas his Korean counterpart showed more analytical vocabulary comprehension strategies in her academic readings.

Rationale for the Study

The literature on incidental vocabulary learning indicates that vocabulary learning studies have mostly been done in either experimental learning or classroom settings. In these studies, participants performed specific tasks, and then were given a retention test. Their learning performance was attributed to incidental learning. This narrow definition of incidental learning only characterizes learner performance as specifically measured through pre-determined tasks assigned by the researcher. Also, given that vocabulary learning is a continual process over time, measuring L2 learners' vocabulary knowledge over only brief periods will not fully reflect learners' actual vocabulary development, let alone their learning when they are left alone. Therefore, more research such as that of Parry (1993, 1997), that can capture L2 learners' vocabulary development in natural learning situations, will enrich our understanding of how L2 learners build up their complex vocabulary knowledge through incidental vocabulary learning.

Parry's studies (1993, 1997), which initially inspired the present research, entailed studying the vocabulary learning development of two young adult ESL learners' (a Greek man, and a Korean woman) in a one-semester academic course. For data collection, she did the following: (1) gave a standard vocabulary test, (2) had them list unknown words encountered while reading their anthropology textbook as they carried out course assignments; if the participants guessed the meanings of the unknown words, they were instructed to write down their guesses, (3) guided them to introspect about how they dealt with unfamiliar words while reading, (4) had them translate two paragraphs of the text into their L1s, and (5) tested each participant's retention of word meanings based on his/her own list of unknown words. In her findings, she concluded that the Greek participant appeared to comprehend unfamiliar words by using top-down approach, while the Korean participant seemed to use a more analytical approach to comprehend unknown words.

In a pilot project exploring the vocabulary comprehension strategies of three advanced ESL learners, I found that to fully understand L2 learner's strategy use, a research study should be designed to examine both initial learners' performance in vocabulary comprehension and the factors that may have influenced their choices of strategy use. In my pilot study, I collected relevant information through a semi-structured interview and an introspective task. The questions in the interview were intended to identify possible factors that might have an impact on participant comprehension strategies, such as their previous vocabulary comprehension strategies in both their L1 and English vocabulary learning, as well as the nature of the reading material. In the introspective task, I had the participants "think-aloud" about the same two paragraphs that Parry used for her participants. From the study, I found that not only were there overall commonalities and differences among the participants' vocabulary comprehension strategies, but the participants also reported that they used different strategies depending on the learning situations. If they had a lot to read and/or there were too many unfamiliar words which did not seem significant, they ignored these words more often than otherwise, and only tried to get main ideas from the reading. On the other hand, if they were personally interested in whatever they were reading, they paid more attention to the unknown words with respect to attaining comprehension. Also, the participants appeared to transfer to the experimental context those vocabulary comprehension strategies that they had acquired in their previous vocabulary learning in both their L1s and English. It became apparent through this study that a more in-depth study of vocabulary comprehension should address cognitive and other factors that may influence learners' choice of vocabulary comprehension strategies and resulting learning outcomes.

The purpose of this collective case study has been to explore how advanced ESL learners approach unknown words and their different vocabulary comprehension approaches. To explore the

vocabulary comprehension strategies of advanced ESL learners (both individually and collectively), a collective case study approach was chosen to maximize the pedagogical usefulness of the findings. In the study, the focus of interest is the initial stage of discovering the meaning of new words in context as the participants read an introductory psychology textbook as part of their coursework.

Research Questions

Reflecting on my own L2 learning experiences, reviewing previous studies on the topic of how L2 vocabulary learning takes place in general in learners of more advanced proficiency levels, and specifically questioning individual L2 learners' experiences with learning unfamiliar words in reading comprehension, I came up with the three research questions that I explored in the study.

1. How do advanced ESL learners deal with unfamiliar words in reading their psychology textbook for comprehension?
2. What factors appear to influence their current uses of vocabulary comprehension strategies?
3. What is their retention of previously unfamiliar words?

Theoretical Framework

The purpose of this section is to explain the theoretical framework that guides the study. The researcher undertakes social constructivism as well as cognitive processing theory in the study's theoretical framework. The remaining material in this sub-section presents how these theories are applied to the area of investigation.

As in any other learning theory, the fundamental question that social constructivists ask with respect to learning is how we come to know what we know. Unlike objectivists who regard

learning as mirroring a real, relatively stable, and structured world, all constructivists claim that learners do not discover objective or absolute values (Jonassen, 1991). Rather, they view learning as an active process in which learners construct new ideas (or concepts) to make sense of their world, on the foundation of their current and past knowledge. In so doing, individual learners actively discern information to form hypotheses in their decision-making, by relying on a cognitive structure (schema) that leads them to go beyond information received. (Bruner, 1990). Thus, in constructivism the meaning of doing something right is doing something that fits with an order that one has built; consequently, there exist multiple perceived realities. Among various types of constructivism that have emerged in recent decades, social constructivism primarily concerns Vygotsky's (1978) emphasis on the importance of cultural and social context for cognitive development. Its epistemological stance is that there is no reality separate from meaning constructed by an individual learner or a community of learners (Ryder, 2003). Moreover, the ultimate criterion to judge knowledge or reality is agreement among different members in a society. Thus, knowledge or reality consists of the constructed meanings on which most people of the society agree (Heylighen, 1993).

In this study, the research inquiries of how advanced L2 learners approach unfamiliar words in reading an academic text and factors that may influence their vocabulary comprehensions strategies are nested within the social constructivist learning theory. As discussed earlier under Review of the Literature, previous research studies showed that L2 learners' backgrounds (cultural and linguistic) influenced their learning outcomes (including Parry, 1993, 1997). Also, some studies reported individual learner differences in vocabulary comprehension strategies (Paribakht & Wesche, 1999; Fraser, 1999). In the pilot research project that I previously conducted, I found that individual L2 learners' past learning experiences as well as current learning contexts influenced

their uses of vocabulary comprehension strategies. Having reflected on these findings and my own L2 learning experiences, I came to a tentative conclusion that individual L2 learners actively choose what and how to learn, based on their schemata, which may be inseparable from their vocabulary learning outcomes (that involve cognition in cognitive processing theory). By the same token, the present study intends to understand how advanced L2 learners construct their own meanings, by examining the ways that they approach unfamiliar words. Also, the study inquires as to what learning conditions or factors (e.g., their current and past knowledge or experiences) come into play in their individual and shared experiences of vocabulary comprehension in reading an academic text.

This study is also guided by cognitive processing theory. As in other previous research on this research topic (mentioned earlier in the literature review), this study is also based on a mentalist perspective that vocabulary comprehension in context, and the longer-term task of word learning both involve active human cognition. According to this theory, L2 items are learned through the process of selective attention and noticing elements of language input, comprehension of their meaning, 'intake', through associations and other mental processes, ready to integration of new with existing knowledge, and eventual output (Gass, 1988). From the first encounter with unknown words until L2 learners use them for productive purposes, the gradual process of incidental vocabulary learning in reading can be explained through L2 learners' cognitive activities (Schmitt, 2000). Once a learner has identified an initial form-meaning relationship, further rehearsal and elaborated processing will help ensure retention over time and further development of the new knowledge (Hulstijn, 2001). Through manipulation of learned items and frequent re-exposure to them, the forms and associated meanings will gradually come to be stored in permanent memory (Schmitt, 2000). Therefore, incidental vocabulary learning is closely related to the

“amount and kind of cognitive processing” of the new information that takes place (Schmitt & Schmitt, 1995, p. 135).

This cognitive learning theory of how linguistic information is processed in the human brain is pivotal in a research inquiry involving learning outcomes, due to the fact that a goal of L2 vocabulary acquisition research is to understand what L2 learners acquire (or not). Therefore, in this study, learning is in part seen from a cognitive learning perspective in which learning outcomes can be measured through a vocabulary achievement test.

In this study, the relationship between these two theories is that social constructivism encompasses cognitive processing theory. More specifically, cognitive processes are embedded in a context where the knowledge to be processed is fundamentally cultural or social in nature, but that universal unobservable cognitive learning processes are also essential to language learning. The products of an individual’s cognitive processing, like the input to it, are subject to the influences of the social context in which the individual exists. Thus, language development is viewed as an acculturation process into the linguistic practices of a society. The cognition that L2 learners rely on in the process of L2 development (as emphasized in cognitive processing theory), while biological in nature is at the same time “socially rooted and conjointly constructed” (Hall, 1997).

Summary

This chapter has presented several issues. The chapter began with an exploration of previous studies. First, studies that dealt with the multi-dimensional nature of word learning were addressed. To explain how the complex aspects of a word are learned, researchers have suggested models of input processing. Next, the inseparable relationship between reading and vocabulary learning has been explored. Both L1 and L2 research findings have demonstrated evidence of

vocabulary learning through reading. Also, reading has been dealt with as both a cause and consequence of vocabulary learning, especially for more advanced proficiency levels. Next, incidental vocabulary learning in reading was addressed. Most language researchers appear to agree that in ESL learning settings the most frequent several thousand words tend to be acquired in oral contexts, and that learners continue to acquire new L2 words incidentally when they hear and read. The importance of incidental vocabulary learning through academic reading by L2 speakers was also acknowledged. Learner strategies in incidental learning were then addressed. Research findings suggested that learners ignore many unfamiliar words while reading. To comprehend the meanings of unfamiliar words, they may use lexical inferencing, consult a dictionary or ask for help from others. Also, researchers have found individual learner differences in their strategy use when trying to comprehend unknown words. Following the literature review, this chapter also explained the rationale for the study. After examining previous studies, I found that more longitudinal research studies in diverse natural learning settings are necessary to bring about a fuller comprehension of incidental vocabulary learning. Then, the research questions are specified. Finally, the theoretical framework that guided this study (social constructivism and cognitive processing theory) was articulated.

CHAPTER THREE:

RESEARCH METHOD

Overview

This chapter delineates the research methodology used in conducting the study. It begins with a description of the research site, including the Psychology 1102 course, from which the participant selection was made. It is followed by an explanation of research participant and selection procedures (a more in-depth portrait of each participant such as his/her previous and current educational and linguistic background germane to the study is presented in CHAPTER 4). Following this, the data collection instruments, data collection procedures, and data analyses are discussed. The chapter concludes with an elucidation of the researcher's role during the data collection process, the researcher's attempts to maximize the validity of this study, and ethical considerations for carrying out the study.

Research Site

Data collection was carried out at the University of Ottawa. Located in the capital city of Canada (Ottawa), this bilingual university offers most academic and professional programs at the undergraduate and graduate levels both in English and French. It has a diverse student population in undergraduate programs, many of whom have an L1 which is other than English. When these students start their programs, usually by taking introductory courses, their schoolwork involves mainly listening to lectures and reading standard academic textbooks. Although they are able to succeed in these introductory courses, they will encounter a great number of unfamiliar words; many more than English native speakers would. Usually they have little opportunity to get

linguistic help in understanding the material. As a result, they are left to themselves to deal with this issue while carrying out their assignments.

One of the introductory courses, Psychology 1102 (Introduction to Applied Psychology), was chosen as the data collection site. Approximately 150 students were enrolled from June 19 to August 3, 2002. This bi-weekly 3-hour class lasted for 7 weeks. The textbook used was *Psychology* (6th edition) by David Myers (2001). Eight chapters from a total of 18 were dealt with during the semester (around 310 out of 700 pages). The topics in the chapters included emotions, motivation, personality, mental health, abnormal behavior, therapeutic approaches, social psychology, and historical perspectives. The textbook is written in the manner of relatively informal academic prose with many of colored illustrations which facilitate the reader's understanding of the topics. Also, occasional explanations of field-related jargon are provided at the margins of the text. The assignments consisted of reading designated chapters and writing three exams. All three exams consisted of 100 multiple-choice questions based on the textbook and the lecture materials.

Participant Selection

The research participants were four students who spoke English as either their L2 or L3. Their ages ranged from 19 to 23. One participant was a female and three were males. They were highly advanced learners in English; however, their levels of English proficiencies were not native-like. During the data collection period (from the end of June to the beginning of August), all four participants were taking the same course (Psychology 1102), using the same textbook and had the same professor. The fictitious names of the four participants portrayed in the study are Amilie (French speaker), Hong (Vietnamese and French speaker), Hatem (Arabic speaker), and Lu (Fante: an African language speaker).

Participant selection began a month prior to the start of the summer semester. The social sciences and humanities courses to be offered in the 2002 summer were scanned through the University of Ottawa Website, and I selected three courses using the criteria that a candidate course should be both introductory and use a textbook. The courses were Psychology 1102, English 1120, and Anthropology 2125. Once I had assurances from each department that the three courses would be offered, an investigation was made of the appropriateness of the vocabulary for the study. Each of the three textbooks appeared to contain similar proportions of frequent, infrequent, and field-related words. Around two weeks prior to the first class for each course, I contacted the professors to get permission to gain access to the classes (See Appendix A). Once I had received permission from all three professors, I queried each department to find out how many students had registered for each course in order to prepare sufficient numbers of questionnaires for each class. By arrangement with each professor, I attended the second class of each course and made a brief presentation of about five minutes to solicit potential volunteers, mentioning the goal of the research, what would be required of participants, and the potential benefits to them in return. From the returned questionnaires, I obtained potential volunteers' contact information. Due to the insufficient number of volunteers from two of the classes (English 1120 and Anthropology 2125), I decided to focus on the five volunteers from Psychology 1102. Immediately after obtaining their personal information, I e-mailed all five volunteers and secured their agreement to participate in the study. After further correspondence, I lost contact with one of the five volunteers (an American Sign Language speaker). The remaining four participants fully cooperated with the researcher throughout the data collection period.

Data Collection Instruments

In collecting data, the following instruments were used:

1. A standard vocabulary size test: Vocabulary Levels Test (VLT) (Nation, 1990)
2. Word-list Grid: participants' records of unfamiliar² words from psychology 1102 readings
3. Interview (mid): Week 5
4. A vocabulary achievement test (VAT) at the end of the course
5. Interview (end): Week 7

VLT

The VLT is a useful assessment tool to estimate the English vocabulary size of young adult ESL speakers, and is widely utilized by L2 researchers (e.g., Fraser, 1999; Laufer, 1992; Yu, 1996). The test consists of only content words such as nouns, verbs, and adjectives and yields a broad measure of ESL learners' vocabulary size. According to word frequency, English words can be allocated to five different frequency bands in the test: 2, 000 and 3,000 (the most frequent English words), 5,000 (the boundary between the high- and low-frequency words), the University Word List (6,000 specialized vocabulary of university texts), and 10, 000 words (the low frequency words).

Six items are used as representative of the words in each frequency band. Each item consists of six words and three definitions to be matched. The test-taker matches the three definitions on the right with the six items on the left. The test requires approximately 15-20 minutes. An exemplary item is as follows:

² They were instructed to record unfamiliar words that caused them any difficulty for reading comprehension. These included words that were totally new to them, words for which they had any partial knowledge, or words for which they believed they knew the correct meaning, but were not certain.

- | | | | |
|----|----------|---------|----------------------------|
| 1. | business | | |
| 2. | clock | ___6___ | part of a house |
| 3. | horse | | |
| 4 | pencil | ___3___ | animal with four legs |
| 5 | shoe | ___4___ | something used for writing |
| 6 | wall | | |

Scoring the test is objective. When a word is correctly matched to a definition, one point is awarded. The maximum score that a test-taker can obtain from each frequency band is 18 points; thus the maximum total score from the entire test is 90 points.

L2 researchers have examined the validity of this test. According to Meara (1996), the test is the most credible vocabulary size test. Read (1988) also analyzed the test performances of 81 EAP (English for Academic Purposes) students at the beginning and at the end of a three-month intensive ESL course. He concluded from his analysis that the VLT exhibits a high degree of implicational scaling and reliability.

Word-list Grid

As the participants followed course assignments and carried out the assigned readings in the textbook, they were asked to record words they encountered that were unfamiliar to them. Following Parry (1993, 1997), for each entry, I asked them to write down the page number of each unknown word so that I could later identify its context. The participants were given a prepared grid on which to record unknown words (Appendix B). When they decided not to work on unfamiliar words, they were asked to indicate this as “ignore.” If they chose to use “guess” as their preferred strategy, they were asked to write down their guesses for the meanings of the unknown words. If they had chosen to look the familiar words up in the dictionary, they were asked to record the

definition that they found for each word. They were also asked to record the definitions that others gave them for each word when they decided to “ask others” to find out its meaning. I also asked them to specify any other methods that they might use, other than those specified in the grid. I asked them to use English only, due to the diversity of the participants’ L1 backgrounds as well as their high English proficiency.

Interview (mid)

I prepared the interview questions after thoroughly reading previous research studies on this topic and applying their findings, as well as using my hunches and intuitions for this specific study (Appendix C). Opening questions were designed to obtain detailed information of each participant’s educational and linguistic background. The remaining questions addressed the participants’ previous and current experiences with English vocabulary comprehension in reading.

VAT

The Vocabulary Achievement Test (VAT) was designed to measure the participants’ retentions of the meanings of their previously unknown words. After examining each participant’s lists of unknown words, generated over the six weeks, 30 words for each participant were selected (except Amilie-29 words)³ to construct tests specific to each participant. The words included only ones for which they had attempted to find meanings. This automatically eliminated the words the participants had recorded as having ignored. The criteria for choosing the 30 words for each participant were based on each participant’s vocabulary comprehension strategies to ensure that the words are representative. For example, during the six weeks, Lu made lists for 5 weeks. On the

³ Amilie recorded having used three different comprehension approaches: using a dictionary, inferencing, and inferencing /using a dictionary. I found only nine inferred words from her wordlists. Therefore, I chose ten words from her dictionary use words, nine words from her inferred words, and ten words from her inferred/dictionary use words.

lists, other than ignored⁴ words, he consistently used three different vocabulary comprehension approaches: inferencing, dictionary use, and asking others. Therefore, his VAT included 10 inferred words, 10 dictionary use words, and 10 asking-others words. I selected the 10 inferred words by choosing two inferred words from each of his five weekly lists. In doing so, I counted the number of his inferred words in any one week. For example, in the 6th week, he listed eight inferred words: I chose every fourth inferred word that he recorded. This word selection criterion was also applied to his other comprehension strategies and the overall method used to select test words was the same for the other participants.

Interview (end)

Immediately after taking the VAT, each participant was asked several additional questions (Appendix D). This brief semi-structured interview was intended to obtain additional information about the participants' experiences with respect to their past and current vocabulary learning experiences, and their experiences while taking part in the study.

Data Collection Procedures

The data were collected over a 7-week period between the end of June and the beginning of August 2002 (See Table 1). Each meeting with the participants was carried out individually. The duration for each meeting with each participant was varied. There were three meetings with each participant requiring a total of 3 hours, in addition to meetings required in order to collect word-lists.

⁴ For simplicity, throughout the thesis, I use "ignored words" for the words for which the participants did not attempt to find meanings, "guessed words" or "inferred words" for the words whose meanings they surmised, "dictionary use" words for the words for which they used a dictionary to find definitions, and "asking-others words" for the words whose meanings the participants recorded as having found out by asking others.

Table 1

Time line for data collection

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<u>Researcher & Participants</u>				Interview (mid)•		VAT•
						Interview(end)•
Orientation•						
Consent form•						
VLT•						
Instructions for word-lists•						
<u>Participants</u>						
Weekly word-lists •	•	•	•	•	•	•

First meeting (Week 1)

After I contacted the volunteers and obtained their agreement to participate, I met them individually at the University of Ottawa. I first explained to them in detail what they were expected to do for this study. Then they were invited to carefully read the Participant Consent Form (PCF) and later sign it (Appendix E). Then I administered the VLT. It took them about 15 minutes to complete the test. Finally, I provided them with a Word-list Grid as well as detailed instructions on how to keep the list of unfamiliar words. Also, I secured their agreement to meet with me each week to hand in the word-lists that they had produced during the previous week. The average time for this first meeting was about an hour. Due to their high levels of English proficiency, I concluded that they would not have any difficulties using English to express their thoughts with respect to carrying out the tasks in the study; therefore, I instructed them to use English only.

Second meeting (week 5)

During the fifth week of data collection (around the third week of July), individual interviews were carried out. Each participant was invited to answer the interview questions (Appendix C). I tried to give each participant enough time to fully answer the given questions. An average of an hour was spent for the interview. During the meeting, the interview contents were tape-recorded, and later transcribed.

Third meeting⁵ (Week 7)

Following the final exam, held on August 7, the third meeting was held with each participant in order to conduct the VAT and the Interview (end). (See Appendix F for the VAT words and Appendix D for the interview questions). The participants were asked to verbally provide the meaning of each test word, which was presented in isolation in written form first. Immediately afterwards, the same words were shown in the single sentence contexts. The sentences used in the test were those in which the participants had recorded as the context in which they noticed the word for the first time. Again they were asked to verbalize its meaning in the sentence contexts. When they gave simply “yes” or “no” answers, the researcher probed further to ask more questions with regard to how they remembered the meanings of the words. Also, for the words that the participants could not provide definitions in sentence contexts, the researcher encouraged them to infer the meanings of the words if they could.

Following the test, a semi-structured interview (Interview: end) was carried out to gather more information with respect to the participants’ previous and current vocabulary learning experiences as well as their learning experiences as research participants. The interview contents were tape-recorded and transcribed after the meeting for further analysis.

⁵ The meeting with Hatem was delayed two weeks due to his absence from Ottawa.

Collecting Word-lists

Each week the researcher tried to meet the participants individually to collect his/her wordlists that they had made during the previous week. This short meeting occurred each week either on Wednesday or Friday about 10 minutes before their psychology class began. The numbers of words listed by each participant are presented in Table 2.

Table 2.

Numbers of words listed by the participants

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Total
Amilie		92	30	41	62	89	314
Hatem		29				30	59
Hong	29	49	32	18		29	15
Lu	42	26	36		32	18	154

Data Analysis

Qualitative analyses including simple quantifications were carried out. Quantifications were necessary for analyzing the VLT, the word-lists generated by the participants, and the VAT. Later the quantified data were converted to percentages as part of the identification of relevant categories or themes.

VLT

After the participants completed the test, the researcher marked them in compliance with the guidelines provided by Nation's VLT (1990). The test result of each participant was calculated.

Participants' Word-lists

The word-lists were analyzed on the basis of the following criteria; how many pages from the textbook each participant read, how many unfamiliar words s/he listed, and what kinds of words s/he recorded (relatively infrequent, relatively frequent, field-related words). As in Parry's study

(1993, 1997), the researcher referred to Kucera and Francis's one-million-word corpus of American written English usage: lexicon and grammar (1982) to decide the frequency of each unfamiliar word recorded by the participants. For example, if an unfamiliar word appeared more than 10 times in the frequency counts in this corpus, it was considered to be a relatively frequent word. If a word appeared fewer than 10 times, it was counted as a relatively infrequent word. All the unfamiliar words which were not found in the corpus were, after verification, counted as field-related words: all the field-related words were either medical terms or names of diseases. Also, each unfamiliar word was looked at according to its grammatical function (word class) such as nouns, adjectives, verbs, and others. Then, analysis of the strategies the participants had used to deal with their unfamiliar words (e.g., ignoring, inferencing, consulting a dictionary, or asking others) was followed. Also, the accuracy of the meanings of their guessed words was analyzed. These scores were double-checked by an English native-speaker colleague.

Interview (mid)

The analysis of the interview contents involved transcription, reading the transcripts thoroughly several times, and identifying relevant themes. Immediately after completion of each interview, the researcher transcribed it verbatim from the tapes. The transcripts were then verified against the tapes. The contents of the transcripts included the researcher's questions and prompts, and the participants' verbal statements.

These data were analyzed according to grounded theory methods outlined in Corbin and Strauss (1990). In the initial process of exploring the data, I read the entire transcripts several times to get a sense of the data. Then, at the margins of the transcripts, I wrote down short phrases or words that captured key concepts which I judged to be the basis of identifying themes, especially paying attention to the focus of the study (Merriam, 2001). I color-coded key concepts according to

the emerging themes, at the same time highlighting insightful comments by the participants, for possible quotation in the final report.

VAT and Interview (end)

After transcribing the audiotapes of the VAT and Interview (end), I verified the transcribed contents against the tapes, and scored each VAT item. I then compared participants' scores on retention of the meaning of single words in isolation with their scores when the words were provided in a sentence context. Secondly, I compared their retention scores according to the different vocabulary comprehension strategies they had used. The results of the analyses were computed and converted to percentages.

I then analyzed the transcripts of the Interview (end), following the same method used for Interview (mid).

Role of the Researcher

During the data collection period, the nature of interactions between the researcher and the participants were informal and collaborative in nature. The researcher acted as a facilitator in the process of data collection. This became evident after a few meetings when participant behavior indicated that they did not consider the researcher to be an authoritative person. For example, before or after the meetings, they started to candidly share me their personal information about their family, friends, studies and future aspirations.

Trustworthiness of the Study

To maximize the trustworthiness of the study, different methods were used. First, drawing from multiple sources and different types of information at several points and over an extended period of seven weeks provided a more in-depth picture of the participants' experiences than would

single measurement or a shorter period (Denzin & Lincoln, 2000). The summaries of transcribed interviews were verified by the participants; any clarifying comments by participants at that time were added and the transcripts revised. Also, a colleague, native English speaker, double-checked my judgments on the accuracy of participant guesses on their world-ists as well as my judgments on the VAT. Finally, the thesis supervisor for this study examined the findings and commented on them as they emerged.

Ethical considerations

The researcher followed the guidelines of the University of Ottawa Social Sciences and Humanities Research Ethics Board in carrying out this study. At the first meeting, each participant signed the provided PCF. During the data collection process, the informal meetings were held at convenient places and times for the participants. To assure the anonymity of the participants, the researcher dealt with their personal information in a confidential and respectful manner by using pseudonyms on all the written documents and tape recordings.

CHAPTER FOUR:

RESULTS (Within-Case Analysis)

Overview

The results of the study are organized into two parts. In the first part, CHAPTER FOUR (Within-case Analysis), the findings from each participant are separately introduced. Presented in alphabetical order of participant names, the chapter first addresses Amilie, followed by Hatem, Hong, and Lu. The themes to represent each participant include descriptions of his/her educational and linguistic background, scores on the VLT, word-lists, and the research questions. Following the above information, a summary for that individual is given. In this chapter, for illustrative purposes, the results of the computed data are presented graphically with the narrative. All the quotations, which include single words, phrases, and sentences, are drawn directly from the participant's verbal comments, after removing pauses and minimally correcting ungrammatical use of language in order to make them comprehensible (See Appendix G for an example). In the second part of study results, CHAPTER FIVE (Cross-Case Analysis), similarities and differences across the four cases are presented.

Amilie

Educational and Linguistic Background

Amilie was a 20-year-old female. In the semester prior to this research study, she was admitted to the University of Ottawa as a special student. After having completed Psychology 1101, which she had found very interesting, she decided to take Psychology 1102 with a plan of entering into an undergraduate psychology program. Both courses used the same textbook, but covered different chapters and addressed different topics. Due to familiarity with the text attained

during Psychology 1101, Amilie found the book less difficult to comprehend during Psychology 1102. However, she still encountered many unfamiliar words.

Amilie's English learning experiences go back to her childhood. She grew up in a French-speaking home and neighborhood in Quebec. When she was four, she had her first exposure to English-speaking neighbors. Through social interactions with her English-speaking playmates, she began understanding some English, but at first could not speak it well. She attended French schools until grade 9. During those years, she often listened to the radio and read English books at home. During her frequent opportunities to speak English, she could communicate in social situations but felt self-conscious of her strong French accent. At the beginning of grade 10, she enrolled at an English school. At this time, she did not take any ESL classes because she found subjects such as math, biology, and chemistry in English were not too difficult for her: scientific terms in those subjects were mostly the same in English and French. Other subjects (i.e., social sciences) were too advanced for her. She found them very challenging because of the readings and she soon had to drop them all. Around the same time, she made English friends and found an English-speaking boyfriend, with whom she talked a lot on the phone. Also, her mother's boyfriend, an English native speaker, moved in with her family. After the age of 16, she was speaking both French and English daily at home.

While participating in the study, she showed constant enthusiasm for learning English vocabulary. Compared to the other participants, she read many more pages and recorded significantly larger numbers of unfamiliar words. Moreover, several times she indicated her strong desires to improve her knowledge of English vocabulary. Also, she appeared to be a hard worker with respect to learning English. Since her childhood, she always has been "willing to learn more English, and always motivated to look up unknown words in a dictionary to know the meanings of

unknown words” because she has found that she “has to know English better to live in a society where English is the major language.”

Scores on VLT

As Figure 1 demonstrates, Amilie’s vocabulary size scores on the VLT indicate that she knew all the words at the four highest word frequency levels (i.e., 2,000, 3,000, 5,000, and University Word List (UWL). She knew 78% of the words at the 10,000 level.

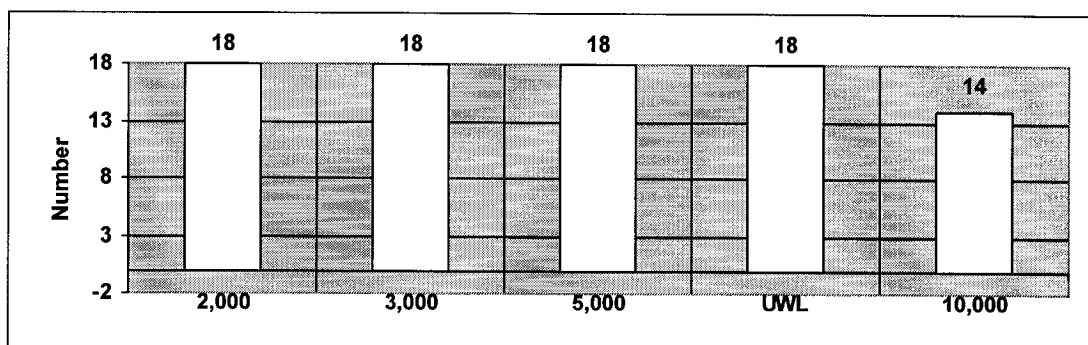


Figure 1. Amilie’s scores on VLT.

Unfamiliar Words Recorded

Throughout the six weeks, Amilie recorded a total of 314 unfamiliar words from the 134 pages she recorded having read, with an average of two words a page. The numbers of the words she recorded for a page varied, ranging from one to ten. She recorded certain words twice (i.e., ‘dissent,’ ‘plague,’ ‘wanton,’ ‘wards,’ ‘instigated,’ ‘mastectomy’) or three times (‘bereaved’ or ‘bereavement’). For example, she recorded ‘wanton’ in week 2 as well as week 4. In week 5 she listed ‘bereaved,’ and again in week 6 she recorded ‘bereavement,’ and ‘bereaved.’ She reported that, when she saw them again, she recognized the words, but was not sure of their meanings. All the unfamiliar words Amilie recorded are analyzed in terms of frequencies and word class.

Frequency

All her unfamiliar words were analyzed in terms of how frequently they occurred in the one-million-word corpus of American written English Usage (Kucera & Francis, 1982): this has explained in Chapter 3 (Research Methodology) under the method of data analysis. As Figure 2 indicates, *Relatively Infrequent words* (RIF) accounted for 89 % of the words, 9% were *Relatively Frequent* (RF) words, and 2% were *Field-Related* (FR) words.

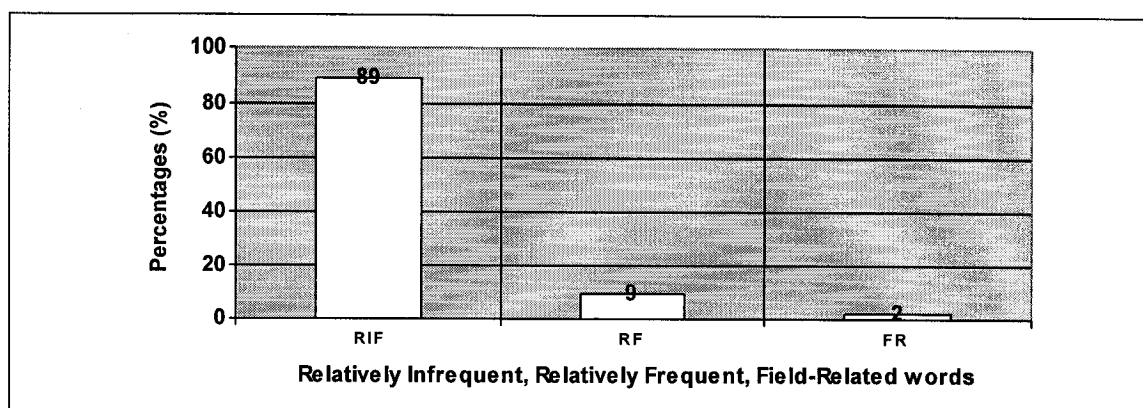


Figure 2. Frequency of unfamiliar words in different categories.

Word Class

As shown in Figure 3, 96.8% of all the unfamiliar words were content words (i.e., verbs: 33%; nouns: 32%; adjectives: 31.8%). Function words consisted of 3.2%, including 'lest,' and 'ought.'

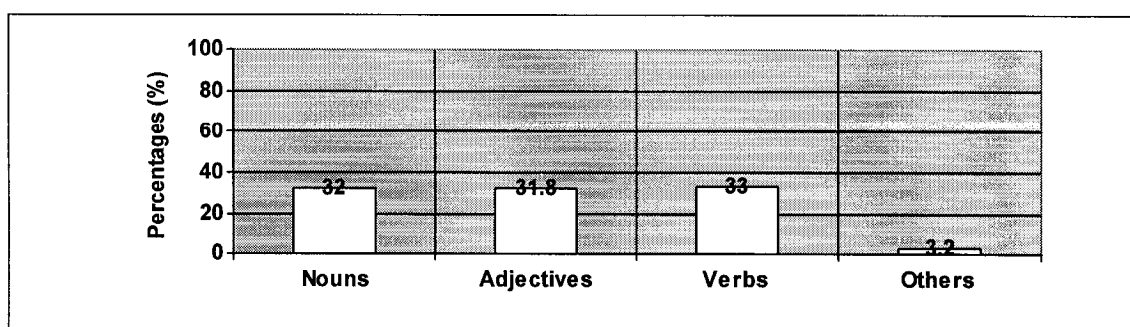


Figure 3. Word class.

Research Question 1

How did Amilie deal with unfamiliar words while reading her psychology textbook?

The findings from Amilie's performance show that in dealing with unfamiliar words in her psychology textbook, Amilie recorded ignoring 48% of total number of unfamiliar words, and when she attempted to find out the meanings of unfamiliar words, she inferred 3%, inferred and used a dictionary for 3.5%, and used a dictionary for 45.5 % of the unfamiliar words (See Figure 4).

Ignoring

Of the total number of unfamiliar words (314), Amilie ignored (i.e., did not attempt to find meanings for) approximately half of the words (48%). During week 5 and 6, she ignored noticeably more words. When asked why, she responded that whenever she came across too many words, she just wrote them down and continued without working on them: she "had a whole chapter to read in a day and was really in a rush." She reported having ignored more words that she perceived as not important, such as "just describing something, or just embellishing the sentence."

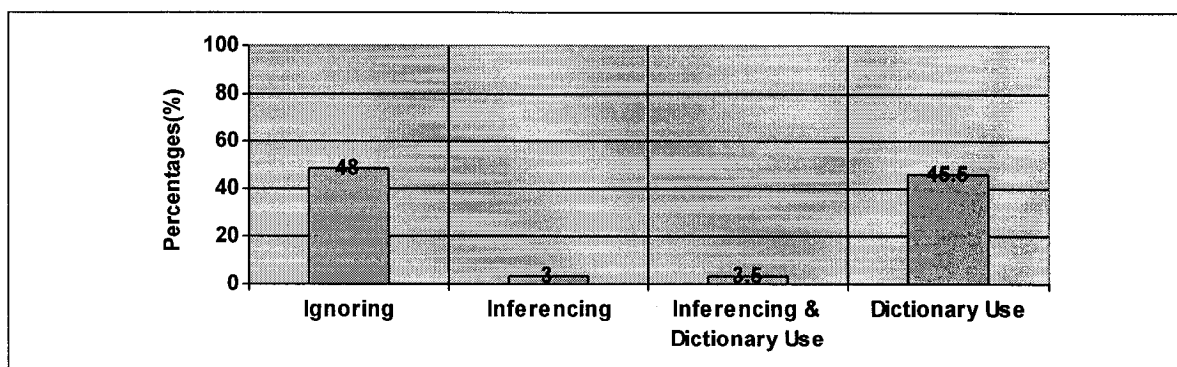


Figure 4. Strategies used by Amilie when dealing with unfamiliar words.

Inferencing with and without Dictionary Use

Amilie attempted to identify the meanings of 6.5% of the words by inferencing of which 3.5% involved both inferencing and dictionary use. She sporadically used inferencing as a sole strategy throughout her five weeks' word-lists, and inferencing plus dictionary use only during the first week. She reported that, at the beginning of first week, when she saw the example of different strategies on the grid provided by the researcher, she thought that it would be fun to try all of them. She however realized very soon that guessing was time-consuming and she did not like to guess the meanings of unfamiliar words. Therefore, she decided to use her preferred method: only using a dictionary (see below). It appeared that at the beginning, the research instrument influenced her approaches; however, soon she returned to her own strategies.

“When I was in a hurry to read the book, I just looked them up in the dictionary because that is more important for me. I really didn't know if you really want me to guess every time. For me it is something I really don't like to do. I thought my understanding of meaning is more important for myself. I did just whatever I would have probably done on my own.”

Although Amilie recorded only insignificant numbers of inferred words in her word-lists, and mentioned that guessing was not her preferred method, she reported that she would frequently guess the meanings of unfamiliar words in readings. However, the way she would guess did not appear to be deliberate guesses based on a single exposure to the word. Rather, she would guess by using her accumulated knowledge about an initially unfamiliar word that she had acquired through multiple exposures to that word in several different contexts.

“When you come across words so often, like unconsciously I am probably going to understand the meaning of the word by guessing it. You will end up understanding what it means even if you don't guess every single time. You will just end up knowing what it means by seeing it in certain sentences often. I don't stop at a word and guess. I probably guess it automatically. I just want the meaning of the sentence. Some words you don't even need to understand to understand the rest of the sentence.”

Accuracy of inferencing

As Figure 5 indicates, of the total guessed words on her word-lists, 28% of the meanings of the guessed words were correct, 5% were partially correct⁶, and the remaining 67% were incorrect. During the VAT, when she could not identify the meanings of the words provided in sentence contexts, she either voluntarily tried to guess their meanings or the researcher encouraged her to do so. She was able to correctly guess the meanings of two words and incorrectly guessed three words.

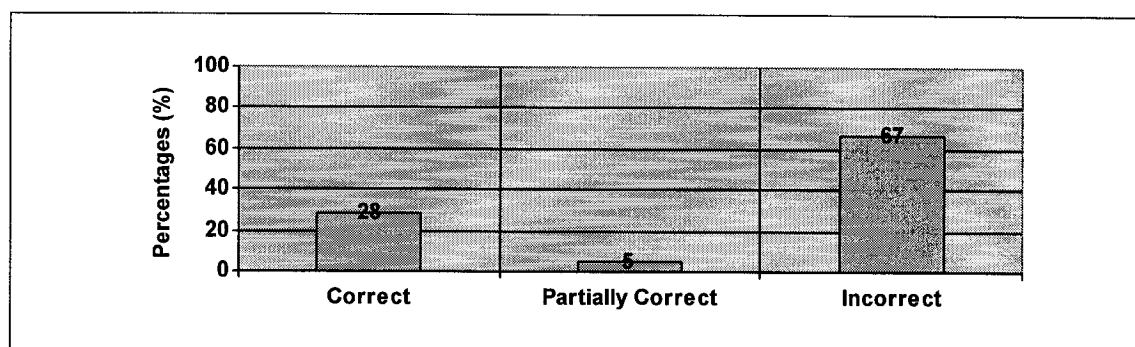


Figure 5. Accuracy of Amilie's inferencing

Knowledge Sources for Inferencing

When inferring, Amilie demonstrated to use her knowledge of sentence-level meaning. In the VAT, when the word, '**dour**,' was provided in a sentence context (i.e., 'Isn't it obvious that some people are dependably conscientious and others unreliable, some cheerful and others '**dour**,' some outgoing and others shy?'), she used the sentence meaning in guessing the meaning of the word: "I don't remember the exact definition. But I guess it is the opposite of cheerful, grumpy."

Amilie did not take advantage of French cognates at all. She reported little awareness of the similarities between French and English vocabulary.

⁶ Partially correct guesses included the guesses that did not bear exact meanings for the unfamiliar words in question; nevertheless, semantically they shared some relationships with the exact definition required for the unfamiliar words. However, when they replaced the unfamiliar words, they did not appear to be totally incorrect.

“I think words that are mostly related, terms describing like body parts, describing medical terms. But in general language, there are no relationships. There are a couple of words that are the same. But they are very different. English takes all the words from many different languages. French is built from lesser languages.”

Dictionary Use

Amilie demonstrated that using a dictionary was her main approach in understanding unfamiliar words; 45.5% of all the unfamiliar words on her word-lists involved dictionary use. She also reported that dictionary use was her most common strategy specifically, when she viewed words important and therefore needed to find out their meanings.

“Words that I find important are either I don’t understand a sentence without understanding the words, or words that I come across often. Then, I would look up the words in a dictionary because I want to understand them. So next time when I see them, I want to understand them. If I don’t understand words, then I look in the dictionary. It would be only strategy I would take if I were interested in learning vocabulary. If anyone wants to know meaning of a word, that would be what they will do, looking up a dictionary.”

Research Question 2

What factors appeared to have influenced her current use of vocabulary comprehension strategies?

Previous Language Learning Experience

Amilie’s previous English learning experiences appeared to have strongly influenced the vocabulary comprehension strategy she currently used predominantly.

“About the dictionary, I remember while I was growing up when I was 12, I hated myself because I was the only one out of my friends had biggest accent. I wouldn’t speak English because I was so self-conscious. I cried to my dad, can you help me? Let’s speak English at home and all that. I started reading books, and looking up the dictionary, and highlight words. I still have the books that I read when I was really young. I highlighted them. I am still eager to know my English perfectly. I still have some sheets home. I would read unknown words one night to find out their meanings by looking up a dictionary and get the sheet done. It is something that I always wanted to do. So, I do it once in a while.”

Learning Contexts

Amilie reported using a dictionary much more frequently while doing her “school assignments, because they are important.” However, when she encounters too many words or reads just for fun, she tends to ignore more.

“Like the psychology book, there are not too many new words I come across, and I have more time and feel more related to my works, I want to understand more because it is important to understand materials for school. I am basically look up a lot of words in the dictionary in reading the book, because I am afraid that I will come across words in the test that was in the book, but that I didn’t understand. What if I don’t understand questions in the test because I never looked it up on a dictionary? So I look up words in a dictionary not to remember them, but to understand their meaning, so that I can understand more materials. But, if there are so many, then I ignore them. Like I am reading an English book right now. There are so many new words in the book. So I just try to read the book, try to understand it without, like try to ignore new words and try to make sense out of the sentences. Also, if I read a book for fun, I wouldn’t look up the dictionary because it is not important for me to understand very well. I just ignore them.”

Research Question 3

What was Amilie’s retention of previously unfamiliar words?

Retention: Isolation (ISO) vs. Sentence Contexts (SCT)

As Figure 6 demonstrates, during the VAT, Amilie identified the definitions of her previous unfamiliar words more correctly when they were presented in SCT than when the same words were presented in ISO. When words were presented in ISO, she provided correct definitions for 34% of the words, partially correct definitions for 7%, and for the remaining 59%, provided answers that were incorrect⁷. When words were presented in SCT, she provided correct definitions for 41% of the words, partially correct definitions for 7%, and for the remaining 52%, provided answers that were incorrect. She reported that, when she saw the words in SCT, she was able to remember larger

⁷ An answer was deemed to be incorrect if an improper meaning was provided or if responses such as the following were provided: “I don’t remember having seen that word,” “I remember seeing this word, but I don’t know the meaning,” “I have seen this word so many times, but I don’t know,” and “It sounds so familiar. I remember looking it up in the dictionary.”

contexts, topics, and pictures in the vicinity of the sentences. This enabled her to better recall the definitions of some of the words provided in a SCT.

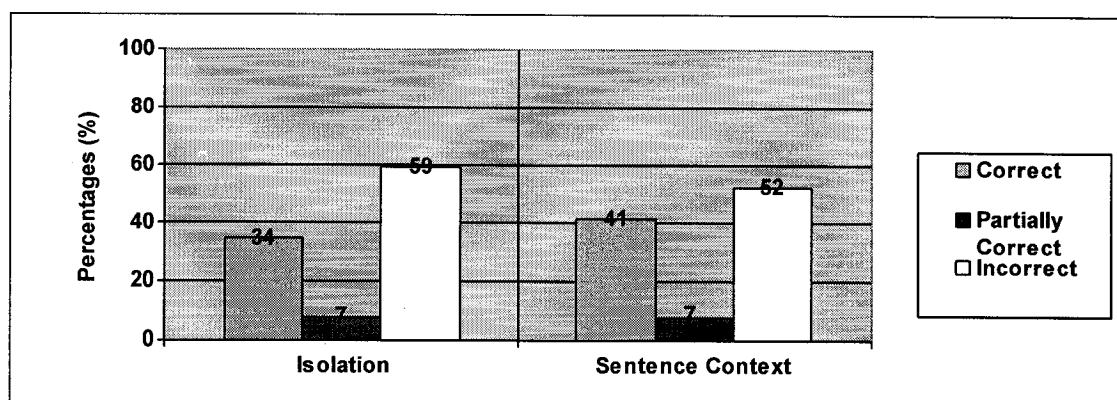


Figure 6. Amilie's retention of previously unfamiliar words: ISO vs. SCT.

Retention and Comprehension Strategies (ISO vs. SCT)

Amilie demonstrated that, when her previously unknown words were presented in ISO, she correctly remembered a higher percentage of the definitions of the words for the dictionary use words than guessed words (See Figure 7). She provided 22% correct definitions for her guessed words. For her dictionary use words, she gave 30% correct definitions. For the words she used double strategies (i.e., inferring and dictionary use), she recalled the meanings of 20% words correctly.

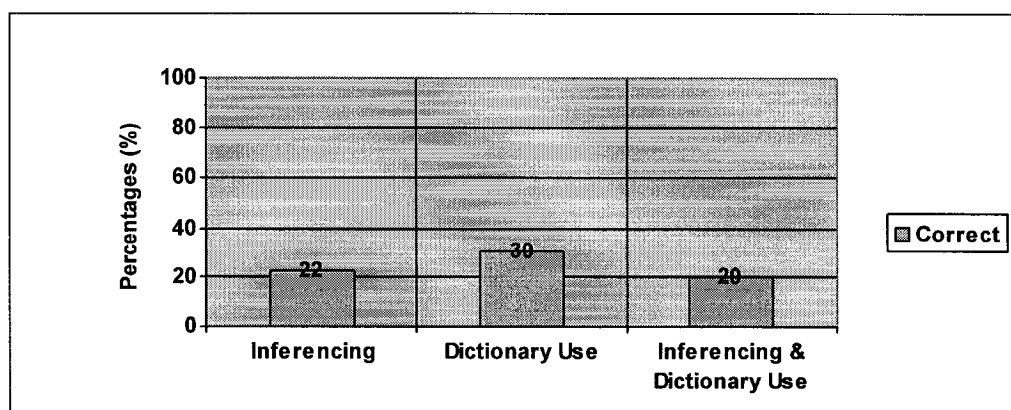


Figure 7. Amilie's retention of unfamiliar words: comprehension strategies in ISO.

When the same words were presented in SCT, she correctly recalled the meanings of 60% of the words for which she used the double strategy of dictionary use and inferencing. For words where her strategy was dictionary use alone, she provided correct definitions for 40% of the words. For the words for which she had used inferencing only, she provided correct definitions for 30% of the words.

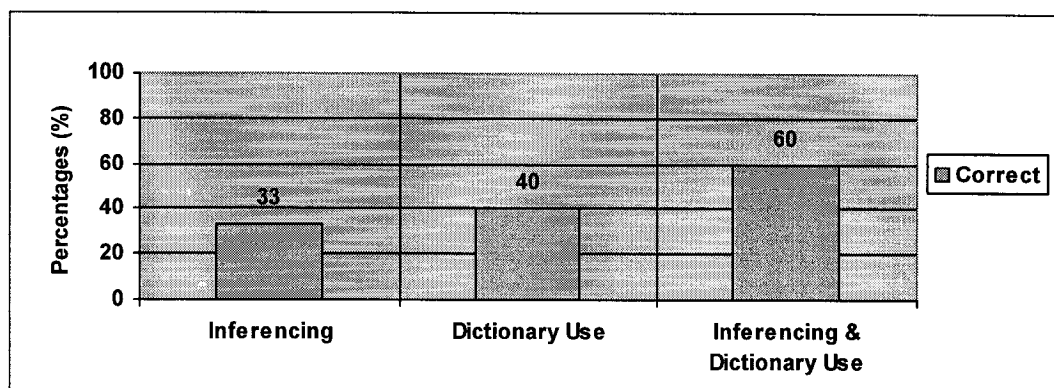


Figure 8. Amilie's retention of unfamiliar words: comprehension strategies in SCT.

Summary

- Amilie, a 20-year-old female, grew up in a Francophone community in Quebec. At the age of 4, she started learning English informally. After grade 9 in an English high school, she learned English through taught school subjects. She reported that readings were her main medium for vocabulary learning; she recorded the highest number of unfamiliar words and read many more pages than the other participants.
- Amilie had perfect scores on the first four word levels (2,000, 3,000, 5,000, and UWL). At the 10,000 level, she knew 78% of the words.
- Of the total number of the unfamiliar words she recorded, the majority (89%) were RIF: 9% were RF, and 2% were FR. Almost all the words (96.8%) were content words (i.e., nouns, adjectives, and verbs). The rest (3.2%) were function words.

- She ignored 48% of the unfamiliar words, and to find out the meanings she inferred 6.5% and used a dictionary for 45.5% of the words.
- She accurately guessed the meaning of 28%, partially correctly guessed the meaning of 5% and, for the remaining 67%, provided answers that were incorrect. In guessing, she appeared to use only sentence-level meaning.
- Amilie's previous English learning experiences, and her current learning contexts appeared to be strong factors determining how she currently approached unfamiliar words for comprehension. For important words and words encountered during schoolwork she heavily relied on a dictionary to comprehend their meanings. When she encountered too many words or she read for leisure, she ignored words or guessed the meanings of unfamiliar words more frequently.
- She provided 34% correct and 7% partially correct definitions when her previously unfamiliar words were presented in ISO. Her performance was enhanced when the same words were presented in SCT (41% correct and 7% partially correct). When words were presented in ISO, she recalled correct definitions for 30% of the words whose meanings she learned by dictionary use, 22% of the words whose meanings she had inferred, and 20% of the words whose meanings she had learned by using these two strategies together. When the words were provided in a SCT, Amilie recalled correct definitions for 40% of the words whose meanings she learned by dictionary use, 33% of the words whose meanings she had inferred, and 60% of the words whose meanings she had learned using these strategies together.
- Overall, Amilie is a highly advanced ESL speaker who has grown up in Canada. She appeared to have read the psychology textbook not only for comprehension but also for

word learning. Also, she was a hard worker with respect to learning English as well as with respect to her schoolwork (she received an A for the course). She mainly used a dictionary to determine the meanings of unfamiliar words she encountered while reading. However, she sometimes inferred or asked others for help. Although she did not like to guess and relied heavily on dictionary use for word comprehension, she achieved 28% accuracy where she inferred, and showed relatively high retention of these meanings as well. She was not very analytical in word comprehension: she only used her sentence-level meaning for inferencing and had no awareness of cognates between French and English. Rather, she perceived that dictionary use was the best way to understand new words; therefore, although she did not explicitly intend to learn unfamiliar words while reading, she tried very hard to look up unfamiliar words in a dictionary when she encountered them.

- When the previously unfamiliar words were presented in ISO on the VAT, she had achieved somewhat better meaning recall performance for those words whose meanings she looked up in a dictionary (30%) than for those words whose meanings she had either inferred (22%) or for which she had used a double-strategy (20%). However, when the words that she learned through double strategy use were presented in SCT, she achieved better (60%) than when they were presented in ISO or with either strategy alone. A possible reason for two is that she employed a double-strategy only during the first week (influenced by the word-list-making grid (see page 46)). Therefore, when words were presented in ISO, she may have forgotten their meanings (due to significant time lapse). However, when words were presented in sentences, contextual clues probably triggered her memory; such words may have initially been more deeply processed by the double-strategy, and the sentence-contexts provided clues to stimulate her permanent memory.

Hatem

Educational and Linguistic Background

Hatem was a 23-year-old Arabic-speaking male. At the time of the data collection, he was in his third year of undergraduate studies, majoring in psychology and criminology. To complete the programs, he took Psychology 1102 as a compulsory course. He found the topics discussed in the textbook were very interesting. Also, the book was “approachable”; its general language frequent illustrations helped his understanding of the topics dealt with in the book.

His English learning experiences go back to his elementary school in Iraq. He started learning the English alphabet in grade 1, and in later elementary school years, he learned basic English words in school. During his three-year junior high school years in Kuwait, he learned some more English words and grammar in a compulsory course. At the age of 14, he came to Canada, and started grade 9 in a public high school. For three years, from grade 9 to 11, he took ESL classes two hours a day, while taking science and math courses. In the ESL classes, he learned English intensively with other 10 or so peers, through English songs, field trips, hands-on activities, presentations, and lots of extensive readings encouraged by the ESL teachers.

For Hatem, both linguistically and culturally, moving to Canada became a big challenge. He found that there are no linguistic similarities between Arabic and English. At the beginning, he even had to get used to opening an English book because, unlike English, Arabic reads from the right to the left. Also, the pronunciation and grammar of the two languages were very different. For example, in Arabic, nouns come before adjectives. Although he has started to think in English now, for several years he had difficulties in learning because of the language issues. Also, culturally he experienced an adaptation period. He realized that Arabic culture is very different from that of Canada. According to Hatem, in Arabic culture when one speaks with someone older than s/he, out

of respect s/he usually does not look into the older person's eyes, which is not the case in Canadian culture. In Arabic culture, boys cannot sit with girls at school. When he sat with a girl for the first time, he found it very strange: "boys with girls, that I had never seen before." He found it very difficult to adapt, especially "when I was 14, maturing from a boy to a man thing." He reported that those cultural differences probably caused him to keep away from other English-speaking Canadian peers. Mostly he interacted with other Arabic friends, which perhaps slowed down his English learning.

Scores on VLT

As Figure 9 indicates, Hatem's scores on the VLT decreased with lower frequency word level. At the 2,000 and 3,000 levels, he had perfect scores. At the 5,000 level, he demonstrated knowledge of 89% of the words. For the UWL, he knew 72% of the words, and at the 10,000 level 61%.

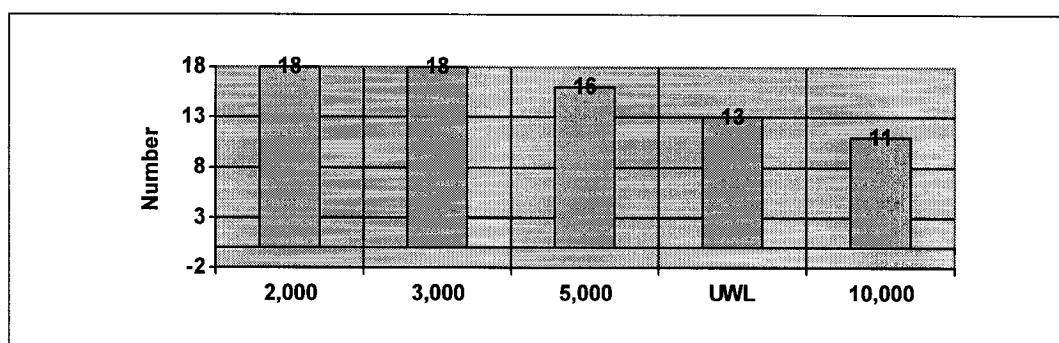


Figure 9. Hatem's scores on VLT.

Unfamiliar Words Recorded

Hatem recorded a total of 59 unfamiliar words from the 30 pages he recorded having read, with an average of 2 words a page. The number of words he recorded a page varied from one to five words. He made his word-lists only during week 2 and 6. When asked why, he reported that he was busy and did not have time to write down all the unfamiliar words he encountered. Also, he

appeared to learn new words mainly through listening, not by reading. “I learn by observations and listening. There are some people who need to read, and use a dictionary to learn words. I just listen once and take it in and internalize the word and grammar rule.” All the words Hatem recorded as unfamiliar were analyzed in terms of frequency and word class.

Frequency

As Figure 10 demonstrates, the majority of Hatem’s unfamiliar words were *Relatively Infrequent* (RIF) words (80%): 5% were *Relatively Frequent* (RF) words and 15% were *Field-Related* (FR) words.

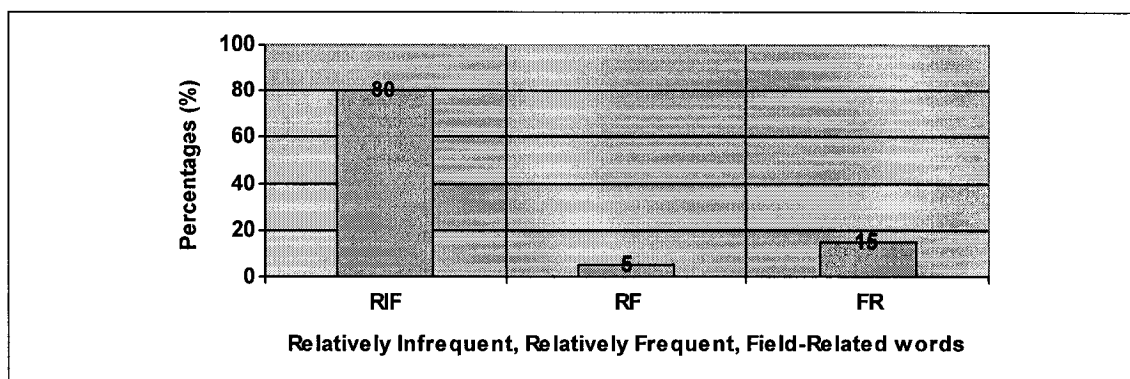


Figure 10. Frequency of unfamiliar words reported in different strategies.

Word Class

All of the unfamiliar words Hatem recorded were content words (See Figure 11). More than half of the words (51%) were nouns, 32% were adjectives, and the remainder (17%) was verbs.

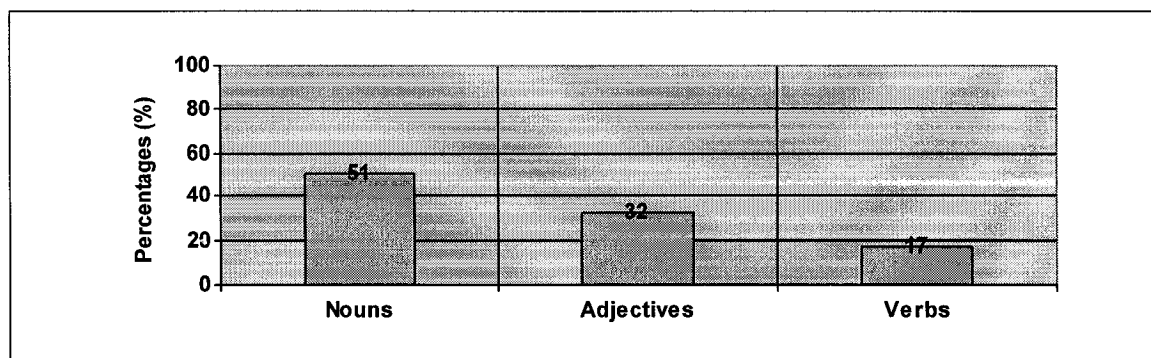


Figure 11. Word Class.

Research Question 1

How did Hatem deal with unfamiliar words while reading his psychology textbook?

As shown in Figure 12, in dealing with unfamiliar words, Hatem recorded ignoring 50%, and, to determine the meanings of unfamiliar words, he inferred 33%, and used a dictionary for 17% of the words.

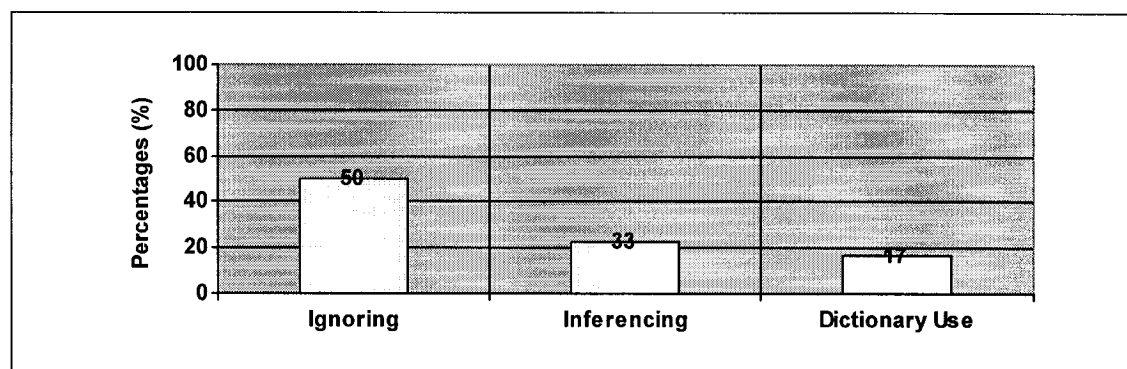


Figure 12. Strategies used by Hatem when dealing with unfamiliar words

Ignoring

Hatem did not attempt to find out the meaning of approximately half of the unfamiliar words he recorded (50%). He ignored new words, “especially when I saw them first time: I just ignored and kept on reading.” Usually he would ignore “around 60% of new words.” When he saw them again, that’s when he attempted to learn them

Inferencing

He used inferencing to determine the meanings of 33% of the unfamiliar words.

Accuracy of Inferencing

Of the total inferred words, Hatem correctly guessed the meanings of 17%, partially correctly guessed the meaning of 48%, and, for the remaining 35%, provided definitions that were incorrect (See Figure 13).

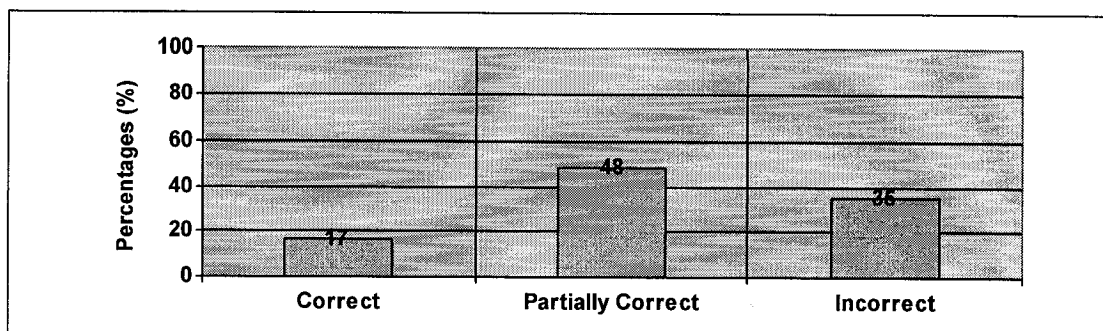


Figure 13. Accuracy of Hatem's inferencing.

Knowledge Source for Inferencing

When inferencing, Hatem used his knowledge of sentence-level meaning, discourse, word morphology, and topics.

"In relation to the sentence. I mean when you read a paragraph, with the sentence with the words you don't know, I would relate the sentence to the words to the sentence to the paragraph. I mean I would guess what it means in this way I guess like that as well, depending on what. I would say that sometimes I would analyze words like pre-, post-. When you have a lot of knowledge about a topic, then you can figure out. For example, there is a topic about a disorder, words describing symptoms that you don't know, if you know from the class, you could guess the meanings of the words because the symptoms can be the same. In every book or every lecture, the symptoms can be the same."

He used a dictionary to find out the definitions of 17% of the words. He reported having used a dictionary mainly for the words he encountered repeatedly and wanted to learn them.

"For words that I don't know and especially words that I know, but I'm not sure of exactly what it means. A word that I learned a few days ago, for example, 'conspicuous.' I didn't know it before. But I saw it before and looked important to know. I rate the words how important they are to know. I have seen the words a few times before. So maybe it is time to know what it is. So I open the dictionary and read it. Then I share the information with my brother whom I live with. Then, I internalize it in my memory. That's how I learn if I come across new words."

Research Question 2

What factors appeared to have influenced his current uses of vocabulary comprehension strategies?

Previous Language Learning Experiences

Hatem's dictionary use in comprehending unfamiliar words in his current studies appeared to have been influenced by his past English learning experiences.

"When I was in back home, we used to have English classes just once or twice a day. We were required to buy a dictionary. One of the exercises in the class, the teacher would say or write a word and see how fast we can look it up. We were dictionary-trained kind of thing. Every time I have problems, I just look up a dictionary. I never really ask someone. Usually I ignore words in textbooks in the university. I use an electronic dictionary as well. I found the dictionary at Microsoft word is faster than the Oxford dictionary. When I was a kid, I used to read newspapers, just find out words to learn one or two words everyday, to find out the meaning by looking up in a dictionary."

Learning Contexts

Hatem reported applying different strategies, depending on the learning situation. When he wants to understand materials well, especially for school, he uses a dictionary more frequently than guessing. In readings other than his academic studies, he either guesses or ignores most words.

"When I was in need, when I read a book and stuck somewhere, I had to do something about it. Then, I like to use a dictionary more. As I told you, I wait until last minute to study. So I have to guess and ignore a lot. It's not that much time to learn everything. Maybe I should plan my study ahead of time. I do guess sometimes. But, when it is not necessary to do so, I don't guess. For the exam, I wouldn't guess. I won't take a chance to guess. If I want to learn it, I wouldn't guess. Sometimes, guesses can be wrong. Then, you are going to have a wrong idea. Maybe in the exam, you got to have a wrong idea about the question, and answer the whole question wrong. Guessing can lead you astray. Also, when I read out of my own curiosity or interest about a topic, I guess or ignore. I wouldn't bother to use a dictionary. I am lazy sometimes."

Research Question 3

What was Hatem's retention of previously unfamiliar words?

Retention: Isolation (ISO) vs. Sentence Context (SCT)

When his previously unfamiliar words were presented in SCT, he was able to provide more correct definitions than when they were presented in ISO. As Figure 14 demonstrates, when the words were shown in ISO, only 27% of his definitions for the words were correct while 3% were partially correct and 70% were incorrect. When the same words were presented in SCT, 57% of his answers were correct and 13% were partially correct. It appeared that the sentences facilitated his recall of words as used in larger contexts (i.e., “I remember seeing something similar to this sentence in the personality section”). Probably, his understanding of the reading contexts helped him to remember the word meanings better. Also, the lectures seemed to have helped him better retain the words, e.g., “we talked about it in the class; we used it a couple of times in the class.”

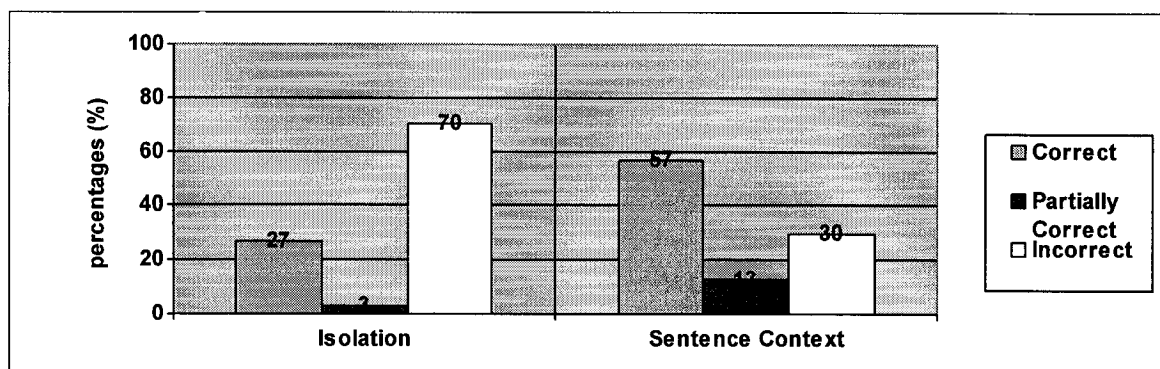


Figure 14. Hatem's retention of previously unfamiliar words: ISO vs. SCT.

Retention: Comprehension strategies (ISO vs. SCT)

Hatem provided the correct definitions for the same percentages (27%) of the dictionary use words and inferred words when the words were presented in ISO (See Figure 15).

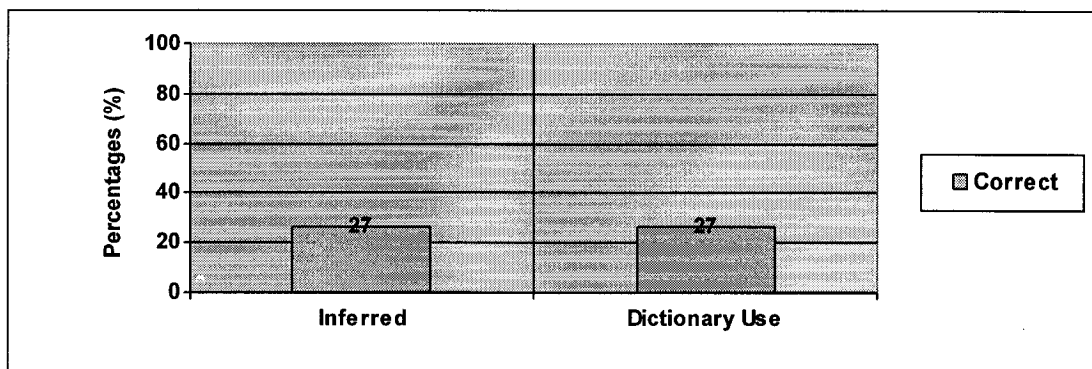


Figure 15. Retention of previously unfamiliar words: comprehension strategies in ISO.

When the same words were presented in SCT, he provided 53% correct definitions for the inferred words, 60% correct answers for dictionary use words (See Figure 16).

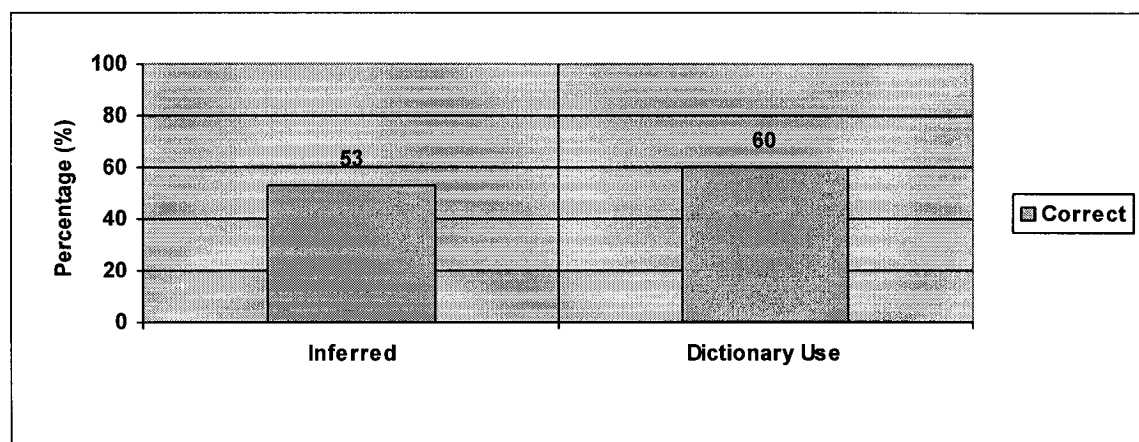


Figure 16. Retention of unfamiliar words: comprehension strategies in SCT.

Summary

- Hatem, a 23-year old Arabic speaking male, started to learn English seriously at the age of 14 when he started grade 9 in Canada. He reported learning English words “by observation and by listening,” rather than through reading.
- He had perfect scores at the 2,000 and 3,000 word frequency levels. At the others, he scored 89% at the 5,000 level, 72% at the UWL, and 61% at the 10,000 level.

- Relatively infrequent words constituted 80% of his listed words, relatively frequent words were 5%, and notably field-related words consisted of 15% of all his unfamiliar words. All the words were content words such as nouns (51%), adjectives (32%), and verbs (17%).
- Hatem ignored half of the unfamiliar words (50%), inferred the meanings of 33% of the words, and used a dictionary for the remaining 17% of the words.
- He guessed correctly the meaning of 17% of all his inferred words, guessed 48% partially correctly, and provided incorrect answers for 35% of the words.
- His past English learning experience, particularly dictionary use in his formal education appears to be a factor influencing his current vocabulary comprehension strategies. Also, depending on the learning situation, he uses different strategies to deal with unfamiliar words.
- On the VAT, when previously unfamiliar words were presented in ISO, he provided correct definitions for 27% and partially correct definitions for 3%. In SCT, the percentages were much higher (57% correct and 13% partially correct). Although he used inferencing more than dictionary use in respect to his word-lists, on the VAT he gave correct definitions for 27% of his inferred words as well as the dictionary use words when the words were presented in ISO. When the words were presented in SCT, he recalled correct definitions for 53% of the inferred words, and correct definitions for 60% of the dictionary use words.
- Overall, Hatem is not a reader. He does not want to learn unfamiliar words through reading, but rather through listening and observing others in social interactions. In general, his English vocabulary size is relatively small. Also, he showed that he has had some difficulties in learning English due to linguistic and cultural differences since his arrival in Canada at the age of 14. He notably listed a high percentage of FR words. He tends to

ignore a lot of words while reading (50%). He appeared to carefully select which words to comprehend in accordance with the degree of importance he attributed to unfamiliar words encountered in reading. He is not an analytical language learner. He had a lot of partially correct guesses (48%) in his inferencing. It can be interpreted that he went for more general comprehension from the word and the text. Therefore, he remembers the previously unfamiliar words much better when they were presented in SCT. This can be also detected in his percentage differences between ISO and SCT in accordance with his comprehension strategies (ISO: 27/27%, SCT: 53/60%). He tended to confirm the meanings of dictionary use words by attempting to use new words in social interactions with his brother or his friends, which probably explains his higher percentage of success in remembering the definitions of the dictionary use words than inferred words on the VAT.

Hong

Educational and Linguistic Background

Hong was a 19 year old Vietnamese French speaker. After his family moved to Canada when he was two, he lived in a Francophone community in Quebec. Until the age of seven he spoke only Vietnamese at home. Up to grade 4, Vietnamese was his home language and French his school language. From grade 5 to 8, he attended a French immersion program: half French and half English. He then decided to transfer to an English school at the beginning of grade 9, because he considered English to be a more useful language. At the time of the data collection, he was in his first year at the University of Ottawa, majoring in Electronic Engineering. He decided to take Psychology 1102 based on personal interest; he has “always been interested in how the human mind works.” Although he encountered many unfamiliar words in the textbook, he found they were

not “sophisticated.” Also, the book was informally written; he felt he could understand well the material that the author tried to communicate.

He had started to learn English regularly at the age of 11 while enrolled in a French immersion program. At school, he experienced difficulties in reading comprehension and speaking in English; however, his French “boosted my English a lot. So, I did OK in the school.” He learned a slang form of English mostly through social interactions with his peers. When he enrolled at an English school for grade 9, for a year he took ESL classes given in conjunction with the regular classes for 55 minutes a day. He initially took only math and science classes because subjects with heavy reading loads were difficult for him. He finds French to be more complicated than English in terms of tense and conjugation, and Vietnamese more complex than French. Although since his transfer to the English school he has used Vietnamese and French less and less, he can still read and write well in both Vietnamese and French. In English, he still has some difficulties in reading comprehension and speaking.

Scores on VLT

Figure 17 illustrates that Hong knew all the words at the 2,000, 3,000, and 5,000 word levels. He scored 83% on the words at the University Word Level and 72% at the 10,000 level.

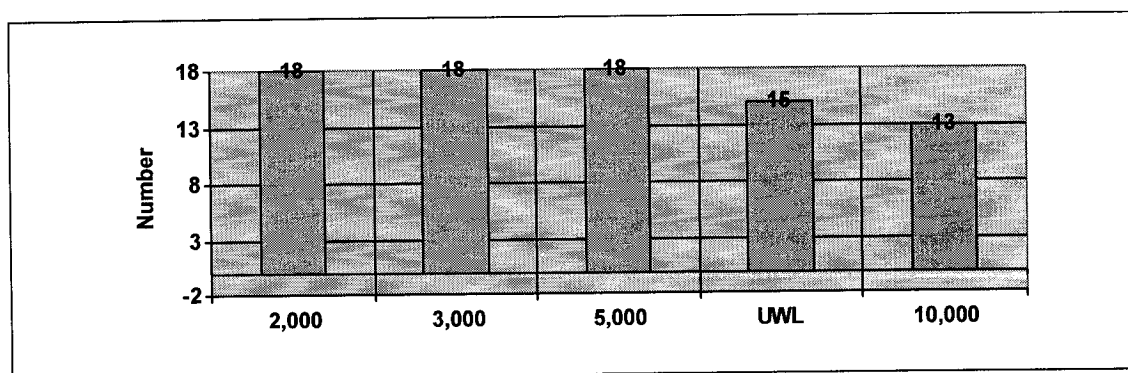


Figure 17. Hong' scores on VLT

Unfamiliar Words Recorded

Hong recorded a total of 157 unfamiliar words from the 80 textbook pages he read, with an average of 2 words a page. The number of words he recorded a page varied from one to seven words. He recorded three words twice: ‘hypocampus,’ ‘attuned,’ and ‘foibles.’ When questioned, he reported that when encountering unfamiliar words for the first time, he just recorded them, and later wanted to find out their meanings when he encountered them again. The unfamiliar words Hong recorded are presented below in terms of frequency and word class.

Frequency

As Figure 18 demonstrates, of the total number of Hong’s unfamiliar words, 81% were RIF words, 17% were RF words, and the reminder 2% were FR words.

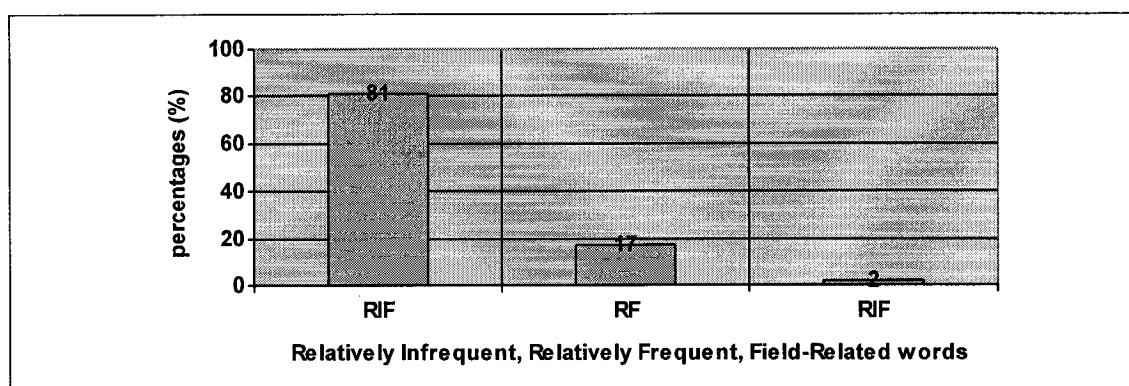


Figure 18. Frequency of unfamiliar words reported in different categories.

Word Class

As Figure 19 shows, all the unfamiliar words Hong recorded were content words: 40% were nouns, 37% were adjectives, and 23% were verbs.

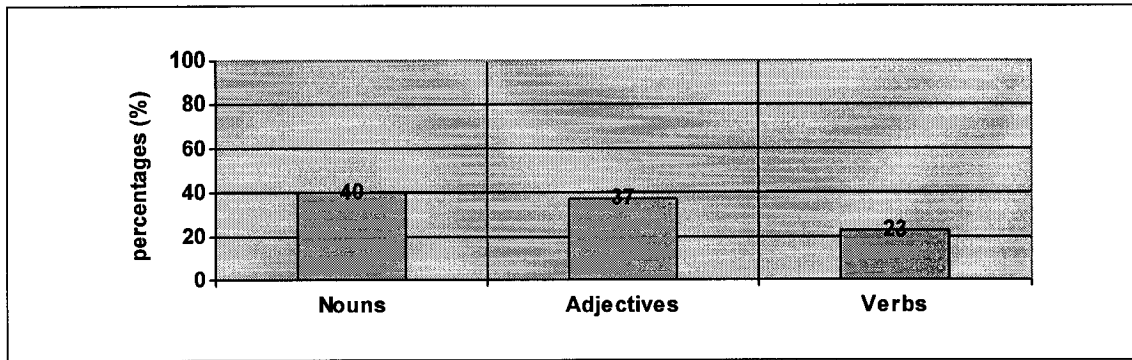


Figure 19. Word Class.

Research Question 1

How did Hong deal with unfamiliar words while reading his psychology textbook?

As Figure 20 indicates, when dealing with unfamiliar words he encountered while reading his psychology textbook, Hong recorded ignoring 10% of the unfamiliar words without finding out the meanings of them, and attempting to comprehend 90% of all the words he recorded.

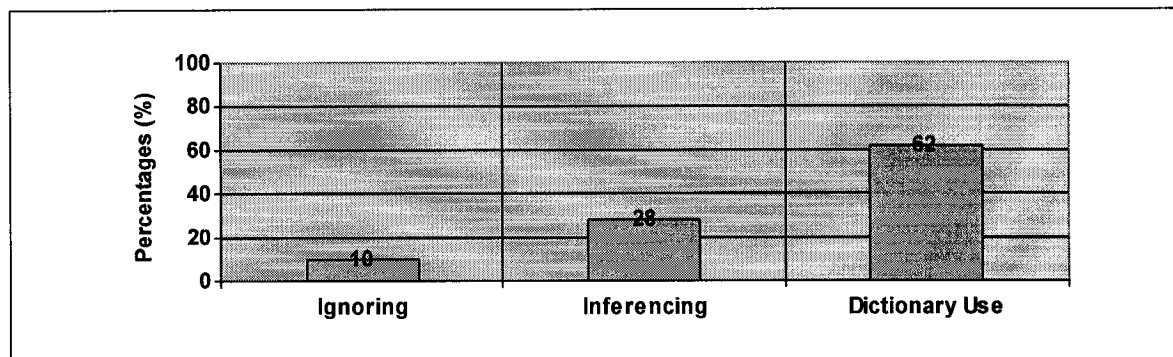


Figure 20. Strategies used by Hong while dealing with unfamiliar words.

Ignoring

Hong ignored only 10% of the unfamiliar words because he “saw that it was not important to know their meanings.”

Inferencing

Hong inferred the meanings of 28% of the words. Although he consulted a dictionary for many more words than he inferred, he reported that sometimes guessing helps him more than using a dictionary.

“Sometimes a dictionary gives you an answer you don’t really understand; they have very complicated explanations. By guessing them, you don’t really know exact definition, but you can understand the broad idea. That is more important than knowing the words. Most of what I know is by guessing a lot than I actually know. I don’t think I remember the meaning of every word. When I read, I comprehend 80% by guessing.”

From his report, it appeared that he was good at guessing at the meanings of unfamiliar words.

When I read something, I try to understand meaning. For the words that I don’t understand, I try to incorporate them into sentence. If sentence wants to say something, if I understand the meaning of the sentence, even if I don’t know the word meaning in that, I can guess its meaning. I know what the sentence wants to say.

His guessing skills can be seen also at his use of knowledge source for inferencing (See below).

Accuracy of Inferencing

The accuracy of Hong’s guesses was relatively high. Of Hong’s total guessed words in his word-lists, 34% of his guesses were correct and 27% were partially correct (Figure 21). Also, during the VAT, when he was not able to provide the definitions of the tested words, either he voluntarily tried to guess, or guessed when encouraged by the researcher. Of these guesses, five were correct or partially correct, and only one was incorrect.

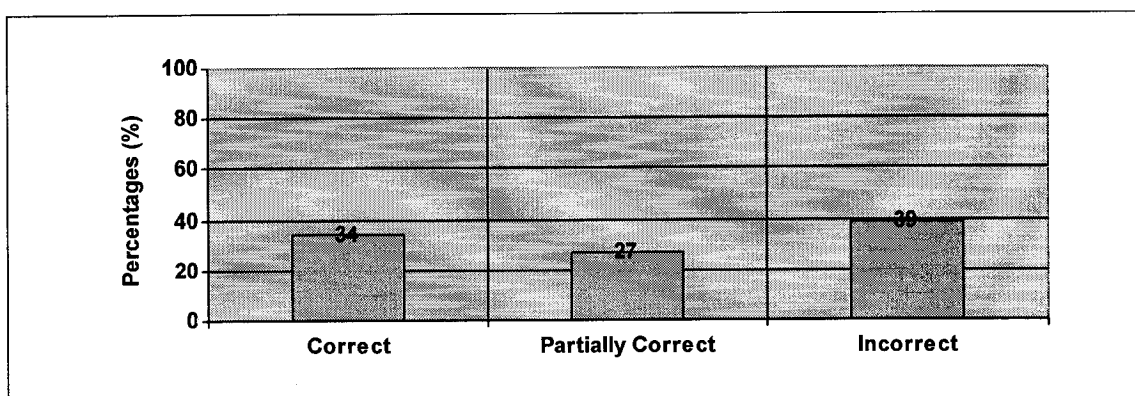


Figure 21. Accuracy of Hong's Inferencing

Knowledge Source for Inferencing

When inferencing, Hong used his knowledge of sentence-level meaning including word-class, word morphology, and French cognates.

"If I try to understand the meaning of an adjective in a sentence, let's say, the word is trying to describe an apple. I don't know what the adjective means, but I know that it tries to describe an apple. Throughout the whole sentence, if it says that the apple is good, then even if I don't know exact meaning of the adjective, I can have a good idea. Depending on what they try to say. I try to understand a word in this way. For example, if there is a sentence, an apple is 'subconscious,' and I don't know the meaning of 'subconscious.' But if the whole sentence tries to say that the apple is good, then I can understand the word 'subconscious' brings the apple in a good way. When someone uses the word, I know that it is something good. Also I try to cut new words into pieces. Sometimes people cut, 'un' in front of a word. 'Un' means an opposite of something. 'Pre' means before of something. I have a good foundation in French. So when I read in English, I have a good advantage. I use French cognates. I think I recognize them right away."

Dictionary Use

Hong used a dictionary to identify the definitions of 62% of the words of the total number of the unfamiliar words. He reported the difficulty of dictionary use: the words in a dictionary definition used to explain an unfamiliar word were sometimes also new to him. As a result, he had to find the meanings of the unfamiliar words in the definition first before finding the meaning of his initially unfamiliar words.

Research Question 2

What factors appeared to have influenced his current uses of vocabulary comprehension strategies?

Learning Contexts

It appeared that Hong uses different strategies depending on his learning situation. When encountering unfamiliar words, he seldom receives assistance from others because he usually studies at home and his parents and brothers do not speak English well. Even though he does not like using a dictionary because it is time-consuming, “a dictionary is my best friend for my homework.” “When I have a lot to read, I would guess more than use a dictionary.” Also, in reading for fun, he ignores more words than when reading for his schoolwork.

“I think I got the idea from the way we handled unknown words in school. Then, I just developed my own way of learning. I think the environment you are in makes you learn the way you are learning.”

Research Question 3

What was Hong’s retention of previously unfamiliar words?

Retention: Isolation (ISO) vs. Sentence Context (SCT)

As Figure 22 indicates, although Hong was aided by the sentence context, he displayed a high level of retention of the words when they were presented in isolation. When his previously unfamiliar words were presented in ISO, Hong provided correct meanings for 43% of the words. When the same words were presented in SCT, Hong was able to provide correct definitions of 50% of unfamiliar words. He reported that “it is very hard to remember what it meant when I saw just one word.” But when the same word was presented in a sentence, he recalled the context well: “here in this sentence I remember I guessed this word, and I remember I saw this sentence.” Also it appeared that the lectures helped him remember the words better: “the professor talked about it many times.”

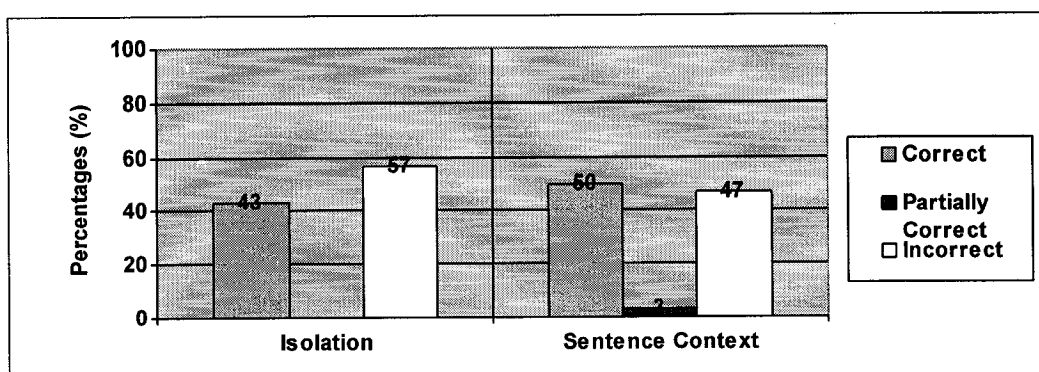


Figure 22. Hong's retention of unfamiliar words: ISO vs. SCT.

Retention: Comprehension Strategies (ISO vs. SCT)

In spite of his reported preference for dictionary use, he provided the correct meanings of inferred words much more frequently (63%) than dictionary use words (27%) when the unfamiliar words were presented in ISO (See Figure 23).

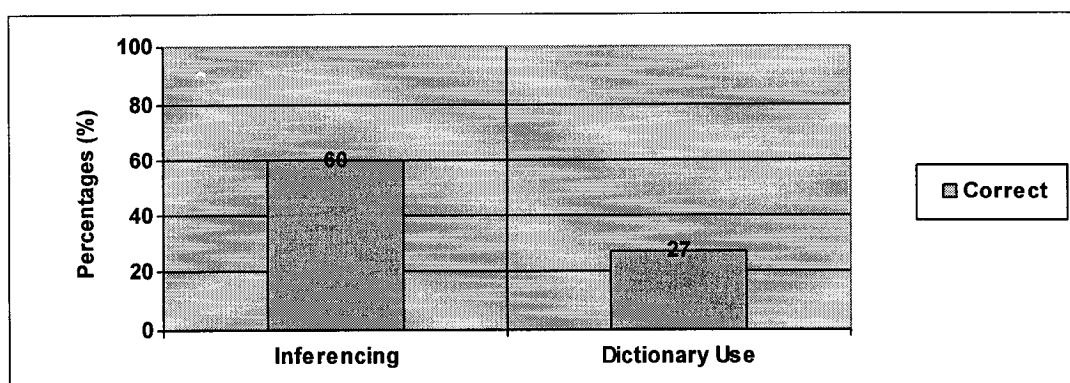


Figure 23. Hong's retention of unknown words: comprehension strategies in ISO.

As Figure 24 shows, when the words were presented in SCT, the percentages of retention of both sets of words increased slightly; however, his correct recall of the meanings of the inferred words remained notably superior to his performance in respect to dictionary use words.

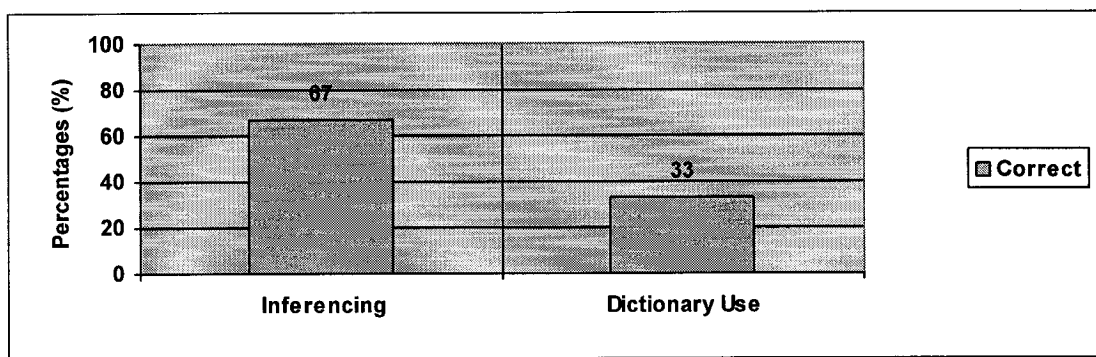


Figure 24. Hong's retention of unknown words: comprehension strategies in SCT.

Summary

- Hong, a Vietnamese and French speaker, started learning English in grade 5 in a French immersion program. At the beginning of grade 9, he entered an English school. At the time of the data collection, he was in his 1st year undergraduate study, majoring in Electronic Engineering.
- He had perfect scores at the 2,000, 3,000, and 5,000 word levels on the VLT. For the University Word level, he scored 83%, and for the 10,000 level, 72%.
- Of all his unfamiliar words, 81% were relatively infrequent words, 17% were relatively frequent words, and 2% were field-related words. All of the words were content words: nouns (40%), adjectives (37%), and verbs (23%).
- In dealing with unfamiliar words while reading his psychology book, he ignored only 10%, guessed 28%, and used a dictionary for 62% of the words.
- He reported that guessing sometimes helps him more than dictionary use because he can have at least a broad understanding of the guessed word; sometimes dictionary use takes time and a dictionary does not give comprehensible ideas about the word. He provided correct answers for 34% of the guessed words and partially correct answers for 27% of

the words. For guessing he used sentence-level meaning, word morphology, and French cognates. He appeared to be good at inferencing, which was showed in his higher percentages of correct and partially correct guesses as well as his reports.

- He reported that depending on the learning situation, he applies different strategies to determine word meaning; he uses a dictionary more for his schoolwork. When busy, he tended to ignore or guess words more often than he used a dictionary.
- On the VAT, he correctly remembered the definitions of 43% of the previously unfamiliar words when they were presented in ISO. When these words were presented in SCT, he provided correct answers for 50% of the words and gave partially correct meanings for 3%. When the words were presented in ISO, he provided 60% correct meanings for the inferred words, and he provided correct definitions for 27% of the dictionary use words. When the words were presented in SCT, he provided correct meanings for 67% of the inferred words and provided correct definitions for 33% of the dictionary use words.
- English is Hong's third language after Vietnamese and French. He has a relatively large English vocabulary size. He has learned new words ("slang") mostly through social interactions with his peers. This was reflected by the fact that relatively large percentage (17%) of the words in his list of unfamiliar words occur relatively frequently in written language. He was good at lexical inferencing. When inferencing word meanings, he was aware of using various knowledge sources including French cognates (unlike Amilie), and word morphology. Moreover, he showed that he knew how to efficiently utilize many different kinds of contextual clues for inferencing. The results of his successful guessing can be seen on the VAT: although in general he was successful in recalling correct

meanings of the previously unfamiliar words, he was able to provide more correct answers for the previously inferred words (approximately 60-67%), a notably higher rate.

Lu

Educational and Linguistic Background

Lu was a 21-year-old male from Ghana in West Africa. After completing his secondary education in Ghana, he came to Canada in 2001 for the purpose of studying at a Canadian university. During September of that year, he was admitted to the University of Ottawa after passing a CAN Test to certify his English proficiency. He undertook a World History program at the Faculty of Social Sciences. He decided to take Psychology 1102 out of curiosity about human life. He found that vocabulary in the textbook was not difficult except “slang words,” and “cultural expressions.”

Fante, Lu’s L1, is mainly a spoken language. Although Fante has been documented, no dictionaries exist for the language. Most of the people in Ghana, including Lu, know how to speak it, but not how to write it. Tense and vocabulary in Fante are very simple compared to English. Other than some alphabet letters, Fante and English do not share any linguistic similarities. This has caused Lu some difficulties in learning English.

According to Lu, in Ghana English holds a higher status than Fante, both socially and educationally. It is also spoken daily among social elite groups.

“In Ghana, people learn English when they are very young because they want to get into education. One more thing I have to tell you is that English is also spoken among the elite of the country. Even though you are not an elite, but I am an elite, when I meet you, I would speak to you in English. I don’t know, but that is most people would do. You show your class. If you are able to speak English, it shows that you are from a good class and a good family. Speaking English is something people have pride. I don’t know, but people mostly would do so.

So far, he has learned three languages with varying degrees of proficiency. Up to the age of 7, he spoke Fante only. He started learning English in his elementary school. During his school years in Ghana, he heard many different languages spoken around him by the students from various tribes, but English was the only language commonly shared by all the students as the instructional language at school. Other than speaking Fante and English, he knows basic grammatical rules and some vocabulary in French, which he has studied since elementary school. He is able to speak it slowly, word by word, not using complete sentences.

Due to cultural and linguistic differences, he is currently experiencing certain difficulties in daily interactions with his Canadian friends as well as in his studies. The English spoken in Ghana is very much like British English and is formal; he finds that English spoken in Canada is very informal even in school contexts. Also, some culturally embedded expressions are very different. Since arriving in Canada, he has been learning a version of English that differs from the British version, especially when it comes to informal conversations, colloquial language, and slang. Words are sometimes used very differently in Canada than in Britain. Sometimes he cannot understand some parts of lectures, especially professors' informal conversations and their jokes.

“One remarkable experience, like educational experience when it comes to English learning, is that I found that some of the words, sometimes expressions in Canada are so different from back home. English language in Canada is more like American English. Like ‘sober,’ I think here the word means something else. Back home, it simply means you are not drunk. But here if someone is sober, it means very different.” Also culture back home is like, morality is high. You don’t say someone is hot. It would be a cultural difference.”

Scores on VLT

As Figure 25 indicates (except for the 2,000 word level where he missed one point), Lu’s scores consistently decrease as words become less frequent. Given his perfect scores at the 3,000 and 5,000 levels, his error at the 2,000 level was unusual, and it was confirmed subsequently that

he in fact knew that word⁸. Thus, in subsequent analysis he is given a perfect score for this level. For the UWL, Lu demonstrated knowledge of 89% of the words. At the 10,000 level, he knew the meaning of 78% of the words.

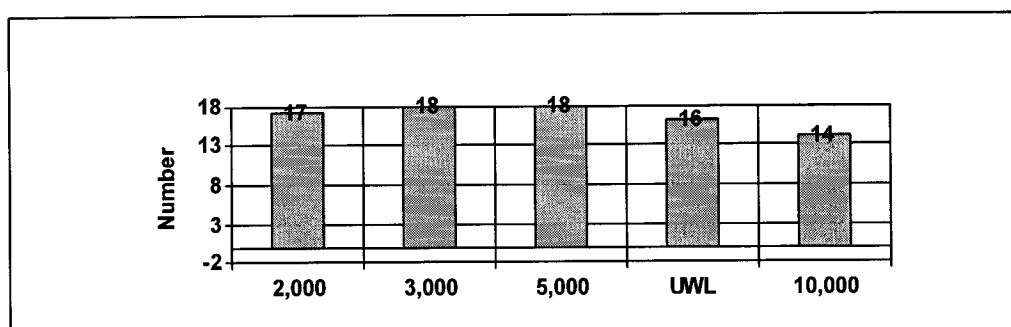


Figure 25. Lu's scores on VLT.

Unfamiliar Words Recorded

Lu recorded 154 words throughout the 6 weeks from 92 pages, with an average of 1.7 words a page, and variation from one to eight words per page. He reported that, when he found some topics interested him more, he read those sections more thoroughly and recorded more words. The unfamiliar words recorded by Lu are presented in terms of frequency and word class.

Frequency

As Figure 26 demonstrates, of the total number of words, 95.4% were *Relatively Infrequent* (RI) words, 2% were *Relatively Frequent* (RF) words, and the reminder 2.6% were *Field-Related* (FR) words.

⁸ For the subject item, he chose 'blame' instead of the right answer, 'spoil.' Right after finding this out, I asked him the definition of 'spoil.' He answered 'something goes bad.' Probably his erroneous judgment on the item was not because he did not know the meaning of the word, 'spoil,' but rather that he was confused for some reason.

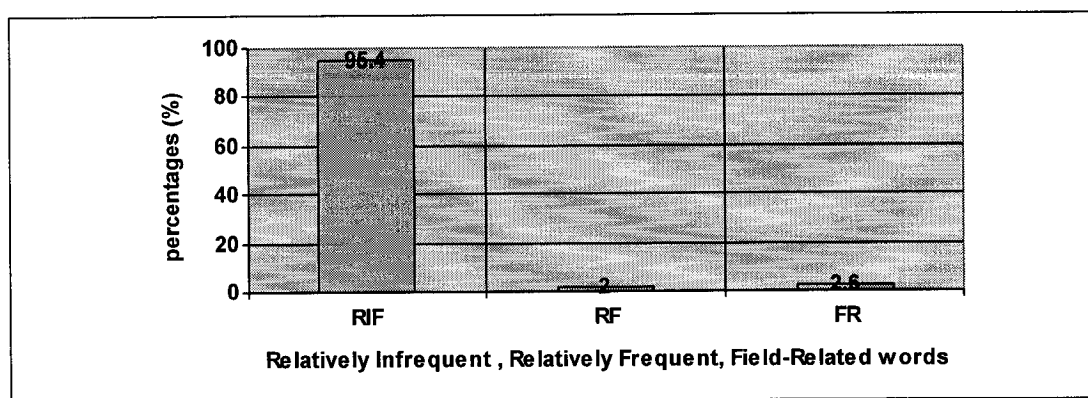


Figure 26. Frequency of unfamiliar words reported in different categories.

Word class

As shown in Figure 27, all of the words were content words. Of these, nouns accounted for the highest percentage (50%), 26% were identified as adjectives, and the rest were verbs (24%).

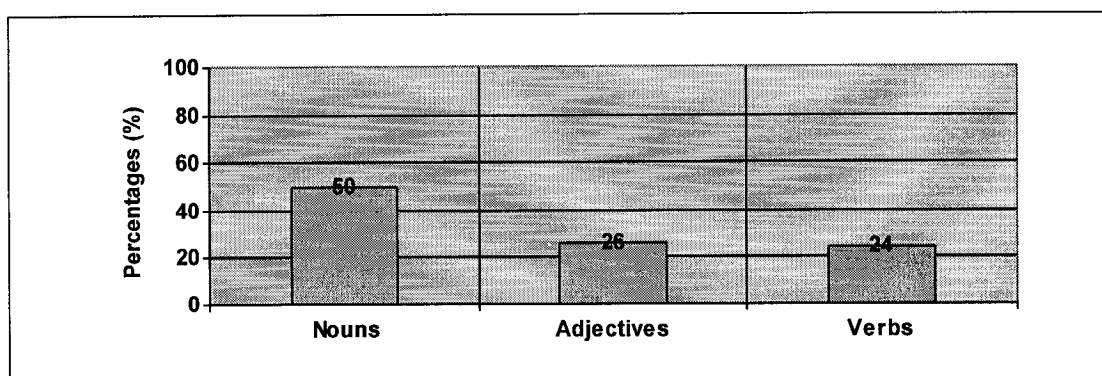


Figure 27. Word class.

Research Question 1

How did Lu deal with unfamiliar words while reading his psychology textbook?

As shown in Figure 28, Lu ignored 22%, and to find out the meanings of unfamiliar words, he inferred 26%, used a dictionary for 29%, and asked help from others for 23% of the unfamiliar words he recorded.

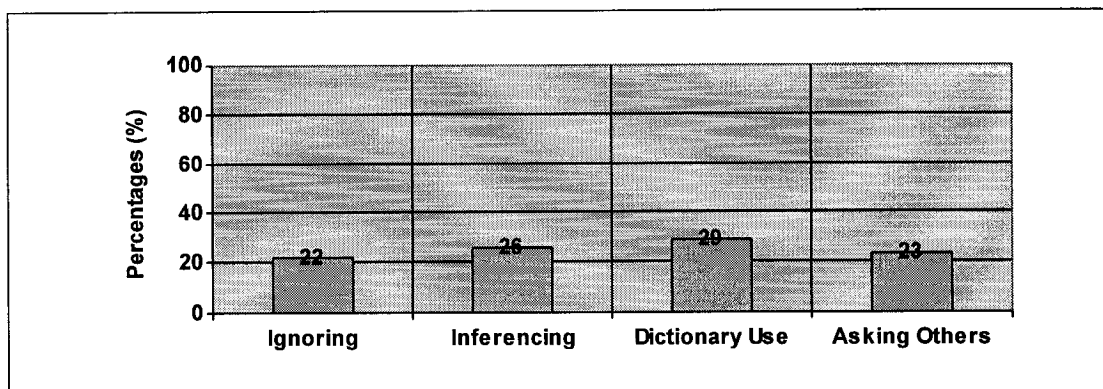


Figure 28. Strategies used by Lu when dealing with unfamiliar words.

Ignoring

Of the total number of the unfamiliar words, Lu recorded passing 22% of the words without attempting to find out their meanings.

Inferencing

Lu inferred 26% of his listed unfamiliar words. He reported that, although “I shouldn’t rely on my guesses too much because most of time it was wrong,” for him guessing was a useful strategy in reading; it usually gave him “a short relief just for a short period to solve the problem of using a dictionary.”

Accuracy of Inferencing

As Figure 29 indicates, 38% of his guessed words were correct, 26% partially correct, and 36% were incorrect.

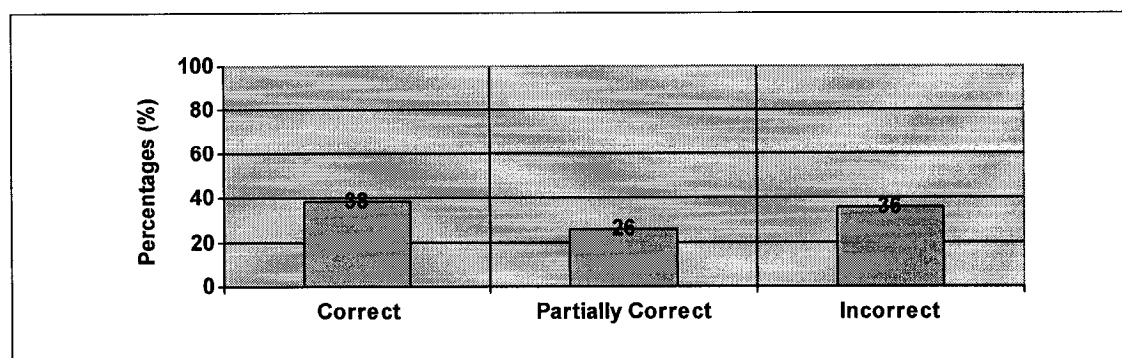


Figure 29. The accuracy of Lu's inferencing.

Knowledge Sources for Inferencing

When inferencing, Lu reported having used his knowledge of sentence-level meaning, word morphology, and French cognates. When the sentence 'Some are strict, and some are lax,' was provided on the VAT, he correctly guessed the meaning of 'lax,' by using the sentence structure. He demonstrated and also reported having used word morphology. For example, during the VAT, when 'egocentric' was provided, he analyzed the word to provide its definition.

"I can guess by trying to look for roots of a word, and analyzing the word. The beginning of the word is ego. I know ego means a self. Centric means probably center. So, egocentric means probably selfish or always think about yourself."

He sometimes used his French background in guessing English words, "because they come from the same parent language.

Dictionary use

Although the percentage of his dictionary use words was not notably higher than those of other strategies, still he used a dictionary most frequently to determine the meanings of his listed unfamiliar words (29%).

Asking Others

Asking others to find out the meanings of unfamiliar words was a distinctive vocabulary comprehension strategy only found in Lu's performance. He asked help from his friends to understand 23% of the total number of his unfamiliar words.

Research Question 2

What factors appeared to have influenced his current uses of vocabulary comprehension strategies?

Previous Language Learning Experience

The vocabulary comprehension strategies that Lu currently uses appear to have been influenced by his past L2 and L1 learning experiences. Dictionary use was Lu's most frequent comprehension strategy. He also reported it as the most important strategy to find out the meanings of an unfamiliar word, which he had learned it while growing up.

“When I ask help from my parents for new words in English, they don't help me because they want me to learn the habit of looking up a dictionary.”

Also, his teachers had told him that “if you want to learn new words, just read books. As you read them, you would meet unfamiliar words. Then just find the meanings of those words by looking up a dictionary.” Unlike English, his L1 is mainly a spoken language. So “if my mother says something, and if I doesn't know the meaning of a word, she will tell me the meaning.” This reliance on asking others might have been transferred to his English learning: he frequently asks his friends for help “When I ask meanings of some words, they just give them to me. Also, I try to see if I have heard them from someone, and what we talked about to see the purpose for the words.”

Learning Contexts

Learning contexts appeared to be relevant factors for his choosing certain strategies over others. “I had to figure out how to do it by myself, and what were the best ways that worked for me.” For example, he frequently asked others to identify meanings of new slang words. It appeared that he tended to ask others to get the meanings of unfamiliar words both to understand the textbook better and to learn culture-specific expressions and slang words spoken among his peers.

“I am learning slang I think. In Canadian culture, they have things they label people. Someone socially withdrawn is a ‘geek.’ Back home we have such people too. But we don't have such names. Even some of the

material our professors give to us, English is little bit different. Sometimes I have to ask someone about what that means.”

Also, he tended to guess or ignore new words more when he was tired or reading for a non-academic purpose. If “I wanted a better grade, and wanted to do well, I would use a dictionary more.”

Research Question 3

What was Lu’s retention of previously unfamiliar words?

Retention: ISO vs. SCT

As Figure 30 demonstrates, on the VAT Lu provided the definitions of his previously unfamiliar words much more accurately when they were shown in SCT than in ISO. When the words were presented in ISO, 23% of his definitions were correct and 7% were partially correct. In SCT, he provided correct definitions for 33% and partially correct definitions for 20%. In SCT, he appeared to remember his understanding of larger contexts in the textbook, which helped him to better recall the definitions of the words.

“I remember this sentence in an experiment about rat or monkey. How monkeys are attracted to appearance of either food or comfort. One place has food, the other place has comfort. The monkeys first went to the food, then went to the comfort. The sentence makes me remember this.”

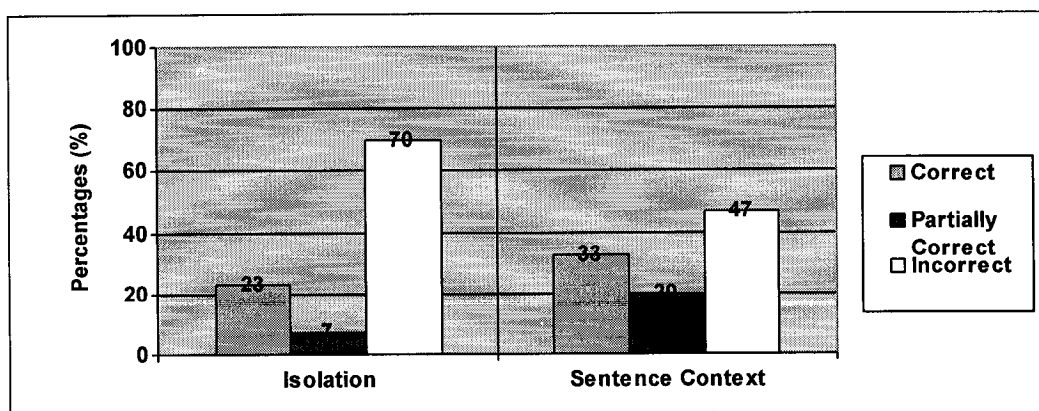


Figure 30. Lu’s retention of previously unfamiliar words: ISO vs. SCT.

Retention: Comprehension Strategies (ISO vs. SCT)

As Figure 31 indicates, Lu remembered the definitions for the inferred words more accurately than for the dictionary use words or asking-others words when the words presented in ISO. He provided 30% correct definitions for his inferred words. For the dictionary use words, he correctly recalled the meanings of 20%. For the asking-others words, his answers were correct for 20% of the words.

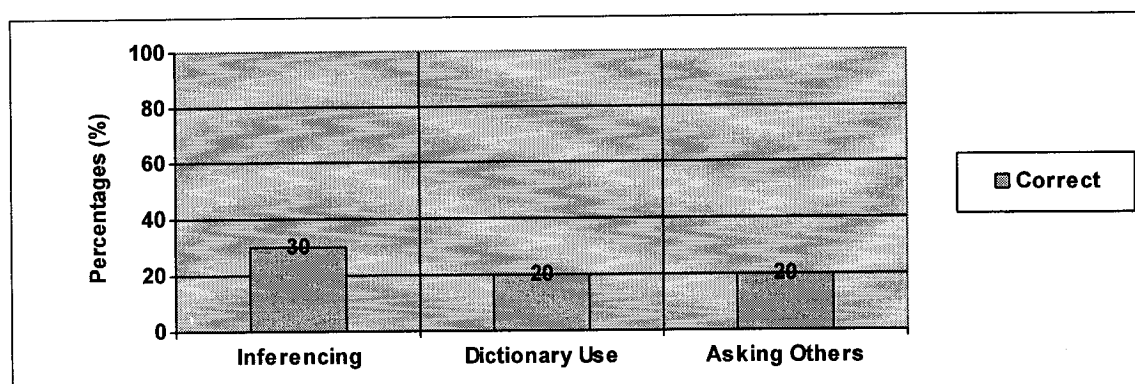


Figure 31. Lu's retention of unfamiliar words: comprehension strategies in ISO.

When the words were presented in SCT (See Figure 32), Lu provided 50% correct definitions for the inferred words. For the dictionary use words, 30% of his answers were correct. For the asking-others words, he recalled 40% correct definitions.

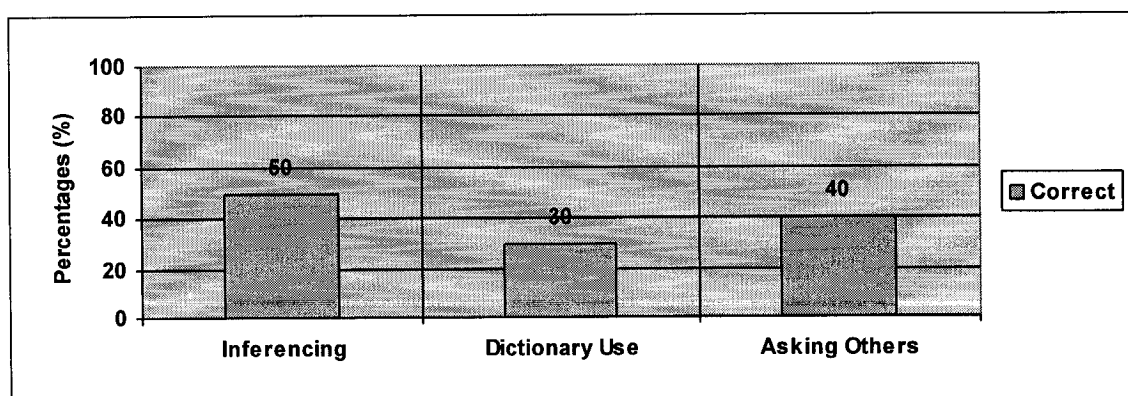


Figure 32. Lu's retention of unfamiliar words: comprehension strategies in SCT.

Summary

- Lu was a 21-year-old Fante speaker, majoring in world history. He arrived in Canada in 2001 from his home country, Ghana. At the time of the data collection, he was having some difficulties in comprehending conversation among his peers and during lectures both linguistically and culturally. He decided to take Psychology 1102 as an elective from his interest in the human mind.
- He knew all the words at the 2,000, 3,000, and 5, 000 word levels. He demonstrated knowledge of 89% of the words in the University Word List, and 78% at the 10,000 level. For the words Lu recorded as unfamiliar, 95.4% were relatively infrequent words. All of the words were content words: nouns (50%), adjectives (26%), and verbs (24%).
- In dealing with unfamiliar words while reading his psychology textbook, he ignored 22% of the words, guessed 26% of the words, used a dictionary for 29% of the words, and asked for help from others to get the meanings for 23% of the words. He accurately guessed the meanings of 38% of the words, and provided partially correct answers for 26% of the words. The knowledge sources he used were word morphology, sentence-level meaning, and French cognates.
- Factors that appeared to influence Lu's dealing with unfamiliar words were his previous language experiences and his current learning situations.
- On the VLT, when his previously unfamiliar words were presented in isolation, he correctly remembered the meanings of 23% and provided partially correct answers for 7%. When the same words were presented in SCT, he provided correct definitions for 33% and partially correct definitions for 20% of previously unfamiliar words. When the words were presented in ISO, he correctly recalled the meanings of 30% of the inferred words, provided correct

definitions for 20% of the dictionary use words, and provided correct definitions for 20% of the asking-others words. When the words were presented in SCT, he provided correct answers for 50% of the inferred words, correctly recalled correct definitions for 30% of the dictionary use words, and provided correct definitions for 40% of the asking-others words. He appeared to be good at inferencing: in his word-lists, he demonstrated high percentages of correct (38%) and partially correct (26%) guesses. Also, he successfully recalled the meanings of his previously inferred words on the VAT (30% in ISO, 50% in SCT).

- British English has been Lu's main school language in Ghana. Since his arrival in Canada in 2001, his interest in learning English has been driven by both his studies and his desire to understand a culture new to him. Unlike other participants, he frequently asks for help from others in determining the meanings of unfamiliar words encountered in reading. This can probably be attributed to a similar pattern of asking others demonstrated when learning his L1, an oral language, as well as his sociable personality.

CHAPTER FIVE:

RESULTS (Cross-Case Analysis)

Overview

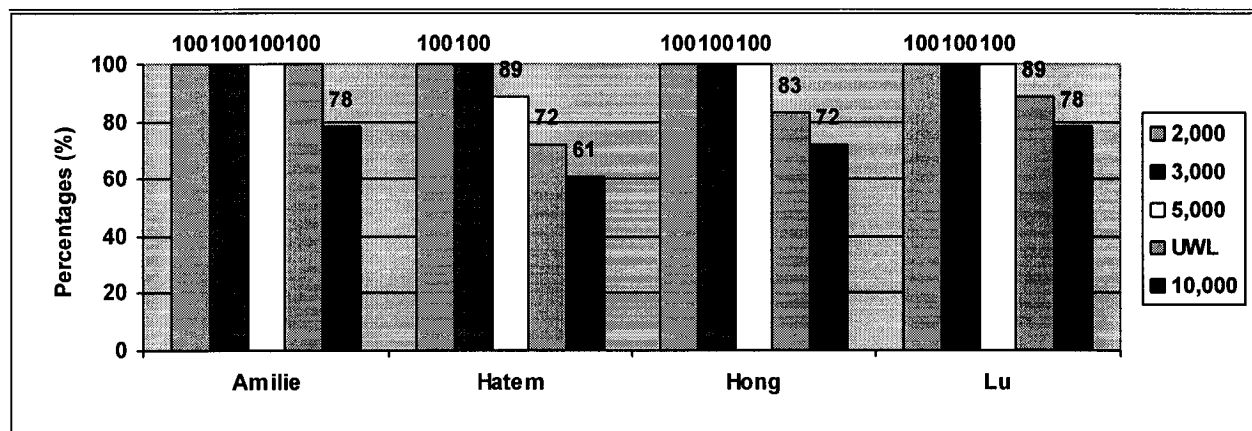
As the second part of the study results, this chapter presents the similarities and differences found across the four participants. As in CHAPTER FOUR, the chapter addresses first the results of the participants' VLT, followed by findings from their word-lists and research questions. In this chapter, other themes are also presented. These include the participants' perceived relationship between reading and vocabulary learning, any reported influence of participation in the research on the participants in terms of their vocabulary learning activity during the study, and finally the advice of the participants to other ESL learners concerning vocabulary learning. The comparisons of participant performance, the findings are generally presented in alphabetical order of participant names, as in CHAPTER FOUR, especially in all Figures and Tables. However, in the narration, alphabetical order is not always followed.

Scores on VLT

As Figure 33 demonstrates, while all the participants had high functional levels of English proficiency, their scores on the vocabulary size test (VLT) showed variations. As expected, the participants' scores were consistently lower at lower word frequency levels. Amilie had the highest scores at all word levels. Hong and Lu also generally achieved quite high scores and showed very similar scores to one another at all levels, while Hatem's scores were the lowest of all the participants. Amilie, Lu, and Hong had perfect scores at three of the word levels (2,000, 3,000, 5,000), while Hatem had perfect scores at the 2,000 and 3,000 levels, and knew 89% of the words at the 5,000 level. At the University Word Level, Amilie also had a perfect score, and Lu and Hong had similar scores (89% and 83% respectively), while Hatem scored 72%. At the 10,000 level,

Amilie, Lu, and Hong demonstrated similar scores (78%, 78%, and 72% respectively), while Hatem scored 61% with respect to the words at this level.

Figure 33. Participants' scores on the VLT at different word frequency levels



Unfamiliar Words Recorded

As the figures in Table 3 show, the total number of unfamiliar words recorded during the six weeks showed significant variations across the participants. Also, as shown in Chapter 3 (Research Methodology), the number of words recorded weekly by each participant varied over time. Amilie recorded many more words than the others (314). Next, Hong and Lu recorded a similar number of words (approximately 155), while Hatem recorded only one fifth as many as Amilie recorded (59). With respect to an average number of unfamiliar words that the participants recorded reading, Amilie's figure was still much higher than those of the other participants.

When considering the total number of pages dealt with in the course (311), the total number of words the participants had recorded appeared to be very small; it seems unlikely that the participants recorded all the unfamiliar words they encountered while reading the textbook. They probably ignored many unfamiliar words and/or did not record them because it could be time-consuming to stop reading in order to write them down and determine their definitions or meanings.

Table 3Number of words recorded by the participants

	Amilie	<u>Hatem</u>	<u>Hong</u>	<u>Lu</u>
Words recorded	314	59	157	154
Pages read	134	30	80	92
No.of words/Page	2.3	1.97	1.97	1.67

Amilie and Hong recorded several words more than once. When asked why, they reported that when they saw a word a second time, they recognized it, but were not sure of its meaning.

Although they read the same textbook, and recorded considerable numbers of unfamiliar words, Table 4, which lists words recorded by at least two participants, demonstrates that there were no common words identified by all participants. There were only six words identified in common by three of the participants. (In Table 4, these words are underlined; however only one instance of each of the words shared by the three participants is rendered in bold). All the words recorded in common were relatively infrequent words except a relatively frequent word (quaint), and two field-related words (i.e., hippocampus, syphilis).

Table 4

Common words among the participants

Hong/Lu	torso, blossom, hippocampus, <u>foibles</u> , <u>seething</u> , pigeonhole, galore, <u>disparage</u> , <u>gyrate</u> , attuned
Hong/Hatem	empathic, <u>bereavement</u> , mellow, linger, latency, extroversion
Hong/Amilie	<u>foibles</u> , ware, indelible, prodigious, pretension, reciprocate, <u>seething</u> , <u>bereaved</u> , bludgeoned, conniving, lofty, <u>gyrate</u> , extol, dissident, <u>disparage</u> , scoundrel
Lu/Hatem	attuned, scoundrel, latency, <u>gambit</u> , smoldering
Lu/Amilie	wanton, panhandler, <u>seethe</u> , seared, tram, <u>gambit</u> , <u>foibles</u> , bumbling, <u>disparage</u> , gyrate, quaint, smorgasbord, scoundrel, jittery, fad, charred, blitz, bout, smoldering, measly, buoyed
Hatem/Amilie	prodigious, inadvertent, syphilis, smoldering, conspicuous, flabbergasted, contrive, pecking, bleak, resilient, invigorate, <u>bereavement</u> , <u>gambit</u>

Frequency

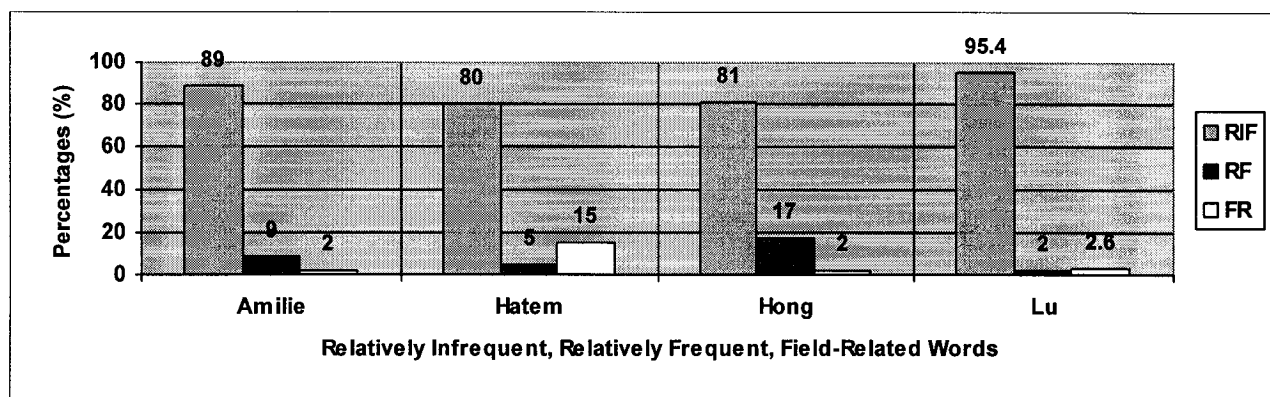
The majority of the unfamiliar words recorded by all the participants were *Relatively Infrequent* (RIF) words (See Figure 34). Of all their listed words, 89% of Amilie's words and 95% of Lu's words were RIF words. Hatem and Hong's percentages of RIF words were slightly lower (approximately 80%). Hong was the only participant who recorded a considerable number of *Relatively Frequent* (RF) words (17%). Perhaps Hong had not learned these words because most of his English word learning has been achieved aurally through social interactions rather than reading (See Table 5 for the RF words listed by the participants).

"I learned new words mostly from friends, not a lot from reading. It's not proper English. It is slangy. Because when I read, there were a lot of words I didn't understand. So, I didn't learn a lot from reading. From speaking, mostly from friend with interactions with people."

Interestingly, although Hatem is majoring in psychology (in his 3rd year), he listed many more *Field-Related* (FR) words (15%) than the others (approximately 2% each), perhaps because he had

not learnt those words in previous years (“Usually I ignored new words in big books in university”) and he had only just recently become more interested in learning terminology because the course was in his major field.

Figure 34. Frequency of unfamiliar words in different categories.



Note: Percentages are of total number of unfamiliar words recorded

Table 5

Relatively frequent (RF) word listed by the participants

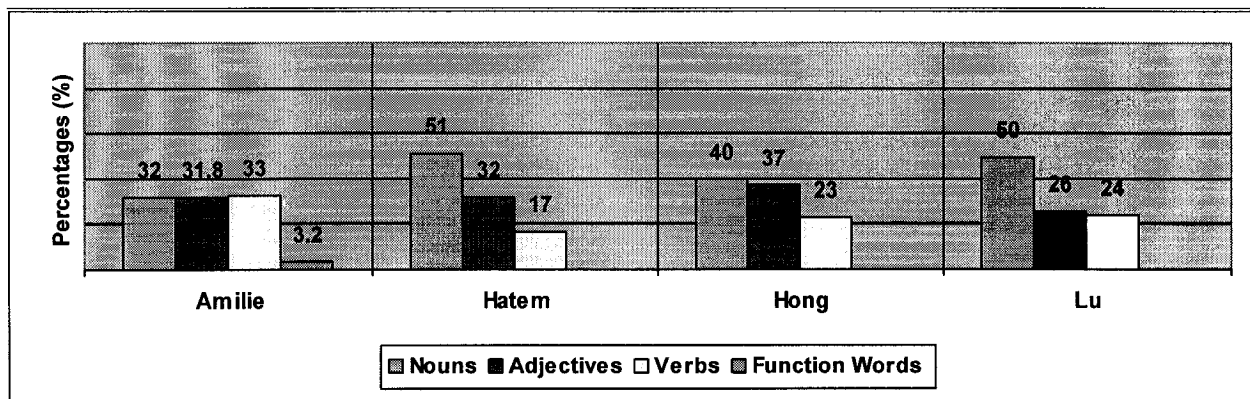
Amilie	slip, executive, ought, disclose, snatch, legacy, summon, manifest, endow, prevail, convention, deemed, apprehension, brooding, assert, poised, realm, toll, substantial, unprecedented, alleged, confer, lest
Hatem	innovation, rigid, aspiration, dynamic
Hong	intricacy, distinct, compensate, competence, sustain, collective, vocational, agencies, insightful, crude, integrated, ambiguity, intervention, unprecedented, counterpart, incorporate, hostile, ambiguous, tendency, plunge, clues, akin, contempt, fallacy, doctrine, disposition
Lu	shove, quaint, edge

Word Class

As Figure 35 indicates, content words (i.e., nouns, adjectives, verbs) accounted for all the unfamiliar words recorded by all the participants (except Amilie’s 3.2 % function words). Hatem, Hong, and Lu recorded only content words. For them, nouns accounted for the highest percentage, followed by adjectives and verbs. Interestingly, 96.8% of Amilie’s unfamiliar words were content words while 3.2% were function words. With respect to content words, Amilie also differed from

the others in that she recorded almost the same percentages of nouns, adjectives, and verbs. Her interest in word learning apart from just comprehending them in context may help account for this.

Figure 35. Word class of the unfamiliar words.



Note: Percentages are of total number of unfamiliar words recorded

Research Question 1

How did the participants deal with unfamiliar words while reading their psychology textbook?

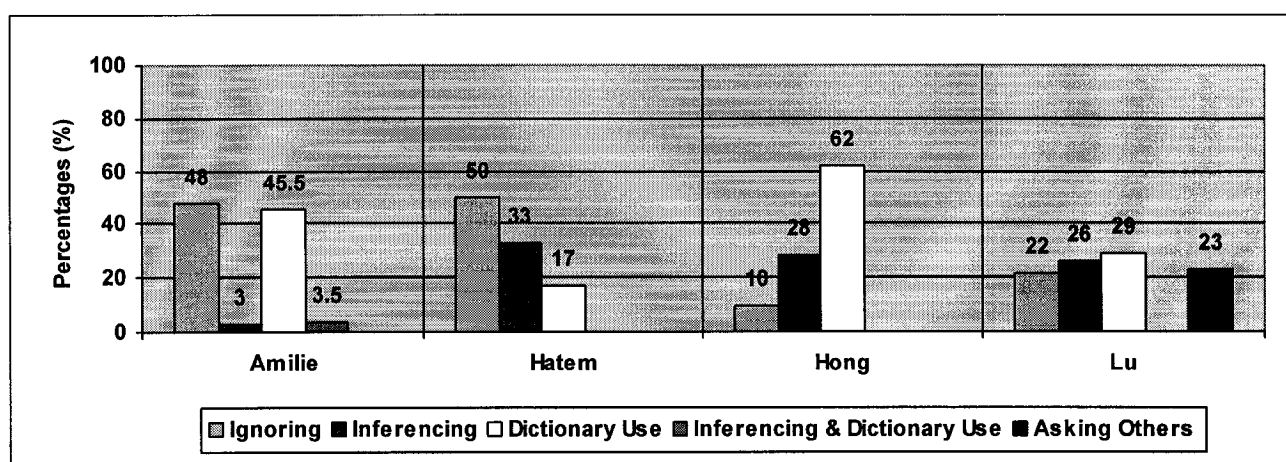
As Figure 36 demonstrates, the participants either ignored unfamiliar words without working on them or they attempted to find out the meanings of unfamiliar words by using different vocabulary comprehension strategies. Of the strategies, inferencing and dictionary use were strategies used by all participants. In addition, one participant also used these two strategies in combination, while another depended heavily on asking other persons for word meanings.

Ignoring

The participants differed with respect to the proportion of all unfamiliar words that they ignored, and they also reported a variety of reasons for ignoring them. These include a perceived lack of relevance of unfamiliar words to reading comprehension, too many unfamiliar words, text difficulty, and laziness. Amilie and Hatem ignored approximately half of their listed unfamiliar words. The rate is much lower for Hong (10%) and Lu (22%). Amilie, Hatem, and Hong reported

having ignored unfamiliar words when they saw them for the first time or perceived that it was “not important to know their meanings.” For Amilie such unimportant words included words “just describing something, or just embellishing the sentence.” She also ignored unfamiliar words “if there are so many words.” Hong reported that he ignored unfamiliar words when “it is too complicated, and I don’t understand the whole idea.” For Lu, the main reason for his ignoring was “laziness.”

Figure 36. Strategies used by the participants while dealing with unfamiliar words.

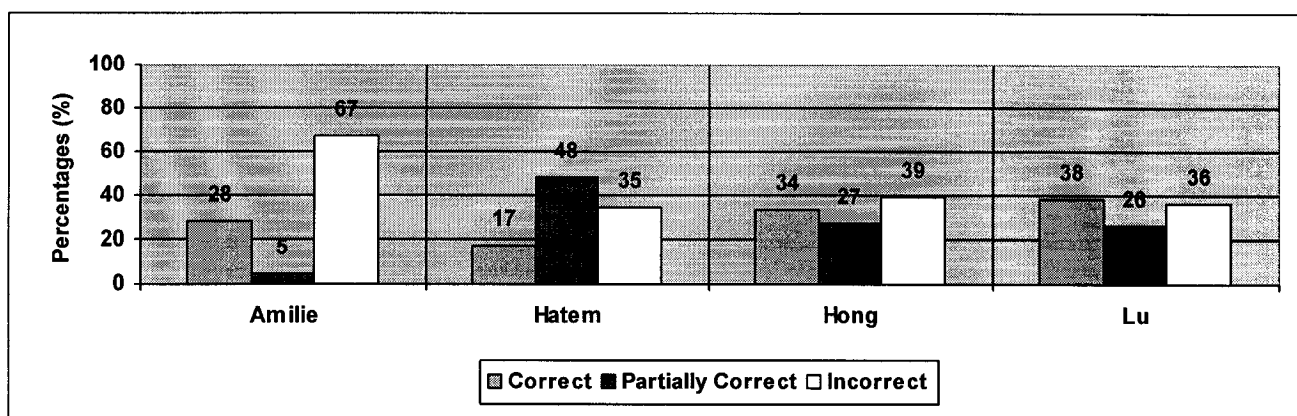


Note: Percentages are of total number of unfamiliar words recorded

Inferencing

Inferencing was one of the vocabulary comprehension strategies shared by all participants, yet with different frequency and accuracy. In this section, frequency and accuracy results for the inferred words are discussed together (See Figures 36 and 37). The participant with the highest percentage of inferred words is discussed first, followed by the others in descending order of percentage of inferred words.

Figure 37. Accuracy of inferencing.



Note. Percentages are of total number of the participants' inferred words on their word-lists

Hatem guessed the meanings of 33% of the unfamiliar words that he recorded. He correctly inferred the meaning of 17% of these words and provided partially correct meanings for 48%. He reported that guessing sometimes led him astray; therefore, if he wanted to learn new words for a reason other than comprehension of the text, he would not guess.

Hong inferred the meanings of 28% of his unfamiliar words, and 34% of his inferences were correct while 27% were partially correct. By guessing, he intends to “understand the broad idea, not exact definition” of a word. Also, from his report it appears that he is a skilled guesser.

“When I read something, I try to understand meaning. For words that I don't understand, I try to incorporate them into sentence. If sentence wants to say something, if I understand the meaning of the sentence, even if I don't know one word in that, I can guess the meaning. I know what the sentence wants to say.”

Lu inferred the meanings of 26% of unfamiliar words. The meanings of 38% of these were correct and 26% were partially correct. He reported that, although his guessing could go wrong, it usually gave him “a short relief just for a short period to solve the problem of using a dictionary.”

Compared with these three, Amilie reported that guessing was not her usual approach to comprehending unfamiliar words: she recorded only 6.5% of her list as guessed words. Of these, she also checked a dictionary for 3.5 of the words. Only 28% of the meanings of her inferred words were correct, while 3% were partially correct. Also, it was notable that she demonstrated guessing

behavior mainly during the first week, seemingly influenced by the data collection instrument and in order to help the researcher (See below). However, soon she returned to her predominant strategy: dictionary use.

“When I was in a hurry to read the book, I just looked them up in the dictionary because that is more important for me. I really didn’t know if you really want me to guess every time. For me it is something I really don’t like to do. I thought my understanding of meaning is more important for myself. I did just whatever I would have probably done on my own.”

Although Amilie recorded having heavily relied on dictionary use, she verbally reported frequently inferring the meanings of unfamiliar words. Her reports indicated that she did not guess based upon a single exposure. Rather, she would guess by using her accumulated knowledge about an initially unfamiliar word that she had acquired through multiple exposures to that word in several different contexts.

“When you come across words so often, unconsciously I am probably going to understand the meaning of the word by guessing it. You will end up understanding what it means even if you don’t guess every single time. You will just end up knowing what it means by seeing it in certain sentences often. I probably guess it automatically.”

The accuracy of the participants’ inferencing was also investigated also during the VAT, when the tested words were presented in sentence contexts. When it was clear that they were not able to provide the meanings of certain words, the researcher encouraged them to guess them or the participants voluntarily attempted to do so. Amilie was able to guess two of these words correctly, but three of her attempts were incorrect. Hong’s guesses were much more accurate: his guesses for five words were at least partially correct and only one guess was incorrect. These results show consistency with the inferencing accuracy results for these two participants with respect to their word-lists.

To sum up, except for Amilie, the three participants recorded using inferencing relatively frequently (28-33%) during the six weeks, and according to their word-list accuracy results, they were able to successfully infer the meanings of unfamiliar words (including partially correct answers) with success rates ranging from 61% to 65%. Amilie's word-list performance and verbal report showed a clear anomaly in comparison with the other participants. Unlike the others, she recorded guessing only 6.5% of the unfamiliar words and her guesses appeared to be wild guesses: 67% of the meanings she provided for her guesses in her word-lists including those she had also checked in a dictionary were incorrect.

Knowledge Sources for inferencing

The participants reported and demonstrated use of various knowledge sources when inferring the meaning of unfamiliar words. They reported using sentence-level meaning most, followed by word morphology, French cognates, discourse knowledge, and topical knowledge. All the participants used sentence-level meaning

"In this sentence, 'some cheerful some **dour**', I don't remember the exact definition. But I guess it is the opposite of cheerful." (Amilie)

"I guess in relation to the sentence. With the sentence with the words you don't know. I would relate the sentence to the words, and the sentence to the paragraph." (Hatem)

"If I try to understand the meaning of an adjective in a sentence, the word is trying to describe an apple. I don't know what the adjective means, but I know that it tries to describe an apple. Throughout the whole sentence, if it says that the apple is good, then even if I don't know exact meaning of the adjective, I can have a good idea." (Hong)

"In this sentence, 'Some are strict, and some are **lax**,' **lax** means the opposite of strict, that is relax or lenient."
 "I look at the context of the sentence that the word is used. You can try to figure that out in the context of the sentence." (Lu)

Word morphology use was reported by Hatem, Hong, and Lu.

"I would say that I would analyze words like pre-, post-." (Hatem)

“Sometimes people put, ‘un’ in front of a word. ‘Un’ means an opposite of something.” (Hong)

“I can guess by trying to look for roots of a word, and analyzing the word.” (Lu)

Among the participants with French backgrounds, Hong and Lu reported using their knowledge of French cognates for guessing the meanings of unfamiliar words. However, Amilie, whose L1 is French, reported not using cognate relationship that exist between English and French words.

“I use French knowledge. I think I recognize them right away.” (Hong)

“Sometimes I use French knowledge because they come from the same parent language.” (Lu)

“If I try to understand what it means by comparing to French words? It doesn’t happen. I don’t think that there is that many English words that are similar to French.” (Amilie)

Hong and Hatem used their knowledge about discourse.

“If you have the whole paragraph say that the apple is good, then I understand that the word ‘subconscious’ brings apple in a good way.” (Hong).

“In relation to the sentence. I mean when you read a paragraph, with the sentence with the words you don’t know, I would relate the sentence to the words to the sentence to the paragraph.” (Hatem)

In addition, Hatem reported having used topical knowledge.

“For example, there is a topic about a disorder, there words describing symptom that you don’t know. If you know the topic from the class, you could guess the meanings of the words because the symptoms can be the same.” (Hatem)

Dictionary Use

All the participants recorded using a dictionary (See Figure 36). It was most commonly used strategy by Amilie and Hong: of all unfamiliar words recorded, 62% of Hong’s and 49% of Amilie’s led to dictionary use. Hatem and Lu used a dictionary at a much lower rate; however, their percentages were still relatively high (17% and 29% respectively).

Amilie reported dictionary use as her most common strategy.

“If I don’t understand words, then I look in the dictionary. It would be only strategy I use. If anyone wants to know meaning of a word, that would be what they will do, looking up a dictionary.”

It appeared that she used a dictionary (Oxford English-English) mainly for the words she encountered repeatedly and therefore considered important to know, or for words whose meanings she perceived had to be known in order to understand the readings at hand. She also mentioned that the reason for her dictionary use was “not to remember the unfamiliar words, but to understand sentence meaning and to understand more material,” as well as to understand the words the next time.

“Words that I find important are either I don’t understand a sentence without understanding the words, or words that I come across often. Then, I would look up the words in a dictionary because I want to understand them. So next time when I see them, I want to understand them.” (Amilie)

Like Amilie, Hatem used dictionaries (Oxford dictionary and a computer dictionary in Microsoft Word) for the same reasons; i.e., he encountered the word often or he perceived that knowing the meaning of the unfamiliar word was important for reading comprehension. He also found the Oxford dictionary useful because it provided both definitions and examples for usage in sentences: “when you see how a word is used, it makes a lot more sense.”

“I used a dictionary for words that I don’t know and especially words that I know, but I’m not sure of exactly what it means. A word that I learned a few days ago, for example, ‘conspicuous.’ I didn’t know it before. But I saw it before and looked important to know. I rate the words how important they are to know. I have seen the words a few times before. So maybe it is time to know what it is. So I open the dictionary and read it. Then I share the information with my brother whom I live with. Then, I internalize it in my memory. That’s how I learn if I come across new words.” (Hatem)

Although Hong used a dictionary (English-English, sometimes an encyclopedic dictionary) to find the definitions of more than half of his unfamiliar words, he reported that dictionary definitions were sometimes too complicated; the words in a dictionary definition used to explain an

unfamiliar word were sometimes also new to him. As a result, he had to find the meanings of the unfamiliar words in the definition first before finding the meaning of his initially unfamiliar word. This is consistent with the fact that 17% of the words on his word-list were relatively frequent words; he probably requires more knowledge of relatively frequent words than he has in order to understand dictionary definitions well.

Lu uses a dictionary when “ I have time and really want to know the meaning of a word.” He found an Oxford dictionary useful especially for its detailed explanations of social registers such as slang, colloquial, or technical terms.

Asking Others

The participants’ reports showed that, due mainly to lack of availability, three of participants appeared to have rarely used this strategy. Lu was the only participant who explicitly recorded having asked help from others: he did this for approximately one fourth of the unfamiliar words that he recorded on his word-lists (See Figure 36). This can probably be attributed both to Lu’s very sociable personality (noticeable during his interactions with the researcher) as well as strategy transfer from his L1 learning experience (See Learning Context below). “I usually ask friends a lot of unfamiliar words because friends always help.” “When I ask meanings of words, they just give it to me.” Although Amilie did not record that she had used this strategy in her word-lists, she reported getting help from others sometimes.

“My mom’s boyfriend is really good at English. So, when I first took psychology 1, I came across so many words, and for about four words, even by looking up the words in a dictionary did not help me. I did not understand the meanings of the words. I still remember a couple of words, word ‘virtually,’ I looked up a dictionary, and I couldn’t understand what it meant in the sentence. So I asked him. Another word, ‘indulge,’ I couldn’t understand it, I asked him what it meant. So once in a while I ask my mom’s boyfriend for help.”

Unlike Lu and Amile, Hatem and Hong reported that they did not rely on this strategy at all.

“My parents don’t speak English very well and my brothers are worse than me. Mostly I study home. So, a dictionary is my best friend.” (Hong)

“Never. Most of my friends and family are none of Canadian origin. So it wouldn’t be useful.” (Hatem)

Research Question 2

What factors appeared to have influenced the participants’ current uses of vocabulary comprehension strategies?

Previous Language Learning Experience

The research findings demonstrate that the participants’ past language learning experiences have influenced their current vocabulary comprehension strategies. Discussion of this finding will be focused on only those vocabulary comprehension strategies that the participants clearly reported or indicated having learned in the past.

Amilie heavily used a dictionary (49% of her unfamiliar words), and she perceived that dictionary use was the most effective way to deal with unfamiliar words encountered in reading. Her report showed that she had learned to use a dictionary early on as the most important strategy in determining the meanings of unfamiliar words in reading. To date, she seemed to carry on this learned behavior.

“When I was 12, I started reading English books, and looking up the dictionary, and highlighting words. I still have the books that I read when I was really young. I highlighted them. I am still eager to know my English perfectly. I still have some sheets home. I would read unknown words one night to find out their meanings by looking up a dictionary and get the sheet done.”

Although she inferred and asked others for help in finding out the meanings of unfamiliar words, she did not explicitly mention her past learning experiences with respect to these strategies. It appears that the two strategies have naturally arisen in reading comprehension due to her needs (See below).

Through his formal education, Hatem was instructed about the importance of dictionary use. It seemed to have helped him form his perception that dictionary use is the best way to handle unknown words. Also, it has become his primary vocabulary comprehension strategy when encountering “words that I don’t know, especially words that I know, but I’m not sure of the meaning of it.”

“When I was back home, we were required to buy a dictionary. One of the exercises in the class, the teacher would say or write a word and see how fast we can look it up. We were dictionary-trained kind of thing. Every time I have problems, I just look up a dictionary. I used to read newspapers, just find out words to learn, to find out the meaning by looking up in a dictionary.”

Lu’s current vocabulary comprehension strategies such as dictionary use and asking others also appeared to have been influenced by his past language learning experiences.

In learning English at home in Ghana, Lu’s teachers would say that,

“If you want to learn new words, just read books. As you read them, you would meet unfamiliar words. Then just find the meanings of those words by looking up a dictionary. Then use them in day-to-day speaking.

Their instructions appeared to have strongly influenced his ways of dealing with unfamiliar words. Also, his L1 is a mainly spoken language. So if he did not know the meaning of a word, he would ask his mother, who would “tell me the meaning.” This appeared to have been transferred to his learning of English vocabulary. “When I ask meanings of some words, my friends just give them to me.”

Unlike other participants, Hong did not explicitly provide explanations of learning experiences with respect to his vocabulary comprehension strategies in the past. However, it appeared that dictionary use is an important comprehension strategy as his performance in the study showed 62% dictionary use. Although this is not certain, it appears that in the past, he was instructed on the importance of dictionary use for accurately finding out the meanings of unfamiliar words in reading.

“Although I don’t like using a dictionary, it takes so long, when I can’t really try to figure out what it means by guessing it, I would open the dictionary and look at it. I think I got the idea from the way I handle in school.”

Overall, the verbal reports from all the participants indicate that their past vocabulary learning experiences have influenced their current strategy use. This was much clearer for dictionary use: all the participants indicated that they learned the importance of dictionary use from their past learning experiences. Also, Lu demonstrated that his frequent reliance on others to find out the meanings of unfamiliar words has been transferred from his L1 learning experience. From their reports, it was not clear whether any participants had received explicit instruction with respect to dictionary use with or without inferencing.

Learning Contexts

The participants reported using different vocabulary comprehension strategies depending on the learning context. All the participants reported that, for readings related to their schoolwork, they consulted a dictionary more than they used any other strategy.

“Like the psychology book, I want to understand more because it is important to understand materials for school. I basically look up a lot of words in the dictionary in reading the book, because I am afraid that I will come across words in the test that was in the book, but that I didn’t understand.” (Amilie)

“If I am doing homework, I have to understand, I would open a dictionary.” (Hong)

“I should plan my study ahead of time. Like use more dictionaries.” (Hatem)

“If I wanted a better grade, and wanted to do well, I would use a dictionary more.” (Lu)

Even for schoolwork, they either guessed or ignored more frequently if they did not have sufficient time to read or they encountered too many unfamiliar words.

“If there are so many, then I ignore them.” (Amilie)

“As I told you, I wait until last minute to study. So I have to guess and ignore a lot.” (Hatem)

“When I have a lot to read, I would guess more than use a dictionary.” (Hong)

When they read non-academic books for leisure, all the participants reported ignoring or guessing many more words.

“Like I am reading an English book right now. There are so many new words in the book. I try to ignore new words and try to make sense out of the sentences. Also, if I read a book for fun, I wouldn’t look up the dictionary because it is not important for me to understand very well. I just ignore them.” (Amilie)

“When I read out of my own curiosity or interest about a topic, I guess or ignore. I wouldn’t bother to use a dictionary.” (Hatem)

“In reading for fun, I ignore more words than when reading for schoolwork.” (Hong)

Lu’s tendency of getting help from others was discussed above as transfer from his L1 vocabulary learning experience. It also can be interpreted as the reflection of his desire to learn slang spoken among his peers during social interactions and culture-specific expressions by his professors during lectures.

“I am learning slang I think. Even some of the material our professors give to us, English is little bit different. Sometimes I have to ask someone about what that means.”

To sum up, depending on vocabulary learning contexts, the participants appeared to flexibly use different strategies. For reading related to their academic studies, they tended to use a dictionary. However, when they encountered too many unfamiliar words and/or were subject to time constraints, they reported to have ignored and guessed more frequently than they used a dictionary. In the case of Lu, asking others for help appears to have reflected his strong motivation to understand a culture new to him.

Careful analysis of the participants’ past learning experiences and learning contexts, when considered in the context of other verbal comments made by the participants, reveal that although all the participants either demonstrated or reported dictionary use as their most important strategy, when they encountered unfamiliar words in academic reading, they actually used inferencing much more than they probably realized.

For example, Amilie used inferencing more frequently than she was aware of. Amilie recorded having used a dictionary much more frequently than she guessed, and she reported that she perceived dictionary use to be the most effective vocabulary comprehension strategy. However, as mentioned under ‘Inferencing,’ in findings related to Research Question 1, although she did not like to stop to make deliberate guesses at the meanings of unfamiliar words because guessing was very “time-consuming,” her report strongly suggests that she often guessed, but was simply not aware that her frequent shallow guesses were in fact a vocabulary comprehension strategy.

“If it is a new word that I haven’t seen before, I would most likely to just guess because I don’t find important to look up the dictionary to understand because most likely I will not see it again.”

“I probably unconsciously guess because when you read sentence with words you don’t understand, you are guessing in your head.”

“I don’t look at it and guess. I just want the meaning of the sentence. You come across words so often, like unconsciously I probably going to understand the meanings of the words by guessing it without thinking.”

Like Amilie, Hatem had learned in the past the importance of using a dictionary in dealing with unfamiliar words encountered in reading. However, he reported and demonstrated frequent use of inferencing . Not only had he inferred more frequently than he used a dictionary (33% vs.17%), but his report strongly suggests frequent inferencing in his current studies.

“Well. Obviously because if I am stuck on a word, I usually guess the meaning or look up the dictionary.”

“As I told you, I wait until last minute to study. So I have to guess and ignore a lot.” (Hatem)

Hong and Lu also reported that they frequently used inferencing to determine the meanings of unfamiliar word encountered in reading.

“If I don’t ignore them, the same as I try to understand the meaning of what the sentence is trying to say and use that word, I do guess a lot. Sometimes a dictionary gives you an answer you don’t really understand anyway.”

“When I have a lot to read, I would guess more than use a dictionary.”

“Most words what I know is from guessing a lot. I don’t think I remember the meanings of every word.
(Hong)

“ It could go wrong, but it gives “a short relief just for a short period to solve the problem of using a dictionary.” (Lu)

The findings show that, although they learned in the past that dictionary use was an important vocabulary comprehension strategy and was therefore perceived by them to be the preferred method for determining the meanings of unfamiliar words encountered when reading, they actually inferred much more frequently than they were aware of.

Research Question 3

What was the participants' retention of previously unfamiliar words?

In this section, findings will be presented first with respect to the participants' overall word recall performance when their listed unfamiliar words were presented in Isolation (ISO) and Sentence Context (SCT). This is followed by a presentation of their word recall performance according to their different vocabulary comprehension strategy choice, again in ISO and SCT.

Retention: ISO vs. SCT⁹

All the participants did better when the previously unfamiliar words were presented in SCT than ISO (Figure 38). Overall, their VAT results show considerable word gain when the words were presented in ISO, as well as in SCT. Amilie showed 34% word gain in ISO and 41% word gain in SCT. Hatem demonstrated 27% word gain in ISO and 57% in SCT. Hong's percentages were 43% in ISO and 50% in SCT. Lu's scores in both situations were the lowest, but still substantial (ISO: 23%, SCT: 33%).

⁹ For simplicity, participant scores (Figure 38) of partially correct answers are not included because the percentages of partially correct answers do not change the results of the comparison in question. In the following 'comprehension strategies and retention' section below, Figure 39 and 40 do not include partially correct answers for the same reason.

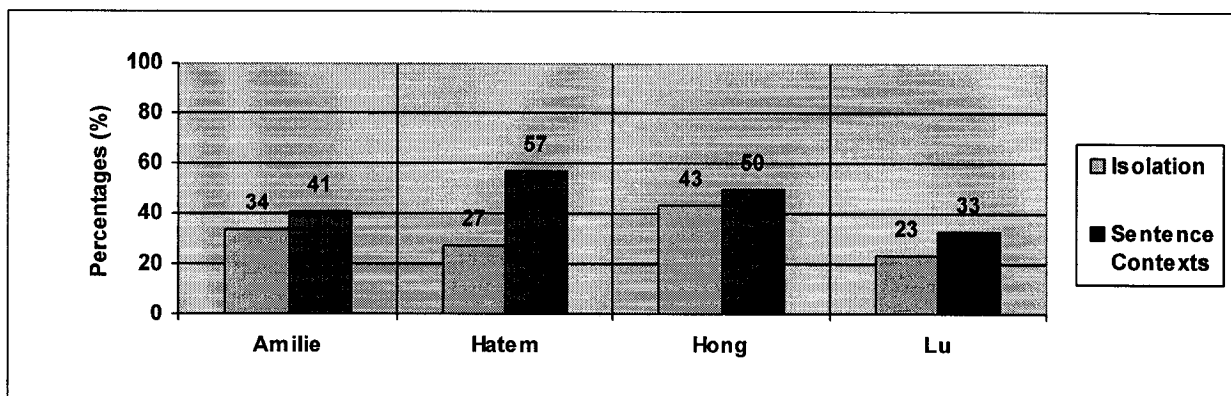


Figure 38. Retention: ISO vs. SCT.

Retention: Comprehension Strategies¹⁰ (ISO vs. SCT)

In this section, the findings from the VAT with respect to different vocabulary comprehension strategies used while generating their word-lists will be discussed for ISO and SCT. Individual results will be discussed first, followed by group results.

Amilie achieved better recall performance in SCT than in ISO. Considering number of unfamiliar words she recorded (314-many more than those of other participants), her recall performance in ISO for each of her three strategies was relatively high (22% for inferred words, 30% for dictionary use words (slightly higher performance than for other strategies), and 20% for inferencing plus dictionary use words). When the same words were presented in SCT, her performance improved. She provided correct meanings for 33% of inferred words and 40% of dictionary use words. Her performance for inferencing plus dictionary use words was also much higher (60%).

Figure 39. Retention: comprehension strategies: ISO.

¹⁰ As in the comparison between ISO and SCT, here the comparison made among the participants are done with percentages, not with actual numbers of the words they reported. Each participant recorded different numbers of unfamiliar words. For example, Amilie recorded 341 words, and Hatem recorded only 59 words. Also, the participants recorded different numbers of words for different comprehension strategies they used. For example, Hong recorded using a dictionary for 97 words and guessed the meanings of 44% of the words.

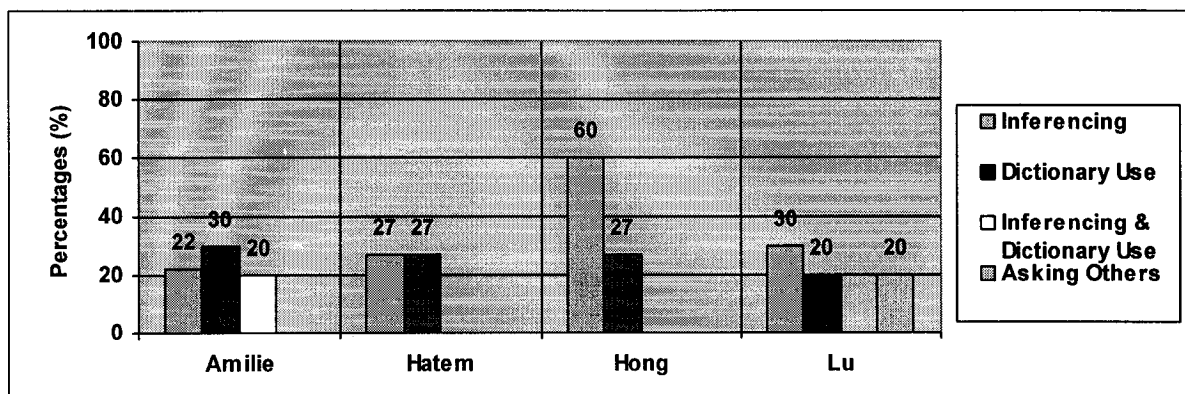
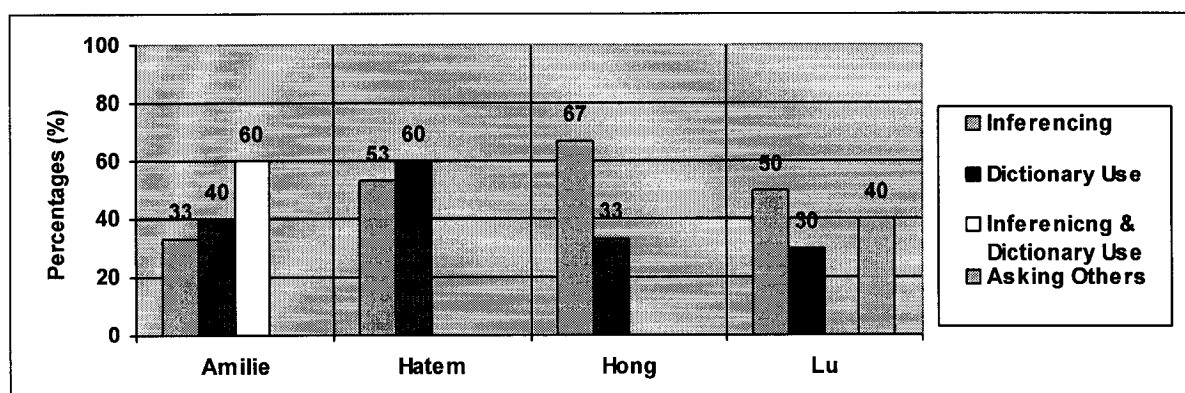


Figure 40. Retention: comprehension strategies: SCT.



Hatem demonstrated high percentages of word gain for both of his strategies (inferencing and dictionary use) when his listed unfamiliar words were presented both in ISO and in SCT (although performance in SCT was notably higher). When the words were presented in ISO, he provided correct meanings for 27% of the inferred words and 33% of the dictionary use words. When the same words were presented in SCT, his performance greatly improved; he provided the correct definitions for 53% of the inferred words and 60% for the dictionary use words; for both ISO and SCT, his percentages of correct recalls for the dictionary use words were higher than for his inferred words.

In both situations (ISO and SCT), Hong performed notably better with respect to his inferred words compared to his dictionary use words. When his listed unfamiliar words were presented in ISO, as well as in SCT, his percentages of correct recall were high. He provided the

correct meanings for 60% of the inferred words and 27% of the dictionary use words when the words were presented in ISO. When the same words were provided in SCT, the percentages were slightly improved, and he once again showed better recall for the inferred words (67%) than for the dictionary use words (33%).

Lu demonstrated relatively high percentages of word gain for his three strategies (inferencing, dictionary use, and asking-others) when his recorded unfamiliar words were presented, both in ISO and SCT. When the words were presented in ISO, he provided a higher percentage of correct answers for his inferred words (30%) than for dictionary use words (20%) and asking-others words (20%). When the words were presented in SCT, the percentage of correct recall for his inferred words was again higher (50%) than for other strategies (dictionary use: 30%, asking-others: 40%).

All the participants shared the common strategies of inferencing and dictionary use; therefore, comparison will be made only with respect to performance for inferred and dictionary use words.

When the inferred words were presented in ISO, the percentages of successful recall for three of the participants (Amilie, Hatem, Lu) ranged from 22% to 30%. However, Hong provided 60% correct answers for inferred words, significantly superior to the others (Amilie: 22%, Hatem: 27%, Lu: 30%). When the inferred words were presented in SCT, the performance of these three participants increased (ranging from 33% to 53%). Again, Hong's performance (67%) was much higher than the others (Amilie: 33%, Hatem: 53%, Lu: 50%). In both situations, Amilie demonstrated the lowest percentages of successful recall (ISO: 22%, SCT: 33%) for her inferred words, and Hong showed best learning outcomes (ISO: 60%, SCT: 67%). The performance of

Hong and Lu with respect to for their inferred words was much better than for their dictionary use words in both ISO and SCT.

With respect to the findings for the dictionary use words, all the participants demonstrated considerable learning outcomes when these words were presented both in ISO and SCT. Hatem showed the highest word gain (33%) followed by Amilie (30%), Hong (27%), and Lu (20%) when recorded dictionary use words were presented in ISO. When the same words were presented in SCT, participant performance improved. Again, Hatem's performance (60%) was much superior to Amilie's (40%), Hong's (33%) and Lu's (30%). For the dictionary use words, Hatem's overall recall performance was highest, followed by (in order) Amilie, Hong, and Lu. Amilie's and Hatem's performance was much better for their dictionary use words than for their inferred words in both ISO and SCT.

Perceived Relationship Between Reading and Vocabulary Learning

When they were asked about a possible relationship between reading and vocabulary learning, all the participants reported a close relationship between the two. However, each participant provided a distinctive view. Reading appeared to be the primary medium for Amilie to learn new words:

"The only relationship I can see is that when you read, you read words that you haven't seen before. So, if you don't understand it, you are most likely look at the dictionary, or kind of understanding new meaning by just guessing with the rest of sentences what it means."

Hong mentioned that the more he reads, the more he learns new words, and the more he has knowledge of vocabulary, the better he can read. Hatem reported the significance of vocabulary knowledge in language use: "vocabulary is the most important thing before grammar." Lu's perception of the relationship differed slightly from the rest. For him, learning vocabulary in reading is to "learn spelling of new words"; i.e., to learn their visual form.

Research influence

This study appeared to raise the participants' consciousness about vocabulary learning and, by participating in the study, they became more aware of their own strategies. Amilie's effort to learn words increased during her participation in the study.

Because of this research, I pushed myself a little more. But still if I wasn't doing it for this research, I would still do it, but not as much.

Hatem found that writing down unfamiliar words helped him to learn them better.

When you write down something, you more likely remember. When I look up the words, and write them down somewhere, that helps me remember more the meaning of the words. Usually I look it up and close the dictionary and keep going. When you write down the meaning of the words, it is more likely stuck in you head.

Hong claimed that as a result of participating in this research he intends to use a dictionary more, and depend less on guessing.

This research pushed me to try harder to understand words. When I read, I would be very easily satisfied. If I could guess, and word a bit makes sense, I would just pass it. From now on I should be more careful about my guessing because most of the time, it was wrong. It proves me that guessing could be one way and using a dictionary can be very useful.

Lu reported having learned a lot of new words while participating in the study, and also that the study caused him to develop an appreciation of the importance of attending to, rather than ignoring, unfamiliar words.

It set me thinking like, I just read them and ignore them. But when I took part in this research, I realize the amount of words I don't know that I let go by. I thought if I just sit down and write all those words down, I would be much better off, even if it was difficult to sit down and write them down. I thought it would be good if I continue. Also, I discovered new words. I hope they stay with me.

Advice to Other ESL learners

When asked about advice that they wanted to give to other ESL learners with respect to learning new words in English, the participants did not suggest reading as a primary mechanism,

but rather recommended social interactions and dictionary use. Amilie, Hatem, and Lu reported the significance of social interaction and practice.

“To learn words, you have to have English friend. You have to be in social environment in English.” (Amilie)

“If you want to learn new words, you got to practice because every time you talk, you hear new words. And then new words can be learned. I think that is the biggest advice. Because I remember in high school, Chinese and Vietnamese people, they always stick together. What I found the biggest problem is that people have friends from their culture, and a lot of time they speak their own language. Speak English all the time if you want to learn.” (Hatem)

“Involvement in Canadian culture by participation. It can be very boring when you read. But when you get involved in Canadian culture, you know Canadian friends, it sticks and easier. I learn new words whenever someone uses a new word, if it is nice and catchy, I have a desire to find out what that word means. It is the one of the best ways to learn new words. You can use it day-to-day basis.” (Lu)

When reading for academic purposes, however, Amilie and Hong mentioned the importance of extensive reading (Amilie) and using a dictionary (Amilie and Hong) to understand unknown words while reading.

“Just read a lot. Even if you don’t have time to look at the dictionary, the more you read, the more you understand. Look up the dictionary when you come across a lot of words. Even if you don’t have time you will end up learning them just by reading them so many times, then understand them more.” (Amilie)

“Use a dictionary. I think that is the best way. Read it until you know what it is. And move on. When you read through a sentence, when you don’t know a word, look for that word in the dictionary, and read over that sentence again, and get the meaning of the sentence. I think you learn best when you understand what the word means in a dictionary definition. How the word used rather than what the word mean.” (Hong)

Summary

- Although they were all advanced ESL learners who enrolled in same course, the participants vocabulary sizes varied considerably. Amilie demonstrated the largest vocabulary size followed by Lu, Hong, and Hatem

- Given the number of pages covered in the course, the recorded numbers of pages read and the recorded numbers of unfamiliar words appeared to be very small. Probably, participants ignored or did not record many unfamiliar words that they had encountered while reading their psychology textbook. Amilie recorded many more unfamiliar words than the others. Hong and Lu recorded similar numbers of unfamiliar words, and Hatem only listed one fifth the number of words that Amilie did.
- Amilie and Hong recorded some of the same words more than once. They reported that when they noticed them second time or third time, they recognized them, but were not sure of their meanings.
- Interestingly, an average number of unfamiliar words that the participants recorded on their word-lists somewhat related to their scores on the vocabulary size test (VLT) as well as their verbal reports (with respect to their interests in learning new words through reading).
- In spite of reading the same textbook, there were no common words recorded by all the participants. Only six words were identified in common by three of the participants.
- The majority of the unfamiliar words recorded by the participants were relatively infrequent words. Hatem, unlike others, listed a considerable percentage (15%) of field-related words, and Hong's word-list comprised 17% relatively frequent words.
- All the words recorded by the participants, except for Amilie, were content words such as nouns, adjectives, and verbs. Of these, nouns constituted the highest percentage, followed by adjectives and verbs. Amilie's list comprised 3.2 % function words, and 96.8% content words. Also, unlike for the other participants, the percentages of the three categories for her listed content word were roughly equal.

- The percentages of Amilie's and Hatem's ignored words (approximately half of their listed unfamiliar words) considerably differed from Hong's (10%) and Lu's (22%). The participants reported passing by unfamiliar words without working on them because they saw them as not important, or considered that they encountered too many unfamiliar words, or deemed the reading context was too complicated, or they believed they were simply lazy.
- Three participants (Hatem, Hong, and Lu) recorded similar proportions of inferred words and achieved similar accuracy results for inferencing. Hatem inferred 33% of the unfamiliar words in his word-lists. He provided correct meanings for 17% of these words and partially correct meanings for 48% (he had a notably higher performance with respect to partial guesses than the others). Hong inferred 28% of his words. He provided correct meanings for 34% of these words and partially correct meanings for 27%. Lu guessed 26% of his listed unfamiliar words. The meanings of 38% of these words were correct and 26% were partially correct. Unlike the other three participants, Amilie showed a clear anomaly in her proportional use of lexical inferencing (6.5%). Also, her percentage of incorrect guesses was relatively high (67%), which showed that her guesses were often wild guesses. In contrast to her recorded performance, she reported that she guessed frequently, but evidence suggested that her guesses were by no means deliberate and analytical guesses. Rather they were very shallow guesses and she was not conscious that she was making these kinds of guesses.
- With respect to knowledge sources used for inferencing, the participants reported sentence-level meaning most frequently, followed by word morphology, French cognates, discourse knowledge, and topical knowledge.

- All the participants used a dictionary and reported using a dictionary as important for finding out the meanings of unfamiliar words in reading comprehension. Of all the unfamiliar words, 62% of Hong's and 49% of Amilie's were dictionary use words, which noticeably differed from Hatem (17%) and Lu (29%). All the participants reported using English-English dictionaries. It appeared that word saliency and frequency, and participant perception of which words were important in comprehending immediate reading contexts, largely determined which words to look up in a dictionary.
- Lu was the only participant who recorded and reported asking help from others for finding out the meanings of unfamiliar words, which demonstrated his sociable personality as well as his motivation to learn culture-specific words.
- In the past, participants directly or indirectly learned that dictionary use was an important strategy to find out the meanings of unfamiliar words. This appeared to have influenced their perceptions of the importance of dictionary use as well as their dictionary use behavior. Lu's reliance on others appeared to have transferred from his L1 learning experience. Depending on learning contexts, the participants appeared to flexibly use different strategies. For schoolwork, they reported using a dictionary more frequently than in other learning contexts. From their reports, it appeared that, they naturally applied inferencing much more frequently than they were aware of.
- On the VAT, all participants demonstrated high percentages of word gain when their recorded words were presented in both isolation and sentence context; however they did much better in sentence context. In ISO, their recall performance ranged from 23% to 43%. In SCT, performance ranged from 33% to 57%. Lu's performance in both situations were the lowest among participants.

- Amilie used a dictionary more frequently than she used other strategies with respect to her word-lists. When words were presented in both ISO and SCT on the VAT, Amilie performed much better for dictionary use words than for words for which she had used other strategies (inferencing and inferencing plus dictionary use).
- Hatem inferred more frequently than he used a dictionary for determining the meanings of the unfamiliar words in his word-lists. However, when the words were presented in both ISO and SCT, he performed much better on his dictionary use words than on his inferred words.
- Hong used a dictionary much more frequently than he inferred. However, his performance for the inferred words was much superior to his performance for his dictionary use words in both ISO and SCT.
- Lu used a dictionary most frequently. However, his VAT performance, in both ISO and SCT, showed that the percentage of correct recall for his inferred words was much higher than for his other strategies (dictionary use and asking-others).
- All the participants reported a close relationship between reading and vocabulary learning, yet presented different views. Amilie viewed reading as a medium for vocabulary learning. Hatem and Hong reported that the more they read, the more they learn new words, and the more vocabulary knowledge they acquire, they better they can read. Lu considered that the purpose of reading is to learn spelling of new words.
- Social interactions and dictionary use, rather than reading, constituted the common advice that the participants wished to give to other ESL learners.

- The research appeared to raise the participants' consciousness about vocabulary learning and, by participating in this study, they became more aware of their own vocabulary comprehension strategies.

CHAPTER SIX:

DISCUSSION AND CONCLUSION

Overview

This chapter presents the discussion of the findings and implications of the study. As part of incidental vocabulary learning research, the goal of this study was to explore the ways that four advanced ESL learners dealt with unfamiliar words in their academic reading, identify factors that influenced their use of vocabulary comprehension strategies, and measure their subsequent retention of previously unknown words. In this chapter, the findings germane to the goal of the study are discussed with reference to the L2 research literature and the theoretical framework. Then, research and instructional implications are presented, followed by the conclusion of the thesis.

Learner Background

All the participants were enrolled in the same course and demonstrated a similar level of interest in the course material (in general, they wanted to learn how the human mind worked). All eventually passed, achieving a range of final marks (Amilie: A, Hatem: ?¹¹, Hong: C+, Lu: B). Each participant, however, had a unique linguistic and educational background. Not surprisingly, these differences were reflected in their approaches to unfamiliar words, vocabulary comprehension strategy use, and word learning success.

Unfamiliar Words Identified

Although each participant identified different unfamiliar words that caused him/her difficulties in text comprehension, the participants shared the behavior of generally recording

¹¹ Due to lost of contact with Hatem, I couldn't inquire as to his final mark

words belonging to the relatively infrequent category. As constructivists might predict, it was striking that there were no words listed in common by all the participants despite the fact that they read the same textbook while taking the same course. This variability across participants with respect to unfamiliar word identification is similar to Parry's finding (1991). Also, Hatem's recording of significantly more field-related words than the others and Hong's recording of significantly more relatively frequent words than the others indicate that the participants had different learning interests and needs. Despite these differences, all the participants had difficulty with relatively infrequent vocabulary, words which they would probably encounter very rarely, but which were significant for comprehending their course readings.

The profile of word classes found in the word-lists indicates that the participants in the study read the textbook primarily for meaning comprehension, to understand the concepts under study. This is consistent with the L2 literature (Krashen, 1989; Huckin & Coady, 1999), which demonstrates that L2 learners focus on meaning comprehension when involved in extensive reading. Three of the participants (Hatem, Hong and Lu) recorded only content words such as nouns, adjectives, and verbs, with nouns being recorded most frequently and verbs least frequently. This demonstrates the essential role of content words as the focus of meaning identification in reading comprehension, as found in Paribakht and Wesche (1999). Verbs generally play more essential roles in a sentence than adjectives, which mostly involve descriptions. The fact that they recorded more adjectives than verbs may be because more of verbs they encountered were known to them. Still, it indicates understanding meanings of the adjectives was important than for understanding the psychology textbook.

Amilie's word class profile was somewhat anomalous. Her primary goal in reading was meaning comprehension, yet unlike the others, she recorded a higher percentage of verbs than other

word types. She also reported that she read the textbook not only for information, but “for vocabulary learning.” Although the majority of her listed words were content words, 3.2% were function words (e.g., ‘lest’, ‘ought’). Although function words tend to frequently appear in written texts, they tend to be ignored. However, Amilie’s results illustrate that some learners, for reasons other than comprehension, may occasionally attend to them.

These findings related to unfamiliar words recorded by the participants can be interpreted to the effect that, the participants had different backgrounds and sought the meanings of different words for text comprehension in somewhat different ways. Their individual differences can be understood as indicating that each participant’s current English vocabulary learning experiences are quite personal, depending on what s/he does not know and needs to know. For example, Hatem recorded many more field-related words. His comments suggested that he had ignored psychology-related terms previously and had just recently become more interested in learning them because the course was in his major field. The fact that Hong recorded a considerable number of relatively frequent words may have been because most of his word learning had been achieved aurally, through social interactions. While he would have learned the most frequent words in this way, he could have missed words that are frequent in print, but not in social interaction. Amilie’s anomalous behavior (described above) reflected her strong desire to learn new English words due to her belief that she needs to “know English better to live in a society where English is the major language.” As would be predicted by social constructivists, these findings indicate that individual L2 learners actively made decisions with respect to which unfamiliar words they wanted to seek meanings for or to learn, based on their vocabulary knowledge and previous learning experiences.

On the other hand, the advanced L2 learners in the study shared a common behavior in response to their shared academic text and task. Specifically, they shared a common interest in knowing the meanings of less frequent and content words that appeared in their academic readings.

Lexical Processing Strategies in Reading Comprehension

The first goal of this study was to explore lexical processing strategies used by participants when encountering unfamiliar words in course readings. Study results show that participants sometimes used the strategy of ignoring unfamiliar words, while they considered non-essential to text comprehension. This strategy might be efficient for text reading, but not for word learning. Also, they commonly used some word comprehension strategies, which are productive for word learning. None of them, however, tended to use multiple comprehension strategies. These patterns help explain both the occurrence and limitations of incidental vocabulary learning through reading.

Ignoring New Words

Consistent with the findings of previous studies (Fraser, 1999; Laufer, 1984; Laufer & Sim, 1985; Parry, 1997; Paribakht & Wesche 1999), all the participants in the present study ignored many unfamiliar words (i.e., did not attempt to determine meanings). The percentages of unknown words ignored ranged from 10% to 50% of those identified. In fact, they might have ignored many more unfamiliar words, given the substantial number of pages that students would normally need to read in order to pass the course, compared to the relatively low number of words that they actually listed as having ignored. Compared to other lexical processing strategies such as inferencing or appealing for assistance, ignoring unfamiliar words would not help precise meaning comprehension in reading contexts, let alone promote a deeper level of lexical processing that is more likely to result in vocabulary learning.

Although it is unlikely that ignored words will be learned soon, ignoring can be seen as a text comprehension strategy that all the participants in the study applied, by way of their active decision-making in order to efficiently deal with the large number of unfamiliar words that they encountered in their academic readings. Just like English native speakers, advanced L2 learners who have just embarked on their academic studies are in the process of familiarizing themselves with specific academic disciplines and thereby discipline-specific terms. In addition, they are in the process of learning new L2 words that English native-speaking peers have already acquired. Therefore, they will encounter a large number of new words in their academic texts. If L2 learners have to work on all the new words that they come across in their academic readings, they cannot possibly read the required reading materials. In this study, the primary reason given for ignoring was that participants perceived certain words as “not important” for immediate reading comprehension, consistent with the finding in the study of Paribakht and Wesche (1999). This indicates that they decided to ignore (did not seek the meanings of the word) certain unfamiliar words, as the result of active hypothesis formation that the unfamiliar words were not relevant for immediate text comprehension.

Inferencing

The participants frequently inferred the meanings of unfamiliar words, and inferencing was indeed a productive lexical processing strategy for word learning as well as text comprehension, reflecting use of common cognitive processes. Three of the participants (Hatem, Hong, and Lu) inferred word meanings frequently and accurately. By comparison, Amilie’s frequency of inferencing, as indicated by what she recorded on her word-list, was very low. However, from her verbal reports it was apparent that she in fact inferred much more frequently than she was conscious of, even though such inferences tended to be relatively shallow guesses.

“If it is a new word that I haven’t seen before, I would most likely to just guess. Probably I unconsciously guess because when you read sentence with words you don’t understand, you are guessing in your head.”

While Amilie’s accuracy when inferring was not as high as for the other three participants, she still correctly inferred the meaning of a substantial proportion of the words.

In inferencing, the participants in the study either demonstrated or reported utilizing clues (or knowledge sources) associated with the immediate reading context, consistent with the findings of previous studies (Brown, 1995; Dubin & Olshtain, 1995; Fraser, 1997; Huckin & Bloch, 1993). In this study, the only knowledge source reported by all the participants was sentence-level meaning. Amilie’s report of not being aware of cognates between French and English was notable, especially when compared to Hong and Lu who had learned French as either their L2 or L3, and were aware of cognates.

On the whole, for all participants in this study, inferencing was a lexical processing strategy that they used naturally to handle unfamiliar words in text comprehension. In addition, each participant displayed different ways of inferencing and different attitudes to word inferencing. For example, Amilie attempted to guess explicitly at the beginning of the data collection period, influenced (by her own admission) by the word-list grid. However, she very soon gave up deliberate guesses altogether because she perceived that they did not work for her. Unlike Amilie, Hong was a competent guesser, using various knowledge sources for his inferences. Hatem and Lu reported negative views toward guessing, even though they guessed frequently and relatively accurately.

“When it’s not necessary to do so, I don’t guess. I won’t take a chance to guess. I think it will lead you astray. What if you guess wrong, then you are going to have a wrong idea. I don’t think it is a good idea.” (Hatem)

“Sometimes it gives you a short relief, to know the meaning of the words just for the short period, just to solve the problem of going to look for a dictionary.” (Lu)

In general, for all the participants, inferencing appeared to be the most frequent vocabulary comprehension strategy, a finding that conforms to the L2 literature related to incidental vocabulary learning (Coady & Huckin, 1999; Paribakht & Wesche, 1999).

Dictionary Use

It is clear from this study that dictionaries were useful tools for all the participants in determining the meanings of unfamiliar words, and that they were aware of the importance of dictionary use as a lexical processing strategy. The VAT results indicate that consulting a dictionary was productive for word learning, consistent with the findings in previous studies (Fraser, 1999; Kinght, 1994; Luppescu & Day, 1993).

The participants perceived that a dictionary would provide them with the most accurate meanings for unfamiliar words that they sought meanings for. In this study, when participants considered certain words to be relevant for immediate text comprehension, but did not have sufficient time to use a dictionary, they guessed at their meanings; however they were generally not certain about the accuracy of their guesses. They used a dictionary as the most available and the most reliable source to effectively find out the meanings of unfamiliar words, based on their criterion that certain words were very important to know, due to their frequency and relevance for immediate meaning comprehension. Important words merited the extra effort to determine the correct meaning.

Factors that Influenced Strategy Use

The second goal of this study was to explore factors that may have influenced participants' current uses of vocabulary comprehension strategies. The participants' past language learning experiences appeared to greatly influence their current uses of vocabulary comprehension strategies. For example, regardless of the differences in their linguistic and educational

backgrounds, all the participants reported that either informally or formally they had learned in the past that dictionary use is the most effective way of determining the meanings of unfamiliar words encountered in reading. This suggests that dictionary use is perceived as the best way to determine the meanings of unfamiliar words across various linguistic communities such as Iraq (Hatem), Ghana (Lu), and Canada (Amilie and Hong). Also, Lu appeared to actively transfer the strategy of asking help from others from his L1 learning experience of Fante, a spoken language, to his present situation.

The participants' current access to help from others, learning contexts (academic vs. non-academic texts), and time constraints were the main factors that appeared to directly determine their uses of different lexical processing strategies. Lu appeared to frequently get help from his friends, probably due to his sociable personality as well as his transfer of past learning experiences as noted earlier. His seeking of help could also be due to his motivation to understand a new culture (he arrived at Canada in 2001). Amilie (like Lu) reported asking for help from others; in her case her mother's boyfriend was the source. On the other hand, Hatem and Hong reported that they do not ask others because their family members do not know English well; also, their friends are mostly from their own L1 and cultural communities. All the participants reported dealing differently with unfamiliar words in academic versus non-academic readings. They reported taking schoolwork seriously; therefore, they use a dictionary much more frequently for readings related to their schoolwork than when reading for pleasure. Also, time availability appears to be a significant factor that determined their lexical processing strategies. For example, if they have sufficient time, they tend to consult a dictionary more frequently.

The research also showed that, although they were very advanced ESL learners, none of the participants, including Hatem and Hong (who had had ESL education for 1-3 years), had been

taught about the importance of vocabulary knowledge for reading. Nor had any been instructed in the use of lexical processing strategies when reading or associated issues such as which dictionary would be useful for what purposes, how to use a dictionary, and how to guess by using different knowledge sources available to them. As a result, they adhered to what they knew best. “I had to figure out how to do it by myself. Best way that work for me” (Lu). There was also some evidence that new experiences (such as participation in this research) influenced their strategy use (see below).

Reading and Vocabulary Acquisition

The third issue in this study, the relationship between academic reading by advanced ESL learners and vocabulary acquisition, may be viewed at two levels. The first level is the general relationship that exists between extensive reading and vocabulary development. The second level is that what actually happens when individual readers attend to specific words and seek their meanings.

Extensive Reading and Vocabulary Development

In this study, the more unfamiliar words they recorded, the more pages that the participants listed as having read, and the stronger the motivation they exhibited for word learning, the larger their vocabulary sizes were as measured by the vocabulary size test (VLT). The findings from the word-lists (number of words recorded and number of pages recorded as having been read) do not alone provide sufficient evidence to conclude that Amilie actually read more than Hong, Lu, and Hatem. It is of course possible that Hatem (who recorded the fewest number of words in the study and listed the smallest number of pages read: he gave me only two weeks’ word-lists) actually read more than Amilie (who recorded many more unfamiliar words and listed many more pages read than Hatem did). Hatem may simply have not recorded the true number of unfamiliar words that he

encountered and the true number of pages that he read. However, Amilie's average number of unfamiliar words per page (2.3 words) is still higher than those of the other participants (1.67-1.97) and she had the highest scores at all the word levels at the VLT. Also, Amilie appeared to be a hard-working language learner and reported having a strong motivation to learn new words. On the other hand, Hatem invariably had the lowest scores at all the word levels on the VLT. Also, he reported that he learned new words in a significantly different way: "I learn by observations and listening." Therefore, the findings can be cautiously interpreted as indicating that ESL learners' vocabulary development may be related to the amount of extensive reading that they undertake. This is consistent with the L2 literature (Day, Omura & Hiramatsu, 1991; Paribakht & Wesche, 1997; Pitts, White & Krashen, 1989).

Another finding from the VLT and the participants' word-lists and interview is that, for most advanced L2 learners, readings particularly important for building their knowledge of less frequent words. This finding accords with findings from previous studies. This should not be surprising, because less frequent words are more likely to be found in written language (Schmitt, 2000). On the VLT, at the first three most frequent words levels (2,000, 3000, 5,000), the participants' scores were very similar. However, for the tests that dealt with less frequent words, their scores showed notable differences, with performance related to the number of pages that they recorded having read. For example, Amilie's scores for less frequent words at both the UWL and 10,000 word levels were the highest, followed by Lu, Hong, and Hatem in that order. She also reported that her primary way of learning new vocabulary was reading. By contrast, Hatem, who was not as successful in learning less frequent words and generally less interested in reading, reported that his primary vocabulary learning method was listening and observation. All the above results, while based on too few cases to claim a pattern, are consistent with the L2 literature to the

effect that the more L2 learners read, the more extensive their knowledge of less frequent words becomes.

Word Gain in Reading for Meaning Comprehension

The findings from the VAT (Vocabulary Achievement Test) indicate that reading for text meaning comprehension resulted in some word learning, confirming the findings of previous studies (Fraser, 1999; Hulstijn, 1992; Parry, 1997). All the participants showed significant rates of word retention for the words that they had sought meanings for (23-43% in isolation, 33-57% in sentence contexts). These were substantial success rates. By comparison, reported retention rates were generally lower in previous studies (Fraser: a mean of 28%, Hulstijn: 13-17%, Parry: 5-29% in isolation and 28-63% in sentence context).

Several factors can explain the participants' high rates of word retention in this study, related to cognitive processing theory. First, the tested words were the ones that the participants themselves had selected because either the words "were important to know," or because they "came across them often." Second, the participants wrote down the unfamiliar words and their potential meanings on their word-lists. This attention to word form may have helped them to make initial form-meaning associations. Third, the participants carried out extensive thematic readings (psychology) in which they might have encountered the same words repeatedly, and some of them may have been encountered again in other activities. This is consistent with Parry's studies (1993, 1997) where her participants also engaged in thematically related course readings (anthropology) and demonstrated superior word learning outcomes as shown above. Therefore, for the present study, the repeated encounters may have contributed to the participants' superior word learning outcomes as in the findings of Wesche and Paribakht (2000). Fourth, all the participants were

motivational to comprehend the textbook due to their interest in the topics it dealt with and their desire to pass the course. This probably spurred their reading comprehension efforts.

The findings with respect to word retention also indicate that the reading contexts offered the participants a potential “memory hook” for remembering newly learned words better (as suggested by Schouten-van Parreren (1989)). On the VAT, all the participants displayed superior recall of the meanings of previously unfamiliar words when they saw them in sentence contexts, as opposed to isolated presentation. The reason for this might relate in part to the test methodology itself in that the participants were shown the tested words in isolation first. The same words were shown to them in sentence contexts immediately afterward. As a result, they had some time to think about the meanings of the words in between, which might have helped them recall the meanings of the tested words more accurately in sentence contexts. However, the main reason reported by the participants was that the sentence contexts in which the test words were presented “made them remember the words better.” Although the recall task was not directly related to a vocabulary learning activity, it was clear in this study that the reading contexts surrounding the unfamiliar words provided the participants with a favorable environment for word learning and recall.

It was not clear in the present study that the vocabulary comprehension strategies that each participant preferred to use yielded better word retention results on the VAT than those associated with his/her less preferred strategies. Amilie was clearly a dictionary user. When her unfamiliar words were presented in isolation, she correctly recalled the meanings of her dictionary use words better than for her inferred words, or even inferencing plus dictionary use words. Interestingly, when the same words were presented in sentence contexts, she recalled the meanings of her inferencing plus dictionary use words much better. This supports the finding of Fraser’s study (1999) in which confirming the meanings of guessed words by consulting a dictionary resulted in

better learning outcomes. While Hatem had inferred words more frequently than he had used a dictionary, he achieved superior performance on the VAT for his dictionary-use words. On the contrary, although Hong had used a dictionary more often than he had guessed, he recalled the meanings of his inferred words more accurately than for his dictionary use words. Lu used a dictionary more often than either inferencing or asking others, yet he achieved higher recall performance for his inferred words. These findings can be interpreted as indicating that the participants in this study were not aware that their preferred vocabulary comprehension strategies may not have been as effective for word retention as their less preferred strategies.

Study findings reveal that writing down new words and their meanings, rehearsing newly learned words, and using elaborated inferencing methods may have promoted superior word learning, as related to cognitive processing theory. These findings accord with Hulstijn's (2001) conclusion of an extensive research review that "elaboration on aspects of a word's form, meaning, and rehearsal determine retention of new information" (2001, p. 8). Hatem (in this study) reported the benefit of word-list-making for word learning, a behavior which Hulstijn claimed to be "a classic and approved elaborative rehearsal technique (2001, p. 8)."

"When you write down something, you are more likely to remember it. When I look up the words, and write them down somewhere, that helps me remember more the meaning of the words. When you write down the meanings of the words, it is more likely stuck in your head."

Also, Hatem reported orally rehearsing the words that he had sought the meanings for (intentionally and repeatedly expressing word meaning in a variety of situations). Although it was not very clear from present study results that this form of word recall and practice had any impact on better recall of written word meanings, it seems likely that he would benefit from it in the long run. Hong appeared to be a very skilled guesser who used various knowledge sources such as sentence-level meaning, word morphology, French cognates, and discourse knowledge. In addition, in inferencing

he seemed to know how to take advantage of given reading contexts; he reports that “incorporated the unfamiliar words into given sentences to understand broad idea of the words.” He demonstrated very high word retention of the inferred words on the VAT (60% in isolation), which might be related to his relatively elaborated processing of relevant information. Unlike Hong, Amilie’s guesses showed an absence of deliberation, which may have been a reason for her much lower word retention performance for inferred words compared to the other participants.

Finally, the study results confirm the incremental nature of L2 vocabulary development as discussed in the L2 literature (Nagy & Herman, 1987). To begin with, Amilie and Hong each demonstrated the behavior of recording the same word more than once on their lists. When asked why, they reported that when they noticed the word a second or third time, they recognized it, but were not sure of its meaning. Also, Hatem reported using a dictionary for the words that he “knew”; though was not sure of their meanings. This indicates that word learning took place gradually through multiple exposures and processing in different contexts. In addition, the presence of partially correct answers in both the participants’ word-list inferences and their VAT results indicate that the words were in the process of being learned.

Research Implications

Case study research has a valuable role in the study of incidental vocabulary learning and deserves further methodological development. The present study, like Parry’s (1993, 1997), was designed to explore participant performance over time, but it added the element of interviews with the participants about their linguistic and educational backgrounds as well as their vocabulary comprehension strategy use. This approach led to a better understanding of these advanced L2 learners’ lexical processing strategies in reading for meaning comprehension.

Possible further improvements to the current methodology for future studies are discussed below:

- While providing a grid for word-list-making may cause misunderstanding as seen in the case of Amilie; whose use of inferencing plus dictionary use was directly influenced by this study's data collection instrument, such a grid performs the necessary function of capturing different strategies used for determining word meanings in a way that permits comparison. A better orientation of participants and a practice period with researcher feedback might help solve the problem associated with grid use.
- Interview questions should more closely probe L2 learners' lexical processing strategies. This should yield more precise understanding of their different strategies and associated issues.
- To examine lexical processing strategies at a deeper level, introspective data should be included in the design of such research, and could be included together with short tasks in the final interviews.
- To enhance the validity of measuring word retention via the vocabulary achievement test, a repeated test after a further time lapse would be advisable.

Pedagogical Implications

Although this study was a small-scale, exploratory case study, the findings add to our understanding of incidental vocabulary learning in more advanced ESL learners who are carrying out their university studies in their L2 (English). It also provides several instructional insights that may facilitate word learning by ESL learners in reading programs, especially those with L2 learning goals involving higher education.

Pedagogy, first of all, should recognize individual differences. In this study, the participants exhibited different background, interests and needs, and learning goals. Also, the findings confirm these diversities. Thus, practitioners should take into account these learner factors in their reading and vocabulary development programs.

Encouragement of extensive reading of thematically related texts of particular personal interest and attention to meaning comprehension of new words should benefit the vocabulary development of advanced L2 learners. It was surprising to find out that, although the participants reported perceiving the relationship between reading and vocabulary learning, when they were asked to give advice to other ESL learners with respect to vocabulary learning, three participants listed social interactions as the most important means of vocabulary learning. However, it appeared that the more unfamiliar words they recorded and the more pages they recorded reading, the higher their scores were on the vocabulary size test. Also, participants appear to build much of their knowledge of less frequent words through attending to forms of unfamiliar words they need to understand, seeking their meanings in reading contexts, performing further elaborative processing, and encountering the same word successively in new contexts. In addition, the participants' superior recall of meanings (on the VAT) for those previously unfamiliar words for which they had sought meanings while reading, suggests that guiding learners to better attend to unknown words through thematically related readings may be an effective way of enhancing their L2 vocabulary development. Thus, classroom instruction on the importance of extensive reading, and on related issues such as which kinds of texts are conducive for word learning (i.e., thematically related texts), could help more advanced ESL learners' vocabulary development.

Consciousness-raising about the significance of vocabulary learning both for and from reading comprehension may draw more of the learners' attention to unfamiliar words they

encounter when reading, which may increase their vocabulary learning opportunities. The participants in the study demonstrated and reported ignoring many unfamiliar words in reading comprehension. However, after having participated in the study, they reported certain changes that occurred to the ways they dealt with unfamiliar words. Amilie said she ignored fewer words than before the study, and instead used a dictionary more frequently. Hatem found out that writing down unfamiliar words and their meanings helped him remember them better. Hong reported guessing less and using a dictionary more often. Lu said that he ignored fewer words. Thus, according to their reports, their increased awareness of the significance of vocabulary learning led to greater attention to new words.

Learners' use of lexical comprehension strategies that are productive not only for text comprehension but also for word learning should be developed. Since advanced learners demonstrate quite varied word-learning needs, direct teaching of vocabulary does not seem feasible. Especially in light of the findings with respect to the participants' past vocabulary learning experiences (they had had no vocabulary comprehension strategy training as such is normally the case for most L2 learners), explicit discussion and development of vocabulary comprehension strategies should benefit ESL learners. Furthermore, as noted earlier in the findings, although each participant displayed uniqueness in his/her use of vocabulary comprehension strategies, all their strategies appeared to be productive both for reading comprehension and word retention. Thus, ESL classes can offer learning opportunities in which learners understand and reexamine their own vocabulary comprehension strategies first. Then, through discussion and practice, learners can learn from each other. The explicit introduction of specific strategies such as inferencing, dictionary use, and asking others should be helpful, with an emphasizing on how to use them and what the efficacies of these strategies are. The findings related to dictionary use as the most effective way in

determining the meanings of unknown words suggest a “necessity of reevaluation of the minimal role often accorded to dictionary use in the L2 reading class” (Fraser, 1999, p. 239). Introduction and practice in dictionary use could lead learners to more effective strategy use for reading comprehension and word learning.

ESL learners will be likely to benefit from instruction that encourages elaborate lexical processing. For example, the technique of writing down unfamiliar words (orthographic form) and their meanings may not be a common practice among advanced L2 learners when they read a text for general comprehension, and can be even a challenge for some learners. For example, Lu reported that “I was not a kind of person who sat down and wrote words down. In that sense it was difficult.” However, this technique, which focuses on attention specifically on word form, appears to have contributed to the participants’ successful word retention. Also, two participants verbally reported that it helped them in their word learning. Word-learning techniques such as this can be incorporated into vocabulary instruction. Also, through classroom discussion and practice, ESL practitioners can make their learners aware of the existence of multiple knowledge sources and multiple lexical comprehension strategies (such as inferencing followed by dictionary consultation). In this way, they can guide their learners to “more elaborate processing of new lexical information that will result in more successful word learning outcomes in incidental learning” (Hulstijn, 2001, p. 6).

Conclusion

This exploratory case study was initiated to inquire into issues pertaining to L2 learners’ use of lexical comprehension strategies in incidental vocabulary acquisition. The participants in this study were four highly advanced ESL learners at the University of Ottawa, enrolled in an introductory Psychology course in the summer of 2002. Their previous educational experiences,

linguistic backgrounds, and their current academic studies were very diverse. Data collection (over seven weeks) consisted of the vocabulary size test (VLT), word-list making for six weeks, two interviews, and a vocabulary achievement test (VAT) at the end.

This case study involved a small sample. The participants demonstrated both diversity and similarities with respect to study findings. While generalization of specific research results for such a small sample is not possible, those similarities that were observed are in accordance with the L2 vocabulary acquisition literature. First, ESL learners' vocabulary development may be related to the amount of extensive reading that they engage in. Second, reading appears to be a primary way of building knowledge of less frequent words. Third, in an academic setting, advanced ESL learners have different vocabulary needs. Fourth, ignoring many unfamiliar words may in fact be necessary for effective reading, yet other lexical comprehension strategies, such as inferencing and appealing for assistance, that are productive for text comprehension, may also constitute a first step toward learning the words. Fifth, more elaborated lexical processing appears to contribute to the participants' word retention. Sixth, as noted in the literature about individual differences, this study also demonstrated the influence of each participant's past language experiences and current learning contexts on his/her current uses of vocabulary comprehension strategies, adding new information to our understanding of incidental vocabulary learning in academic reading.

These findings can be useful for L2 practitioners in helping their students become more efficient language learners by encouraging them to perform more extensive reading, raising their consciousness about the significance of vocabulary knowledge for and from reading comprehension, helping them to develop productive lexical processing strategies, encouraging them to process newly encountered words more elaborately and repeatedly for better retention, and

finally, guiding them to develop meta-cognitive understanding of vocabulary learning and reading comprehension so that they will help themselves when left alone.

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APPENDIX A

Letter to the Professors

To: Professor _____, Department of _____
 From: Heuwon Kim, M.A. student, Faculty of Education
 Subject: Recruitment of research participants in _____ (course code) for a
 study of second language learning through academic reading
 Date: June ____, 2002

Dear Professor _____,

I am Heuwon Kim, an M.A. student in the Faculty of Education. I am seeking students for my thesis research who are advanced speakers of English as a second language, enrolled in a summer course in social sciences or humanities. The study, which has received approval from the Faculty and from the University Ethics Committee, is about vocabulary learning from academic texts in a second language. My supervisor is Professor Marjorie Wesche (ex 3467). I need to identify participants so that I can begin data collection during the 2002 summer session. I have had difficulty contacting summer school professors, so am leaving you this note for you in hopes for a response. I would very much appreciate being able to recruit students for my project in your course. This would involve only a few minutes at the beginning or end of the first or second class, ideally the week of June 19, for me to say a few words about the project and to circulate a form for interested students to provide their contact information.

Would you be willing for me to come to your class to find participants? If so could I meet you or talk by telephone with you about it as soon as possible? I can meet you on campus at your convenience. I would appreciate your response, by telephone 594-5455 and e-mail heuwon@hotmail.com in either case. Thank you very much for your consideration.

Sincerely yours,
 Heuwon Kim
 Student, Graduate Studies
 Faculty of Education

APPENDIX B

Word-list Grid

[illegible]

If you use approaches other than these, please specify them.

APPENDIX C

Interview Question (Mid)

1. Could you describe your English learning experiences in your home country?
At what age, how long and in what contexts?
2. Could you describe your English learning experiences in ESL contexts: in Canada or any other English-speaking countries in which you have previously lived?
At what age and how long and in what contexts?
3. Do you think learning English in academic settings is different from learning it outside of the classroom? If yes, how is it different?
4. What is it like to study a high school or university subject in another language other than your L1?
5. Can you describe yourself as a learner? What kind of learner do you think you are?
How do you learn new words?
6. Could you describe the relationship between vocabulary learning and reading in your L2?
7. How do you think your L1 is different from or similar to English?
Do you think the differences or similarities between the two Ls make any differences in your learning English? (i.e., make it easier or more difficult?)
For example, sound, written shape, grammar, vocabulary, word order?
8. Do you think that differences or similarities between your home culture and Canadian culture make any difference in your understanding of new words in your textbook?
9. Do you find any differences or similarities in how you learn vocabulary in your L1 and English?
10. In your experience, are there any similarities or differences in the academic study skills required in your home country and Canada?
11. Suppose that you come across new vocabulary while reading an academic textbook in English: can you tell me how you would deal with them?
12. Do you ignore new words? If yes, when do you ignore them or in what situations?
13. Do you use a dictionary? If so, what kind of dictionary do you find most useful? How

do you use it? For all words? When?

14. Some people find that guessing the meanings of new words is useful. What do you think? If you guess, how do you guess?
15. Do you ask for help from someone to find out the meanings of new words?
16. Do you try to check for *cognates*? (for example, in your language, words that are similar in form to the words you try to figure out in English) If so, how?
17. Do the circumstances that you are in make any significant differences for using different approaches? If so, when and how?
18. If you have taken or are taking ESL courses in Canada, were your ESL teachers informing you about vocabulary comprehension strategies? If so, what strategies? Do you find them useful in your own vocabulary learning?
19. What is your purpose in taking this course?
20. Are you interested in the subject of this course?
21. Do you find the textbook difficult or easy to comprehend?
If difficult, what makes it difficult?
22. Do you find vocabulary in the textbook easy or difficult to comprehend?
23. What advice do you want to give other university students about learning new words in English?

APPENDIX D

Interview Questions (End)Amilie

1. When I looked at your wordlists, I found something unique. At the very beginning, you guessed the meaning of unknown words you listed. Sometimes you guessed first and used the dictionary for the same words. From the 3rd week on, you either ignored or used the dictionary. I am wondering if there was a particular reason you have made this change?
2. Based on your wordlists from the 5th and 6th weeks, I noticed you ignored a lot of words. What is the reason for your ignoring most unknown words and only using the dictionary for a couple of words?
3. At the last interview you told me that nobody had told you about how to approach new English vocabulary. But based on your wordlists and the interview we had, it seems you naturally use your own comprehension approaches. Are you using past experiences or do you naturally learn such approaches as you read English?
4. Because it is an academic course, do you think you use approaches different from those you would use outside school settings? If you are reading for an important course like psychology, do you prefer using a dictionary?
5. How do you think your participating in the research has impacted your vocabulary comprehension approaches?

Hatem

1. At the last interview, you told me a bit about your experiences taking ESL courses in your high school. Could you tell me more about that?
2. At the last interview you told me that nobody had told you how to approach unknown English words. But you seem to naturally apply your own strategies. Can you tell me where and how you get the ideas that you currently use in comprehending unknown words?
3. Because this course is an academic course, are there any differences in your approaches to new words compared to approaches you would apply outside school?

4. Can you tell me about your experiences in taking part in this research?

Hong

1. At the last interview, you told me that nobody had told you how to approach unknown English words. But you seem to naturally apply your own strategies. Can you tell me where and how you get the ideas that you currently use in comprehending unknown words?
2. Because this course is an academic course, are there any differences in your approaches to new words compared to approaches you would apply outside school?
3. Can you tell me about your experiences in taking part in this research?

Lu

1. At the last interview you told me that nobody had told you how to approach unknown English words. But you seem to naturally apply your own strategies. Can you tell me where and how you get the ideas that you currently use in comprehending unknown words?
2. Because this course is an academic course, are there any differences in your approaches to new words compared to approaches you would apply outside school?
3. Can you tell me about your experiences in taking part in this research?

APPENDIX E

Participant consent Form

Researcher: Heuwon Kim
 E-mail: heuwon@hotmail.com
 TEL: (613) 594-5455

Research adviser: Dr. Marjorie Wesche
 E-mail: mwesche@uottawa.ca
 TEL: (613) 562-5800 ex. 3467

I, _____, agree to participate in the research conducted by Heuwon Kim of the Faculty of Education at the University of Ottawa, entitled "Vocabulary comprehension approaches of individual advanced adult ESL learners: a collective case study." This research project is under the supervision of Dr. Marjorie Wesche of the Faculty of Education. The purpose of the research is to understand how adult ESL learners approach unknown words while reading an academic textbook and what their strategies are to deal with them. My participation will essentially consist of 3 meetings with the researcher.

<u>Time</u>	<u>Purpose</u>	<u>Estimated time</u>
Last week of June	Orientation, test for English vocabulary size	2 hours
Last week of June	Individual interview	1 hour
First week of July	Vocabulary achievement test	1 hour

I have received assurance from the researcher that I will gain benefits by participating in the research. I will be informed about the results of my English vocabulary size test. Also, by doing the activities required in the research, and by interacting with the researcher, I will discover how I have learned new words as well as how to effectively learn new English vocabulary in the future.

During and after this time, if the researcher needs to contact me for reasons related to this research study, I am willing to communicate with her at my convenience. I understand that the content of our interviews will be used only for the researcher's M.A. thesis.

I understand that since the activities involved in this research deal with information about personal learning, it may cause emotional stress. I have received assurance from the researcher that every effort will be made to minimize such occurrences: the interviews will be informal, and whenever I have questions about the activities related to this research, the researcher will answer them in detail so that I will not experience any discomfort during the research process.

I am free to refuse to answer any question or to carry out any activity, and to withdraw from the project at any time, before or during an interview without prejudice.

I have received assurance from the researcher that the information I will share will remain strictly confidential and respected. To assure my anonymity in this research, the researcher will not release my name or any personal information under any circumstances, and will use a pseudonym on all written documents and tape recording, even during discussions with her supervisor with regard to this research.

I give the researcher a permission to use a tape recorder during the interview.

Yes

No

Interview contents and other data collected will be kept in a secure manner by the researcher in her residence. All documents will be destroyed after 5 years.

Any requests for information or complaints about the ethical conduct of the project may be addressed to the relevant Research Ethics Board of the University of Ottawa, or by calling the Protocol Officer for Ethics of Research, Catherine Lesage at (613) 562-5800 ext. 1787 or writing to Office of the Vice-Rector (Research), University of Ottawa, Tabaret Hall, Suite 246 Cumberland St., P. O. Box 450, Stn. A, Ottawa ON K1N 6N5 or e-mailing to clesage@uottawa.ca.

There are two copies of the Consent Form, one of which I may keep.

If I have any questions about the conduct of the research project, I may contact the researcher.

Researcher's signature: _____ Date: _____

Research participant's signature: _____ Date: _____

I wish to receive a summary of the findings of this research, which will be available around at the end of 2002 or in early 2003.

Yes _____ No _____

If yes,

Participant's
address: _____

Phone No: _____

E-mail: _____

APPENDIX F

Tested Words on the VATAmilie**1. Mediating**

The ego contains our partly conscious perceptions, thoughts, judgments, and memories, making it the personality “executive,” **mediating** the impulsive demands of the id, the restraining demands of the superego, and the real-life demands of the external world.

2. Weaning

For example, people who were either orally overindulged or deprived (perhaps by abrupt, early **weaning**) might fixate at the oral stage.

3. Panhandler

For example, white research participants previously accused of racism give more money to a black **panhandler** than do their non-accused counterparts.

4. Dour

Isn't it obvious that some people are dependably conscientious and others unreliable, some cheerful and others **dour**, some outgoing and others shy?

5. Retrospect

In **retrospect**, family and friends may recall signs that they believe should have forewarned them-verbal hints, giving possessions away, or withdrawal and preoccupation with death.

6. Reverence

At age 10 he feels a deep **reverence** for the wilderness and its creatures.

7. Prodigious

He had a **prodigious** memory and s loved reading plays, poetry, and philosophy that he once ran up a bookstore debt beyond his means.

8. Indelible

Love his ideas or not, “Freud has left an important-and I believe **indelible**-mark on human self-understanding,” observes Drew Western.

9. Onset

On returning to Vienna, Freud began to hypnotize his patients, encouraging them while hypnotized to talk freely about themselves and the circumstances surrounding the **onset** of this symptoms.

10. Striving

The id has a reservoir of unconscious psychic energy constantly **striving** to satisfy basic drives to survive, reproduce, and aggress.

11. Lurking

Given these feelings, boys would also feel guilt and a **lurking** fear of punishment, perhaps by castration, from their father.

12. Erogenous

Psychosexual stages: the childhood stages of development (oral, anal, phallic, latency, genital) during which, according to Freud, the id's pleasure-seeking energies focus on distinct **erogenous** zones.

13. Charred

Most rescuers cope well, as did all Sioux City fire fighters who rescued people and **charred** bodies from a flaming DC-9 crash in 1989.

14. Aberrant

Linkage studies seek to identify **aberrant** genes in family members suffering the disorder.

15. Exacerbate

So if chronic stress serves to suppress immune functions, could it also **exacerbate** the course of AIDS?

16. Forfeit

At 21 he **forfeits** a "tainted" inheritance: in his later seventies he counsels his nephew to use his land responsibly.

17. Beheaded

"Good morning, **beheaded**-um, I mean beloved." –The New Yorker collection-

18. Abate

The humanistic therapist expects problems to **abate** as people "get in touch with their feelings."

19. Sphincter muscles

During the anal stage, from about 18 months to 3 years, the **sphincter muscles** become sensitive and controllable, and bowel and bladder retention and elimination become a source of gratification.

20. Premises

"Freud's **premises** may have undergone a steady decline in currency within academia for many years," notes Martin Seligman (1994), "but Hollywood, the talk shows, many therapists, and the general still love them."

21. Convention

Movie plots feature heroes who, true to themselves, buck social **convention** or take the law into their own hands.

22. Dissenters

Where is the person in this view of personality, ask the **dissenters** (Carlson, 1984) and where are human emotions?

23. Census

To answer such questions, the U.S. National Institute of Mental Health (NIMH) undertook a short **census** of psychological disorders during the 1980s.

24. Lore

Unfortunately for those who might have been helped by her counter conditioning procedure, Jones' story of Peter and the rabbit did not immediately become part of psychology's **lore**.

25. Alleged

A young woman diagnosed with bone cancer starts a vigorous exercise program (biking 500 miles and running 60 miles weekly), becomes vegetarian (consuming fresh fruit, juices, and whole grains), and shucks the **alleged** cancer.

26. Blatant

As **blatant** prejudice wanes, subtle prejudice lingers.

27. Heinousness

If the **heinousness** of a crime becomes synonymous with mental incompetence, does this create a social basis for evading responsibility (like the person who, having just killed his parents, then demands mercy because he is an orphan)?

28. Ambush

In one **ambush**, his closest friend was killed while Jack was standing a few feet away.

29. Conned

I didn't deserve the research grants I had been awarded; I couldn't understand how I had written books and journal articles.... I much have **conned** a lot of people.

Hatem

1. Empathic

As a person **empathically** heard, it becomes possible for them to listen more accurately to the flow of inner experiencing.

2. Exalt

First a society that **exalts** the individual to the extent like ours now does will be ridden with depression.

3. Attuned

Anxious people, for example, are more likely to be **attuned** to potentially threatening events than are non-anxious people.

4. Scoundrel

A threatening environment turns one person into a hero, another into a **scoundrel**

5. Fixate

At any point in the oral, anal, or phallic stage, strong conflict can lock, or **fixate**, the person's pleasure-seeking energies in that stage.

6. Dynamic

Rather than explaining hidden personality **dynamics**, trait researchers search for identifiable patterns of behavior or conscious motives that describe basic dimensions of **personality**.

7. Schmutzig

To him, everything was **schmutzig** (filthy).

8. Appraise

Stress by which we perceive and respond to certain events, called stressors, than we **appraise** as threatening or challenging.

9. Surmised

The researchers **surmised**, because African-American women with the same sex hormones but facing more stress than the Junior Leaguers are as prone to heart disease as their husbands are.

10. Linger

The fats released during stress **linger** in the bloodstream and help form the plaques that clog arteries.

11. Resilient

Repeated surveys, some by government health agencies, reveal that Canadians and Americans are more self-confident, self-disciplined, and psychologically **resilient** if physically fit.

12. Inadvertent

This mind-body connection was strikingly apparent in an **inadvertent** experiment conducted by British Airways on an April 23, 1999, flight from San Francisco to London.

13. Turmoil

Physiological measures revealed that their bodies remained tense the whole time they talked about the trivial event: they relaxed only when they confided the cause of their **turmoil**.

14. Extraversion

Trait labels such as **extraversion** can describe our temperaments and typical behaviors.

15. Bleak

One study that followed 2428 middle-aged Finnish men for up to 10 years discovered that the number of deaths among men with a **bleak**, hopeless outlook was more than double that found among their optimistic counterparts.

16. Prodigious

He had a **prodigious** memory and so loved reading plays, poetry, and philosophy that he once ran up a bookstore debt beyond his means.

17. Gambit

I was not prepared for silence and had to think fast to find a suitable conversational **gambit**.

18. Contrived

Flabbergasted and feeling a bit guilty, I **contrived** to change the subject.

19. Longevity

Likewise, Scottish regions with the least overcrowding and unemployment have the greatest **longevity**.

20. Nourish

The clogging of the vessels that **nourish** the heart muscle; the leading cause of death in the United States.

21. Prone

Which group do you suppose turned out to be the most coronary-**prone**?

22. Err

Your immune system can **err** in two directions.

23. Manifest

When the HIV infection becomes **manifest** as AIDS, some years after the initial infection, the person has difficulty fighting off the diseases, such as pneumonia.

24. Rigid

Moody, anxious, **rigid**, sober

25. Self-effacing

To preserve group spirit, people avoid uncomfortable topics, defer to other's wishes, and display a polite, **self-effacing** humility.

26. Rampant

Martin Seligman has argued that **rampant** individualism carries with it two sides of its own destruction.

27. Locus

External **locus** of control, the perception that chance or outside forces beyond one's personal determine one's fate.

28. Syphilis

When physicians later discovered that **syphilis** infects the brain and distorts the mind, health reformers and medical workers began to focus on physical causes for disorders and treatments that would cure them.

29. Innovation

These cultures also celebrate **innovation** and creativity, and they tend to respect individual human rights.

30. Conspicuous

A small boy about 4 years of age had displayed a **conspicuous** dirt phobia.

Hong

1. Intricacy

Life has come from nothing to structures as complex as a 6-billion-unit strand of DNA and the incomprehensible **intricacy** of the human brain.

2. Distinct

Does she know she is a person **distinct** from everyone else?

3. Sustain

Change motivates our concern about present influences, **sustains** our hope for a brighter future, and enables us to adapt and grow with experience.

4. Deterioration

A progressive and irreversible brain disorder characterized by gradual **deterioration** of memory, reasoning, language, and finally physical functioning.

5. Pessimist

Such may still happen as the twenty-century nutritional and deductive gains max out, say **pessimists**.

6. Disentangled

Seeking to **disentangle** genes and environment, researchers have also asked whether adopted children and their siblings, thanks to their shared environment, share similar aptitudes.

7. Adaptability

Because there are many ways of being successful, our personal and cultural differences-regardless of their origins-are variations on the human theme of **adaptability**.

8. Remorseless

Someone with an exceptionally strong superego may be virtuous yet, ironically, guilt-ridden; another with a weak superego may be wantonly self-indulgent and **remorseless**.

9. Incorporate

Through this identification process, children's superegos gain strength as they **incorporate** many of their parents' values.

10. Overindulged

For example, people who were either orally **overindulged** or deprived (perhaps by abrupt, early weaning) might fixate at the oral state.

11. Tendency

If we use predatory animals or weapons, the examiner may infer we have aggressive **tendencies**.

12. Extraversion

For example, people's scores on an **extraversion** test do not neatly predict how sociable they actually will be on any given occasion.

13. Pervasive

One thing said of Freud can also be said of the humanistic psychologists: their impact, though waning, has been **pervasive**.

14. Disposition

All are part of an environment you have chosen, based partly on your **dispositions**.

15. Oppressed

People who feel helpless and **oppressed** often perceive control as external.

16. Alienation

At a time when their peers' social approval was imperative, their sense of direction in life was in flux, and their feeling of **alienation** from their parents was deepest.

17. Foremost

For women, the **foremost** biological sign of aging is menopause, the ending of the menstrual cycle, usually beginning within a few years of age 50.

18. Divergence

At a five-year high school reunion, former soul mates may be surprised at the **divergence** of their paths; a decade later, they may have trouble keeping a conversation going.

19. Insightful

He identifies distinct aptitudes for musical accomplishment, for spatially analyzing the visual world, for mastering movement skills, and for **insightfully** understanding ourselves, others, and our natural environment.

20. Integrated

Children with mild retardation are educated in less restrictive environments and many are **integrated**, or mainstreamed, into regular classrooms.

21. Amassed

Stephen Ceci and Wendy Williams have **amassed** evidence that schooling and intelligence contribute to each other (and that both enhance later income).

22. Latency

At puberty, **latency** gives way to the final stage, the genital stage, as the person begins to experience sexual feelings toward others.

23. Malicious

When shown some photographs after game, the children perceived the photos as more **malicious** than they had before the game.

24. Kernel

The stereotypes of the chubby happy-go-lucky person and of the muscular confident person turn out to be just, that stereotypes that exaggerate a mere **kernel** of truth.

25. Loftier

Instead, they placed more emphasis on **loftier** motives and on social interaction.

26. Verdict

The **verdict** of these studies is reassuring under conditions of democracy, personal freedom, and empowerment, people thrive.

27. Potent

Yet, listening, of this very special kind, is one of the most **potent** forces for change that I know.

28. Doctrine

Carl Rogers once objected to the religious **doctrine** that humanity's problems arise from excessive self-love, or pride.

29. Extol

The coach who **extols** the superior strength of the upcoming opponent makes a loss understandable, a victory noteworthy.

30. Attuned

Anxious people, for example, are more likely to be **attuned** to potentially threatening events than are non-anxious people.

Lu**1. Conceive**

You shall **conceive** and bear a son.

2. Egocentric

The **egocentric** preschoolers are not intentionally "selfish" or "inconsiderate."

3. Hamsters

When normally placid golden **hamsters** are repeatedly threatened and attacked while young, the effects linger into their adult lives.

4. Pauperism

He envisioned that the use of intelligence tests would “ultimately result in curtailing the reproduction of feeble-mindedness and in the elimination of an enormous amount of crime, **pauperism**, and industrial inefficiency.

5. Spatial

But he also noted that those who score high on one factor, such as verbal intelligence, typically score higher than average on other factors, such as **spatial** or reasoning ability.

6. Hue

Remember from Chapter 5 that variations on just three color dimensions-**hue**, saturation, and brightness-create many thousands of colors.

7. Knack

I just think I have a **knack** for seeing other people’s faults.

8. Tart-tongue

Happily married couples attribute their spouse’s **tart-tongued** remark to a temporary situation.

9. Squint

When the second person and then the third and fourth give the same wrong answer, you sit up straight and **squint**.

10. Shove

On one study, most white participants perceived a white man **shoving** a black man as “horsing around.” When they saw a black man shove a white man.

11. Compatriot

Shown photos of former classmates whom they had not seen since preschool, 10 year-olds recognize (amid other photos of preschoolers) only 1 in 5 of their onetime **compatriots**.

12. Terry

One was a bare wire cylinder with a wooden head, the other a cylinder wrapped with **terry** cloth.

13. Lax

Some are strict, some are **lax**.

14. Lobe

Although not notably heavier or larger than the typical Canadian’s brain, Einstein’s brain was 15 percent larger in the parietal **lobe**’s lower region.

15. Atrophy

During aging, brain regions important to memory begin to **atrophy**.

16. Trait

Rather than explaining hidden personality dynamics, **trait** researchers research for identifiable patterns of behavior or conscious motives that describe basic dimensions of personality.

17. Smorgasbord

Their less-unified cultures offer a **smorgasbord** of life-styles and invite individuals to construct their own identities.

18. Hunch

To verify his **hunch**, Selye studied animals' reactions to various other stressors, such as electric shock, surgical trauma, and immobilizing restraint.

19. Buoyed

Buoyed by a string of successful space shuttle launches, the NASA (National Aeronautics, and Space Administration) management team approached the 1985 Challenger mission brimming with confidence but frustrated by launch delays.

20. Denigrate

To boost our own sense of status, it helps to have others to **denigrate**.

21. Jock

Other adolescents may adopt a negative identity that defines itself in opposition of parents and society but in conformity with a particular peer group-the **jocks**, the preppies, the geeks, and Goths.

22. Preppies

Other adolescents may adopt a negative identity that defines itself in opposition of parents and society but in conformity with a particular peer group-the jocks, the **preppies**, the geeks, and Goths.

23. Jittery

Sufferers, two-thirds of whom are women, are continually tense and **jittery**, worried about bad things that might happen, and experience symptoms of autonomic nervous system arousal.

24. Hibernation

Similarly, depression is a sort of psychic **hibernation**.

25. Vermin

I honestly felt subhuman, lower than the lowest **vermin**.

26. Grandiose

One of the mania's maladaptive symptoms is **grandiose** optimism and self-esteem, which may lead to reckless investments and spending sprees.

27. Grumpy

I think on one likes me.....I become **grumpy** and short-tempered.

28. Ergo

One young man begged for “a little more allegro in the treatment,” and suggested that “liberation movement with a view to the widening of the horizon” will **ergo** extort some wit in lectures.”

29. Twitchy

The tension and apprehension may leak out through furrowed brows, **twitching** eye-lids, trembling, perspiration, or fidgeting.

30. Deprecatory

I was self-**deprecatory** and could not understand why anyone would want to associate with me, let alone love me.

APPENDIX G

Examples of Modification on Participants' Verbal Comments for Quotation PurposeOriginal:

.....From reading.I don't know what kind of learner I am..... I think I a visual learner because in class I remember I would not listen. I couldn't even listen to the teacher..... After the class I didn't know anything what we learned. And then I just look over my notes,..... and I understand by reading them. So,..... I don't really like verbal learning. So I think..... more visual learning, learning words mostly from reading because..... even when my friends said words that I don't understand, then I ask them the words. Even if they tell me, I know I wouldn't remember. It happens so often. They tell me words. I don't know the meaning that they tell me. Then they say it another time, and just I don't remember from verbal..... It's more visual and from reading.

Modified:

I learn words from reading. I don't know what kind of learner I am. I think I am a visual learner because I remember that in class I would not listen. I couldn't even listen to the teacher. After the class, I did not know anything about what we were supposed to learn. Then I just look over my notes and I understand by reading them. So I don't really like verbal learning. So I think I am more of a visual learner, learning words mostly from reading. When my friends speak words that I don't understand, I ask them for meanings. Even if they provide an answer, I wouldn't remember the meanings. It happens so often. They tell me the meaning of a word and I don't remember the meaning that they tell me. Then, they will repeat the meaning another time. I just couldn't remember from verbal means. I am more of a visual learner, learning new words from reading.