Word-cards in Action: A Classroom-based Study

Abigail Humphrey

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By: Abigail Humphrey

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Signed by the final Examining Committee:

_____ Chair

Dr. Giuliana Cucinelli

_____ Examiner

Dr. Teresa Hernandez Gonzalez

_____ Examiner

Dr. Sarita Kennedy

_____ Supervisor

Dr. Marlise Horst

_____ Supervisor

Dr. Joanna White

Approved by _____

Chair of Department or Graduate Program Director

_____2016   _____

Dean of Faculty

ABSTRACT

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Vocabulary is arguably the most important aspect of learning a new language, for without it, the successful expression of one's thoughts, feelings, and desires cannot be achieved. There exist a multitude of ways through which vocabulary may be taught and learned, but one often-overlooked method in today's communicative classroom environment is that of word-cards. In this study, word-cards were employed throughout a four-week session to aid ESL students (N=11) in the acquisition (recognition and use) of new vocabulary. This study aimed to answer the following three questions: (1) What features do classroom learners typically include or leave out in the making of their vocabulary cards, and which do they find most useful? (2) How do the learners perceive vocabulary learning through word cards? (3a) Are there measurable learning effects as indicated by performance on vocabulary tests administered at the beginning and end of a four-week school session during which vocabulary cards were used? (b) If so, to what extent was the knowledge acquired via word cards retained four weeks after the end of the session? Of a list of 213 potentially new words encountered in five separate 90-minute lessons, students were free to choose any 10 to 15 unknown words per lesson for which to create their word-cards (which resulted in a final average of 45 cards per student in total). Prior to beginning,

both students and teacher were instructed in the basics of producing and using word-cards in their studies. Results indicated that the use of word-cards lead to the acquisition of new vocabulary. When the vocabulary that was learned with word-cards was compared to vocabulary learned without word-cards, results indicated a more successful overall acquisition rate for the word-card words.

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Chapter 1: Introduction

One may argue that vocabulary is the single most important aspect of a language to learn (at least at the start), for without the ability to distinguish and use appropriate words, communication is impossible. In my own teaching experience, a lack of vocabulary is often the first thing that students complain about. Students have often expressed to me their frustration in being unable to convey precisely what they mean to say. This leads students to be reluctant to enter into a conversation that may go beyond the scope of the basic vocabulary they have learned and used throughout the course of their general English studies. Although some textbooks do contain vocabulary exercises, it is rare to see much focus placed upon them, and there rarely appears to be any recycling of previously learned or encountered words.

Based on the British National Corpus, researchers estimate that there are somewhere in the vicinity of 70,000 word families in the English language (Nation, 2013, p.12). A "word family" includes the headword (such as *happy*) along with both its inflected and (closely) derived forms (*happily*, *happiness*). Nagy and Anderson (1984) performed their own vocabulary size estimate based on Carroll, Davies, and Richman's (1971) *American Heritage Word Frequency Book*, which contains texts from published school materials. Through analysis of a sample, the authors projected that there are between 61,934 and 88,533 word families in printed school English, depending on the degree of "relatedness" between words that is factored in. With a higher estimate of distinct word families, one assumes a lesser degree of relatedness between words. Thus, for example, a learner who knows the word *brief* might not know *abbreviation*, though

they share the same Latin root *brevis*, meaning "short". Therefore it is possible they would not be included within the same word family. Other (lower) estimates of the number of word families, however, may assume a greater degree of relatedness and include more "loosely" related words within the same category. Regardless of categorization, the fact remains that there is certainly a large volume of words and families to learn.

Undoubtedly, the task of learning enough vocabulary to feel confident in a range of activities and situations is daunting for learners. It is difficult to know where to start and how to proceed. Word frequency lists are a good place to start in terms of knowing which words are worthwhile to prioritise. The *General Service List* (West, 1953) provides a list of the 2000 most frequent families in English. There are also other more recent lists that have been derived from the British National Corpus, which is a large collection of authentic texts that contains hundreds of thousands of words from the English language. As well, there are also specialized lists of families that can be used to target specific needs. For example, the *Academic Word List* (Coxhead, 2000) contains the most frequent academic words (570 word families) that appear across a range of academic texts.

Understanding how many words a learner knows, the kind of language they plan to use, and the time they have available to work on their language growth, are all essential in setting realistic goals for vocabulary acquisition. It has been established by some researchers (e.g. Laufer, 1989; Schmitt, Jiang, & Grabe, 2011) that in order for most general English non-modified texts to be understood, a reader needs to know at least 95% of the vocabulary in the given text. Higher levels of text coverage (meaning the

percentage of known vocabulary words in a text) are of course preferable and allow for greater overall comprehension, particularly in more academic texts (Hu & Nation, 2000; Schmitt et al., 2011). For example, the *Academic Word List* accounts for approximately 10% of the running words appearing in academic texts. If the 2000 most frequent word families in English are known, then knowledge of the AWL brings a reader's known word count from approximately 71.6% to 81.6% (Nation, 2013); knowing these academic words is clearly helpful but it does not take the reader all to the way to the 95% coverage level needed for adequate comprehension or the 98% level, which research has determined is needed for comprehension to be good According to Nation (2006), learners need to recognize the meanings of between 6000 and 9000 word families to achieve 98% known word coverage in most texts, which can be a good (though perhaps ambitious) goal for learners who wish to become very proficient in the language.

In work done by Horst, White, and Cobb (2012), we are presented somewhat surprising findings concerning vocabulary knowledge in L2 learners of English. French students in the province of Québec, Canada, attending French secondary school were tested to determine how many and what kind of English words they know upon completion of their secondary education (five years). After five years of secondary ESL education, students still have incomplete knowledge of vocabulary at the 1000 and 2000 level. Knowledge of these words is crucial for successful comprehension of the language, given that any stretch of spoken or written English is largely made up of these basic words. Furthermore, only half of the words at the 6000 level (the lowest frequency band the researchers tested) appear to be known. Considering that it has been shown to take

between 6000 and 9000 word families to achieve 98% known word coverage in most texts (Nation, 2006), these students are still quite far from achieving a level of vocabulary knowledge that would enable them to read and comprehend texts designed for native speakers of English - a goal that many learners aspire to. It is realities such as these that lead researchers and teachers alike to believe that a more head-on approach must be taken in order to help students get more out of their class time and achieve a greater vocabulary knowledge.

In Chapter 2 we will first discuss some relevant issues pertaining to the studying, teaching, and learning of vocabulary. Next, we will look to the research literature and examine the importance of addressing vocabulary in the classroom and the need for direct teaching. We will also note arguments that have been made against direct vocabulary study and present current research findings showing that these objections are unwarranted. Finally, we will turn our attention more specifically to word cards as a means of acquiring new vocabulary.

Chapter 2: Literature Review

Why Do We Need to Teach Vocabulary?

Krashen (1989 and elsewhere) has claimed that reading alone is sufficient for vocabulary acquisition and that therefore the direct teaching of vocabulary is not necessary. According to Krashen's (2004) *comprehension hypothesis*, reading alone will result in the subconscious acquisition of vocabulary (as well as syntax and spelling). However, it has been documented that through reading alone, the multiple exposures that are necessary in order for the meaning of a new word to be retained are not available (Cobb, 2007; Horst, Cobb, & Meara, 1998; Zahar, Cobb, & Spada, 2001). Although there is no magic number, research has shown that between six and ten exposures are associated with greater levels of retention (Horst, 2000; Saragi, Nation, & Meister, 1978; Zahar et al., 2001). But most words that occur repeatedly are frequent and likely to be already known (Cobb, 2007). In order to meet a substantial number of new words at least six times, one would have to be exposed to huge volumes of text consistently over long periods of time for reading alone to be a sufficient means of vocabulary acquisition. Since most learners do not have this kind of time, a more direct and efficient approach seems fitting. Schmitt (2000) outlines multiple vocabulary learning strategies aimed at transitioning vocabulary from short-term to long-term memory. These include determination strategies, social strategies, memory strategies, and cognitive and metacognitive strategies. Determination strategies involve the use of guessing from context, using spelling, word parts, and knowledge of cognates, as well as consulting reference material to determine the meaning of a word. Social strategies involve

interacting with others, asking a teacher or classmate for word information, or practicing and studying vocabulary knowledge in groups. Memory strategies revolve around the memorization of any and all aspects of a word through the manipulation of mental process (for example using word associations to help make new vocabulary more memorable and accessible), while cognitive strategies involve repetition and mechanical means to study vocabulary. Finally, metacognitive strategies deal with the learner's conscious overviewing of the learning process. All of the above strategies outlined by Schmitt can be incorporated in the creation and use of vocabulary cards, which is the topic of this study.

One possible concern related to deliberate study of words and their definitions or translations is that the information learned will not be stored in long term memory, but rather will be limited to short term situations. Research shows that this concern is unwarranted. In a large-scale study (773 participants) on second language attrition, Bahrick (1984a&b) examined the longevity of deliberate learning of vocabulary (as well as reading comprehension, grammar recognition, and idiom recognition) in a study of participants who had learned L2 Spanish five decades earlier, during the years in which form-focused explicit teaching was the method of choice. His results showed that large portions of knowledge were still accessible after decades of little or no use. Further evidence comes from Bahrick and Phelps' 1987 study. In this study, the researchers looked at English-Spanish word-pairs and learners' retention after 8 years, finding similar evidence of long-term retention as a result of deliberate learning.

Beaton, Gruneberg, and Ellis's (1995) well-known keyword method study also

provides good evidence for long-term retention of deliberately learned items following ten years of little to no language use. The keyword method involves associating the sound of the word in the target language with the sound of a word in the first language, and creating a phrase or imagery that would help solidify the association. If the association is successful, then when the learner is attempting to access the foreign word, the word from the first language will serve as an aid or a prompt for remembering the target word. For example, if an English speaker learning French wants to remember the words "arroser" and "arrosoir" (meaning *to water* and *watering can*, respectively), the student could picture a person using a watering can to water a rose. The words *a rose* bear similarity in sound to "arroser" and "arrosoir", which could help a student make the connection between the two languages and trigger recollection of the French words. Beaton et al.'s case study involved an individual's memorization (participant referred to as "N. P.") of Italian words using the keyword method. Ten years after the list of words had been learned, N.P. was able to recall 165 Italian words of the 312 English equivalents with allowance for minor spelling mistakes. Then following just ten minutes of review, 238 of 312 words were recalled with allowance for minor spelling mistakes. The results indicate that the deliberate study keyword method did indeed lead to successful long-term acquisition.

Another possible concern about using a direct method approach for acquiring L2 vocabulary is that it often involves studying single words and single definitions in a static, form-focused way. In other words, it does not address a full range of aspects of word knowledge, and as a result students may lack productive vocabulary knowledge and

skills. Again, there is evidence to the contrary. In research by Webb (2007), Japanese

EFL students studied vocabulary via word pairs, or via a single glossed sentence.

Participants were then tested on multiple aspects of both productive and receptive word

knowledge. The results showed that both study methods led to increases in both aspects

of word knowledge with no significant advantage of one method over another. In a

second study, Webb (2009) once again studied Japanese EFL learners' vocabulary

acquisition using word pairs. This time, learners were separated into those who learned

productively (had to produce the target English word after seeing the Japanese

translation) and those who learned receptively (had to produce the Japanese equivalent

for the given English target words). Overall results showed gains in both receptive and

productive knowledge measures. Receptive learners showed more gains in receptive

knowledge, while productive learners showed gains in both productive and receptive

knowledge. The study demonstrates once again that multiple aspects of word knowledge

can be achieved through deliberate, decontextualized learning. Elgort (2011) further adds

to this discussion through her study of deliberate learning and second language

acquisition. Through several priming experiments involving real words, non-words, and

pseudo-words, Elgort studied participants' processing of deliberately learned words.

Participants used word-cards to study the new vocabulary and adhered to a recommended

study schedule provided by the researcher. The results indicated that these words were

acquired on both a representational and functional level, as the participants were able to

access the new words subconsciously and fluently. Together, these studies provide

evidence that despite a decontextualized acquisition environment, learners are able to

recognize and use the vocabulary beyond the form-focused learning context.

Word-Cards

No single approach is likely to be an adequate means of vocabulary acquisition in and of itself, but rather multiple methods may serve to effectively complement each other. One well-known method of direct vocabulary study that has been the subject of renewed research interest is that of the word card approach. One of the most comprehensive accounts of word-cards and their uses is given in Chapter 11 of Nation's *Learning Vocabulary in Another Language* (2013, pp. 437-478).

According to Nation (2013), there are several steps and principles to consider when using word-cards to acquire vocabulary (see Table 1). In his view, it is as important for learners to be trained in creating and using word-cards as it is for the teachers. The steps and principles from Nation are meant to be simple enough for learners to adopt and use for self-study and teaching.

Let us now examine the contents of Table 1 a little more closely. The process of creating word-cards begins with the selection of the words themselves. The most logical and obvious piece of advice is to create word-cards for vocabulary that is frequent and/or useful, since these words will be able to be used productively in a multitude of situations and will likely occur more often in receptive input as well. Furthermore, some researchers have suggested that attempting to learn synonyms, antonyms, and closely related or similar terms at the same time may lead to interference and should therefore be avoided. In research by Erten and Tekin (2008), the effects of teaching vocabulary in

semantically related sets versus non-semantically related sets to a group of fourth graders, was studied. The semantically related sets included 20 words each; one lesson contained food words and the other contained animal words. The other two lessons that were taught contained 20 unrelated words each. Erten and Tekin showed that those words studied in a non-semantic set were better learned than those in the semantic set. Similarly, a study by Papathanasiou (2009) showed that semantically related groupings can hinder the learning process with beginner learners. However, even if learners are presented with semantically related sets of words, they may use word-cards to practice these words separately and in different contexts in combination with word-cards from other lessons.

Table 1. *Steps and Principles Involved in the Word-card Strategy* (Nation, 2013, p.446)

1. Choosing words to learn	● Learn useful words. ● Avoid interference.
2. Making word-cards	● Put the word or phrase on one side and the meaning on the other to encourage retrieval. ● Use L1 translations. ● Also use pictures where possible. ● Keep the cards simple. ● Suit the number of words in the pack to the difficulty of the words.
3. Using the word-cards	● Use retrieval. ● Space the repetitions, particularly the first one. ● Learn receptively, then productively. ● Start with small packs (or blocks) of words and increase the size as learning becomes easier. ● Keep changing the order of the words and increase the size as learning becomes easier. ● Keep changing the order of the words in the pack. ● Put known words aside and concentrate on the difficult words. ● Say the words aloud or to yourself. ● Put the word or phrase in a sentence or with some collocations. ● Process the word deeply and thoughtfully using the mnemonic techniques of word parts or the keyword technique where feasible and necessary.

One aspect of word-cards that may lead to some concern among teachers and learners is that the vocabulary is presented in a decontextualized manner, which may make it more difficult for students to recall the new words when they encounter them in use. As the second section "making word-cards" of Table 1 indicates, proponents of word-card study actually see value in focusing the learner's attention on single words and their decontextualized definitions. Laufer and Shmueli (1997) conducted a study whose results show the value of this approach. The researchers had participants study 20 new

words presented to them in different modes: in isolation, meaningful sentence, in-text context, and elaborated text context. Additionally, in each mode a direct translation was provided for half the words while the other half were given an explanation in English (the target language). Both short and long-term retention was tested, following self-study in preparation for a quiz. Retention results showed that participants who learned words presented in lists and sentences retained the vocabulary better than those who learned them in contexts and elaborated contexts.

When it comes to creating and organizing the word-cards, there are many options. One of the most important things to consider is the language of the definitions; should students use translations from their first language or use only the language they are learning on their cards? As mentioned above, Laufer and Shmueli's (1997) study looked at vocabulary retention scores as measured against several variables, including L1 translation versus target language (English) explanation. The results showed that vocabulary glossed in the L1 always led to higher scores than those words memorized with an English gloss, regardless of other factors in both short term and long term retention. The results indicate the importance of allowing students to draw connections and relate L2 vocabulary to their L1. A study by Hummel (2010) demonstrated that using both translation from the L1 to the L2 and translation from the L2 to the L1 yielded similar vocabulary retention results. Furthermore, an advantage was shown for rote-copy conditions in which the L2 word was presented alongside its L1 equivalent, once again underscoring the importance of allowing students to make use of their L1s in the vocabulary acquisition process. These findings are the basis for Nation's

recommendation to include L1 translations (see section 2 in Table 1).

Now, let us turn to the third part of Table 1, which pertains to the actual use of word-cards. Important concepts to bear in mind when using word-cards are repeated and spaced retrieval. The term retrieval refers to the opportunity for students to see (or hear) a word and then attempt to recall its definition or alternatively, to see (or hear) a definition and try to produce the word. Although it is known that repeated retrieval increases learning and spacing is beneficial, some have wondered if there is a particular spacing pattern that would lead to greater results. According to research from Karpicke and Bauernschmidt (2011), there is not. Karpicke and Bauernschmidt had 96 Purdue University undergraduates study 100 Swahili-English word pairs. The researchers compared results across spacing of retrievals: short, medium, long, and no spacing (control). There were three retrievals. All spacing conditions (apart from no spacing) led to an increase in recall from the first retrieval to the second, and from the second to the third. Furthermore, results indicated that the relative spacing of the repeated tests did not affect long-term retention. Other researchers (Baddeley, 1990; Karpicke and Roediger, 2007) have studied spacing and retrieval with varying conclusions about spacing schedules. Karpicke and Roediger (2007) for example, concluded in their study that equally spaced retrievals and delaying initial retrieval improves long-term retention. Another studying technique that has been looked at is the "drop-out" schedule. Pyc and Rawson (2007) had undergraduate students learn word pairs and then compared the results of using a conventional review schedule (equal attention paid to each word) against a drop-out schedule. The drop-out schedule entails dropping out cards as they are

learned so as to allow more focused review on the problematic words. The results from

their study showed that although final performance results between the two schedules

was similar, the drop-out schedule participants achieved results in fewer trials. These

results could imply that using this technique would allow students to acquire a greater

number of words in less time, thereby being more efficient. Regardless of specific

spacing patterns, it is clear that repeated retrievals with spacing between is necessary for

building long-term retention of vocabulary. It is interesting to note that spacing

repetitions is near the top of the list of recommendations for the use of cards in the third

section of Table 1.

Another recommendation on Nation's chart for using the vocabulary cards is to

consider receptive versus productive learning and to begin with the receptive aspect. It

has been demonstrated on numerous occasions that receptive learning and testing is easier

than productive learning and testing. That is, seeing a new L2 word such as Dutch

vrachtwagen and recognizing that it means *truck* in English (L1) is easier than seeing the

L1 prompt *truck* and producing *vrachtwagen.* Therefore it seems wise to begin with

receptive learning to boost both results and confidence among learners (Griffin & Harley,

1996; Waring, 1997a). Waring (1997a) studied 76 Japanese learners of English in order

to compare their receptive and productive vocabulary *knowledge*. It was shown that with

each learner, scores on receptive knowledge were greater than scores on productive

knowledge. It is hypothesized that this is because more information is needed for a

learner to use a word (productive knowledge) than is needed for receptive skills. In

Griffin and Harley's study (1996), the researchers had high school students learn word

pairs in either the L1-L2 order or in the L2-L1 order. It was demonstrated that learning word pairs presented in the L1-L2 (productive) order was more beneficial. Therefore, we can see in the first study by Waring (1997a), how a base may be built by first encouraging receptive learning. As stated above, since learners' receptive knowledge is generally greater than their productive knowledge, this base may serve to increase learners' confidence and encourage continued studying. Following the establishment of this base, more productive learning may be done, since, as demonstrated by Griffin and Harley (1996), productive learning ultimately leads to an overall more complete knowledge.

Other recommendations in Table 1 focus on saying the words aloud and putting them in sentences or phrases. These points are consistent with views of the multifaceted character of word knowledge; in addition to definitional knowledge, learners also need to eventually acquire the phonological, syntactic and collocational aspects of new words. The advice in Table 1 also recognizes the usefulness of mnemonic devices; studies of the efficacy of techniques such as keyword were discussed earlier in this review (Beaton et al., 1995).

Summary

In this review we have seen that while vocabulary can be learned 'naturally' through exposure to the L2, this is a slow and inefficient process. Although none of the above referenced studies (with the exception of Elgort, 2011) used word-cards in the way we are proposing, we have explored how direct vocabulary study (a main principle of

word-cards) has been shown to be more effective. We have proposed a particular technique for direct vocabulary study: word-cards. Research-informed principles for implementing a program of study using word-cards have also been discussed. This traditional technique might be expected to have limitations such as not being suitable for long-term memory intake and leading to incomplete knowledge of words that does not allow learners to make use of the vocabulary beyond the study context. However research shows that vocabulary knowledge learned through a direct method is lasting and can be recalled years later, and furthermore that learners are able to acquire multiple aspects of word knowledge from a direct approach. It is recognized that the learning achieved through word-cards is preliminary in nature. Learners may not acquire the full set of semantic associations that a word may have, its nuanced register constraints and its many collocational uses. Yet there is reason to think that the knowledge available through word-card study represents an important first step on which learners can build.

The Research Questions

Despite the large amount of theory and research that supports the concepts behind the use of word-cards for vocabulary acquisition within the classroom, there has been little research on the actual implementation of these learning tools. There is a lack of practical field research to describe and promote the actual process of using word-cards and the way such instrumentation is perceived by students and teachers alike. This gap in the literature has led to the following research questions.

1) What features do classroom learners typically include or leave out in the making of

their vocabulary cards, and which do they find most useful?

2) How do the learners perceive vocabulary learning through word-cards?

3a) Are there measurable learning effects as indicated by performance on vocabulary tests administered at the beginning and end of a four-week school session during which vocabulary cards were used?

b) If so, to what extent was the knowledge acquired via word-cards retained four weeks later?

Chapter 3: Methodology

Participants

Participants in the study were 11 students taking an English for general purposes course at a private language school in Montreal, and their teacher (referred to henceforth as "Christie"). Participants' language backgrounds varied, given that students at the school come from all over the world to study, and included the languages shown in Figure 1, namely, Spanish, Korean, Italian, Arabic, French, and Portuguese. Students in this study ranged in age from 18 to 40. Upon arrival, students are assigned their English level based on a standard written placement test given by the school, which consists of both a reading comprehension and a writing task. Following the test, students are interviewed by a qualified teacher or administrator to narrow down their level and determine which classes best meet the student's needs.

Figure 1. *Profile of Student L1 Backgrounds*

Distribution of Student L1 Backgrounds
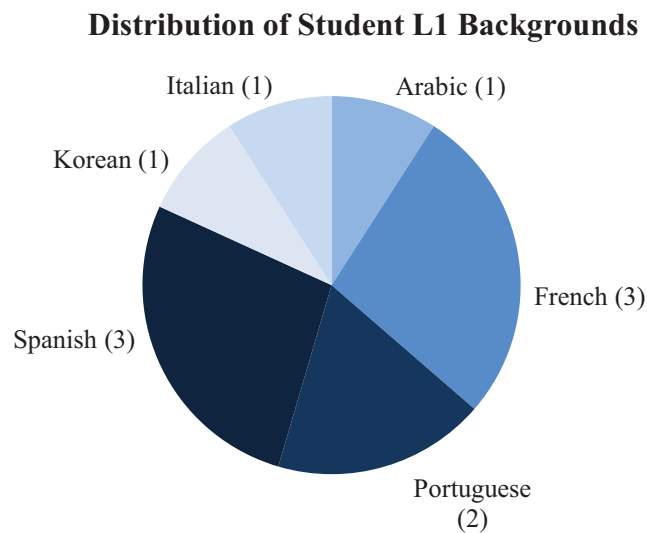
Participants in this study belonged to an intact afternoon vocabulary skills class at a low-intermediate level. These students also attended a three-hour morning class, five times a week (their core class) and had the option of taking an additional afternoon enrichment course (for a total of two afternoon classes). The afternoon enrichment courses are 90 minutes in length and each has a specific language focus, such as vocabulary, listening, reading, writing, and pronunciation. Progress in the afternoon classes does not determine the student's progression from one level to the next. However, teachers from the morning class will usually consult with teachers from the afternoon classes when they want a second opinion on a student's performance. Each session lasts four weeks, and students often continue in the same level for eight weeks.

The vocabulary class met Monday through Thursday, for ninety minutes in the early afternoon, for a total of 24 hours. Between 13 and 17 students attended. Not all students who entered the class finished the four-week course since sometimes students return home or take time off midway through a session. This is not uncommon since many students elect to stay and study for several months. Only the 11 students who completed all four weeks of the course were included in this study. A total of 11 student interviews and 10 tests from this vocabulary enrichment class were analyzed. One student's tests were discarded due to incorrect completion (in the individualized vocabulary tests described below, this participant neglected to use the words in sentences, and rather provided the part of speech and a definition for each word in his test).

The final participant of the study was the teacher, referred to in this manuscript as "Christie". At the point of data collection, Christie had been an ESL teacher at the school

for a little over five years. Christie had taught a wide variety of courses at the school, including this vocabulary class. She was therefore keen to try something new and explore new methods and teaching tools that she could add to her own repertoire.

Materials

   The following materials were used in the data collection.

Consent form. Students and teacher were asked to sign a consent form indicating that they agreed to allow their data and feedback to be used in the study (Appendix A).

Lesson plans. The researcher prepared five lesson plans for the teacher to use in the classroom. It was vocabulary from these five lessons that was considered in the study. Topics included food and restaurants in Montreal, personality characteristics, cities, intelligence, and money and banking. In addition to vocabulary-related activities, the course followed a communicative language teaching approach. The researcher provided all necessary materials, including readings, audio clips, videos, transcripts, and extension activities for the teacher (please see Appendix B for a sample lesson plan followed and Appendix C for outlines of all other lessons).

Word-cards. Students were provided with a blank set of cardstock to create their word-cards. They were given some sample word-cards (using words that were not covered in the session) to serve as a guideline and reminder of the kinds of things they could include on their word-cards.

   For their cards, students were required to write the target word on one side of the card. On the other side, they were to include an English definition of the word, the part of

speech, and an example sentence using the word. Students were also told they could

include an L1 translation. The reason students were required to include an English

definition (or synonym) was so that the cards could be used in activities with other

students who did not share the same L1. Also, this way the teacher was able to check

students' cards as they were making them in class to ensure that the students studied the

correct use of the words. In addition, a poster that listed and provided examples of other

kinds of information that could be included on the cards was hung in the classroom

throughout the session. Such extra information included multiple uses of the word, other

forms of the word, pictures, and phonetic pronunciation. Students were guided to follow

the recommendations from Table 1, but they were not required to include this other

information (although it would undoubtedly be useful for some vocabulary items). Figure

2 shows an example of the front and back of a possible word-card for a French L1

student:

Figure 2. *Front and Back of Word-card*

jumbled	**PoS:** adjective **Def:** mixed together in a messy way (*embrouillé, mélangé*) **Sentence:** My thoughts were jumbled and confused. **Pron**: ˈʤʌmbəld

"Yes/No" vocabulary test. Students completed a "Yes/No" vocabulary recognition test in a similar format to those often used to test for vocabulary size. The purpose of the test was to identify words that students did not know at the beginning of the course, so that we could test for vocabulary acquisition of previously unknown words at the end of the course. One widely used format is the *Eurocentres Vocabulary Size Test* by Meara and Jones (1990) and its computerized version *X-Lex* by Meara and Milton (2003). Although the "Yes/No" test was not used to determine vocabulary size in the present study, a similar design was employed. Students completed a test using a similar format but with a NS (not sure) option included in addition to a NO and YES option. Students completed this test at both the beginning and the end of the four-week course (the same test with the same vocabulary but in a different order each time).

This "Yes/No" test consisted of a list of 217 words that were seen throughout the session in the five lessons prepared for the teacher by the researcher. No distractor words (nonsense words) were used in this test for the following reasons. Distractor words aim to help a researcher have confidence in the accuracy of a student's responses for words that they claim to know. However for this test, the words we were most interested in were the words students claimed to *not* know, thereby eliminating much of the purpose for distractor words. To help ensure that students really did not know the words they marked NO, we included a "not sure" option, to help reserve the NO category for the truly unknown words. The second (and lesser) reason for the lack of distractor words was that the researcher did not want to potentially confuse students by presenting them with unreal vocabulary that would likely go unexplained until the very end of the study, if at all.

Mostly words belonging in the 2000 to 9000 frequency bands were considered. The goal was to exclude words that were likely to be already known, such as the very frequent families in the 1000 band, and to identify words that were potentially useful to acquire. Schmitt and Schmitt (2012) have identified the 3000 through 8000-9000 bands as 'mid-frequent' vocabulary that is important to target via instruction once learners are no longer beginners, and most of the words came from this range. Many words from the 2000 band were also included; words that the researcher judged to be pervasive in the school's ESL community were not included. The vocabulary which the students encountered in the lessons was sorted for frequency using the BNC-COCA-25 version of Vocabprofile, available on the LexTutor website. Please see Table 2 below for a distribution of word frequencies.

Table 2. *Frequency Distribution of Word Families and Tokens*

Frequency level	Families (%)	Tokens (%)	Cumulative Token (%)
K-1 Words	0	0	0.00
K-2 Words	84 (39.62)	88 (40.55)	40.55
K-3 Words	65 (30.66)	66 (30.41)	70.96
K-4 Words	25 (11.79)	25 (11.52)	82.48
K-5 Words	10 (4.72)	10 (4.61)	87.09
K-6 Words	12 (5.66)	12 (5.53)	92.62
K-7 Words	6 (2.83)	6 (2.76)	95.38
K-8 Words	3 (1.42)	3 (1.38)	96.76
K-9 Words	6 (2.83)	6 (2.76)	99.52
K-10 Words	1 (0.47)	1 (0.46)	100

In order to complete the Yes/No test (in pencil and paper format), the student had to read through the list of words and circle YES, NS (not sure), or NO to indicate their level of familiarity with each word. The following sample (Figure 3) illustrates the

general form of the test (please see Appendix D for the complete Yes/No test):

Figure 3. *Sample of "Yes/No" Vocabulary Test*

	YES	NOT SURE	NO
1. divided	Y	NS	N
2. altered	Y	NS	N
3. produce	Y	NS	N
4. queues	Y	NS	N
5. avoid	Y	NS	N
6. conveniently	Y	NS	N
7. immigration	Y	NS	N
8. stack	Y	NS	N

Individualized vocabulary test. Each student also completed a post-test - an individualized vocabulary knowledge test (VKT) - at the end of the four-week session (see Figure 4). This test was designed to provide a more in-depth view of students' vocabulary knowledge. Each test consisted of 14 words. Half of the words that each student was tested on were selected from their word-cards (vocabulary for which they chose to create cards), but these words also had to have been marked as "no" on the preliminary "Yes/No" vocabulary recognition test. The other half consisted of words encountered in the lessons for which no vocabulary card was made. In this way, vocabulary studied with the cards could be compared against a control group of words not studied with vocabulary cards.

Figure 4. *Sample Question from Personalised Vocabulary Knowledge Test*

Name:_____

<div align="center">

Vocabulary Quiz
</div>

Instructions:
Circle the letter that represents your level of knowledge of the word.
**If you circle A: Write a definition/synonym and a sentence.
**If you circle B: Write only a definition.

_____

1.

A = I know what this word means and I can use it in a sentence.
Def/syn/trans: _____
Sentence: _____

B = I know what this word means but I'm not sure how to use it.
Def/syn/trans: _____

C = I've seen this word before but I don't know what it means.

D = I don't think I've seen this word before.

Each word was assigned a score out of five, following the model presented in Paribakht and Wesche (1996); Figure 5 outlines the scoring system.

In accordance with Paribakht and Wesche's model, answers in self-report category A led to scores of two, three, four, or five, depending on the amount of correct information provided by the participant. If a student provided the correct definition and sentence, he or she was awarded the top score of five points. For example, one student defined the verb "to schedule" as "to make a plan, usually by writing, for a proposed objective", and provided the sentence "I am scheduling what I will do during my holiday". In this case, the definition is correct and the verb is used appropriately in a sentence. Therefore, the student received full points.

Figure 5. *Scoring System for Vocabulary Knowledge Test*
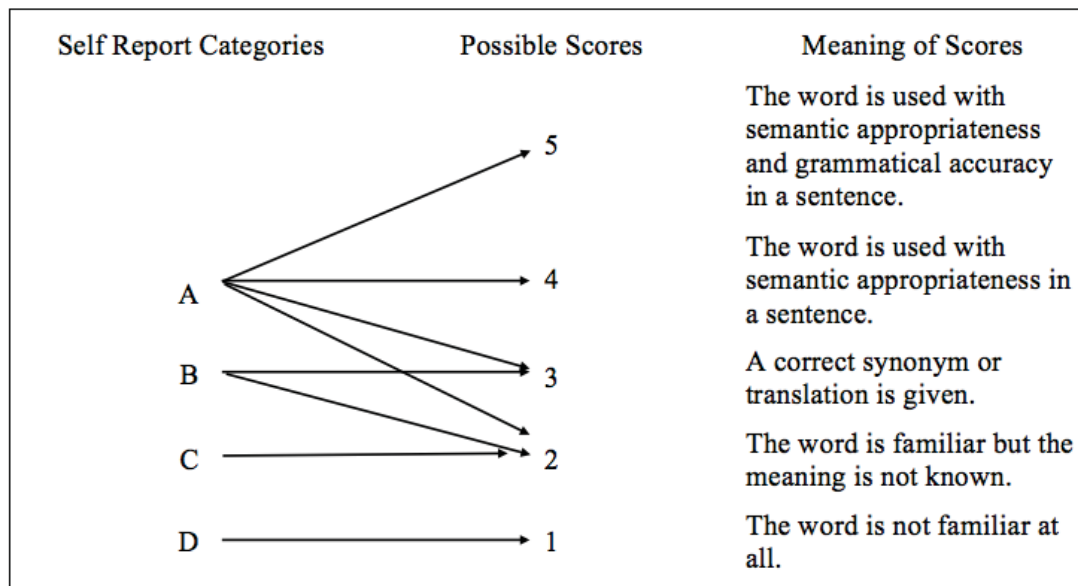
Another student defined the verb "to rank" correctly, and then provided the sentence "New Caledonia is ranking the first of beautiful island[s] in the world". In this instance, the word "rank" was used with semantic appropriateness, given that the student referred to the existence of a certain hierarchy. However, the answer lacks grammatical accuracy, resulting in a score of four points in accordance with the scale.

Students who select category A may also receive a score of three if the sentence has more than a simple grammar or part of speech error. A participant defined "to maintain" as "to continue, to not cancel", which was deemed an acceptable answer. However, there were semantic issues with the sentence; "My English class is maintaining for this afternoon". Given that the context in which the word was used was not appropriate, the student did not receive points for the sentence, which brought the score down to a three (awarding points for the definition only).

If no correct information was given in self-report category A, the participant

received a score of two. For example, a student who defined the adjective "inquisitive" as being "sensible, intelligent" and provided the sentence, "My roommate is very inquisitive; she is always thinking about what to do next and the best form to do it", received a score of two. The student identified her level of knowledge as category "A", but could not receive full points due to the incorrect response.

Finally, an incorrect answer given in self-report category B resulted in a final score of two. Self-report categories C and D are self-explanatory, as the student would not have provided any definition or sentence. For each participant, the scores were then added up for two total scores; one score for vocabulary learned with word-cards and one for vocabulary learned without word-cards.

Five students completed a delayed post-test (VKT) four weeks after the course to test their word retention. These students were tested on only the seven word-card words they had studied.

Interview questionnaire. The researcher conducted the interviews on the second-to-last day and on the final day of the course. Interviews were conducted during class time so as to inconvenience the students as little as possible. While interviews were being conducted, Christie performed her own general review activities with the class, as is standard practice with most teachers and courses at the school. Interviews were audio-recorded and lasted approximately 15 minutes each, which permitted enough time for each student to be interviewed during class over the course of the final two days. The researcher also took notes during the interview process to help highlight some of the more important or interesting points.

The researcher asked questions concerning the process of creating, and using word-cards for study, as well as the student's overall impressions and perceptions of the use of word-cards (please see Appendix E for a list of sample interview questions). The interview style followed the guidelines suggested by Kvale (1996) in which the most important information was retrieved during the last third of the interview, while the first portion focused on establishing goals for the interview with the participant and creating rapport.

Following the interviews, the researcher listened to the audio recordings and typed out a transcript of each session. In this way, the common questions and answers were easily identified and organized from each interview, and exact quotes were extracted from the source.

Procedure

The researcher met with the teacher of the vocabulary skills class, Christie, a week prior to the beginning of the session to go over the lesson plans, to familiarize her with the use of word-cards, and allow her to learn what was to be expected from the students. A week earlier, Christie was presented with a copy of *Learning Vocabulary in Another Language* (Nation, 2013), and was asked to read through Chapter 11, "Deliberate learning from word-cards". Given that much information about word-cards for the present study has been gleaned from Nation's work, it was an excellent place for a newcomer to begin and gain a basic understanding. During the meeting between researcher and teacher, the literature was discussed, and the teacher and researcher

created some sample vocabulary cards together and practiced some of the proposed classroom review activities together.

On the first day of the session, Christie spoke with the students and explained the research project. Once students had received all necessary information and had made their individual decisions to either give or withhold consent, they filled out the consent forms, which were then collected by the teacher. All students in the class gave their consent to be included in the study. The following day, each student completed the Yes/No vocabulary pre-test, after which Christie instructed students on the creation and use of vocabulary cards. Christie then presented an abridged version of the information on word-cards as described in Nation (2013): information on how to write them, which language to use, what kind of information to put on the cards, how to choose appropriate or relevant vocabulary, and ideas for practicing and studying with the cards. A large poster providing example information that could be included on the word-cards was then placed on the classroom wall for student reference throughout the session.

During the first classroom vocabulary lesson, students were presented with a set of blank card stock to use as vocabulary cards as well as a labelled envelope in which to keep them (to help students not lose their cards). Students were also given coloured dot stickers to use to label and separate the cards according to lesson, to help with organization. The students were then reminded of how to create the word-cards (according to the specifications previously discussed) and additional examples were provided. At the end of this first lesson, Christie held an open discussion with the students, asking them what they thought were some potential benefits of the word-card

creation and learning process. Christie then highlighted some of the principles she had

learned in her own training session for the students. Research and learning principles

supporting the use of word-cards were not discussed in depth, however, since we were

interested in hearing the conclusions students would draw for themselves at the end of the

session during the interview process.

 Students followed the same basic procedure for all five lessons spread out over

the session and were told they were expected to create between 10 and 15 word-cards per

lesson (although more was fine as well). Christie generally provided between 20 and 30

minutes per vocabulary lesson for students to create their word-cards (more time was

needed at the beginning of the session as students adjusted to the new task). If students

had not finished their cards in the allocated time, they were assigned as homework.

 Throughout the session, the teacher provided the students with the opportunity to

practice using their word-cards in class with a partner or group. They played a variety of

games using both their own word-cards and those of their partners. The concept of spaced

learning was explained to the students and built into their practice activities, meaning that

students continued to practice and work with their word-cards from previous lessons as

the session progressed. An example of one of the games that was used is "Word Sneak".

In Word Sneak, students work in groups of three or four and use any ten of their word-

cards. Holding their cards fanned out in front of them so students can see their own

words, they go around in a circle and take turns telling bits of a made-up story. The aim

of the game is for students to incorporate one of their words into the story each time it

comes around to their turn. As a student uses one of the words, he or she places the

selected card on the table word-up so the other students can make sure the word has been used correctly. The game continues until each student has used all his or her cards. The cards were also easily incorporated into a board game in which students provided the correct word when read the definition in order to advance in the game (or provided a definition when read a word). Students also had short review sessions in which they simply quizzed each other. See Table 3 below for the schedule of the lesson plans, review activities, and all other related activities.

Three of the five classes (the first three lessons) were observed by the researcher. The researcher felt it would be best not to observe all classes, in case her presence affected student behaviour. During the researcher's observation, general notes on the flow of the class and the success of the activities were taken. The researcher did not participate in any of the activities (students were aware that the researcher was there to observe only), but was able to walk around the room to better see students' progress. It was also observed that Christie managed to follow the lesson plans closely, and that the suggested timings for each activity were generally appropriate. Christie, being an experienced teacher, was able to make small timing adjustments as needed.. Following the two lessons for which the researcher was not present, Christie sent the researcher a quick recap of the class via email. Not wishing to burden the teacher with additional meetings, the researcher considered the emails to be sufficient feedback. Since the researcher attended the first three lessons and observed successful implementation of the lesson plans, she was confident that the email summaries were accurate and that the lessons had been delivered accord to the plans that had been provided. No major

disruptions or issues were reported in the email summaries.

       Once Christie had taught all five lessons and students had created their vocabulary cards for each of the lessons, the researcher then collected and photocopied every student's cards (front and back). Once the cards had been documented, the researcher returned them to the students. An analysis of the photocopied cards allowed the first research question to be addressed, which reads, "What features do students typically include or leave out in the making of their vocabulary cards." The researcher then interviewed the students in the fourth week in order to provide answers to the second research question concerning students' perceptions of vocabulary learning through word-cards. At the end of the four weeks, students were re-tested on all vocabulary. Students completed the same Yes/No vocabulary test as was given at the beginning of the course, however with words presented in a different order. Then, students received the individualized Vocabulary Knowledge Tests. This was useful in answering the third research question, which addressed the extent to which the word-card related activities resulted in the acquisition of new word knowledge. Finally, five of the students from the class completed a delayed post-test four weeks after the end of the session; a Vocabulary Knowledge Test consisting of the seven word-card words they were initially tested on during their first VKT. These data were used to answer the final research question which pertained to retention over time.

Table 3. *Class Schedule*

Day		Plan
Week 1	1 (Mon)	Introduction & consent forms
	2 (Tues)	Yes/No Vocabulary Test
	3 (Wed)	Lesson #1: Food in Montreal
Week 2	5 (Mon)	Lesson #2: Describing Personality
	7 (Wed)	Lesson #3: Cities
	8 (Thurs)	Review activities using cards from Lessons #1-3
Week 3	9 (Mon)	Lesson #4: Intelligence
	11 (Wed)	Lesson #5: Money and Banking
	12 (Thurs)	Review activities using cards from Lessons #4&5 Photocopy students' word-cards
Week 4	14 (Tues)	Review activities using cards from Lessons #1-5 (all)
	15 (Wed)	Final Tests: yes/no test & individualized vocabulary tests Interviews with students to collect feedback
	16 (Thurs)	Continue interviews with students to collect feedback
Week 8		Vocabulary Knowledge Delayed Post-test

Chapter 4: Results

We will begin by addressing the first research question, "What features do classroom learners typically include or leave out in the making of their vocabulary cards, and which do they find most useful?". In order to answer this question, both the participants and the teacher of the course were interviewed following the final testing at the end of the fourth week, and copies of every student's cards were made to allow for further examination. Students were asked to create a minimum of 10 cards per lesson (for a minimum total of 50 cards overall), however the true average turned out to be 45 cards per student overall. The total number of cards per student ranged from 30 at the lowest, to 64 at the most. During the interview process, the features and usefulness of said features were discussed.

As previously mentioned, students were instructed to include an English definition, an example sentence, and the part of speech on their word-cards in order to facilitate classroom activities and the sharing of word-cards between students. Students were also encouraged to include any other information they found helpful, such as a first language translation, pronunciation help, pictures, and so on. Table 4 illustrates the kinds of information that students chose to regularly include in their word-cards.

Table 4. *Word-card Content*

Content regularly included in students' word-cards	Percentage of students who included the information	Number of students who included the information
English definition	100%	11
Example sentence	73%	8
Part of speech	73%	8
Translation	36%	4
Synonym	36%	4
Special features (eg colour)	27%	3
Pronunciation	18%	2

Besides the requested information, four out of the 11 students (36%) elected to regularly include a first language translation. One student (Participant J) mentioned that he wished he had included a translation, because it would have been much more helpful for him. The majority of students however, believed that using a translation was not a good practice because it promoted reliance on the first language, a habit they wished to break and avoid. Participant D stated "I know it's not good to translate all the time […] and sometimes [internet] translations are not correct [or] there are multiple definitions". Similarly, Participant I said "I try to put everything in English, but sometimes I know if I put the translation I could remember it faster… but it's not the right thing to do I think". Although only four of the students regularly included a translation in their cards, in the classroom activities with the cards, I observed that the majority of students did turn to their first language from time to time for added clarification. It is not unexpected that students would be hesitant to include first language translations since the school these students were attending has strict language policies (students must speak only English or French when in the building), and many language programs subscribe to the idea that a second language is best learned when the first language is put on hold. Specific research

supporting L1 involvement in the L2 acquisition process was not discussed since we did not want to sway students to include or not include any particular feature.

Three students regularly added creative features; Participant D used colours to organize the information on cards, saying, "I put colours. I like when it looks nice. Then it's not boring and after when I read it I like what I read and I can remember it better. And I always write with a pen. It makes it feel more like it's yours… nicer this way".

Only two students included pronunciation information; however after interviewing the students and going over some of their word-cards with them, it was clear that many students could have benefitted from including some pronunciation reminders. As an example, one particular word with which students struggled was "geared" as in "this movie is geared towards children". Each of the three students who brought up the word during the interview, mispronounced it.

The second research question, "How do the learners perceive vocabulary learning through word-cards?" was also addressed throughout the interview process. One aspect of learners' perception was discussed when they were asked about their opinions on the time commitment required to create word-cards. For example, feedback was mixed among students when it came to whether or not there should be classroom time devoted to the creation of the word-cards, and if so, how much. Most students did not seem to mind allocating some class time towards the preparation of word-cards. Two students noted that they felt the amount of time spent during class to create the word-cards was excessive at times, while some others preferred to get all the work done in class. The teacher noted that some students were much quicker than others at creating the cards (L1

Romance-language speakers were quicker than, for example, L1 Arabic students), which could result in a bit of an imbalance. However, as the teacher pointed out, it is a normal classroom occurrence to have students working at a different pace. Given that not all students work at the same pace, it was suggested by a couple of students as well as the teacher that a set amount of class time be allocated towards the creation of word-cards, and the rest be assigned for homework. The teacher noted that as the session progressed, students became quicker and more efficient in their card making; they became more adept at using the dictionary and selecting relevant definitions, and developed their own systems and routines that resulted in quicker task completion.

Students were asked if creating word-cards was something they believed they would continue to do in their future studies. When asked, Participant J responded, "No. For me it's better if I have the word and I have the translation because I can learn more faster. I'm someone who can read something and make a picture in his head. If I have this I can learn a lot of vocabulary faster." This participant preferred, and was accustomed to, having a list of words and translations side by side, and found the word-cards overwhelming. Participant C enjoyed the cards but believed that on his own, he would likely continue to use lists as opposed to cards because they are quicker to create. Six of the participants stated that they would like to continue using this method on their own for their personal study purposes. Three other participants said that they would likely not be motivated enough to do it on their own, but would gladly do it again in a classroom environment.

The overall response when students were asked if they had found the cards useful

was "yes". Participant C enjoyed studying with the cards in the evening before bed as well as at breakfast. Participant A enjoyed using and sharing the cards with others, and added, "I like [it] when I am making the cards and when we are playing some activities together." Another aspect of usefulness was that the cards could be tailored to individuals and their needs; Participant G stated, "I like it because I can look through my own cards and [create my own personal dictionary]".

In summary, the general consensus among students was that the cards were useful and allowed them to study in new and creative ways both alone and with others. The primary perceived drawback for some of the students was the time commitment involved with making their cards (should they wish to include multiple pieces of information). However this would also apply to creating any sort of vocabulary list where students were required to look up all the words on their own.

We will now address the first half of the third research question (3a), which asked "Are there measurable learning effects as indicated by performance on vocabulary tests administered at the beginning and end of a four-week school session during which vocabulary cards were used?". To answer this question, we will first present the results of the two Yes/No Vocabulary Tests, followed by the distribution of the ratings on the first VKT.

The preliminary investigation into the effectiveness of the card study involved comparing the results from the 217-word Yes/No test across two time points: week one and week four. The first Yes/No test was completed to set a baseline for participant vocabulary knowledge and to aid in the selection of vocabulary for the VKT. The second

Yes/No test was performed after the word-card treatment to determine the new number of familiar and known words. Figure 5 illustrates the difference between weeks one and four in terms of number of known words. In all cases, the "known" category consisted of only "yes" words; the "no" and "not sure" categories were grouped together and considered as "unknown" words. The mean scores and standard deviations are presented in Table 5, as seen below.

Table 5. *Mean Scores and Standard Deviations for Yes/No Tests Across Time; Number of Words Rated 'Yes' (Maximum Possible Score = 217, N = 10)*

	Week 1	Week 4
Mean Score	133.1	174.6
Standard Deviation	32.3	33.2

Following a two-tailed dependent sample *t*-test, the difference between scores was determined to be statistically significant ($p < .0001$, $t = 6.06$ with total SD = 32.8).

The overall picture is a mean gain of just over 40 words. As the individual results in Figure 6 show, all 10 participants reported knowing more of the words in Week 4 than they had in Week 1. It should be noted that although some participants appear to have not experienced substantial change from week one to week four, the composition of their word knowledge has in fact changed. For example, Participant G only went from 104 to 106 known words over the four weeks. However, this participant went from 99 "no" and 14 "not sure" words in the first week, to 33 "no" and 78 "not sure" words in the fourth

week. Therefore, although the total "yes" score increased by only two words, the number

of actual "no" words decreased by 66, making their way into the more familiar "not sure"

category.

Figure 6. *Individual Scores for Yes/No Vocabulary Test Across Time (N = 10)*
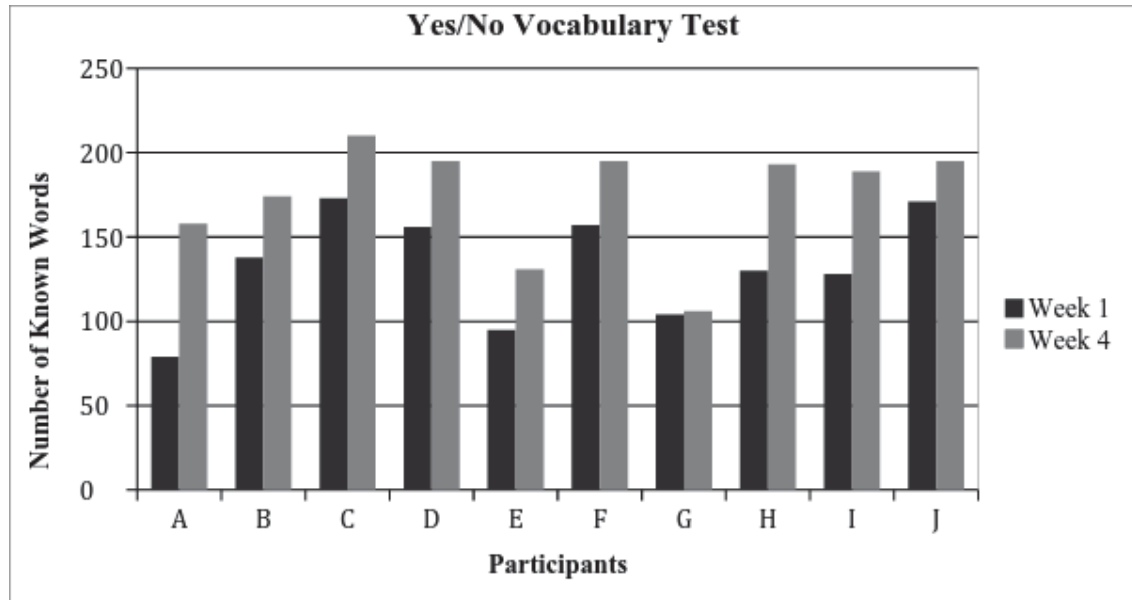
Next, we can look at the distribution of scores from the VKT performed at the end

of the four weeks. On this measure, the participants had the opportunity to demonstrate

their knowledge of words by providing definitions and using the words in a sentence.

The testing was individualized so that each participant was tested on seven words studied

using his or her own cards and seven words that had not been studied but were

encountered incidentally in the vocabulary classes. All 14 were words that the student

had rated No (not known) on the pre-test. As can be seen in the comparison in Table 6,

there were a greater number of top scores given to word-card words than to non word-

card words. There were no one-point answers (equivalent to never having seen the word)

given to any of the word-card words, and a far greater number of two-point answers (equivalent to the word being familiar but not knowing the meaning) occurred with non word-cards. If we focus our attention on the five-point score category (equivalent to correct definition plus correct sentence use), we can see that there is half the number of non word-card words compared to word-cards words. Since all words were previously unknown, it appears that these non word-card words were acquired through other study methods (to be expanded upon later).

Table 6. *Distribution of Student Scores in Week 4 VKT (Number of Words that Received Each Score): 70 Word-card Words and 70 Non Word-card Words derived from 10 students*

VKT Score	Word-card Words (total = 70)	Non Word-card Words (total = 70)
5	48	24
4	7	2
3	6	9
2	9	33
1	0	2

The following bar graph (Figure 7) illustrates the difference between the two categories for each participant following the completion of the VKT in week four. In all cases (participants A-J), we see a higher performance on word-card words than on non

word-card words. Mean performance on the word-card words (out of a possible score of 35, or 7 X 5) was 30.4 (SD = 3.41) while the mean for non word-card words was 22.3 (SD = 4.55). A dependent two-tailed *t*-test indicated that this difference was significant (when *p* < .05, *t* = 4.62, and SD = 4.02). Figure 6 shows the results for the individual participants; although all 10 participants performed better on the word-card words, individual differences varied.

Figure 7. *Individual Scores on Vocabulary Knowledge Test (Maximum Possible Score = 35)*
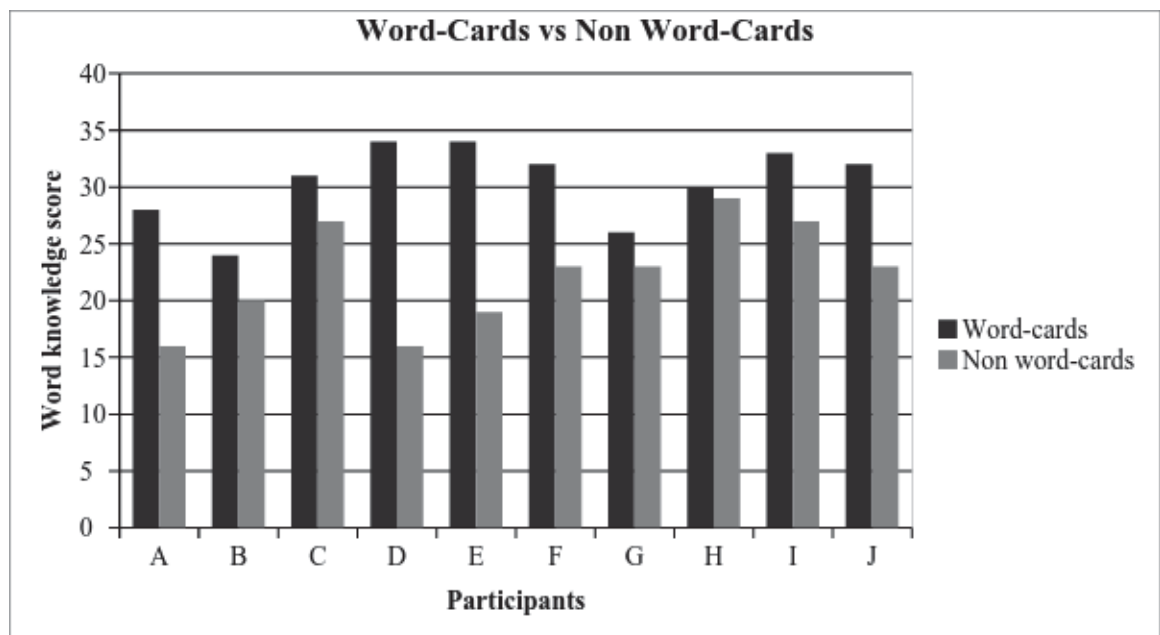
Four weeks after the initial VKT, five out of the original ten students were tested again on the same seven word-card words (but not the non word-card words) to see if the vocabulary was retained, this addressed the second half of the third research question (3b), "to what extent was knowledge acquired via word-cards retained?".

In Table 7, we see the distribution of scores (for word-card words only) for the VKT and delayed post-VKT (note that the table reflects only the work of the five students who completed the delayed post-test). It appears that results stayed fairly consistent between the time of the original VKT and the four-week delayed post-VKT, with a very similar number of 5-point and 2-point answers, and a small amount of variation in the other score categories.

Table 7. *Distribution of VKT and Delayed Post-VKT Scores for 35 Words (Word-card Words Only, n = 5)*

VKT Score	Post-test (total = 35)	Delayed Post-test (total = 35)
5	24	25
4	4	0
3	1	3
2	6	6
1	0	1

Out of the 24 words that received a 5-point score in the post-test, 20 of those words again received a 5-point score in the delayed post-test. There were four words for which knowledge decreased, and five different words for which knowledge increased. In total, throughout all five participants' tests, 24 of the 35 (69%) words maintained the same score (regardless of what that score was), 6 of 35 (17%) words increased in score, and the remaining 5 (14%) words experienced a decrease in score. When it comes to

individual results, Participants B and C experienced only gains in the delayed post-test, while Participant D experienced only losses. Participants A and E demonstrated one loss and one gain each. There are therefore no discernable patterns of gains or losses that can be observed over all participants, but rather an overall consistency. No single student experienced a dramatic increase or decrease in overall knowledge.

Figure 8 compares the individual scores of participants A-E on their initial VKT and the four-week post-test (out of a possible score of 35). As the figure shows, results are mixed. Some students (A, D and E) show the decline that might be expected after a lapse of time; however, Students B and C experienced an increase in score.

Figure 8. *Individual Scores for Vocabulary Knowledge Test and Delayed Post-Test*
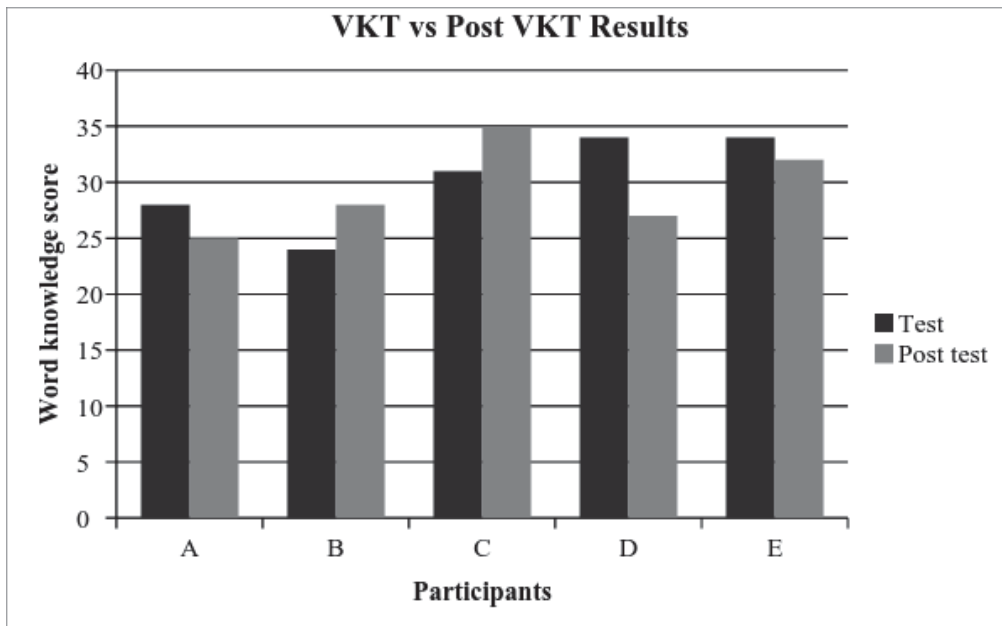
A final area we can examine using the data at hand, which may lend further insight into the results of the above three research questions, is that of how a student's pattern of behaviour affects their individual results. Regardless of the method of learning that is presented and practiced in the classroom, it is ultimately the student who is the master of his or her own success or failure (within reason). We now turn to look a little more closely at the individual results of four participants; A, D, G, and J. Table 8 summarizes the results of their efforts over the four weeks.

Table 8. *Summary of Individual Results for Four Participants*

Student	Number of cards made	Number (and %) of words 3k or higher	Difference in number of "yes" answers from pre-test to post-test	VKT score for word-card words only	Evidence of use beyond the class? Other treatment of cards?	Will use them again?
A	64	34 (53%)	+79	80%	Yes, used in a study group with other friends. Used colours to personalize cards. Likes the reusability aspect.	Yes.
D	54	28 (52%)	+39	97%	Yes, used cards to play games at home (Scrabble©), and made additional cards for non-classroom words. Enjoyed adding colours and personalizing cards. Found the process fun.	Yes.
G	30	12 (40%)	+2	74%	No, mostly only classroom use; did not study with others. Created a list with some other words. Enjoyed the end-result of having personalized cards.	Maybe.
J	45	22 (49%)	+24	91%	No, mostly only classroom use. Prefers to use a list instead of cards.	No.

From the four participant profiles in Table 8, we can see that Participant A, who created the most word-cards (64), experienced the greatest increase in "yes" answers from pre-test to post-test for the Yes/No test (increase of 79 "yes" words). Participant D created the second most number of word-cards (54) and experienced the second highest gains in "yes" answers (39). Participant J created the third number of word-cards (45) and experienced an increase of 24 "yes" answers, while Participant G created 30 word-cards and had an increase of only 2 "yes" answers on the post-test. Therefore, from these four participants there appears to be a correlation between the number of cards created, and the increase in (self-assessed) word recognition. If we look to the column in the table labeled "Number (and %) of words 3k or higher", we see a similar pattern for percentage of more "advanced" words being selected for learning by the participants. Participant A, with the highest number of word-cards, also had the highest percentage of words in the 3000-level and higher frequency bands, followed by Participant D, Participant J, and finally Participant G. Since students were not told which words belonged to which frequency bands, it is difficult to determine if this pattern represents something significant. It could be hypothesized that the level of difficulty of selected words represents a student's level of ambition; however, since words were not categorized in such a way, it is unclear.

The results for the Vocabulary Knowledge Test for word-card words only showed strong results for all four participants, with the lowest score belonging to Participant G. Participant J scored 91% on his word-card word knowledge, indicating that the words he

had chosen to study had been learned, and Participant D scored the highest with 97%. Participant A scored 80% which, although it is a solid score, puts the participant in third place in this group for this category. It is possible that because Participant A had so many cards to study from, the task was harder and the chances of receiving a perfect score were lowered despite an eagerness to learn. This brings us to our next point, illustrated in the final two columns of the table. When participants were asked during the interview to elaborate on their experience with the cards and their overall impressions, Participant A and Participant D were the most positive in their responses. Both participants took pride in their individual work and went out of their way to use the cards in other contexts and with other people. This indicates a high level of motivation and satisfaction with the word-card method, which is perhaps reflected in their knowledge gains. Participant G and Participant J, however, did not share the same level of enthusiasm for the process. Participant G felt neither strongly for nor against the method, and indicated that the cards had not been used much outside of the classroom. The relatively small number of cards created by Participant G could be considered evidence of low motivation. Participant J preferred other methods of learning, such as creating lists, and did not see much merit (at this stage of learning) in the method. The fairly small number of cards created could be indicative of this sentiment, although Participant J did perform very well on the VKT.

Overall, it appears that the number of cards each student created was indicative (to a point) of their overall attitude towards word-cards, and it is also indicative of their overall gain in word knowledge (when considering both the Yes/No test and the VKT). The profiles of these four participants shows that word-cards can lead to successful

learning despite a lack of enthusiasm (such as with participant J), but especially when students maximize their experience by fully involving themselves in the process (as with Participants A and D).

Chapter 5: Discussion

Summary of Findings

In summary, the results show that the overall response to word-card study was positive and that learners achieved substantial word knowledge gains. The mean score on the VKS measure for words studied using cards was twice as high as the mean for words that were encountered in the vocabulary classes but not studied with cards. Over time, there was the expected decline of knowledge in some but not in all of the cases. We now turn our attention to a more in-depth look at the results of this study as well as interview findings, providing a broader scope of analysis.

Discussion

The first research question asked "What features do classroom learners typically include or leave out in the making of their vocabulary cards, and which do they find most useful?". As mentioned, students were requested to include the English definition, an example sentence using the word, and the part of speech. The majority of students complied with this request and all students included an English definition for each card. It was revealed that although some students did include first language translations for a select number of their words, the majority was opposed to the idea of relying too closely on translation, stating that they believed it was more efficient and beneficial to work through English. This seemed somewhat surprising since most students said the initial English lessons they received in their native countries were taught through their respective first languages. Therefore most students would be accustomed to using

translation as a main means of studying. In fact, Hummel's 2010 study showed that copying and translation in the L2 showed positive learning gains (retention). However students may also recognize that they have been presented with an opportunity to learn, speak, and practice English in an English environment, and therefore wish to get past their first-language dependence. Furthermore, it became apparent that although few students chose to include pronunciation information, many would have benefitted from such notes. In Nation's chapter on using word-cards (2013), he does not explicitly speak of pronunciation practice and how pronunciation information may be included on a word-card. However, studies have shown evidence of the benefits of phonological repetition in achieving long-term retention (Ellis, 1997), as well as the need for spoken repetition to achieve productive knowledge and use (Seibert, 1927).

Some students were more creative than others in their card-making, and took pleasure in the process of creating, organizing, and planning out their cards. Other students simply went along with the process and did the minimum amount of work required. Given the opportunity to decide for themselves which features they would like to include on their cards, it appears that many students limited their information to the English definition or synonym, with an example sentence and occasional translation where helpful.

The second research question, which asked, "How do the learners perceive vocabulary learning through word-cards?" was explored throughout the interview process. It was determined that overall, students found the word-cards helpful, and recognized the benefits of using this method. The amount of work required in creating the

cards was a deterrent for some students, who admitted that although it was an enjoyable class activity, they would likely not repeat the method on their own.

As is usually the case in any given class, some students improved more than others throughout the four weeks. Much of this can depend on a student's level of motivation, and the effort that is put into studying outside the classroom. In fact, Dörnyei (1994) states "motivation is one of the main determinants of second/foreign language (L2) learning achievement" (p. 273). In his 1994 paper, Dörnyei discusses multiple strategies for encouraging and increasing motivation among classroom learners. However, there may be other factors such as L1 background, previous learning experience, and natural aptitude towards language learning. The teacher of the class, Christie, noted that students from Romance language backgrounds (particularly the French-L1 students) worked more quickly and performed better during the class activities than non-Romance language speakers. This observation is likely related to the learning burden that students experience due to their L1. As Nation (2013) explains, the degree of the learning burden will depend on the amount of similarity or difference there is between the L1 and L2. Mainly, the learning burden is greatly affected by the orthographies of the languages in question; an L2 that shares a similar orthography to the L1 of the learner will have a lower learning burden than an L2 that employs a different alphabetic (or character) system. Other factors such as the presence of cognates, pronunciation similarities, grammatical patterns, and similarities of meaning may all help to lessen the learning burden as well.

In answer to question 3b, "Are there measurable learning effects as indicated by performance on vocabulary tests administered at the beginning and end of a four-week school session during which vocabulary cards were used?", it was found that yes, there were positive gains in vocabulary knowledge. These gains are convincing, as they were measured in two ways. Firstly, the results of the "Yes/No" test indicated an overall increase of a little over 30% in word recognition at the end of the four weeks. Secondly, results from the VKT (which was an individualized measure) indicated a significant advantage for words that were learned from word-cards (an approximate average score of 87% accuracy) when compared to those that were not (an approximate average of 64% accuracy, yielding a 23-percentage-point gap between the two).

As indicated in the results, some of the previously unknown words, which occurred in the lessons but for which word-cards had *not* been created, were learned by the end of the course. This means that these words were acquired from other methods. One such way that these words could have been acquired is through other learners' cards during classroom activities. During the interview process, when students were asked the question, "Did you learn new words from other people's word-cards during classroom activities?", all but one participant responded "yes" (Participant B said she had not, and gave the reason that she had more cards than the other students, and therefore stuck to concentrating on her own). Although a potential limitation for this study (discussed later), the opportunity for students to easily share and learn new vocabulary is certainly a positive side effect of the method. Some students were able to give examples off the top of their heads (for example, Participant A recalled "spare" as "an extra thing", and

Participant E learned that "drag" could also mean "a main road") while other students could not immediately recall specific examples. However, several students said that on their final vocabulary knowledge test, they recognized words they had seen from other students' word-cards, and this helped them in several instances to appropriately define words. A few students remarked that they found it not only useful to see their partner's cards, but that it was also a beneficial exercise to explain their own cards to their partner because it reinforced their knowledge. This is consistent with Nation's (2013) notion of what he refers to as "creative use" or "creative processing", whereby students are able to use previously encountered words in new contexts and tasks. Participant A stated that "It's very useful when you describe the words and give examples for other people." Overall, the students enjoyed the activities involving the word-cards as they found them a "fun" way to learn and review vocabulary.

Additional Interview Findings

In addition to addressing the particular research questions of this study, the student and teacher interviews provided other interesting information worth documenting. One such area that was explored was determining the role of the teacher in the process of creating word-cards. To begin, several students mentioned that one of the reasons they preferred to create their word-cards in class was that they had quick access to the teacher who could clarify meaning and provide context-appropriate information. Since students worked with a large volume of words throughout the session (approximately 40 potentially new words per vocabulary lesson prepared for this study), having the teacher

present proved to be a valuable asset in the word-card creation process when it came to more difficult words. Participant G mentioned that "[…] it's better when the teacher explains it to you and then I put it in my own words", going on to explain that hearing a definition stated in the teacher's own words often helped clarify any confusion surrounding the new and difficult vocabulary as presented in the dictionary. The teacher also stated that she felt the students appreciated her presence and practical help throughout the process, since students had many words to deal with. The teacher also reminded students, however, that many of the learning benefits of word-cards stem from the act of creating them and performing dictionary work. The benefits of dictionary work can be linked to the Involvement Load Hypothesis, in which Laufer and Hulstijn (2001) identified the concepts of *need, search,* and *evaluation.* With a dictionary, students were able to search for the vocabulary they felt they needed to learn, search for the definitions, and then evaluate the entries to determine which one was most suitable to their context. It is at this point of *evaluation* that the teacher proved to be most useful in helping students distinguish between meanings and uses. The teacher was also able to provide valuable pronunciation information with difficult words, although as previously shown, not many students chose to include the information on their actual cards. Furthermore, although the teacher did not check every word-card students created, she was able to circulate around the classroom and see many of the cards and offer corrections or additional information when necessary.

Some participants were able to share other ways in which they used the vocabulary cards. Two students said they kept the cards with them while watching

movies because they began to recognize more of the vocabulary they were hearing, and would consult the cards whenever they thought they heard a familiar word from class. Participant B said, "Almost every Sunday [we] watch two or three movies, and I listen and recognize the words, and I look in my cards and I find it. And after [my roommate] asks me 'do you know this word?'". Similarly, Participant C noted "[…] now when I am watching TV or reading, there are a lot of words that I can recognize immediately, and now I can understand what some texts are saying because I understand the definitions". These outcomes align with Elgort's (2011) research that demonstrated the acquisition of functional aspects of word knowledge, meaning the ability to access vocabulary fluently, as a result of deliberate learning such as by using word-cards. Three other students said they had made additional cards for words encountered in other classes, as well as for words they had heard on TV, in movies, or through reading. Participant B expressed her delight in learning unusual vocabulary in other classes, saying, "I learned 'cockroach'! I love that word. I saw it in my other class and I love that word so I wrote it down on a card".

It seems that the vocabulary learning and use was further extended outside the classroom and into the everyday lives of several participants. Participant D revealed that she had taken to using her cards when playing Scrabble© with her host family; "Instead of using a dictionary (which has a lot of words) and taking too much time, I can look at my cards and see what words I can make". Participant C described how he uses the cards while participating in online gaming communities; "And on the internet I'm doing a lot of role play with some friends in English and so when I can I try to use the vocab[ulary]

cards I've made so I can continue to practice. My vocab[ulary] is upgraded, it's stronger". A few students said they had shared their cards with other friends of theirs from school as well as family members, and had studied together with them using the cards.

It is encouraging to see students taking initiative and making the most of a tool they were given in class. In this way, we can see how when students are motivated to learn and feel as though they have something to share, they can go beyond what is done in the classroom and continue to accomplish and learn on their own and with others.

Chapter 6: Implications and Conclusion

Pedagogical Implications

In this section, we will discuss some of the possible pedagogical implications of using word cards in second language instruction. These include a practical list of suggested "dos and don'ts", discussion of the use of paper versus computer word-cards, review activities, common misconceptions, the importance of pronunciation, and balancing the use of word-cards with other vocabulary learning methods in the classroom.

From the research that has been done and the practical experience that has been gained in implementing it, we have been able to assemble a list of suggested "dos and don'ts" that teachers may consider when beginning their own adventures with word-cards. On the whole, we agree with the recommendations set out by Nation (2013) as outlined in Table 1 earlier. The retrieval aspect of word-cards, achieved through writing the word on one side and the definition on the other, proved particularly useful for classroom activities while being very useful for student study purposes, as well. Nation's recommendations for card content such as English definitions and L1 translations were successfully implemented (with perhaps the exception of including a picture, which is time consuming and often unnecessary). The study techniques were also suggested to the students and were used during classroom activities. Students reported on their enjoyment of these classroom activities as well as the techniques they chose while studying alone. Classroom activities incorporated such study techniques as retrieval, spaced repetitions, gradually increasing the number of words being studied at once, emphasizing more

difficult words as time progressed, oral practice, constant changing of word order in the pack, and using the new vocabulary in sentences. While teachers may find that certain suggestions do not work with their particular course arrangements and environment, the consistent and positive learning gains reported in this study indicate that working with word-cards is an effective and worthwhile vocabulary acquisition method.

Do.

- Do check over students' cards for mistakes and errors in use and/or allow time for peer review. Since students select their own vocabulary and are tasked with creating their own word-cards, there is no simple answer key that can be given to help students review their work. Some thoughtful peer review can help address many issues since students will have overlapping vocabulary selections and different knowledge bases. While students are engaged in peer review, the teacher may monitor the class and read over what students have done. It is extremely important that the cards have accurate information on them, or the words will be incorrectly acquired and shared with other students.

- Do have students practice with the cards in class by arranging games and activities. As indicated in Table 1 (Nation, 2013), multiple retrievals are essential for achieving complete acquisition. Furthermore, both receptive and productive learning may be incorporated into the games and activities, since Nation (2013) suggests students begin with receptive learning before moving into more complex productive tasks.

- Do allow for a good portion of class time to be allocated to the creation of word-

cards, particularly at the beginning to ensure that students are completing the cards properly. Students must learn to be discerning when looking up a word with multiple definitions and/or several possible parts of speech. Having the teacher present for this process is useful for students who need to ask for clarification, or who need more guidance with their definition selection. As time passes and students become quicker at looking up words and selecting content for their cards, they may not need as much class time to complete their word-cards. However, since the time spent creating the cards is as much a part of the acquisition process as the subsequent time spent studying with them, students should not be rushed to complete them. Students can of course continue to work on them and add information on their own time, but several students indicated that they would likely not have done as much work on their cards if it had been tasked as homework. For example, Participant D remarked "Sometimes I think searching in the dictionary is boring and we can say 'oh I will do it later'… but you will never do it later. It's better to do in class. You can do this [on your own] in your room but probably not. […] I'm sure it's better in class."

- Do monitor to help students with pronunciation of new vocabulary. During the final interviews, we found that some students still struggled with pronunciation of certain words. Students were encouraged to use online dictionaries with audio options to help with pronunciation, but some drilling of select words would have been useful. Even if they know the meaning and function of a word, a student may feel hesitant to use it if they are unsure about the pronunciation.

- Do provide students with a way to keep their cards organized. This is useful for practical purposes, to ensure that students do not lose their cards or become overwhelmed with a disorganized pile of cards. We chose to give students an envelope in which to keep all their cards, and coloured stickers to label cards according to the lesson from which they were chosen. In this way, students could keep track of old and new cards, and remember the context in which they were learned. Since the cards were used for multiple activities that involved separating, shuffling, and sharing, we opted not to bind cards together. However, there are many organizational methods that can be used, and a ring that can be easily opened and closed could be useful as well to keep the cards attached together.

- Do ask students to provide definitions in English (or whatever language you are teaching) so students can perform activities together. Research supports the usefulness of L1 information on cards for individual study (see also Table 1), but simply worded L2 definitions are needed for group activities.

Don't.

- Don't set too many limitations or guidelines for students about what to include or not include in their word-cards. At the beginning, students should be informed of all the possible kinds of information they can include, and they should be guided through the process. However once students have had the opportunity to work with and practice using their cards with different information, they will likely determine what information helps them most and what formatting is most user-friendly for them. For the purposes of this study, students were requested to

include certain information, but future classroom use would allow for more student independence.

- Don't set too many limits with reference to number of cards created per lesson. In this study, students had no issues with creating 10-15 cards per lesson, but all students work at different paces and some students may easily handle more.
- Don't view word-cards as a complete substitute for other methods of learning. In the interest of diversifying learning tools in the classroom, it may be good to use a variety of vocabulary teaching methods. However, we believe that learning with word-cards is an often-neglected method, and teachers would benefit greatly by employing this method more actively within their classroom, and encouraging students to continue on in their own studies.

Moving on from our list of "dos and don'ts", we now turn to the materials used to create word-cards. Although this research made use of physical paper cards, creating word-cards on a computer is also an option. There are numerous programs available online, many of which are free, that can be used to create and organize word-cards. If a teacher elected to have students use pre-existing programs, it would be wise for the teacher to organize it in such a way that he or she maintains easy access to the students' cards. This way, the quality of the card information could be effectively monitored. It is difficult to keep track and review each student's cards when they are in hard copy, and so an organized online system would be extremely useful. One of the advantages of using paper word-cards is that students are able to interact and easily share their cards, be it

during classroom activities or studying outside of class. In this same respect, a computer program that allowed students to view *each other's* word-cards would be an added bonus, since students in this study claimed to have learned new words through their peers.

One such program is the GroupLex feature offered on the Lextutor website (created by linguist Tom Cobb). With the GroupLex program, teachers can create a space where students contribute to a word database, which can then be seen by all students in the class and studied. Teachers can monitor student contributions and edit their work, as well as create quizzes from their online entries. Creating a GroupLex with students allows for student collaboration and makes new vocabulary easily accessible. Students can also test themselves using the checklist feature of the program, which generates quizzes based on selected material. Information that can be entered into the system includes a definition, part of speech, and an example sentence. There is also a pronunciation feature, which allows students to click and listen to a computerized voice pronounce a given word. More information on the integration of a GroupLex into a classroom can be read in research conducted by Horst, Cobb, and Nicolae (2005).

In general, the word-card review activities that were performed in class were well received by the students. It is always good to be able to provide students with a variety of activities, and for students to be able to work individually, in pairs, in groups, or with the entire class on a rotational basis. With word-cards, students have the opportunity to perform tasks in all these different scenarios.

It is possible that some teachers may have a misconception about word-cards, believing that because the students are (perhaps) selecting their own vocabulary and

creating their own study tools, there is little work involved on the part of the instructor. This, however, would be a mistake. As explained above, the teacher plays an important role in checking and providing support for students during the process, as well as monitoring during activities to provide helpful and necessary feedback. The personal investment that students develop in their word-cards through the selection and creation process is an important part of the word-card method, in that it involves higher levels of commitment and concentration on the part of the student, and more productive involvement. Therefore teachers should not turn to word-cards believing it will save time in preparing lessons, but rather because they realize the learning potential offered by this method.

As previously mentioned, pronunciation is an area that should be covered in class as well. Although most students in this study opted not to include pronunciation information, it should not be forgotten. Through monitoring and individual attention, teachers should encourage students to include pronunciation information on their cards, and even perform quick pronunciation drills in class of frequently occurring words. Teachers may choose to teach students the International Phonetic Alphabet, or if this is too large an undertaking for the class, may simply encourage students to write words out in a way that illustrates the pronunciation for them. Although not addressed in this study, it seems plausible that although students may recognize and understand the meaning and use of a word, they would hesitate to ever use it were the pronunciation unknown or confusing.

Finally, we suggest that should a teacher decide to use word-cards in the

classroom, it is important to remember to incorporate other means of vocabulary learning throughout the course as well. Word-cards should not be viewed as an alternative to using other teaching and studying methods, but rather as one method that may be employed among others. It is always best to provide students with variety in learning approaches.

Limitations

There were several limitations associated with this study. In this section, we will focus on limitations related to level of participation among students, number of participants, learning context, and participant-teacher/interviewer relationship.

One of the major limitations was the range in levels of participation among students. Although the majority of students participated well and completed all their word-cards and tests, there were some who did not complete all their work due to absences in class or general lack of motivation. Some students' absences during the course also resulted in a missed lesson or activity. This meant that the findings do not represent the full learning potential of study with word-cards for all participants. However, since students were measured on improvement in their own work, we were still able to measure differences based upon, for example, four out of five lessons if only four were attended. Furthermore, one may say that there is a certain ecological validity represented by the more "real" scenario created by variability in attendance and motivation. At the end of the day, even students who did not participate fully were still able to learn new vocabulary and benefit from their exposure to the word-card process.

Secondly, the number of participants was small. Due to fairly small classroom

size limits (a maximum of 16 students at a time is permitted in each course) and the above-mentioned constraints, the sample size of students was quite conservative (11 students completed interviews, and 10 students completed all testing). Unfortunately, data from some students who were initially part of the study were unable to be used due to early departure dates or late arrivals to the course. In addition to a small number of participants, the sample size of words tested was also quite small (only seven word-card and seven non word-card words were included in the VKS testing), due mostly to time constraints. Furthermore, only five students were post-tested since many students had already left the school. The small number of participants and the small data set means that there is considerable scope for under or overestimation of learning that occurred.

Another possible limitation is related to the learning context. Since participants were engaged in activities that gave them exposure to word-cards created by classmates, they likely learned words via word-cards that were not included in their own set (as was reported in the interview data). While this is a positive learning outcome overall, it was problematic for the research as it may be difficult to link an individual's word learning to the words on his or her particular set of cards.

Furthermore, although students were assured that their interviews would not affect their status in the class, their relationship with their teacher, or even their relationship with the researcher, may have led them to provide answers they thought would be pleasing to the interviewer. However, this is unlikely as their teacher did not see any of the interview data until long after the session had been finished and she had already provided students with their grades and feedback. Morever, during the interview

process, students were encouraged by the interviewer to be critical and voice their honest opinions.

Research Implications

The next section will explore some possible follow-up comparison studies, and future directions that could be taken in related research.

To begin, a potential area of pursuit could be in establishing the benefits related to the process involved in creating word-cards. For example, it would be interesting to see if a difference exists between having students create their own word-cards, and providing students with ready-made word-cards. One could argue (as we have) that an important benefit of creating word-cards is the process itself! According to Nation's four strands (Nation & Macalister, 2010), it is important to maintain a balance of meaning-focused input, language-focused learning, meaning-focused output, and fluency activities in a course. Taking the time to write down a word, look it up in a dictionary and select a definition, copy out the definition, and arrange one's own cards have positive learning effects and fulfill different aspects of Nation's four strands. Researchers might compare learning through student-made cards to learning using teacher-provided pre-prepared word-cards. With pre-made cards the risk of student error drops to nil, and students are still able to study and use the cards creatively. Further research into what exactly it is that makes a word-card useful could certainly be conducted.

Another area that could be studied would be the difference between students who used word-cards on their own, and those who used them as part of a class, interactively.

Related to the query described above, a study such as this would help determine the most useful ways to study with cards. Pyc and Rawson (2007) have already described the drop-out method of studying which allows for students to study the most difficult words more frequently than those they learn more easily, and there exists several studies that deal with time- and repetition-related study methods. However, it would be interesting to see the effects of a group or classroom dynamic compared to individual study.

Earlier, we mentioned Christie's observation that Romance L1 students appeared to have an easier time with the word-card activity and complete their cards more quickly. Language background as well as school culture can therefore also be researched. By school culture, we refer to the experiences students have had back home and the teaching methods that have been used; some cultures rely more heavily on memorization in school, while others may take a more "communicative" approach. Students could be interviewed and surveyed prior to a word-card study to determine their school culture experiences, and then proceed to note any influence their experiences have on their success or their ability to adapt to the proposed activities.

Conclusion

There have not been many studies that have detailed the process of having students create and use word-cards in the classroom. This study addresses the shortfall by shedding some light on the process. New and different methods of teaching and learning are often advocated, but we are not always given guidelines or ideas of what to expect when tackling them in real classrooms. Not only has this study addressed measurable

learning effects, but it has also dealt with students' responses and personal experiences. It is important to constantly remain aware of students' attitudes towards and impressions of the applied teaching and learning methods that we employ. Without student approval (and enthusiasm), it would be difficult for any method to yield positive results. Furthermore, this study has provided practical information for teachers wishing to attempt the word-card method in their own classrooms, supplying concrete examples and recommendations from real world classroom experience.

Given the positive results of this study, teachers should feel confident about word-cards as another tool they can rely upon and include in their curriculum and classroom planning.

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APPENDIX A
Information and Consent Form

CONSENT TO PARTICIPATE IN RESEARCH

Study Title: Word-cards in Action: A Classroom-based Study
Researcher: Abigail Humphrey
Researcher's Email: abigailrose.humphrey@gmail.com
Faculty Co-supervisors:
Dr. Marlise Horst
Dr. Joanna White
Faculty Supervisors' Emails:
marlise@education.concordia.ca
jwhite@education.concordia.ca

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE
I have been informed that the purpose of this study is to investigate our vocabulary learning techniques.

B. PROCEDURES
I understand that I will:
 ● Be given some instructions and tips on how to use vocabulary cards, which will take approximately 1 hour over the course of the full session;
 ● Create vocabulary cards for new vocabulary encountered in ±5 lessons;
 ● Use vocabulary cards for study and review purposes;
 ● Be asked to give my opinions on the use of vocabulary cards during a 10-minute interview at the end of the 4-week session.
In total, this study will last 4 weeks.

C. RISKS AND BENEFITS
 ● I understand that participating in this study has no risks greater than those encountered in daily life.
 ● I understand that I may feel uncomfortable being interviewed about my personal opinions on the study methods.
 ● I understand that the benefit of participating in this study is that the students' experiences will help the researcher evaluate the effectiveness of materials for helping students develop their vocabulary.

D. CONDITIONS OF PARTICIPATION

I understand the conditions of participation are as follows:

- I understand that my participation in this study is CONFIDENTIAL (i.e., the researcher will know my name but will not disclose it in the study results).
- I understand that the researcher will not tell me which students have decided to participate, declined to participate, or withdraw at a later date.
- I understand that the researcher will write down the things I say in the interview.
- I understand that the data collected for this research may be presented to colleagues and published.
- I understand that the data collected may be kept until the research has been published (but no personal information will be kept).
- I understand that I can withdraw my consent and discontinue my participation at any time up until the end of the session, with no negative effects on my final grade in this course. After that, the data will be coded and any link between my name and code will be destroyed, so the researcher will no longer know which interview notes, vocabulary cards, and test results came from me.
- I understand that if I decline to participate or withdraw at a later data, it will have no effect on my relationship with my teacher or the primary researcher.

E. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print)   _____

SIGNATURE   _____

DATE   _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Her contact information is on page 1. You may also contact her faculty supervisors.
If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

APPENDIX B
Sample lesson plan

Lesson Theme: Food in Montreal **(90 mins)**

Warmer: Students talk about their favourite places to eat in Montreal. **(~5 mins)**

Reading: Students read a short piece about a food tour in Montreal that covers some of the most well known attractions (see below). They are encouraged to read through with as little dictionary intervention as possible, just to get a basic sense of the article. Students may ask the teacher for help if they have comprehension issues. **(10-15 mins)**

Comprehension Check: Following the reading, the teacher and students briefly discuss what was read. For example, the teacher may ask if any of the students have been to one of the mentioned locations yet, and if so, what did they think? **(~5 mins)**

Vocabulary Focus: Students go back over the text and choose 10-15 words that are unfamiliar. Next, students create vocabulary cards for these words (according to techniques discussed on the first day). If students finish quickly, they may study their cards or quietly work with a partner to quiz each other. **(25-30 mins)**

Discussion Expansion: Students think about the best places to eat in their home cities and take turns describing them in groups. Students can use their cellphones and other devices to search for pictures and maps. **(~15 mins)**

Word Sneak: Students play a game of Word Sneak using a few (±5) of their cards. In Word Sneak, a small group of 3 or 4 students sit together and go around in a circle, taking turns to tell one continuous story or have one continuous conversation. Students must incorporate one of the words on their cards into each of their turns. The teacher monitors to help students use the words correctly. **(~20 mins or remainder of time)**

May 18, 2013

Exploring the Different Flavors of Montreal on a Food Tour

Montreal is the cultural capital of French Canada and the city has a culinary scene that's quite a bit different from other Canadian cities like Toronto. But more than just the juxtaposition of cultural influences from French and English Canadians, there have also been a number of immigration waves to the city that have altered Montreal's food landscape.

One interesting way visitors to Montreal can explore the different flavors of the city is with a walking tour from Fitz & Follwell Co. Their "**Flavours of the Main"**
Montreal food tour takes a small group of visitors on a five-hour walking tour of Saint-Laurent Boulevard, Montreal's main drag, and stops at a number of restaurants and cafes along the way where special tastings have been arranged.

At Fitz and Follwell Co, which also does cycling tours of Montreal, with its founder Shea.

Saint-Laurent is a fascinating street and is a sort of microcosm of Montreal history and culture. It stretches across the island of Montreal from its base at the Saint Lawrence River in the Old Port of Montreal and along the way passes through several immigrant communities like the city's Chinatown and Little Italy. Throughout the tour the friendly and knowledgeable guide provides insights and fun facts about the city's history and food.

The tour starts at 11 a.m. with an exploration of Chinatown. Though not as big as other Canadian Chinatowns like those in Vancouver or Toronto, there are nevertheless several cool places to visit.

After some Chinese sweets and teas, the journey continues onward to the Plateau section of Saint-Laurent. It should come as no surprise that **Schwartz's Deli** and its world-famous smoked-meat sandwiches are featured on this part of the tour. Founded by a Jewish immigrant from Romania, this deli has been going strong for almost 100 years now and the lines regularly stretch down the block. The tour, however, conveniently avoids the queues.

And what exactly is it about these smoked-meat sandwiches that have people so enthralled? Well, the deli cures its own meat for ten days before smoking it in their smokehouse. The sandwiches themselves are stacked with an almost impossible amount of smoked meat and served with mustard on rye bread.

Inside the famous and always-packed Schwartz's Deli on Saint-Laurent Boulevard.

Moving on to the Mile End neighborhood, the tour checks out a well-known diner and visits the city's two most famous bagel shops – Fairmount and St-Viateur. The question of which one makes the more delicious bagel has bitterly divided Montreal for the last 60 years and is truly a matter of personal taste, as both shops are rather incredible.

St-Viateur bagels is pretty much a 24-hour bagel factory! Photo credit Julia Manzerova.

The tour comes to an end nearby in Montreal's Little Italy, where the group stops for espressos and enjoys a visit to the **Jean-Talon Market**. Montreal's farmer's market, Jean-Talon is open year round, but is most active during the summer when local farmers bring their organic superfoods to sell in the city. Besides its numerous produce stalls, there are also cooked food shops, bakeries and Quebec food stalls that sell things like maple syrup, cheese and ice wine.

All in all, the tour is a great way to sample a small taste of what makes Montreal's food scene so great. Short-term visitors to the city will definitely come away with a great deal of information on the city's history and culture, while repeat visitors to Montreal will have a host of restaurant ideas for their next trip.

APPENDIX C
All lesson plans

Concordia University
Department of Education
Faculty of Arts and Science

Date/Time: Lesson #1, 90 mins

Title of the lesson: "Food in Montreal"

Goal of the lesson: *By the end of the lesson the students will be able to* discuss the topic of food and restaurants using new vocabulary acquired from the reading. Students will also have created word cards that can be kept and re-used.

PREPARING TO LEARN

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Student discussion* • *Groups of 3-4* • *5-7 mins*	1. Teacher writes the question "Where is your favourite place to eat in Montreal? Discuss with your group and give each other recommendations." 2. Students discuss while teacher monitors the groups. 3. Teacher takes a couple minutes at the end to get open class feedback.	NA

CARRYING OUT LEARNING

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Reading & feedback* • *Individual work & classroom feedback* • *15 mins for reading* • *3-5 mins feedback*	1. Students receive the handout "Exploring the different flavours of Montreal on a food tour". 2. Students read the handout with as little dictionary intervention as possible, highlighting or underlining unfamiliar words as they go. 3. Teacher monitors and remains available to help students clarify meaning. 4. Teacher performs comprehension check; brief classroom discussion on content of reading	• Copies of handout "Exploring the different flavours of Montreal on a food tour" • Dictionaries on each table
• *Creating word cards* • *Individual work* • *25-30 mins*	1. Teacher reminds students of the principles behind making the word cards (must include English definition, part of speech, and example sentence) and references the inspiration poster taped up in the classroom. 2. Students select 12-15 words from the text to create word cards for. 3. Teacher monitors, inspects word cards, and helps students as needed.	• Blank cards • Yellow dot stickers • Dictionaries on each table • Inspiration poster visible

INTEGRATING WHAT WAS LEARNED

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• Word Sneak game • Groups of 3 or 4 • 20-25 mins	1. Students play a game of Word Sneak* 2. Teacher monitors and goes from group to group to sit in on their games. The teacher also corrects and records any errors she hears. 3. Students can call on the teacher to act at the referee when needed.	• Previously created word cards
• Error correction • whole class • 10-15 mins (or remaining time)	1. The teacher writes down errors she heard on the board. 2. Students take a few minutes to work with each other to figure out what the correct form/grammar/use should be. 3. The teacher goes over the answers with the class.	• Teacher notes from observation

*Instructions for Word Sneak: Students work in groups of 3 or 4 and use any ten of their word cards. Holding their cards fanned out in front of them so each student can see their own words, students go around in a circle and take turns telling bits of a made-up story. The aim of the game is for students to incorporate one of their words into the story each time it comes around to their turn. As a student uses one of their words, he or she places the selected card on the table word-up so the other students can make sure the word has been used correctly. The game continues until each student has used all his or her cards. After 10-15 minutes, students can form new groups with other students and repeat.

Concordia University
Department of Education
Faculty of Arts and Science

Date/Time: Lesson #2, 90 mins

Title of the lesson: "Personality"

Goal of the lesson: *By the end of the lesson the students will be able to* discuss and describe personalities using vocabulary from the worksheet. Students will also have created word cards that can be kept and re-used.

PREPARING TO LEARN

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Student discussion* • *Groups of 2* • *5-7 mins*	1. The teacher will write the discussion question on the board "Choose a family member or close friend, and describe this person's character/personality to your partner". 2. Students discuss while teacher monitors the groups. 3. Teacher takes a couple minutes at the end to get open class feedback and asks "Was it difficult to describe this person? Why or why not?"	NA

CARRYING OUT LEARNING

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Worksheet* • *Individual & with partner* • *25 mins + 5-10 mins for feedback*	1. The teacher will give out the worksheet and instruct students to work over it one section at a time, using a dictionary (paper or electronic). As students complete each section, they will peer check with their partner and others at their table. 2. The teacher will monitor and answer questions that are not easily clarified with a dictionary. 3. The teacher will write the answers on the board and students can check their own answers. The teacher can then clarify any points at students' request.	• Copies of worksheet "Personal qualities" • Dictionaries on each table
• *Creating word cards* • *Individual work* • *20-25 mins*	1. Students select 12-15 new words from the worksheet to create word cards for. 2. Teacher monitors, inspects word cards, and helps students as needed.	• Blank cards • Blue dot stickers • Dictionaries on each table • Inspiration poster visible

INTEGRATING WHAT WAS LEARNED

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Describing characters* • *Groups of 3 or 4* • *20-25 mins*	1. Students are shown 3 shorts from the Pixar DVD: "Geri's Game", "For the Birds", and "Lifted". After watching each short, students discuss the characters involved and describe them using their worksheet and word cards. 2. Teacher allows 3-5 minutes for discussion after each short, and then gets class feedback and writes the suggested answers on the board.	• Pixar animated shorts DVD • Student word cards and worksheet
• *Describing a person &* *feedback* • *Groups of 2* • *remainder of time*	1. Teacher asks students to get together with a partner other than the person they worked with during the warm up. 2. Teacher asks students to describe the same person they described during the warm-up, but to now incorporate new words from the lesson. 3. Open-class feedback: Teacher asks students if their description changed and in what ways? Were the new words helpful? Did they allow other facets of the person's character/personality to be described?	• Student word cards and worksheet

Concordia University
Department of Education
Faculty of Arts and Science

Date/Time: Lesson #3

Title of the lesson: "Cities"

Goal of the lesson: *By the end of the lesson the students will be able to discuss the topic of cities using new vocabulary acquired from the reading. Students will also have created word cards that can be kept and re-used.*

PREPARING TO LEARN

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Student discussion* • *Groups of 3-4* • *15-20 mins*	1. Teacher hands out plasticized pictures of cities from around the world to each group (~ 20 different cards for each group) 2. Groups are instructed to go through the pictures together and try and guess which city each one, or at least which area of the world the city is located in. Students are encouraged to discuss and describe the pictures to justify their guesses. Then students flip the cards over to verify their answer. 3. If time permits, groups can swap cards and try the activity again. 4. Brief feedback asking students questions such as "Were some of the cities surprising? Was the task easy or difficult? Which was your favourite photo?" etc	• Plasticized cards of cities with city name written on back.

CARRYING OUT LEARNING

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Reading & feedback* • *Individual & class* • *10-15 mins* • *5-7 mins for feedback*	1. Students receive the handout "2015 Quality of Life Survey". 2. Students read the handout with as little dictionary intervention as possible, highlighting or underlining unfamiliar words as they go. 3. Teacher monitors and remains available to help students clarify meaning. 4. Teacher performs comprehension check; brief classroom discussion on content of reading (Did you agree with the reading? Is the article biased?) etc	• Reading "2015 Quality of Life Survey" • Dictionaries on each table

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• Creating word cards • Individual work • 20-25 mins	1. Teacher begins by eliciting difficult words from the text from the students, and writes them on the board. 2. Teacher instructs the students to begin working on their word cards, looking at words that were written on the board, and looking back to the text for other possible vocabulary (12-15 new words). 3. Teacher monitors, inspects word cards, and helps students as needed.	• Blank cards • Pink dot stickers • Dictionaries on each table Inspiration poster visible

INTEGRATING WHAT WAS LEARNED

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• Describing cities • Groups of 3 or 4 • 15-20 mins	1. Students get into groups with their text and word cards. 2. Students look to the article and use their own cities as examples as they discuss the quality-of-life elements brought up in the text. Students attempt to use the new relevant vocabulary in their discussion. 3. Teacher monitors, sits with groups, takes notes related to use of vocabulary (and other grammar errors that may come up)	• Reading "2015 Quality of Life Survey" • Word cards
• Feedback and error correction • Whole class • remaining time (5-10 mins)	1. Teacher writes error correction examples on the board from observation. Students are given a couple minutes to figure out what is incorrect with each sentence. 2. Teacher and class go over the correct answers and address any other questions.	• White board • Observation notes

Concordia University
Department of Education
Faculty of Arts and Science

Date/Time: Lesson #4

Title of the lesson: "Intelligence"

Goal of the lesson: By the end of the lesson the students will be able to discuss and describe a variety of topics using vocabulary from the article on intelligence. Students will also have created word cards that can be kept and re-used.

PREPARING TO LEARN

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Matching activity* • *Groups of 2* • *15 mins*	1. Students receive a copy of the "Famous People" PDF. They match the picture of the invention or achievement with the name of the person responsible for it. 2. Go over the answers as a whole class, eliciting answers from students. Allow for short discussion that arises as the answers are given. 3. Write the 2 bonus questions on the board and allow for a minute of discussion, then give the answers. 4. To elicit some more discussion to get to the topic of "intelligence", put the following questions on the board and allow for 2-3 minutes of small group discussion before addressing the questions as a class: a) What do all these people have in common? *They're intelligent, famous for accomplishments of different kinds* b) These are mostly all Western famous people. Can you think of any similar people who are famous for their intelligence who come from your country/area of the world?	• PDF "Famous People"

CARRYING OUT LEARNING

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS

• Reading & comprehension check
 	
• Individual & partners
• 12-15 mins for reading
• 10 mins for reading questions and feedback.
	1. Hand out the article "Boy Genius" to each student.
	2. Students read the article. Allow up to 15 minutes. Instruct students to highlight and underline new words as they go, but to refrain from looking anything up in their dictionaries until after they have read through it once.
	3. Put the comprehension questions on the board after the 10-12 minutes allotted for reading is done. Tell students to discuss the questions and jot down an answer with the person beside them. Allow 5 minutes. Then elicit answers from the class.
	<u>Comprehension Questions:</u>
	   1. How did Jacob decide where he wanted to study? What were he and his mom doing?
	   2. What is Jacob interested in studying?
	   3. Where did Jacob's family live, and where did they move to?
		• Article "Boy Genius"

• Creating word cards • Individual work • 20-25 mins	1. Students select 12-15 new words from the worksheet to create word cards for. 2. Teacher monitors, inspects word cards, and helps students as needed.	• Blank cards • Orange dot stickers • Dictionaries on each table • Inspiration poster visible

INTEGRATING WHAT WAS LEARNED

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• Discussion and Feedback • Groups of 3 • Remainder of time	1. Instruct students to look back to the list of famous people from the first activity. 2. Have students each take turns creating a sentence (it can be more than just a sentence, they may give more information) about one of the people on the list using one or more words from their cards. Each time a sentence is created about one of the famous people, they can be "checked" off. 3. Students continue until as a group, sentences have been created about each person. 4. If there is time, some feedback may be conducted as the teacher encourages a few students to share their sentences aloud.	• Completed word-cards

Concordia University
Department of Education
Faculty of Arts and Science

Date/Time: Lesson #5

Title of the lesson: "Money and Banking"

Goal of the lesson: *By the end of the lesson the students will be able to* discuss and describe money and banking using vocabulary from the worksheet. Students will also have created word cards that can be kept and re-used.

PREPARING TO LEARN

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• *Class game & feedback* • *Groups of 3-4 & class* • *20-25 mins*	Students will play a version of "the Price is Right!" in teams. 1) Split students into groups of 3 and hand out some scrap paper to each team. 2) Place the pictures on the white board and fold the bottom of the paper under along the dotted line to hide the prices. 3) Go through each picture one at a time. Start with the first picture and read the description provided out loud to the class so they have something to go on. 4) Students will discuss the first item quietly in their team and after a minute debate, they will write their guess as to how much the item costs in Canadian dollars on one of their pieces of scrap paper. (NO CELLPHONES!!!) 5) Students will then hold up their answer for everyone to see. Then unfold the bottom portion of the picture on the white board for everyone to see. The team that guessed the price closest to the actual price wins the point! The winning guess CANNOT BE UNDER the actual price. So if "Team A" guess $1 under the actual price, and the next closest guess is by "Team B" at $100 over the actual price, team B wins. 6) Go through all pictures and then see which team wins! Elicit some discussion/feedback from the class before handing out the vocabulary worksheet using these questions: 1) Are any of these prices surprising? 2) Do any of these items cost more or less in your country?	• Set of pictures to place on whiteboard: Taylor Swift CD, coffee and donut from Tim Horton's©, pair of hockey tickets, plane ticket from Montreal to Vancouver, and a car.

CARRYING OUT LEARNING

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• Worksheet • Individual & with partner • 25 mins + 5-10 mins for feedback	1. The teacher will give out the worksheet and instruct students to work over it one section at a time, using a dictionary (paper or electronic). As students complete each section, they will peer check with their partner and others at their table. 2. The teacher will monitor and answer questions that are not easily clarified with a dictionary. 3. The teacher will write the answers on the board and students can check their own answers. The teacher can then clarify any points at students' request.	• Copies of worksheet "Money and Banking" • Dictionaries on each table
• Creating word cards • Individual work • 20-25 mins	1. Students select 12-15 new words from the worksheet to create word cards for. 2. Teacher monitors, inspects word cards, and helps students as needed	• Blank cards • Green dot stickers • Dictionaries on each table • Inspiration poster visible

INTEGRATING WHAT WAS LEARNED

ACTIVITY (name, grouping, and time)	DESCRIPTION OF THE ACTIVITY (role of Teacher and Students)	MATERIALS
• Describing cultural differences about approaches to money • Groups of 3 • remainder of time	1. Put students into pairs or groups of 3 (mix students according to cultural background, so different cultural insights can be given). 2. Write instructions on the board: "Lay your cards out on the table in front of you, and take turns selecting one of your cards to place in the middle of the table. Use the card that is placed in the middle of the table as a prompt for discussing cultural and regional differences about approaches to money." 3. Monitor and take notes for grammar feedback either in the last few minutes of the lesson or the first few of the next class.	• Students' completed word cards.

APPENDIX D
Complete YES/NO test

Instructions: Students read over each word in the list and circle "yes", "not sure", or "no" to indicate their level of familiarity with the given word.

<u>Vocabulary Survey</u>

Read each word and circle **Y**, **NS**, or **N**.

Y: Yes, I know the word and I can use it in a sentence.
NS: I'm not sure if I know the word. It is possibly familiar.
N: I don't know the word.

		YES	NOT SURE	NO
1.	divided	Y	NS	N
2.	altered	Y	NS	N
3.	produce	Y	NS	N
4.	queues	Y	NS	N
5.	avoid	Y	NS	N
6.	conveniently	Y	NS	N
7.	immigration	Y	NS	N
8.	stack	Y	NS	N
9.	bakeries	Y	NS	N
10.	drag	Y	NS	N
11.	active	Y	NS	N
12.	journey	Y	NS	N
13.	fascinating	Y	NS	N
14.	intelligence	Y	NS	N
15.	featured	Y	NS	N
16.	incredible	Y	NS	N
17.	knowledgeable	Y	NS	N
18.	stretch	Y	NS	N
19.	cycling	Y	NS	N
20.	exploration	Y	NS	N
21.	syrup	Y	NS	N
22.	factory	Y	NS	N
23.	block	Y	NS	N
24.	flavours	Y	NS	N
25.	numerous	Y	NS	N

26.	founder	Y	NS	N
27.	host	Y	NS	N
28.	immigrant	Y	NS	N
29.	insights	Y	NS	N
30.	landscape	Y	NS	N
31.	nevertheless	Y	NS	N
32.	organic	Y	NS	N
33.	sample	Y	NS	N
34.	bitterly	Y	NS	N
35.	cures	Y	NS	N
36.	stalls	Y	NS	N
37.	maple	Y	NS	N
38.	mustard	Y	NS	N
39.	scene	Y	NS	N
40.	plateau	Y	NS	N
41.	culinary	Y	NS	N
42.	juxtaposition	Y	NS	N
43.	enthralled	Y	NS	N
44.	onward	Y	NS	N
45.	finance	Y	NS	N
46.	perimeter	Y	NS	N
47.	brilliance	Y	NS	N
48.	bunch	Y	NS	N
49.	persuading	Y	NS	N
50.	multinational	Y	NS	N
51.	attract	Y	NS	N
52.	chat	Y	NS	N
53.	promote	Y	NS	N
54.	excerpt	Y	NS	N
55.	wring	Y	NS	N
56.	autism	Y	NS	N
57.	journal	Y	NS	N
58.	research	Y	NS	N
59.	institutions	Y	NS	N
60.	scheduled	Y	NS	N
61.	familiar	Y	NS	N
62.	spare	Y	NS	N
63.	tour	Y	NS	N
64.	university	Y	NS	N

65.	accompany	Y	NS	N
66.	inspiring	Y	NS	N
67.	lecture	Y	NS	N
68.	publish	Y	NS	N
69.	scholars	Y	NS	N
70.	persuasion	Y	NS	N
71.	severe	Y	NS	N
72.	conceive	Y	NS	N
73.	attend	Y	NS	N
74.	deliver	Y	NS	N
75.	recall	Y	NS	N
76.	design	Y	NS	N
77.	editor	Y	NS	N
78.	dedication	Y	NS	N
79.	survey	Y	NS	N
80.	graduate	Y	NS	N
81.	highlights	Y	NS	N
82.	theoretical	Y	NS	N
83.	therapists	Y	NS	N
84.	chronicle	Y	NS	N
85.	physicists	Y	NS	N
86.	diagnose	Y	NS	N
87.	undergraduate	Y	NS	N
88.	genius	Y	NS	N
89.	physics	Y	NS	N
90.	spark	Y	NS	N
91.	formidable	Y	NS	N
92.	nurturing	Y	NS	N
93.	dominant	Y	NS	N
94.	frequently	Y	NS	N
95.	broad	Y	NS	N
96.	describe	Y	NS	N
97.	engaging	Y	NS	N
98.	fault	Y	NS	N
99.	lack	Y	NS	N
100.	moody	Y	NS	N
101.	disorder	Y	NS	N
102.	generous	Y	NS	N
103.	match	Y	NS	N

104.	spirited	Y	NS	N
105.	narrow	Y	NS	N
106.	opinions	Y	NS	N
107.	frankly	Y	NS	N
108.	sociable	Y	NS	N
109.	trait	Y	NS	N
110.	witty	Y	NS	N
111.	fussy	Y	NS	N
112.	trustworthy	Y	NS	N
113.	senior	Y	NS	N
114.	cheeky	Y	NS	N
115.	analyzing	Y	NS	N
116.	rude	Y	NS	N
117.	confident	Y	NS	N
118.	independent	Y	NS	N
119.	personality	Y	NS	N
120.	reflect	Y	NS	N
121.	soul	Y	NS	N
122.	tolerant	Y	NS	N
123.	dishonest	Y	NS	N
124.	extravagant	Y	NS	N
125.	quiz	Y	NS	N
126.	temper	Y	NS	N
127.	social	Y	NS	N
128.	split	Y	NS	N
129.	unreliable	Y	NS	N
130.	achieve	Y	NS	N
131.	colleague	Y	NS	N
132.	sensitive	Y	NS	N
133.	ambitious	Y	NS	N
134.	arrogant	Y	NS	N
135.	clash	Y	NS	N
136.	cult	Y	NS	N
137.	sheer	Y	NS	N
138.	dynamic	Y	NS	N
139.	gossip	Y	NS	N
140.	lively	Y	NS	N
141.	inquisitive	Y	NS	N
142.	inconsiderate	Y	NS	N

143.	access	Y	NS	N
144.	current	Y	NS	N
145.	wages	Y	NS	N
146.	stability	Y	NS	N
147.	owe	Y	NS	N
148.	assistant	Y	NS	N
149.	balance	Y	NS	N
150.	correct	Y	NS	N
151.	debt	Y	NS	N
152.	credit	Y	NS	N
153.	direct	Y	NS	N
154.	account	Y	NS	N
155.	advanced	Y	NS	N
156.	earn	Y	NS	N
157.	hire	Y	NS	N
158.	income	Y	NS	N
159.	section	Y	NS	N
160.	fare	Y	NS	N
161.	metaphorically	Y	NS	N
162.	affluent	Y	NS	N
163.	pocket	Y	NS	N
164.	impoverished	Y	NS	N
165.	transfer	Y	NS	N
166.	cash	Y	NS	N
167.	various	Y	NS	N
168.	purchase	Y	NS	N
169.	register	Y	NS	N
170.	earnings	Y	NS	N
171.	bargain	Y	NS	N
172.	categories	Y	NS	N
173.	salary	Y	NS	N
174.	wealthy	Y	NS	N
175.	annual	Y	NS	N
176.	charity	Y	NS	N
177.	prosperous	Y	NS	N
178.	coins	Y	NS	N
179.	deposit	Y	NS	N
180.	fee	Y	NS	N
181.	invested	Y	NS	N

182.	link	Y	NS	N
183.	phrase	Y	NS	N
184.	solve	Y	NS	N
185.	poverty	Y	NS	N
186.	withdraw	Y	NS	N
187.	attractive	Y	NS	N
188.	temperate	Y	NS	N
189.	challenging	Y	NS	N
190.	ranking	Y	NS	N
191.	ease	Y	NS	N
192.	release	Y	NS	N
193.	according	Y	NS	N
194.	economy	Y	NS	N
195.	geared	Y	NS	N
196.	quality	Y	NS	N
197.	instability	Y	NS	N
198.	maintained	Y	NS	N
199.	roles	Y	NS	N
200.	comparatively	Y	NS	N
201.	unit	Y	NS	N
202.	economist	Y	NS	N
203.	analysis	Y	NS	N
204.	navigate	Y	NS	N
205.	assignment	Y	NS	N
206.	climate	Y	NS	N
207.	destination	Y	NS	N
208.	infrastructure	Y	NS	N
209.	principal	Y	NS	N
210.	globe	Y	NS	N
211.	confirmed	Y	NS	N
212.	relatively	Y	NS	N
213.	factor	Y	NS	N
214.	value	Y	NS	N
215.	nosy	Y	NS	N
216.	annotated	Y	NS	N
217.	moderated	Y	NS	N

APPENDIX E
Sample interview questions

1. General introductions and conversation

2. Specifics:

   a. Tell me about making your cards. What kind of information did you like to include?

   b. What was the most useful information that you included?

   c. Did you study with the cards outside of class time? How so?

   d. Tell me about the classroom activities. Do you think you they were helpful?

   e. Do you remember any words you learned from other students' cards?

   f. Do you think you were able to learn new vocabulary from these cards?

   g. What was your favourite part? Least favourite part?

   h. Do you think you will make vocabulary cards again?

3. Is there anything else you would like to tell me?