

University of Memphis

University of Memphis Digital Commons

---

Electronic Theses and Dissertations

---

2019

**INVESTIGATING SEQUENTIAL VOCABULARY LEARNING  
STRATEGIES AS A MEANS OF IMPROVING L2 VOCABULARY  
ACQUISITION**

Adel MARZOUQ Alharbi

Follow this and additional works at: <https://digitalcommons.memphis.edu/etd>

---

**Recommended Citation**

Alharbi, Adel MARZOUQ, "INVESTIGATING SEQUENTIAL VOCABULARY LEARNING STRATEGIES AS A MEANS OF IMPROVING L2 VOCABULARY ACQUISITION" (2019). *Electronic Theses and Dissertations*. 2408.

<https://digitalcommons.memphis.edu/etd/2408>

This Dissertation is brought to you for free and open access by University of Memphis Digital Commons. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of University of Memphis Digital Commons. For more information, please contact [khhgerty@memphis.edu](mailto:khhgerty@memphis.edu).

INVESTIGATING SEQUENTIAL VOCABULARY LEARNING STRATEGIES AS A  
MEANS OF IMPROVING L2 VOCABULARY ACQUISITION

by

Adel Marzouq Alharbi

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: English

The University of Memphis

August 2019

© Copyright Adel Marzouq Alharbi 2019

All Rights Reserved

*To my mom (Fatimah) and Dad (Marzouq)  
Who taught me my life's first vocabulary*

## **Acknowledgement**

First and foremost, my absolute thanks are to God [Allah, The Creator] who made our knowledge in words to be seen, developed our language to be spoken in infinite tongues and meanings, and guided our actions to the right path.

I would like to express my sincere appreciation to several people for their great support during my dissertation process. First of whom, I would like to give a very special and deep thanks to my advisor, Professor Teresa Dalle, for her invaluable guidance, support, assistance, and feedback throughout my graduate years at The University of Memphis. It wouldn't be possible to complete my dissertation without Dr. Dalle, being my advisor, instructor, and above all, a life-time scholar for her positive comments and invaluable recommendations that have underwrote expressively to the accomplishment of this dissertation, and for being enthusiastic and impassioned educator who encourages and challenges her students to pursue a profound and nuanced understanding of Second Language Acquisition.

My special thanks go to Dr. Emily Thrush, Ronald Fuentes, and Mahmoud Amer for their supervision, supportive instruction, and deep eagerness as instructors and committee members, and for devoting their valuable time to read and comment on my dissertation.

I would like to extend my special thanks to Dr. Mahmoud Amer, who was the primary persuader of this dissertation's initial spark with his immense support and guidance and pushed me to continue investigating this topic.

I must give my deepest gratitude to the principal of the Center for Research and Development of Bilingual Education (Centro De Investigación y Desarrollo De Educación bilingüe), Dr. Socorro Guajardo and all the English instructors Drs. Ricardo Briano, Olga Rodríguez, Roberta López, Mrs. Sofía Fernández, and Victoria Jurado. They have undoubtedly

made my study data collection happen and supported me with the highest level of assistance and encouragement. I would like to thank my friend Cira Durán who introduced this high school to me and recommended it for my study. I should give thanks too to all the participants who agreed to participate in my research and devoted their time, participation and contributions cooperatively throughout the study data collection period.

Lastly, my sincere appreciativeness should go to my parents, my brothers, and my sisters. I must also extend my whole-hearted and deepest thanks to my lovely family: my wife, Samar, and my kids, Rayan and Talyah, for their perseverance and tolerance as I have been away many hours a day to finish my PhD. degree.

## Abstract

Alharbi, Adel. Ph.D. The University of Memphis. August, 2019. Investigating sequential vocabulary learning strategies as a means of improving L2 vocabulary acquisition. Chair Advisor: Tereasa Dalle Ph.D.

One of the key aspects to learning a language is building good vocabulary knowledge. However, building vocabulary is considered to be as hard a process as developing the language itself in the long term. In second language acquisition (SLA), the larger vocabulary size has been connected to intelligence and as a major determinant of successful language use. With the constant use of vocabulary learning strategies (VLSs), language learners have reported successful growth of their language learning.

The current study investigated Spanish–English bilingual speakers’ beliefs and practices about sequential VLS processes as a means of improving second language vocabulary acquisition. The study recruited participants from two groups (each group has 35 participants,  $N = 70$ ) attending public high school in a Spanish speaking country. The effects of five preselected sequential VLSs (Guessing meaning of a new word with its context, building synonyms network, listening and pronunciation process [speaking strategies], bookmark word search [note-taking strategies], and remembering strategy for writing) on 35 participants were investigated through a 4-week VLS intervention design. A convergent mixed-methods design has been used, in which quantitative and qualitative data were collected in parallel, analyzed separately, and finally merged. The study used a questionnaire followed by the vocabulary size test (VST) to test the theory that certain VLS processes positively influence the growth of vocabulary size or knowledge for bilingual learners of English during the language learning process.

The findings showed that specific sequential VLS processes (the vocab-backup strategy model VBS) accounted for a change of the vocabulary size scores. Statistical analysis revealed

that, all participants preferred the same VBS model sequencing when it comes to vocabulary learning. On the effective use of sequential VLS processes, participants were recorded performing two types of VLS: *initial-VLS* processes and *consolidated-VLS* processes. The sequential and frequency of use for the VLSs from the interview's findings reported that participants favored mostly guessing meaning from context, synonyms relation strategies, and dictionary use as initial attempts for their vocabulary learning. The overall results suggest that deeper processes of VLS use result in successful vocabulary learning but also enhance language learning input.



## Table of Contents

Chapter	Page
List of Tables	x
List of Figures	xii
1. Introduction	1
Statement of the Problem	3
Purpose of the Study	3
Research Questions	5
Significance of the Study	6
Delimitations and Limitations of the Study	7
Organization of the Study	8
2. Literature Review	9
L1 and L2 Vocabulary Acquisition	9
Vocabulary Acquisition and Learning	10
Approaches of Vocabulary Acquisition	12
Language Learning Strategies and VLSs	14
Vocabulary Learning Strategy Research	18
Vocabulary Learning Strategies	22
Vocabulary Size, Text Coverage, and Word Lists	27
Academic Vocabulary	32
Vocabulary Learning Strategy Research Methods	33
Vocabulary Learning Strategy Taxonomies	39
Autonomous Vocabulary Learning	42
Summary of the Literature Review	43
3. Methodology	46
Research Context	47
Participants	47
Instruments	49
Data Collection Procedures	53
Data Analysis	56
4. Quantitative Results and Analysis	60
Information About the Demographic Questionnaires	60
Descriptive Statistics	61
Vocabulary Size Data from the Two Groups	71
Correlation of the Two Groups Vocabulary Level	80
Result and Analysis of the VBS Survey	81
Discussion	85
Summary of the Findings	88

5.	Qualitative Results and Analysis	90
	Learner’s Vocabulary Learning Strategies	90
	Participants’ Vocabulary Learning Autonomy	102
	Vocab-Backup Strategy Five Variables Analysis	105
	Observational Notes from the Experimental Group on VBS	112
	Discussion	115
	Summary of the Findings	120
6.	Discussion and Conclusion	122
	Summary and discussion	122
	Pedagogical Implications	128
	Future Research Recommendations	131
	Conclusion	132
	References	133
	Appendices	144
	Appendix A: Vocabulary Learning Strategies Demographic Questionnaire	144
	Appendix B: Vocabulary Learning Strategies Interview Questions	145
	Appendix C: The Vocabulary Size Test (First five-thousands)	147
	Appendix D: VLSs Formula	152
	Appendix E: VLSs Model (VBS)	153
	Appendix F: IRB Approval	154

## List of Tables

Table	Page
1. Mean Scores in Frequency of Use by Nine Categories	25
2. Top 10 Vocabulary Strategies of L2 English Learners	26
3. Vocabulary Size and Text Coverage in the Brown Corpus	30
4. Average Coverage and Range of Coverage of a Series of Word Levels	30
5. Descriptive Statistics of the Participants' Overall TOFEL scores ( <i>N</i> =70)	49
6. Reliability Statistics of the VLSQ ( <i>N</i> =70)	51
7. Summary Item Statistics for the VLS Questionnaire	51
8. Description of the five Sequential VLSs variables for the study	55
9. Statistical Descriptive of the Participants' Gender	61
10. Statistical Descriptive of the Participants' First Language	61
11. Statistical Descriptive of the Participants' Second Language	61
12. Scale Statistics of the VLSQ	62
13. Reliability Statistics of the VLSQ	62
14. VLSQ Items Overall Descriptive Statistics Correlation/Discrepancies	63
15. Statistical analysis of the Meaning with Context Items ( <i>N</i> =70)	66
16. Statistical analysis of the Building synonyms network Items ( <i>N</i> =70)	67
17. Statistical analysis of the Listening and Pronunciation Items ( <i>N</i> =70)	68
18. Statistical analysis of the Bookmark word search Items ( <i>N</i> =70)	69
19. Statistical analysis of the Remembering strategy for writing Items ( <i>N</i> =70)	70
20. Descriptive Statistics of the Two Groups frequency for the general vocabulary sizes from the Pre- & Post-VST	72

21. Descriptive Statistics of the experimental group's Pre and Post VST	75
22. Descriptive Statistics of the controlled group's Pre- and Post-VST	79
23. Vocab-Backup Strategy Description	106

## List of Figures

Figure	Page
1. Present Study Overview	57
2. Explanatory Sequential Mixed Methods Design	57
3. VLSQ Items Overall Descriptive Statistics Correlation/Discrepancies	71
4. The two groups frequency distribution for the general vocabulary sizes from the pre- & post-VST	73
5. Experimental group frequency distribution for the general vocabulary sizes from the pre VST	74
6. Experimental group frequency distribution for the general vocabulary sizes from the post VST	76
7. Scatterplots and linear regression line figure of the participants' general vocabulary sizes	77
8. Controlled group frequency distribution for the general vocabulary sizes from the pre VST	78
9. Controlled group frequency distribution for the general vocabulary sizes from the post VST	79
10. The Post VST association between the two groups. The scatterplots and linear regression line figure demonstrate the significance and the direction of the correlation	80
11. The Structural Equation Model of Motivated Vocabulary Learning (Tseng & Schmitt, 2008)	82
12. Sequential Model of Vocabulary Learning Strategies (enhanced and adapted from Alharbi's 2015)	84
13. Qualitative Items clustered by coding similarity (Computed by NVivo12)	92
14. Samples of the participants' Bookmark-note	114

## Chapter 1: Introduction

In second language acquisition (SLA), the intricacy of vocabulary acquisition resulted in several theories and approaches concerning vocabulary development process. In other words, one of the fundamental connecting threads between developing a second language and building vocabulary knowledge is the use of vocabulary learning strategies (VLSs). Among the various linguistics features a learner must master, vocabulary knowledge is regarded as a complex construct (Schmitt, 2010b; Tseng & Schmitt, 2008). Lexicographical studies on the importance of vocabulary in SLA that began in the 1980s have marked a shift from a focus on grammar and structure to an emphasis on vocabulary acquisition (Schmitt, & McCarthy, 1997; Zimmerman, 1997).

Technically, one of the most important aspects of learning a second language is building the vocabulary and, more importantly, learning vocabulary in a second language is a long and demanding task (Gu, 2017). Consequently, those who employ VSLs are more likely to be successful in building and retaining vocabulary. Language learners have reported successful growth of their language learning by using VLSs (Gu, 2003; Kojic-Sabo & Lightbown, 1999; Nation, 2013; Schmitt, 2010b). However, research studies and statistics have shown that most second-language learners reported deficiency in vocabulary size (Laufer, 2000). In other words, second-language learner's vocabulary size scores were usually below the average text-coverage percentile required (almost need 95–98% text coverage). In her study, for instance, Laufer reviewed several studies from eight different countries and concluded that the vocabulary size needed for high school/university ESL/EFL learners should be range from 1,000–4,000 word families [at least].

The introduction of VLSs in SLA was an initial effort to broaden research in lexical acquisition and, more importantly, to develop teaching methods for second languages. Additionally, as a subfield of applied linguistics, the development of VLSs was influenced by a lack of research in lexical acquisition in the early 1980s (Meara, 1980); however, this is no longer a neglected area of research (Schmitt, 2010b). Schmitt (1997) stated that language strategy research started as early as the 1970s due to a call for action to step away from the old “predominantly teaching-oriented perspective” (p. 199) to more of an exploratory approach into how learners’ actions in the classroom affect their language acquisition. The influence of language learning strategies research became seemingly obvious in second-language acquisition (O’Malley & Chamot, 1990; Oxford, 1990; Rubin, 1975; Stern, 1975). Research on learning strategies was mainly inspired by two interrelated disciplines: cognitive psychology and second-language acquisition. This study’s attention and focus will be on the latter to provide information to examine the extent to which VLS assist in L2 vocabulary development. The VLS studies yielded invaluable results on using learning strategies for building vocabulary knowledge and achieving high academic progress (Cheung, 2004; Hunt & Beglar, 2005; Ma, 2009; Schmitt, 2000; Wu, 2005). Schmitt (2010b) argued, “The skilled and appropriate use of strategies/tactics directly leads to increased vocabulary knowledge, which is indicated by both size and depth components” (p. 96). This study aims to determine *how* bilingual learners of English process and strategize learning vocabulary in a foreign/second language effectively and efficiently. By identifying what research has contributed in understanding VLSs, this analysis will call attention to a new approach of VLSs that may not be commonly used by students or instructors. This study hypothesizes that certain VLSs would work better than others to guide learners and boost their vocabulary during language learning.

## **Statement of the Problem**

Second Language Learners' (SLL) vocabulary needs to be large enough (95–98% text coverage) to survive the demands of studying in an English-language university (Coxhead, 1998; Laufer & Ravenhorst-Kalovski, 2010; Nation, 2013; Schmitt, 2007, 2010b; N. Schmitt, D. Schmitt, & Clapham, 2001). However, most vocabulary studies continuously report insufficient vocabulary size of English language learners. Laufer (2000), for instance, reviewed several studies from eight different countries and concluded that the vocabulary size needed for high school and university English as a second language (ESL) and/or English as a foreign language (EFL) learners ranges from 1,000 to 4,000 word families.

The above-mentioned studies reported a lack of use of VLSs by ESL learners with or without the help of teachers. Gu (2013) stated that due to the difficulty of L2 vocabulary learning, it is highly practical, beneficial, and theoretically intriguing to investigate the ways students learn vocabulary and to determine the effectiveness of various strategies (p. 6115). Additional effort is needed to explore more ways that students use VLSs. It is widely known, especially in the EFL context, that despite years of studying English, many learners consider insufficient vocabulary knowledge an obstacle that they feel is difficult to overcome (Zheng, 2009).

## **Purpose of the Study**

The drive of this mixed-methods study is to investigate how bilingual learners of Spanish–English strategize learning vocabulary in a foreign/second language both effectively and efficiently. This study used a questionnaire followed by the vocabulary size test (VST; Nation & Beglar, 2007) to test the theory that certain VLSs positively influence growth of vocabulary size or knowledge for bilingual learners of English during the language learning



process. The VST was used as a pretest of vocabulary size. Then, a minimum 4-week VLS treatment was administered to a defined experimental group to determine any significant change in the vocabulary size scores for the experimental group compared to a control group. A preselected collection of VLSs called vocab-backup strategy (VBS) is used during the VLS treatment. After the VLS intervention, a vocabulary size posttest was administered to compare the two VST scores from both groups. Finally, interviews were recorded to explore the reasons and ways bilingual learners of English preferred or use VLSs. By carefully identifying what research has already contributed in understanding VLSs, the present study can call attention to a specific sequence of VLS process approaches that is not currently used by students or instructors. Thus, the need to research, offer, and teach the “process” of VLSs is the specific area of study.

In doing so, this research aims to evoke the importance of VLSs in ESL classroom settings. It will also aim to investigate the growth of vocabulary by using VLSs. Additionally, this project will serve as a continuous volume of research that has been developed to both converge and expand the quantitative results from the mixed-methods findings to close the gap in this field. As Gu (2005, 2010) pointed out, there is still a lack of research on the process of vocabulary learning. In vocabulary learning, different manifestations of VLSs can help determine the learning result. For instance, several studies have investigated the *deep and surface processing strategies* (e.g., Barcroft, 2009; Fan, 2003; Ma, 2009; Nation, 2013) by L2 learners. In Clarke and Nation’s study (1980), the researchers applied four inductive steps of guessing the word from context and found significance in retaining new vocabulary for the long term. From this particular perspective—learning new vocabulary using specific strategies process—Gu (2005) stated, “This learner-oriented process view of vocabulary acquisition is beginning to appear in applied linguistics, though the majority of research is still on the *what*

(target or product) rather than the *how* (process) of vocabulary learning” (Crow, 1986; McNeill, 1990; Meara, 1980; as cited in Gu, 2005, p. 69). Also, as Fan stated, “Most studies on L2 vocabulary focus on individual strategies or a small number of them” (p. 225). In addition, this research aims to elevate the study goals to be actively applied and to support L2 learners achieve better language development.

### **Research Questions**

This study seeks to answer the following four research questions in two phases. In the first phase, the first two questions are more general to investigate the use of VLSs and their effectiveness for bilingual learners of English. These two questions are as follows:

1. To what extent and in what ways do bilingual learners of English use VLSs? To answer this question, a quantitative method will be used to determine the ways bilingual learners of English deploy/apply certain strategies.
2. Which of the strategies reported lead to more vocabulary acquisition? And furthermore, does the sequence strategy make a difference?

By answering these two major questions, in the second phase, the study can then investigate and delve into specific research questions about the use of *sequential* VLSs to retain and boost bilingual English learners’ vocabulary size and knowledge as well as vocabulary learning autonomy. The two research questions are as follows:

3. Do bilingual learners of English learn new vocabulary using the *VLS* process? If so, why and how? This question will be investigated both quantitatively and qualitatively.
4. How much vocabulary do second-language learners retain with the use of *sequential* VLSs? Using mixed-method approach, the last question will be examined both quantitatively and qualitatively. The quantitative part of it will be determined using pre

and post vocabulary size test (VST). After collecting participants' VST scores, a set of random sampling of those who scored high in the test will be selected for the interview.

### **Significance of the Study**

Many current and past studies on VLSs have dealt with and tested certain VLSs by categorizing them under a vocabulary taxonomy (e.g., Gu, 2013; Gu & Johnson, 1996; Nation, 2001; Schmitt, 1997; Stoffer, 1995). However, fewer studies have investigated the VLS process as substrategies that bilingual learners of English use to learn vocabulary (e.g., guessing from context, looking up synonyms of a new word, checking the meaning in the dictionary, etc.). Because lexical knowledge is systematic and dynamic in nature (Gu, 2005; Schmitt, 2010b), language learners might need to employ different VLSs to master the new vocabulary they encounter. The use of these substrategies or VLS processes has not yet received much attention in research. According to Gu (2005), research studies on VLSs "...need systematic studies of the natural process of vocabulary learning in authentic foreign language situations with the aim of identifying the whole range of vocabulary learning strategies" (p. 75), and thus, must shift attention to *how* these VLSs are used. From this particular gap in vocabulary research, this study aims to investigate the use of VLSs by second-language learners in order to learn new words in the target language. In other words, the significance of this study lies in looking at learning new vocabulary using a *sequential* VLS process. This study aims to determine which strategy is most effective for English-language learners (ELLs) to study new words as well as how these strategies help improve research in SLA. Also, the lead investigator of this study would like to expand the scope of the research methodologies and methods on VLSs in a previous quantitative research publication, "Building Vocabulary for Language Learning: Approach for ESL Learners to Study New Vocabulary" (Alharbi, 2015). In other words, I would like to investigate the

effectiveness of VLS processes using a mixed-methods design to extend the research data from the previous study.

### **Delimitations and Limitations of the Study**

#### **Delimitations.**

Due to the fact that this study answered very specific research questions, it has some delimitations. First, all self-reported vocabulary learning strategies questionnaire (VLSQ) responses may yield different outputs depending on the learners' attention and focus to answer each item. A second delimitation results from the nature of VLSs. Since language learning strategies, including VLSs, are self-learning tactics that learners employ/deploy, not all strategies will be considered only those five VLSs proposed for this study. That is, it will only investigate the change and the curve impact of students' vocabulary size after implementing these specific VLSs. Also, this study seeks only native Spanish speakers currently in high school or college who are enrolled in English-concentration classes, and, as such, has a limited purpose. As such, the findings might only be applicable to specific bilingual learners and thus not be generalized to a bigger group. However, the findings could also imply that every learner can apply these VLSs and become autonomous.

#### **Limitations.**

This study is limited to the Spanish–English bilingual speakers attending public high school in a Spanish speaking country with a total ( $N = 70$ ) participants. Another limitation of this study is the VLS intervention time which will be only for 4-week period during the participants regular English classes. This limitation of the time availability is restricted due to participants' academic engagement at the school. Finally, the participants' linguistic background; which is in this case the Spanish language, adds another limitation factor of this study general population.

## **Organization of the Study**

In the first chapter, the study is outlined in terms of the following: (1) statement of the problem; (2) purpose; (3) research questions; (4) significance; (5) delimitations and limitations; and (7) organization.

Chapter 2 provides literature reviews and details theoretical frameworks on strategy use and vocabulary acquisition in the following areas: (1) VLS background; (2) VLSs; (3) vocabulary size, text coverage, and word lists; (4) academic vocabulary; (5) VLS research method; (6) VLS taxonomies; and (7) autonomous vocabulary learning. It concludes with a summary of the literature review.

Chapter 3 defines the methodology engaged in the study. This consists of the following: (1) research context; (2) research design; (3) participants; (4) instruments; (5) data collection and procedures; and (6) data analysis.

Chapter 4 presents and analyzes the quantitative results. This chapter responds to the quantitative research questions including explication of the quantitative instruments using the questionnaire and the VST.

Chapter 5 highlights, discusses, and analyzes the qualitative data. This chapter addresses both methods and their overall findings. Chapter 6 includes and concludes the current study major findings, pedagogical implications and further research recommendations with the conclusion notes.

## **Chapter 2: Literature Review**

In this chapter, the discussions of different approaches and theories of vocabulary learning strategies will be presented (e.g., Gu & Johnson, 1996; Kulikova, 2015; Nation, 2001; Schmitt, 1997; Stoffer, 1995; Tseng, Dörnyei, & Schmitt, 2006; Zhang & Li, 2011). It also will present related frameworks and theories in vocabulary acquisition to set the ground and build a general understanding of the VLSs in applied linguistics. These theories address L1 and L2 vocabulary acquisition, vocabulary acquisition and learning, approaches to vocabulary acquisition, language learning strategies and vocabulary learning strategies, VLSs research methods, VLSs, vocabulary, size text coverage, word list, and VLSs Taxonomies.

### **L1 and L2 Vocabulary Acquisition**

Languages are not lexically equivalent (Nation, 2013; Pavičić Takač, 2008; Schmitt, 2010b). The input in one language may have a radically different output in another. As such, research in vocabulary acquisition (VA) requires cross-linguistic comparisons to understand how language learners in any of these languages acquire lexical items. The difference in acquisition merits discussion. On the one hand, L1 vocabulary acquisition functions in a systematic way, as semantic features are developed according to the learner's time exposed to the language. On the other hand, L2 learners usually develop a language system and code the most frequent lexical items in their mind based on equivalent L1 lexical input (Pavičić Takač, 2008). In other words, both conceptual and semantic systems found in the L1 influence the development of a learner's L2 lexical items. This impact appears in different ways, such as in translation, guessing the meaning from context, getting assistance from teachers or peers, and so on. However, there are other factors that affect how L2 learners develop their L2 lexical ability and knowledge. For example, different linguistic and lexical features between languages may contrast, especially

when used by native speakers. The contrast of the two L1 and L2 lexical features could possibly form an equivalence hypothesis to build on L1 lexical knowledge that has been stored earlier. This hypothesis, however, might fail to bring these two lexical systems at one phase as explained by Swan (1997), who lists several reasons to avoid this assumption:

- lexical units in two languages are not exact equivalents (i.e., there is more than one possible translation);
- equivalent lexical units in related languages have different permissible grammatical contexts;
- lexical equivalents belong to different word classes;
- lexical equivalents are sometimes false friends [or false cognates];
- there may be no lexical equivalents at all (cited in Pavičić Takač, 2008, p. 9).

Gass (1989) extended this point, arguing that it is not possible to establish a foundation of L2 lexical items in the mind, as it is already occupied by the L1 lexical system. However, debates and discussions about the process of building-up L1 and/or L2 vocabulary is still a young body of research. Many advocates seem to argue for the opposite view: that knowledge of L2 lexical items is built incrementally.

### **Vocabulary Acquisition and Learning**

According to many applied linguists, studying new words is a fundamental aspect of learning that every language learner manages and strategizes (Nation, 2013; Schmitt, 2010b). Vocabulary research first emerged from a lexicographical approach: listing ‘words’ in a dictionary. However, to reach knowledge and mastery of a language’s vocabulary, language users and/or learners must retain several components of ‘word’ knowledge other than a simple definition (e.g. morphological, syntactic, phonological and orthographic, and semantic) and

properly use it in the correct conceptual order in the language system. Besides mastering this knowledge of a word, learners intend to apply the lexical item in the same way as would native speakers of the target language.

Mastering all dimensions of a lexical item, however, is not an ‘all-or-nothing’ proposition (Pavičić Takač, 2008). In fact, this kind of learning falls onto a continuum of several kinds of knowledge. The vocabulary acquisition process is also complicated by the fact that learners tend to use both *receptive* and *productive* vocabulary to negotiate the meaning of any lexical item that they encounter. One difference between receptive and productive vocabulary is that receptive has a larger vocabulary size than productive vocabulary.

The core distinction between native speakers and L2 learners, when it comes to vocabulary acquisition and learning, is that L2 learners process vocabulary in an incremental process, while native speakers tend to acquire vocabulary in a more systematic way (Pavičić Takač, 2008; Schmitt, 2010b). Pavičić Takač highlighted the distinguishing phenomena between L1 and L2 vocabulary acquisition:

L2 vocabulary acquisition is different from L1 vocabulary acquisition because an L2 learner has already developed conceptual and semantic systems linked to the L1. This is why L2 acquisition, at least in its initial stages, often involves as mapping of the new lexical form onto an already existing conceptual meaning or translational equivalent in L1. (pp. 8–9)

Vocabulary research on both learning and acquisition have always been interconnected to improve teaching and learning theories, to assist second language learners in developing vocabulary knowledge, and to enhance teachers’ roles to develop and deliver good classroom vocabulary acquisition instructional practices. However, for research in vocabulary acquisition,



in particular, there has not been any general agreement on a *theory* about this field of research (Meara, 1980, 1983, 1997; Pavičić Takač, 2008). This lack of agreement arises, primarily, because vocabulary learning, and acquisition are “model-free” (Pavičić Takač, 2008) and apply to different aspects of second language learning. Another point to consider, is that the classifications and research interest of vocabulary from a psycholinguistic perspective have paid more attention to vocabulary development and how vocabulary acquisition happens in an L1 context. Other research on a general theory of vocabulary acquisition is based on the lexical features of a single word’s meaning or use in the language (e.g., Carter, 1998). Clearly, though, a ‘word’ can have different definition from that found in the L2 vocabulary.

### **Approaches of Vocabulary Acquisition**

As mentioned earlier, despite the amount of vocabulary research that has been conducted by different theorists, linguists, psychologists of L2 acquisition, there is still no generally accepted theory of vocabulary acquisition [nor its key factors] (Pavičić Takač, 2008, p. 4). This disagreement within L2 vocabulary acquisition research is caused by the many discrepancies of research interest in this field and the recognition of several factors influencing the L2 vocabulary development process.

Gardner (2013), introduced three major approaches to vocabulary—or as he named it, “Three Realities of Vocabulary,” which are the most recent classifications of vocabulary acquisition research. In the first approach, Psychological Reality, a common theme is what happens in the mind of actual learners when learning vocabulary. This asks questions about how ELLs learn new vocabulary, and especially how those learners mentally store, remember, and use vocabulary for more than one language. In other words, it deals with the mental process that allows building and practicing new vocabulary, including the use of mental or cognitive

strategies to learning vocabulary, and the limit of memory to recall and reuse vocabulary. The second approach is Linguistic Reality, which asks what vocabulary size ELLs need to master in order to communicate in English, and what linguistic features they must learn for each term (e.g., meaning, morphology, word relations, phraseology, and its usage). Also, lists of academic words and high frequency words are part of the linguistic approach to study vocabulary. In the third approach, Pedagogical Reality, different methods of teaching vocabulary in both formal and informal settings are discussed, but with constant attention to how these operate pedagogically. Enforcement of the methods of teaching vocabulary, learners' strategies, and teachers' recommendations to teach vocabulary are other elements of this approach. Because there is so much research in vocabulary, these three approaches are not the only categories for what has been researched in L2 vocabulary acquisition nor in what we now know about learning vocabulary in another language and first language too.

For instance, Schmitt (2010b) recognized and discussed ten key issues in vocabulary acquisition and use:

- 1) Vocabulary is an important component of language use.
- 2) A large vocabulary is required for language use.
- 3) Formulaic language is as important as individual words.
- 4) Corpus analysis is an important research tool.
- 5) Vocabulary knowledge is a rich and complex construct.
- 6) Vocabulary learning is incremental in nature.
- 7) Vocabulary attrition and long-term retention.
- 8) Vocabulary form is important.
- 9) Recognizing the importance of the L1 in vocabulary studies.

10) Engagement is a critical factor in vocabulary acquisition. (p. vii)

Other studies consider and conduct vocabulary acquisition research from different perspectives such as, but not limited to, incidental L2 vocabulary acquisition (Ellis, 1994; Gass, 1999; Laufer & Rozovski-Roitblat, 2011), age and learning strategies affecting L2 vocabulary acquisition (Elgort & Warren, 2014), Input-based Incremental Vocabulary Instruction (Barcroft, 2012), semantic transfer and development in adult L2 vocabulary acquisition (Jiang, 2004), vocabulary acquisition process (Barcroft, 2002, 2004, 2009).

### **Language Learning Strategies and VLSs**

It is incontestable to discuss the research on VLSs without highlighting the emergence and the influence of language learning strategies (LLSs) in L2 vocabulary acquisition research. Even the research in LLSs was initially influenced by how L2 learners manage and direct their L2 vocabulary knowledge. As it has been stated by Nation (2013) and Schmitt (1997, 2010b), VLSs are part of general LLSs and in turn part of a broader major area, that is, learning strategies. In addition to that, research on VLSs contributes directly and indirectly to the studies of LLSs. More importantly, these two areas of learning/acquisition theories were even established and emerged in the same decade in the 1980s (Kudo, 1999; Nation, 2011) and few studies were conducted before that period. The exceptionality of these bodies of research is that teaching and learning second language have taken a new path, which is implementing a *learner-centered* approach over the old traditional approaches such as the direct method, situational language teaching, audio-lingual methods, grammar translation method, and lastly the communicative language teaching.

Zimmerman (1997) has extensively discussed and analyzed the changing of the theoretical priorities that changed language teaching history in which she stated that vocabulary

acquisition and vocabulary instruction were still undervalued in second language acquisition research and/or methodology. Moreover, research on VLSs and LLSs made a huge impact on second language acquisition (SLA) process by focusing on how and what strategies a “good language learner” deploys (e.g., O’Malley & Chamot, 1990; Oxford, 1990; Rubin, 1975; Stern, 1975) and uses for her/his learning habits and what characteristics that make their learning outcomes more effective than other students. Early research of VLSs began a long time ago by E. A. Levenston (1979) who marked the negligence of vocabulary acquisition in SLA research. Among the most recognized VLSs that have been documented are think-aloud tasks (e.g., Ahmed, 1989), task-dependent strategies, dictionary use, vocabulary notetaking, rote rehearsal, word formation, semantic networks, and planning (Gu, 2003), and general taxonomies of VLSs (e.g., Gu & Johnson, 1996; Nation, 2001, 2013; Schmitt, 1997; Zhang & Li, 2011). However, vocabulary knowledge requires several skills such as receptive/productive, oral/visual, overt/covert, in context and out of context. Such complexity of vocabulary knowledge to master new vocabulary requires also from teachers, researchers, and practitioners to provide and train L2 learners to use VLSs for their vocabulary learning and improve second language proficiency. This paper will highlight and discuss the emergence of both theories LLSs and VLSs in SLA, how to teach VLSs in L2 language classrooms, and finally an introduction of my own view of a vocabulary learning strategy approach with some suggestions, activities and recommendations. Thus, in order to discuss these related topics, first we need to shed some light on the viewpoints on LLSs and VLSs, in trying to understand their acceptance to SLA research.

### **Learning strategies and language learning strategies.**

It is very common that the use of any learning strategy requires hard and rigorous mental activities by the learners to achieve the intended goals of learning. The research on L2 learning

strategies in the last four decades has had a goal of establishing a *theory* of LLSs (Oxford, 2011, 2017). Self-regulation is one of the most exciting developments in second or foreign language learning (Oxford, 2011, p. 7). The term self-regulation in second language learning has been named differently in several studies such as “learner-self-management” (Rubin, 2001), “learner self-direction” (Dickinson, 1987), “self-regulated or autonomous L2 learning” (Oxford, 1999) and Strategic Self-Regulation (S2R) Model of language learning (Oxford, 2011, p. 7). The first advocates of learning strategies started to establish their research preferences from two broad theories: (1) from a general linguistic view point and, (2) from a cognitive or psychological stand point. However, they both appeared in the late 70s and early 80s to invoke a change in teaching and learning methods in second language research. Also, they have another common ground, which is the need to shift the teaching methods from a teacher-centered approach to a learner-centered one. Early on, it was difficult for these two bodies of research to get their findings mingled together and reach a common ground or agreement. The most recognized research was by Rubin (1975) and Stern (1975) who classified learning strategies based on the learning situations of observed students. It was recognized then that language learners apply certain [cognitive] strategies to help them learn the target language (e.g., Chamot, & O’Malley, 1987). Following her 1975 study, Rubin (1981) classified and grouped learning strategies into two broad categories: (1) strategies that directly affect learning, and (2) processes that indirectly contribute to learning. Rubin subcategorized these two types into clarification/verification, monitoring, memorization, guessing and/or deductive reasoning, and practice. After the 1980s, advocates of language learning strategies began to step aside from the *cognitive theory of learning* to describe and analyze the linguistic behaviors with the inclusion of the social/affection process in language learning. One of the major theories in SLA that has been influenced by

language learning strategies is the *information processing framework* which investigated how L2 learners store L2 language in the memory and how this information is acquired. According to *information processing theory*, language learners acquire information in a four-stage process that involves selection, acquisition, construction, and interaction.

Then came a new classification of learning strategies by Anderson (1985, 2005), who divided learned knowledge in the memory into *declarative knowledge*, everything we know about, and *procedural knowledge*, the things that we know how to do. Hence, both LLSs and VLSs can be classified under these two types of learned knowledge. The distinction of several theories concerning VLSs were not established and connected until the acceptance of the language learning strategies in early the 1990s when advocates of *the cognitive theory of learning* started to recognize and realize what learners do in order to make their learning manageable and effective for their second language learning (e.g., Cohen, 1996; Nation, 1990; O'Malley & Chamot, 1990; Oxford, 1990; Pavičić Takač, 2008; Schmitt, 1997). For instance, most of the learning skills that learners used were memory related strategies “for remembering and retrieving new information, cognitive strategies for understanding and producing the language, and compensation strategies for using the language despite knowledge gap” (Oxford, 1990, p. 14). The most recognizable books in LLSs were *Language Learning Strategies: What every teacher should know* by R. L. Oxford (1990), *Learning Strategies in Second Language Acquisition* by O'Malley and Chamot (1990), and *Language learning: Insights for learners, teachers and researchers* by Cohen (1990). Among all these publications, Oxford's taxonomy included the most detailed features on LLSs. She classified strategies into six subcategories branching out from two major learning strategies; direct and indirect. In this specific volume,

Oxford highlighted the importance of LLSs for teachers and students in the second and/or foreign classroom.

The recent update that we know now about LLSs theory is the work by Oxford (2011, 2017) in which she emphasizes self-regulation in learning under the S2R Model. Self-regulation in learning is defined as follows:

[that which] comprises such processes as setting goals for learning, attending to and concentrating on instruction, using effective strategies to organize, code, and rehearse information to be remembered, establishing a productive work environment, using resources effectively, monitoring performance, managing time effectively, seeking assistance when needed, holding positive beliefs about one's capabilities, the value of learning, the factors influencing learning, and the anticipated outcomes of actions, and experiencing pride and satisfaction with one's efforts. (Dale H. Schunk & Peggy A. Ertmer, 2000, p. 631; as cited in Oxford, 2011, p. 11)

### **Vocabulary Learning Strategy Research**

One of the key aspects to learning a language is building good vocabulary knowledge. However, building vocabulary has proved to be as hard a process (Carter, 1998) as developing the language itself “in the long term” (Nation, 2013). Language learners have reported successful growth of their language learning by using VLSs (Gu, 2003, 2017; Kojic-Sabo & Lightbown, 1999; Nation, 2013; Schmitt, 2010b). One of the fundamental connecting threads between building vocabulary knowledge and developing the second language is the use of vocabulary learning strategies.

Lexicographical studies started in the 1980s (e.g., Simpson, Nist, & Kirby, 1987), reflected the perceived need for more accurate language description, and marked a turning point

for communicative syllabus design and language teaching methods (Schmitt, & McCarthy, 1997; Zimmerman, 1997). The introduction of VLSs in second-language acquisition was an initial effort to broaden the research in the lexical acquisition context, and more importantly to develop teaching methods of the second language. Early efforts of research into VLSs were outspread from two directions of research. Firstly, research of general language learning strategies pointed out that most learners who use learning strategies are in fact using VLSs (e.g., memory strategies in Oxford's classification, 1990) which maybe used in learning vocabulary. Secondly, research moved towards exploring the effectiveness of individual strategy application in vocabulary learning (Pavičić Takač, 2008, p. 58). Additionally, VLSs as a subfield of applied linguistic research, has been influenced by criticism toward the lack of research in lexical acquisition in the early 1980s (Carter, 1998; Meara, 1980), but it is no longer a neglected area of research (Schmitt, 2010b). Schmitt (1997) stated that language strategy research started as early as the 1970s due to a call for action to step away from the old "predominantly teaching-oriented perspective" to more of an exploratory approach into how the learners' actions in the classroom affect their language acquisition. The huge influence of language learning strategies research was seemingly obvious in second-language acquisition. Recognizing the works of learning strategies was mainly inspired by two interrelated disciplines: cognitive psychology and second-language acquisition. This study's focus will be on the latter to discuss the research overview on VLSs.

Researchers have recently agreed that studies on VLSs have gained incessant attention from teachers and students (Gu, 2005, 2010; Pavičić Takač, 2008). Most studies of VLSs began by building taxonomies (e.g., Gu, 2013; Gu & Johnson, 1996; Nation, 2001, 2013; Schmitt, 1997; Stoffer, 1995) to understand and record learners' strategy use (taxonomies of VLSs will be discussed in a separate section).



Moreover, the initial attempts to develop VLSs divided the strategies into different learning categories such as cognitive, metacognitive, social, affective, dictionary use (Carter, 1998; Scholfield, 1982), and determination strategies (e.g., Gu & Johnson, 1996; Schmitt, 1997; Stoffer, 1995; Zhang & Li, 2011). Tseng, Dörnyei, and Schmitt (2006) argued that strategic learning, of which they included motivation to use VLSs, is the most effective factor to empower language learners during the learning process. The topic of VLSs covers interrelated issues and areas of research including language learning strategies (e.g., Cohen, 1990; Oxford, 1990, 2011, 2017), vocabulary instruction (Hedge, 2000; Thornbury, 2002) and teaching (Carter & McCarthy, 1988; Nattinger, 1988), incidental and intentional vocabulary learning (Gu, 2005; Huckin & Coady, 1999; Nation, 2013; Nation & Webb, 2011), academic vocabulary (Coxhead, 1998, 2000; Hyland & Tse, 2007), vocabulary size, vocabulary size tests (VSTs), text coverage (Laufer & Ravenhorst-Kalovski, 2010; Nation & Beglar, 2007; Nation & Waring, 1997), receptive and productive vocabulary (Goulden, Nation, & Read, 1990), and word lists. Other related interdisciplinary lexical fields include psycholinguistics/neurolinguistics and computerized simulation vocabulary learning and processing. (for more details see section on VLS research methods). Besides these issues, we also need to look at learners' language proficiency and both teachers' and learners' training on VLSs to determine which are the most used and most effective. This study will look at and discuss an overview of the literature of VLSs, VLS research methods, vocabulary size, text coverage and word lists, taxonomies of VLSs, and autonomous vocabulary learning. Thus, building on these frameworks, my research will develop a thesis based on previous work that has attempted to support vocabulary learning in the EFL/ESL classroom context.

## **Vocabulary Knowledge.**

Measuring the depth and/or breadth of knowledge grew substantially “in the literature on second language vocabulary assessment, but it has been used by various authors in rather different ways” (Read, 2004, p. 209). The contemporary thriving in L2 vocabulary studies has created a need for various measures of lexical knowledge and ability. For instance, Read considered three major approaches of vocabulary knowledge: precision of meaning, comprehensive word knowledge, and network knowledge. While in some other studies, vocabulary knowledge can be outlined in a three-dimensional approach, and that is “vocabulary size, organization and accessibility” (Meara, 1996; Meara & Miralpeix, 2017, p. xi). However, the vocabulary or lexical knowledge can be unfolding in two aspects to investigate how much or how well vocabulary knowledge L2 learners know. These two aspects of vocabulary knowledge are called (a) breadth, and (b) depth. The *breadth* of vocabulary knowledge is how much lexical knowledge a L2 learner knows, i.e., the vocabulary size of the L2 learners in English language (Anderson & Freebody, 1981; Nassaji, 2006; Nation, 2001). While the *depth* of vocabulary knowledge is always refers to “the quality of lexical knowledge, or how well the learner knows a word” (Meara, 1996; Read, 2000 as cited in Nassaji, 2006, p. 390). Different studies focus on one or both of the vocabulary knowledge aspects among second language learners. Also, different vocabulary tests (e.g., Vocabulary Size Test and Vocabulary Level Test; see instruments section for more details) measure certain lexical knowledge either *receptive* vocabulary (breadth lexical knowledge) or *productive* vocabulary (depth or output vocabulary knowledge). Gairns and Redman (1986) have defined these dichotomies of vocabulary knowledge:

We understand ‘receptive’ vocabulary to mean language items which can only be recognized and comprehend in the context of reading and listening material, and ‘productive’ vocabulary to be language items which the learner can recall and use appropriately in speech and writing. (these terms are often called ‘passive’ and ‘active’ vocabulary.). (pp. 64–65)

This study will consider only and focus on the breadth of vocabulary knowledge before and after the VLSs intervention to investigate the effectiveness of certain VLS processes on L2 learners’ vocabulary growth (see data collection section for more details).

### **Vocabulary Learning Strategies**

Early studies on the area of language strategies began in earnest in the 1970s as part of the movement away from a predominantly teaching-oriented perspective to one that considered how the actions of learners might affect their acquisition of language (Schmitt, 1997, p. 199). This shift in language learning research prophesized the emergence of VLSs at a time when learners’ cognitive and social actions in learning a second language influenced the research in applied linguistics. VLSs have become one of the most intriguing areas of research in the last two decades (Carvalho, 2013; Gu, 2005, 2010; Pavičić Takač, 2008). However, empirical research into VLSs remains a rarity (Gu, 2005).

The term *strategy* was introduced and originally used in the military (Oxford, 1990) to refer to carefully designed plans for military operations (Gu, 2005, p. 1). In the context of language learning, strategy refers to a set of deliberate plans and operations a learner employs to facilitate the learning process and to boost learning results (p. 2). Learning a new lexical item in a second or even first language requires a complex process of mastering vocabulary knowledge. Such complexity includes aspects of vocabulary knowledge such as the form–meaning link, the

phonological system of the word, word context, and knowledge of a word and its relationship to other words. Early attempts to study VLSs were led by an interest in how individual learners strategize and control their own learning and use of language (Schmitt, 1997, 2010b; Tseng et al., 2006). In addition, Nation (2013) stated that most findings of VLS research concurred with more general language learning strategy use.

A few early studies on VLSs in second-language acquisition research were conducted starting in the 1980s. For example, Cohen and Aphek (1981) found that most second-language learners try to memorize new words. In Ahmed's study (1989), learners reported using note-taking of new vocabulary and/or note-writing in the margins of their book. In a correlating study by Dreyer and Brits (1994), the *keyword-semantic strategy* (i.e., "making an arrangement of words into a picture, which has the key concept at the center or at the top, and relating the words with the key concept by means of lines or arrows" (Oxford, 1990, p. 41) was statistically and significantly more favored and used by ESL learners than the keyword method. The keyword method links foreign words with English words that sound like a part of the foreign word (e.g., the Spanish *carta* sounds like the English *cart*). This (*cart*) is the keyword. Furthermore, other VLSs like the keyword method also received a great deal of attention (Pressley, Levin, Kuiper, Bryant, & Michene, 1982; Pressley, Levin, & Miller, 1982).

Among the VLSs researched, guessing from context was exceptionally popular (e.g., Nassaji, 2003; Nation, 1990, 2001, 2013). Learning new vocabulary from context or inferring from context was often used to improve reading comprehension of the new text. The common argument in studies concerned with incidental vocabulary learning (contextual guessing techniques) came from Krashen's (1989) view, which concluded that incidental vocabulary or

“acquisition” achieves better results than intentional vocabulary learning (Gu, 2005, p. 49).

Nation and Webb (2011), supported vocabulary learning meaning-focused:

It is thus important that the potential of vocabulary learning through meaning-focused input is well understood and that there is a good understanding of the conditions that favor or hinder such learning. [...] Such research provides evidence that could be used to support the advocacy of extensive reading programs. Research on vocabulary learning through reading can thus have very direct effects on classroom practices and the design of language courses. (p. 95)

However, learners use different methods and strategies to learn new vocabulary, and learners also differ in the frequency and consistency of their use of VLSs. Kudo (1999), in a similar study context to Schmitt (1997), found that the use of VLSs decreases over time, and older students may use less-popular strategies than those used by younger learners. Gu (2005) stated that this particular scope of research on the change of VLSs over time has not been researched enough, and there is still no conclusion to be made. Schmitt (1997) reported an important finding concerning this change of VLSs over time, commenting:

It may well be that some learning strategies are more beneficial at certain ages than others, and that learners naturally mature into using different strategies. If this is true, then we must take our learners’ cognitive maturity and language proficiency into account when recommending strategies. (p. 226)

### **Vocabulary learning strategy types.**

Different learners use different strategies depending on several learning factors such as the use of new technology, access to rich new texts, the education system, learners’ language motivation, and individual differences among all second-language learners (for more details on

individual differences among learners in second-language acquisition see Dörnyei, 2005). Gu (2003, 2005) specified that the choice, use, and effectiveness of VLSs depend on the task, the learners, and the learning context. This section will provide some common VLS types and their commonality based on the literature review. This section completes the picture of the VLSs that are most used and researched in second-language acquisition and provides a summary specification of each strategy.

Schmitt (2010b) provided comprehensive statistics of the top 10 VLSs and the frequency of use for the most well-known strategies based on two major studies by Gu and Johnson (1996) and Schmitt (1997). The following tables describe these strategies in detail including their rank-based results.

Table 1

*Mean Scores in Frequency of Use by Nine Categories*

<b>Category</b>	<b>M<sup>a</sup></b>
Guessing	3.54
Knowing words <sup>b</sup>	3.51
Analysis <sup>c</sup>	3.25
Dictionary	3.22
Sources <sup>d</sup>	3.07
Repetition <sup>c</sup>	3.04
Grouping <sup>c</sup>	2.54
Association <sup>c</sup>	2.51
Management <sup>e</sup>	2.51

<sup>a</sup>1 = never use, 5 = very often use.

<sup>b</sup> Using known words as part of learning, e.g., revisiting recently learned words.

<sup>c</sup> Different strategies for establishing meaning.

<sup>d</sup> Replaces the social/affective category.

<sup>e</sup> Metacognitive strategies.

Table 2

*Top 10 Vocabulary Strategies of L2 English Learners*

<i>Gu and Johnson (1996)</i>	M <sup>a</sup>
1. Beliefs: Learn vocabulary and put it to use	5.74
2. Dictionaries: Use for comprehension	4.97
3. Beliefs: Acquire vocabulary in context	4.94
4. Dictionaries: Use extended dictionary strategies	4.82
5. Guessing strategies: Use wider context	4.60
6. Metacognitive: Self initiation	4.58
7. Dictionaries: Looking up strategies	4.55
8. Guessing strategies: Use immediate context	4.47
9. Note taking strategies: Usage-oriented note taking	4.27
10. Metacognitive: Selective attention	4.23
<i>Schmitt (1997)</i>	% <sup>b</sup>
1. Bilingual dictionary	85
2. Verbal repetition	76
3. Writing repetition	76
4. Study the spelling	74
5. Guess from textual context	74
6. Ask classmates for meaning	73
7. Say new word aloud when studying	69
8. Take notes in class	64
9. Study the sound of a word	60
10. Word lists	54

<sup>a</sup>1 = the strategy/belief was extremely unlikely to be used/believed.  
7 = the strategy/belief was extremely likely to be used/believed.  
<sup>b</sup> percentage of respondents reporting that they used the strategy.

Adapted from Schmitt (2010b, pp. 90–91).

Each of the above-mentioned VLSs in the tables was tested and observed using different research measurements. Time of exposure to the new vocabulary was also considered to determine how many exposures are needed to learn a word. Nation (1990) claimed that, typically, 5–16 exposures are needed to master a new word from context. Another set of common VLS types includes incidental and intentional vocabulary learning: learners rely on written text in incidental learning, whereas in intentional vocabulary learning, learners seek extra strategies or techniques for vocabulary retention (Barcroft, 2009; Huckin & Coady, 1999).

However, each study that reported the use of VLSs by second-language learners remains culturally, socially, and significantly different in the context, task, learner, and strategies used. For instance, some studies focus on the effect of mnemonic VLSs and L2 picture association, or intentional learning of new words on lists (Barcroft, 2009; Ellis & Beaton, 1995).

Although the above-mentioned literature on VLS studies have accounted for advanced knowledge of our understanding of the learners' vocabulary learning strategies used, we still need to think in a micro level of the learners-strategic performances and processes during the intentional vocabulary learning to (1) determine the most effective, used and frequent VLSs, (2) investigate how many VLSs involved in each intentional vocabulary learning, (3) study what and how L2 learners process these VLSs, and (4) scrutinize closely what are the sequences or the order of VLSs that they deploy when encountering new words. Such information about VLSs habits will lead this study and further research to better teaching and learning methodologies in second language acquisition research and more importantly bring the learners' awareness of these intentional sequential VLS processes.

### **Vocabulary Size, Text Coverage, and Word Lists**

#### **Vocabulary Size.**

Measuring vocabulary size has gained an interest and attention in research (Nation & Webb, 2011). While this research interest may fall in different areas of the lexicography studies, "vocabulary size has been linked to intelligence, and another is that [it] is clearly a major determinant of successful language use. The larger the vocabulary size [someone] has, the more likely [he/she is] to be able to use the language well" (p. 195). Meara (1996) stated the importance of vocabulary size for the development of L2 proficiency as follows:



All other things being equal, learners with big vocabularies are more proficient in a wide range of language skills than learners with smaller vocabularies, and there is some evidence to support the view that vocabulary skills make a significant contribution to almost all aspect of L2 proficiency. (p. 37)

Additionally, there are three major approaches to vocabulary size research as marked by Nation and Webb (2011). First of these approaches is when counting the words that someone produces; second is counting the number of words in a dictionary and testing what proportion of these [words] are known; and third is sampling from various frequency levels and testing to estimate the of vocabulary known at each level (p. 196). Thus, this study is concerned with the third approach of measuring the vocabulary size of English language learners.

One of the critical issues in covering the discussions about vocabulary size and how we should measure it, is the differences of vocabulary threshold between native speakers and non-native speakers of English. For instance, it is known, from recent and updated data, that native speakers' receptive vocabulary knowledge [appears] to grow at the rate of around 1,000 word families [annually] up to the age of around 20 (Nation & Webb, 2011, p. 196). However, there are even great amounts of discrepancies of vocabulary size in-take and growth among each group of L1 and L2 language learners. Moreover, the vocabulary size growth rate of non-native speakers attending school in an English-medium environment seems to grow at about the same rate as that of native speakers (Nation & Webb, 2011, p. 196).

Different studies have been conducted to find out the lexical threshold needed to cover 95–98% of the reading text in English. Before I detail statistical calculations of the number of words needed by second-language learners to comprehend or produce written text in English, it is important to dive into the initial questions that led to the great body of vocabulary studies in

second-language acquisition (SLA). I. S. P. Nation (1990) and P. Nation and Waring (1997) discussed and researched some basic questions about vocabulary size. For example, they researched how many words a second-language learner needs and how many words there are in English. These questions influenced most studies on vocabulary learning and provided data about lexical acquisition in L2. I. S. P. Nation (2005) provided an inclusive update on the frequency distribution of vocabulary and the percentage frequency of a word appearing in a written text. He gave an estimate and typical frequency measurements of the most high-frequency words that appear more than others as shown in the following examples.

- The most-frequent word in a text, usually *the*, will account for about 6–7% of the running words in the text.
- The 10 most-frequent words will account for about 25% of the running words in a text.
- The 100 most-frequent words will account for about 50% of the running words in a text.
- The 1,000 most-frequent words will account for at least 70–80% of the running words in a text. (Nation, 2005, p. 581)

However, for a vocabulary size larger than the 1,000 most frequent words, second-language learners may have better text coverage and be more familiar with the newer text in English. The following table illustrates how much vocabulary in a written text can comprise a percentage text coverage in a corpus study called the Brown Corpus. It is still the most well-known diverse corpus of over 1,000,000 running words made up of 500 texts, each comprising around 2,000 running words (Nation & Waring, 1997, p. 9).

Table 3

*Vocabulary Size and Text Coverage in the Brown Corpus*

Vocabulary size	Text coverage
1,000	72.0%
2,000	79.7%
3,000	84.0%
4,000	86.8%
5,000	88.7%
6,000	89.9%
15,851	97.8%

Adapted from “Frequency Analysis of English Usage,” by Francis and Kucera (1982).

In an updated study of lexical threshold, Nation (2006) made a conclusion estimation from the 14 word-family lists.<sup>1</sup> He developed these lists from the British National Corpus (BNC) to determine what vocabulary size is required to reach a 98% coverage level of both written and spoken texts.

Table 4

*Typical Coverage and Range of Coverage of a Series of Word Levels*

Levels	Number of levels	Approximate written coverage (%)	Approximate spoken coverage (%)
1st 1,000	1	78–81	81–84
2nd 1,000	1	8–9	5–6
3rd 1,000	1	3–5	2–3
4th–5th 1,000	2	3	1.5–3
6th–9th 1,000	4	2	0.75–1
10th–14th 1,000	5	<1	0.5
Proper nouns	1	2–4	1–1.5
Not in the lists	1	1–3	1

(Nation, 2006, p. 79).

<sup>1</sup> The 1,000 word-family lists were made from a list of lemmas from the BNC. The range, frequency, and dispersion data that were used to divide the words into lists is thus based on lemmas and not on word-families (Nation, 2006).

Each level of the 14-word list contains 1,000 word families. Similarly, each level of the word-family is responsible for approximate coverage of the written and spoken text. Table 4 presents Nation's latest findings.

Nation (2006) made a conclusive estimate of the required number of words to cover 98% of a text in novels and newspapers, which was then agreed on by researchers such as Laufer and Ravenhorst-Kalovski (2010). In Beglar's study (2010), a VST measured the written receptive vocabulary size of 19 native speakers of English and 178 native speakers of Japanese who participated in the study. This study confirmed evidence for a 140-item form of the VST, which was designed to measure written receptive knowledge of the first 14,000 words of English.

Another means of estimating how many words a learner needs to be able to use another language is the word frequency list. According to Nation (2013), the vocabulary threshold is divided into three distinct groups according to their level of frequency in the word families: (a) high-frequency lists, (b) mid-frequency lists, and (c) low-frequency lists. Basically, high-frequency lists contain 2,000 word families and comprise 90% text coverage; mid-frequency vocabulary comprises 7,000 word families with 9% text coverage; and lastly, low-frequency vocabulary covers 1% of text with around 5,000 word families. The frequency-based word lists should assist and direct teachers and L2 learners to set their vocabulary learning goals and recognize the actual vocabulary level a student might need to reach. Some studies have reported a correlation between VLS use and vocabulary size growth (e.g., Waldvogel, 2013).

In summary, previous studies have recommended mastering the 2,000 word families from the high-frequency lists and almost half of the mid-frequency lists, which are collectively responsible for 95–98% text coverage. According to Schmitt (2007):

Most research indicates that knowledge of the most frequent 5,000 word families should provide enough vocabulary to enable learners to read authentic texts. Of course, many words will still be unknown, but this level of knowledge should allow learners to infer the meaning of many of the novel words from context and to understand most of the communicative content of the text. (p. 746)

While these word lists and text coverage percentage estimates may help second-language learners comprehend a larger text, specialized vocabulary such as academic words are also crucial for SLA. Furthermore, justifications of the VST were accounted for and a conclusion made on how much vocabulary is needed to cover 95% of text or more (Nation & Beglar, 2007). A final note on what and why vocabulary size is crucial is that “as a result [of many studies], vocabulary size is a key indicator of lexical ability” (Tseng & Schmitt, 2008, p. 366).

### **Academic Vocabulary**

Due to the complexity of vocabulary use in both written and spoken contexts, different specialized vocabulary lists have been created. For instance, the first attempts to discuss academic vocabulary acquisition were done by Flood and West (1950) who posed the following question: “How many words are needed to explain everything in science to someone who has little or no training in science?” (as cited in Nation, 2013, p. 289). In their study, they compiled a dictionary for readers of popular academic words, which included 1490 words. Another more recent well-known criterion for the most frequently occurring vocabulary in English is the Academic Word List (AWL; Coxhead, 2000), which is a very meaningful list of words for those who intend to use English for academic purposes. Coxhead developed the AWL from 570 headwords that contain the most frequent academic words used in academic English text. This academic list replaced *The University Word List*. The AWL collection was carefully selected by

examining a large corpus of written academic text (around 3.5 million running words). It is based on four principles in which the academic words occurred:

- (i) In texts from all four academic faculty sections: Arts, Commerce, Law and Science.
- (ii) Over 100 times in the corpus overall.
- (iii) At least 10 times in each academic faculty section.
- (iv) Outside the 2,000 most frequent words on Michael West's General Service List (GSL).

The GSL includes everyday words such as *I*, *house*, and *do* (Coxhead, 2000, p. 1).

Thus, learning vocabulary may require comprehensive and deliberate work, especially for the specialized vocabulary. Supporting this view of encouraging second language learners to know more academic vocabulary, Nation (2013) argued, “academic vocabulary is very important because it is common to a wide range of texts, accounts for a substantial number of words in academic texts, is different than technical vocabulary, and is very useful for language teachers to assist learners with” (p. 291).

### **Vocabulary Learning Strategy Research Methods**

Empirical research on vocabulary learning began to answer some of the major critical questions like “What can the ‘good language learner’ teach us?” (Rubin, 1975) and “What can we learn from the ‘good language learner’?” (Stern, 1975, as cited in Gu, 2005, p. 31). These empirical research questions were meant to engage general research on language learning strategies that learners utilize for their learning; however, vocabulary learning was among the most prevalent linguistic aspects that learners give attention to while learning the target language (Gu, 2005). In terms of vocabulary, learners may differ in how they master new vocabulary and that may influence which strategies they choose. Hence, vocabulary knowledge (both orthographic and phonological form), including form-meaning link, “knowing” a word and its

relationship with other words, and “using” the word automatically in both receptive and productive terms (Gu, 2005, p. 3) may require extra tactics and strategies to master them. The complexity of the vocabulary research phenomena has led to extra bodies of works being conducted comparing the retention effects of different vocabulary presentations strategies. The extensive research covered vocabulary theories (e.g., Carter, 1998; McCarthy, 1994; Nation, 1990), lexical research in second language (e.g., Gass, 1989; McCarthy, 1994; Meara, 1989) and practical tips (e.g., Gairns & Redman, 1989; McCarthy & O’Dell, 1994; Peregoy & Boyle, 2013). Gu (2005) indicated that in the last few decades, applied linguists (e.g., Meara, 1996; Nation, 1990; Schmitt, 1997) have come to realize that the vocabulary construct is multifaceted and contains much more than a simple configuration of form and meaning (p. 3).

As well, basic and early studies on VLSs were done quantitatively. Noticeably, those VLS research studies were exploratory studies to investigate how L2 learners strategize for their vocabulary learning (e.g., Gu & Johnson, 1996; Kulikova, 2015; Nation, 2001; Schmitt, 1997; Stoffer, 1995; Zhang & Li, 2011). The research methods used to investigate VLSs were mostly done by collecting data by eliciting learners to respond to questionnaires. Furthermore, research methods in VLSs followed the same course of development, either as part of general learning strategies or as their specialized subgroup (Pavičić Takač, 2008). A list of research methods used to study VLSs usually included classroom observation, analysis of video and audio recording, verbal learning, and teacher reports with the use of learners’ diaries followed by interviews. More recently, researchers use questionnaires, retrospective self-observation and computers to evaluate the learning strategy. These research methods diverge into two distinct types: (a) direct, and (b) indirect methods (McDonough, 1995, as cited in Pavičić Takač, 2008). As part of the indirect method, researchers might use, for instance, a questionnaire or discourse analysis to

collect the data in which learners decide on the extent of their agreement with a statement developed by the researcher. Whereas, direct methods (e.g., diary, interview) require learners to report on what they do when carrying out a language task (Pavičić Takač, 2008, p. 83).

Although the previous literature generally investigated vocabulary acquisition, VLSs research has become very popular among linguists, language teachers, and students (Gu, 2005, 2010). Hence, the questions that remain are as follows: How should we research VLSs? And what measurement(s) could be used to determine students' inner-ability or self-regulation strategies they use? Or what type of VLSs should learners use? Besides these questions, VLS advocates have begun to measure how much vocabulary a second-language learner should know (e.g., Laufer & I. S. P. Nation, 1999; I. S. P. Nation, 1990, 2001, 2013; P. Nation & Waring, 1997). Gu (2010) provided a widespread overview of the updates of the most recent studies on VLSs stating, "...two types of learning outcome measures have been used: language proficiency and vocabulary. Those who use the general language proficiency measure tend to find positive and significant correlations between VLSs and language proficiency" (p. 105). Thus, measuring VLSs tends to be a very significant in terms of SLA research.

Several studies have been reported to support VLSs as a whole. For instance, Mizumoto and Takeuchi (2008) investigated the effect of VLSs on TOEIC performance among a group of Japanese students and found that, among a group of variables, "vocabulary learning strategies as a whole had the greatest influence on TOEIC scores" (as cited in Gu, 2010, p. 105). Other studies reported VLSs findings based on vocabulary size measure (e.g., Gu & Johnson, 1996; Laufer & I. S. P. Nation, 1999; P. Nation & Newton, 1997).

It is crucial to note first that VLS research was an accumulative effort of the preliminary studies conducted in language learning strategies; however, Pavičić Takač (2008) stated that it



has been taken from the cognitive theory of learning. It is crucial too to note that VLSs intersect with multidisciplinary research frameworks due to the “free model” structure of the research concept. Pavičić Takač found that early studies on VLSs became popular due to two distinct theories: linguistics and psychological aspects. The most recent research so far has demonstrated a meaningful relationship between VLSs and learning results, either through a correlational approach (e.g., Fan, 2003; Gu & Johnson, 1996; Kojic-Sabo & Lightbown, 1999) or by establishing strategy similarities and differences among learners with different degrees of success (Gu, 1994, 2003; Moir & Nation, 2002). Looking at these results together, we can examine students’ self-regulation approaches in regard to being autonomous learners in language learning.

Researching vocabulary is a very complex study to conduct and measure, and “any single measure of it will give only a very minimal impression of the overall lexical knowledge constellation” (Schmitt, 2010b, p. 152). Although quantitative research was predominantly used in VLSs research, Schmitt argued for and recommended the use of different measurements to triangulate the research results and reach more robust conclusions. He suggested too that, for instance, interview results may supply and confirm students’ self-reported data on the vocabulary level test, which would help researchers collect accurate data about their participants. The need to use multiple measurements and methods in vocabulary research takes on several aspects according to Schmitt. The first aspect refers to describing vocabulary knowledge from a receptive/productive mastery. In this respect, some studies may gather data from one area of lexical knowledge, but not another, and this can lead to a generalization of findings. Meara (1996) warns of making [such] generalizations about lexical items being “learned” on the basis of only receptive multiple-choice tests, as is very often the case in vocabulary studies. However,

studies on learning strategies may involve unobservable behavior such as students working on their cognitive strategies, and these are too complex to be measured or verbalized.

The most current reliable vocabulary tests available are Vocabulary Size Test which “made its first appearance in Appendix 2 of *Focus on Vocabulary* (Nation & Gu, 2007) and Appendix 4 of *Teaching Vocabulary* (Nation, 2008, as cited in Schmitt, 2010b, p. 198). The second test is Vocabulary Level Test which was developed by N. Schmitt, D. Schmitt, and Clapham (2001). These two tests are the most reliable and valid vocabulary tests that are available (Nation, 2013; Read, 2012; Schmitt, 2010b). Therefore, vocabulary researchers should be very competent and skillful at choosing and designing measurement instruments to accurately describe the aspect of vocabulary being used (Schmitt, 2010b, p. 173). Also, Meara and Miralpeix (2017) introduced new and very comprehensive collections of tools for researching vocabulary, which include most recent computer programs that have been developed to measure and model vocabulary knowledge.

Another issue concerning research in VLSs is getting the participants’ involvement and cooperation in the study. Schmitt (2010b) addressed this issue particularly for studies that require a big population and/or for longitudinal projects. Meara (1996) recommended that lexical researchers need to carefully consider the number of subjects for a study, ensuring it’s enough to iron out the variation due to individual differences (as cited in Schmitt, 2010b, p. 150). Language proficiency is also another issue that requires researchers to highly consider what determines the degree of which learners can benefit from any language learning tasks or tests.

Vocabulary research has also expanded its area of research through computer simulation processing as lexical data often represent too much complexity for the human mind. Many advocates of lexical research favor the computerized simulation of vocabulary learning and

processing (e.g., DEVLEX model; Meara, 2006), which focuses on the mental lexicon activities and word networks in the mind (as cited in Schmitt, 2010b). These theories of research in vocabulary learning observed also whether individual lexical items are retained or forgotten (e.g., Meara, 2004, as cited in Schmitt, 2010b, p. 103).

Some current theories on vocabulary research include psycholinguistic/neurolinguistic research, which uses a well-known neurological technique called Functional Magnetic Resonance Imaging (fMRI) that detects the speed and the visual concept of the lexical items in the brain. For instance, a recent study by Sahin, Pinker, Cash, Schomer, and Halgren (2009) on the *Sequential Processing of Lexical, Grammatical, and Phonological Information Within Broca's Area* showed that lexical activity in Broca's area (located in the left hemisphere of the brain) took ~200 ms, compared to ~320 ms for grammatical activity, and ~450 ms for the phonological sort. All of this was determined by the same participants processing nouns and verbs as a task during fMRI scanning. The findings of this study expressed that linguistic forms are processed sequentially and predicted in computational grounds that have been implemented "in the brain in fine-grained spatiotemporally patterned activity" (Sahin et al., 2009, p. 445).

However, with the advancement of these research theories in lexical studies, Schmitt (2010b) argued that there is currently no overall theory of vocabulary acquisition due to the complexity of vocabulary knowledge, the large number of lexical items that have to be learned, and the diversity of those items (p. 97). In addition to that, Tseng and Schmitt (2008) and N. Schmitt (personal communication, March 22, 2017) refer to vocabulary theory as a model called Structural Equation Modelling (SEM). Hence, researching vocabulary is still a young field in applied linguistics, and especially in VLSs. Gu (2010) made considerable progress in VLS research in which he reported: "Besides the lack of knowledge about productive vocabulary

learning strategies, very little is known about the change of VLS over time; nor do we know much about the effect of this change on the development of vocabulary along both passive and active dimensions” (p. 106).

### **Vocabulary Learning Strategy Taxonomies**

From the SLA perspective, the study of VLSs has been seen and researched in two facets: (a) of mental activities by L2 learners, and (b) of social and interactional forms in which L2 learners practice their ability to study new words (Kudo, 1999). After shifting the focus from the teaching-oriented era to introducing the learners' behavioral strategy to learn language in the late 1970s, several studies concerned with how a learner maintains and controls language learning then cascaded to open the research theories and practices in favor of VLS. These changes led to some attempts to create VLS taxonomies as part of research into learners' strategy use.

Among the first of these taxonomies was Schmitt's (1997), which was organized around Oxford's (1990) social, memory, cognitive, and metacognitive categories (Nation, 2013). The following sets of VLSs categories are from Schmitt's study.

#### ***Strategies for the discovery of a new word's meaning***

##### **Determination strategies**

- Analyze part of speech;
- Analyze affixes and roots;
- Analyze any available pictures or gestures;
- Guess meaning from textual context;
- Use a dictionary (bilingual or monolingual)

##### **Social strategies**

- Ask teacher for a synonym, paraphrase, or L1 translation of new word;
- Ask classmate for meaning

#### ***Strategies for consolidating a word once it has been encountered***

##### **Social strategies**

- Study and practice meaning in a group;
- Interact with native speaker

##### **Memory strategies**

- Connect word to a previous personal experience;
- Associate the word with its coordinates;
- Connect the word in its synonyms and antonyms;
- Image word's meaning;
- Group words together to study them;
- Study the spelling of a word;
- Say new word aloud when studying;
- Use physical action when learning a word

#### **Cognitive strategies**

- Verbal repetition;
- Written repetition;
- Word lists;
- Put English labels on physical objects;
- Keep a vocabulary notebook

#### **Metacognitive strategies**

- Use English-language media (songs, movies, newscasts, etc.);
- Test oneself with word tests;
- Skip or pass new word;
- Continue to study word over time.

Also, Nation (2001) developed a taxonomy of VLSs by categorizing learning strategies into Planning, Sources, and Processes. In the first category, L2 learners must plan ahead for their vocabulary learning. After planning for vocabulary learning, L2 learners can explore the sources of the new words, which is how and where to find information about the new words. The third strategy, process, is the stage to establish vocabulary knowledge based on the previous two strategies (as cited in Alharbi, 2015, p. 503).

Gu and Johnson's study (1996) categorized VLSs into eight different types, including beliefs about vocabulary learning, metacognitive regulation, guessing strategies, dictionary strategies, note-taking strategies, rehearsal strategies, encoding strategies, and activation strategies. However, Stoffer (1995) categorizes VLSs into nine different strategies. She included some psychological strategies that students may exhibit such as overcoming anxiety strategies

and physical action. In Stoffer's study (as cited in Kudo, 1999; Pavičić Takač, 2008; Schmitt, 1997) study, there were over 700 participants who responded to Vocabulary Strategy Inventory or *VOLSI* questionnaire with 53 individual strategies managed around the following nine categories:

1. Strategies involving authentic language use,
2. Strategies involving creative activities strategies,
3. Strategies used for self-motivation,
4. Strategies used to create mental linkages,
5. Memory strategies,
6. Visual/auditory strategies,
7. Strategies involving physical action,
8. Strategies used to overcome anxiety and
9. Strategies used to organize words.

Another taxonomy of VLSs was proposed by Ma (2009) as an alternative *process-oriented* approach. In her study, Ma classified vocabulary acquisition stages as follows:

1. A new word is encountered through different contexts
2. The meaning of the word is found out
3. Various aspects of the meaning and form of the word are studied
4. The information about the word is recorded or organized
5. The word is memorized with the help of some strategies
6. The word is reviewed to ensure retention
7. When the word is met again, it is retrieved
8. The word is used to consolidate its acquisition. (p. 164)

Finally, in a recent study conducted by Zhang and Li (2011) factor analysis was used to arrive at a six-part classification of vocabulary strategies, each of which falls into one or more of the following categories- cognitive, metacognitive, and affective categories.

### **Autonomous Vocabulary Learning**

A major fundamental aspect of vocabulary learning is that it requires learners to be autonomous and take control of their learning during every step of the way. No matter what the teacher does or what the course book presents, ultimately the learner does the learning (Nation, 1998, p. 9). Being an autonomous learner means that the learner will need to apply a set of tasks, strategies, activities, and more to master the new lexical items efficiently. However, learners may vary in their ability to achieve their vocabulary learning goals according to their language motivation (e.g., Dörnyei, 2005; Tseng et al., 2006), vocabulary task and level, learning and teaching context, and rich access to new text and materials. Nation (2013) has classified vocabulary learning autonomy into eight sets of principles. Each one of these principles was organized around and based on the syllabus design process, namely: (a) goals; (b) content and sequencing; (c) format and presentation; and (d) monitoring and assessment.

**Principle 1:** Learners should know what vocabulary to learn, what to learn about it, how to learn it, how to put it to use and how to see how well it has been learned and used.

**Principle 2:** Learners should continue to increase their vocabulary size and enrich the words that they already know.

**Principle 3:** Learners should use word frequency and personal need to determine what vocabulary should be learned.

**Principle 4:** Learners should be cautious of what is involved in knowing a word and should be able to find that information.

**Principle 5:** Learners should be familiar with the generalizable language systems that lie behind vocabulary use.

**Principle 6:** Learners should know how to make the most effective use of direct, decontextualized learning procedures.

**Principle 7:** Vocabulary learning needs to operate across the four strands of meaning—focused input, language-focused learning, meaning-focused output, and fluency development.

**Principle 8:** Learners should be aware of and excited by their progress in vocabulary learning.

According to Nation (2013) these vocabulary learning principles are very important to offer a dialogue about learning, for personal reflection and for a systematic coverage of the field of knowledge (p. 584). Thus, learners must reach for and achieve these principles accordingly with the assistance of teachers and practitioners too. It would be of beneficial practice to include these eight vocabulary learning principles within the students' portfolio or as learning guides in the textbooks they study during the English learning program.

### **Summary of the Literature Review**

To recapitulate, understanding what it takes to learn, research, or even teach vocabulary depends solely on how complex it is to capture the knowledge of vocabulary. Vocabulary acquisition research intersects with multidisciplinary frameworks including language learning strategies, VLSs, psycholinguistics, neurolinguistics, vocabulary teaching and learning, text coverage and vocabulary size, specialized vocabulary, and the four language skills. It is known that vocabulary studies were undervalued until the early to mid-1990s. Also, it has been seen that after the 1980s, pioneers of vocabulary studies started to build vocabulary word lists and design vocabulary tests to measure L2 learners' language proficiency.



One of the emergent frameworks that enriched the lexical research was VLSs, which responded to the need to step away from the old tradition of teaching in the second-language context into a learner-centered approach of teaching. This shift was mainly to discover the learners' approach of learning a new language and their strategic behaviors. However, VLSs had the lion's share to capture what a "good" learner does for their learning. And through the cascade of vocabulary studies in the early 1990s, applied linguists started to realize how important lexical research is for the sake of language acquisition development. Among the most influential subfields of vocabulary research, which changed how we think about SLA, is building the vocabulary size corpus database and the text coverage percentage needed for the second-language learner to comprehend 95–98% of English text, thus being able to see the learners' vocabulary level. Furthermore, in terms of vocabulary learning research methods, "vocabulary learning is longitudinal and incremental in nature, and only research designs with a longitudinal element can truly describe it" (Schmitt, 2010b, p. 156).

To this end, this section of the study explores an introductory overview history of the vocabulary acquisition research in SLA, with a focus on certain frameworks and theories. These frameworks include L2 vocabulary acquisition, an overview of the literature of VLSs, VLSs research methods, vocabulary size, text coverage and word lists, taxonomies of VLSs, academic vocabulary, and autonomous vocabulary learning.

Last but not least, vocabulary research has been seen as a "model-free" concept, and for some vocabulary advocates it shouldn't be seen as a *theory*, but rather as a "structural equation model" (N. Schmitt, personal communication, March 22, 2017; Schmitt, 2010b; Tseng & Schmitt, 2008). However, in both paradigms of vocabulary research, lexical knowledge and studies are still being researched, especially in terms of active vocabulary size, VLSs change

over time, and the sequencing and/or processing of VLSs from a global perspective. These implications, alongside others, will definitely influence and direct further investigations and enrich second-language acquisition research.

### Chapter 3: Methodology

The current study investigates the usage of *sequential* VLS processes by bilingual learners of English at a high school level. The institution in which this study took place is the Center for Research and Development of Bilingual Education (Centro De Investigación y Desarrollo De Educación Bilingüe) located in México. This institution uses English as a medium of instruction for all its science and social subjects. It has several academic majors, advanced teaching and learning facilitates and certified English language teachers in all levels. English teachers at this high school must obtain or hold MA or PhD degrees in language teaching areas of expertise to be able to teach. All participants speak Spanish as their native language.

This study uses an explanatory mixed methods approach with a quasi-experimental design to investigate the use of VLS process by bilingual learners of English. The use of mixed methods research has been growing rapidly in the last decade (Creswell, 2014; Ivankova & Creswell, 2009; Mackey & Gass, 2016) especially in L2 learning strategy research (Oxford, 2011) and in applied linguistic field of study (Dörnyei, 2007; Heigham & Croker, 2009). More specifically, this research will integrate and use Convergent Parallel Mixed Methods (CPMM) to reach a validation accuracy result for the research data. The reason to choose this CPMM design is to close the gap in this literature about VLS research and reach greater validity. By using this approach, the data will be compared and then interpreted using the Statistical Package for the Social Sciences (SPSS) software. The research design for this study allows the researcher to obtain data from several instruments, including a vocabulary learning strategies questionnaire designed by the researcher (enhanced from Alharbi's 2015), quantitative vocabulary tests and qualitative interviews using immediate retrospection. The intent of the interviews is to reach high reliability of results through the participants' self-selection report and test results. Schmitt

(2010b) argued that most reliable lexical studies use qualitative data collected from interviews to confirm accuracy of self-reported behavioral data. Additionally, there will be a vocabulary learning strategy treatment/intervention for three to four weeks during the data collection phase to determine significant change or progress of the students' vocabulary size. Thus, this study will collect data from an experimental group and a control group to reach a robust conclusion and analysis of the study findings.

### **Research Context**

For second language learners, studying the English language requires enough of a vocabulary size to cope with and understand the new texts. More importantly, L2 learners need to build a good language foundation to have successful entry and adjustment to an English-medium university, and to communicate in English. The context of this study will be to investigate second language learners' use of vocabulary learning strategies in an EFL/ESL context. This study seeks high-school EFL Spanish speakers (bilingual Spanish–English speakers) in a Spanish-speaking country as targeted participant to investigate the above-mentioned research questions. These participants study and receive English instruction for math, science, literature, and the four language skills (from 7<sup>th</sup> grade to college level). The targeted participants will be those who are in their last year of high-school and with the required high scores in all four language skills in English to be admitted at the university level.

### **Participants**

This study recruited participants from two groups of Spanish–English bilingual speakers (each group has 35 participants,  $N = 70$ ) attending public high school in a Spanish speaking country. All participants (ages 16–17) are advanced bilingual students and are in the last semester of their high school level. Additionally, about 80% of those bilingual students have

been through private school education and scored very high on their school exams. At the institution where this study took place, bilingual students must pass the admission *TOEFL ITP*<sup>®</sup> Assessment Series test (Paper-based test) and four other TOEFL complete tests at the end of each year. As described on the ETS website:

The *TOEFL ITP*<sup>®</sup> Assessment Series offers colleges and universities, English-language programs and other organizations the opportunity to administer a convenient, affordable and reliable assessment of English-language skills. The TOEFL ITP Level 1 and Level 2 tests can be used for placement, monitoring progress, evaluation, exit testing and other situations. The *TOEFL ITP*<sup>®</sup> tests measure core English-language skills using 100 percent academic content similar to what is used in actual classroom tasks. (*TOEFL ITP*<sup>®</sup>, n.d.)

The purpose of choosing advanced-level proficiency students in English is that they can manage and control their language learning to be able to apply or use such vocabulary learning strategies for the new lexical comprehension. As Schmitt (2010b) pointed out, those advanced learners will have [the potential with the] previous language knowledge which facilitates their learning (p. 151). These participants usually study and receive English instruction for the math, science, literature, social studies and the four language skills (during high school education). The five sets of variables mentioned assumed to guide this study to address the most frequent, efficient, and sequential strategies used by bilingual learners of English. Due to its context, the two groups of participants involved in this study have a certain academic profile according to their language background, culture, English learning classrooms and the level of proficiency they obtained during the time of gathering the data. The participants' TOEFL scores descriptive analysis have been collected (obtained from the school registration office) and computed as shown in Table 5.

Table 5

*Descriptive Statistics of the Participants' Overall TOFEL scores (N = 70)*

		<b>Group A</b>	<b>Group B</b>
N	Valid	35	35
	Missing	0	0
<i>Mean</i>		539.54	550.66
<i>Median</i>		543.00	557.00
<i>SD</i>		49.849	53.046
<i>Minimum</i>		410	360
<i>Maximum</i>		633	657

### **Instruments**

This study gathered data using several instruments. The first instrument is the VLS Questionnaire (VLSQ) that was developed and validated by Alharbi (2015) for this research. It includes demographic survey items, educational and language background items, and VLS items (five variables of VLS). Second, to collect and measure the participants' vocabulary size, I will administer the vocabulary size test VST (Beglar, 2010; Nation & Beglar, 2007) in two phases (pre- and post-test) to help determine and investigate significant changes in the participants' vocabulary size scores before and after the VLS intervention. Third, this study hypothesizes a certain process of vocabulary learning strategies, specifically, a sequential VLS treatment for three to four weeks. In this intervention, participants will apply a set of sequential VLSs (discussed in the next section) to acquire new vocabulary during their English classes. After completing the intervention process and the post VST, immediate retrospection interviews will be recorded in order to obtain qualitative data from both the experimental and the control group.

In addition to that, this study does not have control over the participants' self-report input in either research instrument (i.e., the survey and the VST) or over their learning capacities for constant application of the VLSs. These limitations must be mentioned in order to emphasize the

students' roles in applying each of the substrategies that they are asked to implement. Hence, I will use some simulation-based learning hand-outs in the classroom and hand the VLSs guide to the students during the VLS treatment. Another limitation is the nature of the students' learning environment inside and outside the classroom, which could influence participants' responses to the study instruments.

### **VLS Questionnaire (VLSQ).**

Most studies on VLSs “frequently makes use of questionnaires to elicit data” (Gu, 2017, p. 1). This study gathers the initial data about vocabulary learning strategies using a VLS questionnaire (adapted from Alharbi, 2015). The questionnaire designed uses a Likert-scale to elicit information about how *sequentially* second language learners look up new words following the five steps continuum as follows: (1) Guessing meaning of a new word with its context; (2) Building synonyms network; (3) Listening and pronunciation process; (4) Bookmarking word search (note-taking strategies); and (5) Remembering strategy for writing. Hence, the investigator aimed to explore which of the five sets L2 learners use. Adding to the scope of this research, the questionnaire elicited data about the VLS (the five sets of strategies mentioned above) in order to rearrange their sequence in which learners look up new words. This became part of the study assumption about investigating the use of particular VLS steps or processes to learn and comprehend new vocabulary. The questionnaire had 27 items with 20 items covering the VLS and seven items seeking information related to L1 background, language level, educational level, visiting English speaking countries, and job position. There were five Likert-scale options to choose from, ranging from (1) Never Use to (5) Very Often Use. Participants responded to some 30 items in this questionnaire including some demographic information questions and first and second language background items.

To confirm the reliability of this VLSQ items, a reliability test was computed to ensure each item of the questionnaire fits under equal distribution of the all VLSs items. For Cronbach's alpha test of reliability, .70 is considered acceptable and .80 or greater is preferred. Table 6 shows the reliability statistics of the VLSQ utilized in this study with a score of .798, indicating that the survey is reliable.

Table 6

*Reliability Statistics of the VLSQ (N = 70)*

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.732	.727	20

Table 7

*Summary Item Statistics for the VLS Questionnaire*

	Mean	Minimum	Maximum	Range	Variance	N of Items
Item Means	3.468	2.600	4.200	1.600	.288	20
Inter-Item Correlations	.118	-.291	.670	.961	.030	20

**The Vocabulary Size Test.**

The Vocabulary Size Test (VST) was “developed to provide a reliable, accurate, and comprehensive measure of a learner’s vocabulary size from the first 1000 to the fourteenth 1000-word families of English” (Nation & Beglar, 2007, p. 9). The Vocabulary Level Test (Nation, 1990; N. Schmitt, D. Schmitt, & Clapham, 2001) and VST are some of the examples of the vocabulary size tests, that can be used to estimate the total number of words a learner knows (Read, 2012, p. 260). Moreover, research in vocabulary usually discusses the depth of vocabulary knowledge or its size and the breadth (Nassaji, 2006; Read, 2004). “Breadth of



vocabulary knowledge has been taken to refer to the quantity or number of words learners know at a particular level of language proficiency” (Nation 2001, as cited in Nassaji, 2006, p. 389). In this study, particularly, I will look at the significant change of the breadth of vocabulary knowledge that the participants have with and/or without using the sequential VLSs proposed. Accordingly, and for the purposes of this study, to identify and measure students’ vocabulary size in the second language, the VST (Beglar, 2010; Nation & Beglar, 2007) will be used to collect students’ overall average of the vocabulary size scores. This test measures only the learners’ general vocabulary receptive knowledge of the 5,000–8,000 most frequent word families. The VST samples from the most frequent 14,000-word families of English. The test consists of 140 items (ten from each 1000-word level; Nation & Beglar, 2007). Each item in the VST measures written receptive vocabulary in English. Each student’s vocabulary size score on the test is multiplied by 100 to get their vocabulary size (Nation, 2013). The test measures knowledge of written word form and the form-meaning connection. It is divided into 1,000-word frequency bands, and ranges from the first 1,000 band to the fourteenth 1,000 band. Each 1,000-word frequency band contains ten items, so each item represents 100 words within that frequency band. The following is a sample question from the test:

*Circle the letter a-d with the closest meaning to the key word in the question.*

STRAP: He broke the **strap**.

- a. promise
- b. top cover
- c. shallow dish for food
- d. strip of material for holding things together

Nation (2013) stated that the VST is a reliable and well proven test to use. Also, the Rasch model was able to account for 86% of the total variation in the test scores, and the test items generally had good technical characteristics. The reliability figures of the VST were very

high (0.96–0.98; Beglar, 2010, as cited in Schmitt, 2010b, p. 199). The participants of this study completed and accessed the VST from the online gateway (<http://my.vocabularysize.com>); Nation (2013) stated the efficiency of the Myq Larson’s website. This online VST gateway “mix[es the test] items from different frequency level result in better sustained attention to the test rather than having the learners go from easy high-frequency items to difficult low-frequency items” (p. 36).

### **Interviews (immediate retrospection).**

In addition to the VST, this study used interviews to confirm and reach more robust findings qualitatively. Schmitt (2010b) suggested that interview results may supply and confirm students’ self-reported data on the vocabulary level test, which helps researchers collect accurate data about their participants. It will also help explain how and why bilingual learners use certain processes of VLSs. The immediate retrospection interview questions are motivated by the theoretical and empirical research literature on vocabulary size, the autonomous vocabulary-learning principles, and the vocabulary learning strategies; more specifically, Nation’s (2013) principles and Gu’s (2013) and Schmitt’s (2007) strategies that were discussed in Chapter 2. Also, some part of the interview questions was stimulated and adapted from Gu’s, book *Vocabulary Learning Strategies in the Chinese EFL Context* (2005, pp. 205–206). See Appendix B for the complete interview questions.

### **Data Collection Procedures**

The data for this study gathered from two groups of bilingual Spanish–English speakers who take science, art, math, and history classes in Spanish and English at the high school level in Mexico. Also, due to its nature and concentration on investigating which VLS leads to better vocabulary learning, this study uses the CPMM research method to integrate and compare the

findings. The data collection processes and procedures are comprised of four phases: (1) administer the VLSQ to all the participants ( $N = 70$ ) in order to gain basic educational background information, English vocabulary learning experiences, and beliefs about learning new words; (2) implement VLS treatment intervention sessions (4 weeks); (3) administer pre- and post-VST (one before the VLS intervention and one at the end of the treatment process); and (4) conduct immediate retrospection interviews. Each process gathers and collects different vocabulary acquisition data from the participants. Figure 1 shows the study overview process.

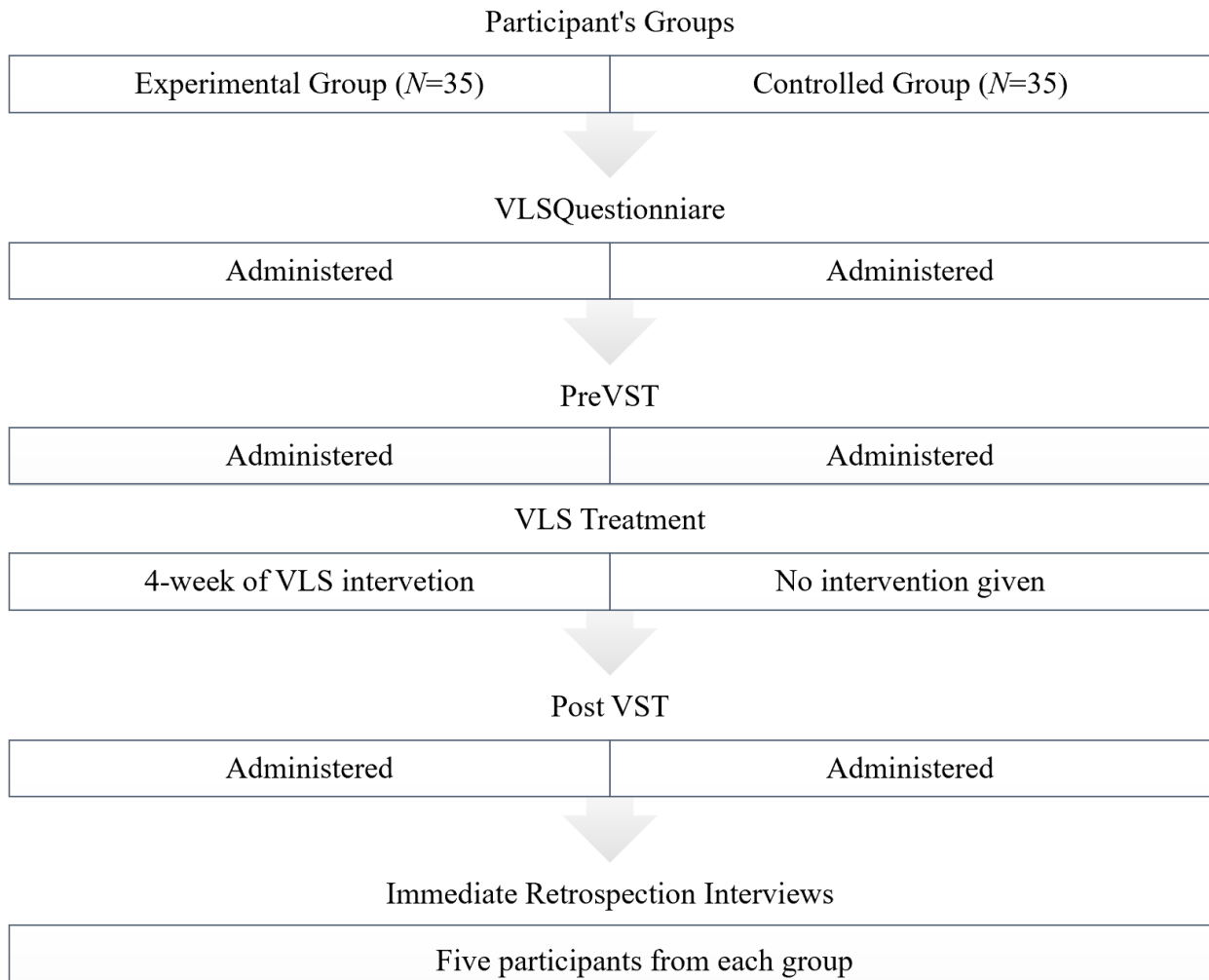


Figure 1. Present Study Overview

The significant difference in this study lies in two dimensions of the data collection processes. The first of these is its focus on the five sequential VLSs Vocab-Backup Strategy (VBS) adapted from Alharbi (2015) that have been chosen to measure the possible increase/change on students' overall vocabulary size after implementing them during language learning. The second dimension or aspect is to look at and investigate this process of the VLSs for two groups of participants, one being experimental and the other controlled. The VLSQ of this study has been designed, tested, and validated by the researcher of this study (see Chapter 4 for the reliability statistic test of the VLSQ). I sorted the questionnaire items according to five VLS variables including; (1) Building synonyms network; (2) Guessing meaning with its context; (3) Listening and pronunciation process; (4) Bookmarking word search (note-taking strategies); and (5) Remembering strategy for writing (Alharbi, 2015). The following table illustrates the five VLS variables of this study linked with its learning strategy categories. Each of the VLSs used for this study has been matched with the overall VLS taxonomy's categories such as in Schmitt (1997) and Gu (2013).

Table 8

*Description of the five Sequential VLSs Variables for the Study*

<b>Learning Strategy Categories</b>	<b>VBS Five Variables</b>
Memory Strategies	Building synonyms network
Determination Strategies	Guessing meaning with its context
Social/Affective Strategies	Listening and pronunciation process
Determination/Metacognitive Strategies	Bookmark word search (note-taking strategies)
Cognitive/Memory Strategies	Remembering strategy for writing

Based on these five variables, participants in the experiment group have been introduced to these VLSs in a sequential process to deploy and/or apply them during the VLS treatment.

Figure 1 illustrates the process of the data collection of this study.

After I obtained approval from the school, I began the study in the spring of 2018 at the Center for Research and Development of Bilingual Education in Mexico. The student population of this high school is around 600 students who are enrolled in the following three different programs: (1) International Bachelor program (three years), (2) Bilingual Bachelor program (two years), and (3) Progressive Bachelor (two years). Each of these programs comprises a different level of students ranging from beginner, intermediate, and advanced. All participants must pass the TOEFL paper-based test to get admission to the school and are then weighted against four TOEFL tests (complete test) each at the end of the semester to measure students' academic progress. In those programs, English instruction taught based on grammar, writing, listening, speaking and reading skills during the bachelor program. The high school provides the textbooks to the teachers. For the English subject, teachers use the *Interactive Reader* textbook for grade 10 (McDougal 2012). The teaching approaches used in this high school is mixed of grammar-translation and communicative methods with some interactive technological resources used during classes.

### **Data Analysis**

The data analysis of this study is comprised of different phases in accordance with the explanatory mixed methods approach used, each of which necessitates a different type of analysis treatment. Thus, I considered using the CPMM model (Creswell, 2014) to find a comparison and/or relate the results of the significant vocabulary size scores collected from the participants.

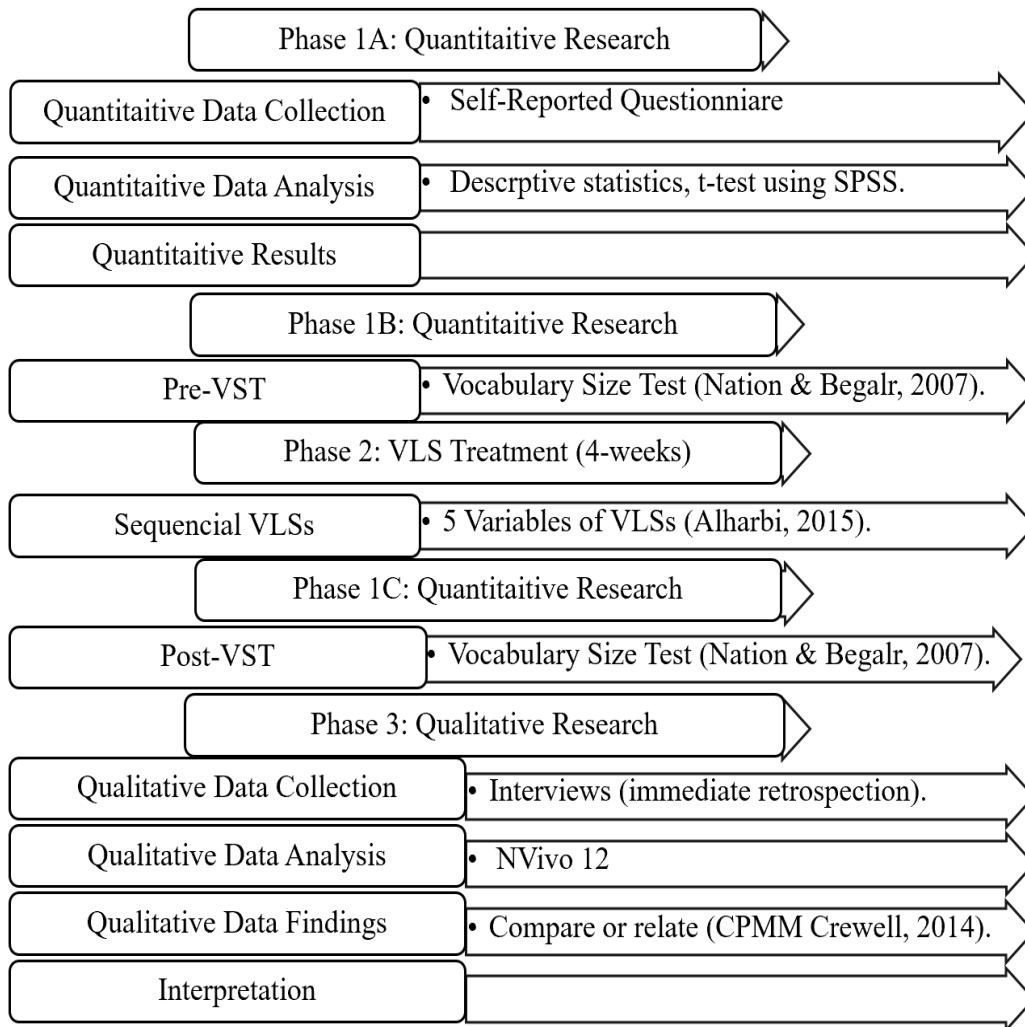


Figure 2. Explanatory Sequential Mixed Methods Design

### Analyzing the VLSQ.

To analyze the VLSQ data, I used SPSS to obtain the statistical results of the students' beliefs about vocabulary learning strategies. The two groups' resulting data have been matched with their vocabulary learning strategies and habits in this process to pinpoint the most used variables among the five sets of VLSs proposed for this study. After that, the statistical data have been combined, compared and/or related with the descriptive data gathered from the interviews. More on the VLSQ analysis will be discussed in Chapter 4.

### **VST Scorings.**

After obtaining the VST scores from all the participants using the VST online portal account (see Appendix A for the VST), this data has been treated separately for the experimental and the controlled group. Then both descriptive statistics along with inferential statistics are used to investigate the results of the tests performed, namely the VST. The participants' vocabulary size scores from both groups have been computed according to the vocabulary size average required for the EFL/ESL students to obtain (1000–5000 word-families more or less depending on their VST scores). Also, each group's average number, median, and the standard deviation have been computed to compare and/or relate the vocabulary size scores' significant frequency, regression analysis and the significant correlation scheme. After that, analysis of all students' scores from both tests have been computed for the central tendency using SPSS.

### **VLSs Treatment.**

The central scope of this study is to measure and widen the study literature on L2 vocabulary acquisition from the sequential VLS process perspective by applying the five sets of VLSs. As of writing this study, no single study has been conducted to measure the vocabulary size output using sequential VLS processes (mixed method approach) for the EFL students. Only those in the experimental group applied and implemented the five VLSs variables selected for this study. Accordingly, in applied linguistics research, the manifestation of the experimental and statistical data provide and construct “‘hard’ evidence as compared to the ‘soft’ evidence evolving from the more interpretative research that dominates in the humanities” (Lowie & Seton, 2013, p. 9). In this process, participants have been given Nation's (2013) principles of autonomous vocabulary observed during the VLS instruction and their overall learning behaviors

and performance. Both Nation's (2013) eight principals and Alharbi's (2015) five categories of VLSs have been presented to the participants to enforce VLSs during the intervention time.

### **Data analysis and coding for interviews.**

The interview data analysis will use Nation's (2013) principles of vocabulary learning autonomy and Alharbi's (2015) VLSs categories, but also will consider two VLS taxonomies—those of Schmitt (1997) and Gu (2013). The selection of these frameworks helps guide this study to interpret the participants' vocabulary learning tactics and draw a conclusion analysis based on them. After recording and transcribing the interviews, data were coded for VLSs use, sequential VLS processes, and the usage of the five VLSs variables. Analysis of the interviews' transcripts and data have been treated using NVivo 12 software.

Thus, the coding for the interviews was based on the above mentioned VLSs studies and then related to this research study's findings. Chapter 5 will deal with and discuss the interviews' interpretations, findings, and discussion and draw a conclusion. Five participants out of each group have been selected for the interviews (see Ch. 5 for more details). The analysis and interpretation of the interviews' data will be examined using NVivo 12<sup>th</sup> edition.

### **VLSs Intervention Outcomes Analysis.**

The analysis of the VLS intervention will be guided by several measurements level (e.g., observational notes, follow up discussions, VLS use). During the VLS treatment, each student completed and submitted his/her vocabulary note book. After applying and enforcing the five VLS variables selected for this study to ( $N = 35$ ) bilingual speakers, post-VST data have been collected from both groups to measure the significant variance among them. The participants VLSs records and notes were collected for each vocabulary learning sessions during the study data collection. More on the VLSs intervention outcomes analysis and discussion will be discussed in Chapter 5.



## **Chapter 4: Quantitative Results and Analysis**

The following chapter reports and presents the statistical analysis methods, descriptive statistics' results, and the findings of the Vocab-Backup Strategy survey part. Each of the statistical data gathered were analyzed and computed using SPSS software. The mean, average, median, standard deviation, and maximum analysis measurements were gathered from all the statistical data of this study. The *t*-test, frequency distribution, central tendency, and correlation analysis were performed for the two groups' pre- and post-VST scores comparison. An analysis and discussion of the two groups' vocabulary size scores, correlation, and their overall responses to the Vocab-Backup Strategy processes are being reported. Chapter 4 ends with a conclusion summary of the statistical findings.

### **Information about the Demographic Questionnaires**

Prior to administer the Pre VST, all participants from both groups answered the VLSQ. The VLSQ was divided into two main sections: (a) general demographic and linguistic background items, and (b) about VLSs beliefs and behaviors to learn new vocabulary. In the first part of the VLSQ, participants answered some very general demographic related information and L1 and L2 background with extra concentration on their second language learning profile. While in the second part, participants' responses were recorded to investigate which VLSs they prefer to use. In this section, only five steps or strategies of VLSs were chosen for the purpose of this study (see Data collection section for more details). In general, all participants spoke Spanish as their native language and had the same educational level of attending high school (12<sup>th</sup> grade) except one participant who spoke Russian as a first language (see Table 10). The participants were 32.9% female and 67.1% male (see Table 9). The following tables show some of the demographic descriptive statistics gathered from the VLSQ.

Table 9

*Statistical Descriptive of the Participants' Gender*

<b>Gender</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Female	23	32.9	32.9	32.9
Male	47	67.1	67.1	100.0
Total	70	100.0	100.0	

Table 10

*Statistical Descriptive of the Participants' First Language*

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Russian	1	1.4	1.4	1.4
Spanish	69	98.6	98.6	100.0
Total	70	100.0	100.0	

Table 11

*Statistical Descriptive of the Participants' Second Language*

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
English	66	94.3	94.3	94.3
German, Standard	1	1.4	1.4	95.7
Korean	1	1.4	1.4	97.1
Spanish	2	2.9	2.9	100.0
Total	70	100.0	100.0	

**Descriptive Statistics****VLSQ descriptive statistics.**

According to the VLSQ's descriptive statistics outcomes, the VLSQ reliability score Cronbach's  $\alpha$  was ( $\alpha = .732$ ;  $N = 70$ ) and no cases were excluded for incompleteness. The survey items were grouped under five certain VLS processes in which each of the participants were

asked how likely they apply and deploy those strategies for lexical comprehension and vocabulary growth. The tables below show the VLSQ scale and reliability statistics with the case summary outputs.

Table 12

*Scale Statistics of the VLSQ*

<b>Mean</b>	<b>Variance</b>	<b>SD</b>	<b>Number of Items</b>
69.36	80.465	8.970	20

Table 13

*Reliability Statistics of the VLSQ*

<b>Cronbach's Alpha</b>	<b>Cronbach's Alpha Based on Standardized Items</b>	<b>N of Items</b>
.732	.727	20

**Vocab-Backup Strategy (VBS) five variables analysis.**

This section highlights the statistical descriptions including the average mean, median and standard deviation of the overall items and sub-items of the five variables: (a) building synonyms network, (b) guessing meaning with its context, (c) listening and pronunciation process, (d) bookmark word search (note-taking strategies), and (e) remembering strategy for writing, with the comparison discussions between each of them. The purpose of this analysis was to demonstrate how strongly the participants from both groups agreed on the five variables of the study. This analysis either confirmed or showed new significance of the sequential VLS processes as preferred by the participants of this study considering Alharbi's (2015) statistical analysis of the same five steps. The importance of these descriptive statistics was to show which

VLSs do L2 learners prefer while learning new vocabulary with the major scope of discovering new ways of processing VLSs.

According to the statistical data gathered from the VLSQ about the participants' vocabulary learning strategies beliefs, the participants ( $N = 70$ ) responded to five Likert-scale options ranging from (1) Never Use to (5) Use Very Often. Among the five sets of VLS items, meaning with context strategies items-related gained the highest central tendency with  $M = 3.78$  and synonyms strategies items-related was  $M = 3.59$ . The following strategies remained in the same sequence as in Alharbi's (2015) study.

In the following sections, each group of the items will be discussed and examined for specific reference to each VLSs. Table 15 illustrates the VLSQ items overall descriptive statistics. One item has been computed and applied to all five variable themes: *visualize new word*. Oxford (1990) listed four reasons why linking words with images is beneficial for language learning. First, the capacity of images in the mind exceeds the verbal information somebody have; second, visual learning transfers information to long-term memory much more easily; third, visual images are the best to recall verbal information; finally, most language learners prefer visual learning.

Table 14

*VLSQ Items Overall Descriptive Statistics Correlation/Discrepancies*

<b>Name of VLSs</b>	<b>Meaning w/Context</b>	<b>Synonyms</b>	<b>Listening &amp; Pronunciation</b>	<b>Bookmark</b>	<b>Writing</b>
N of Items	6	5	5	5	4
Mean	3.78	3.594	3.532	3.388	3.205
Median	3.75	3.69	3.57	3.57	3.18
Mode	3.340a	3.10a	2.800a	2.60a	2.89a
SD	0.313	0.302	0.499	0.74	0.345
Skewness	-.049	-1.315	-.353	.128	-.221
Maximum	4.14	3.91	4.19	4.2	3.57

a. Multiple modes exist. The smallest value is shown

### **Meaning with context strategies.**

Incidental guessing of a new word's meaning from context is not always successful.

Nation (1990) has claimed that language learners need to be exposed to a new word at least 5-16 times in order to master the new word. Learners sometimes cannot guess the right meaning due to several factors such as the difference between L1 and L2, linguistic proficiency, and inadequate contextual clues (Kelly, 1990; Vasiljevic, 2010). Nation (2013) discussed the application of intentional and or incidental guessing from context by stating the following:

Although learning vocabulary from context should be largely incidental learning, there should be a deliberate, intentional focus on developing the skills and strategies needed to carry out such learning. Because of the importance of guessing from context, it is worthwhile for both teachers and learners to spend time working on guessing strategies.  
(p. 349)

According to previous studies, contextual guessing and incidental vocabulary learning were given the highest priority to learn new vocabulary. Nation (2013) indicated that incidental learning from context is the most important of all the sources of vocabulary learning. This concept of research in vocabulary, according to Gu (2005), represents the

belief that knowledge of the vast majority of words in a speaker's L1 comes from extensive and multiple exposure and guessing through context use rather than direct instructions, and therefore, vocabulary learning in a second language should follow the same route. (p. 47)

A dynamic correlation of the dimensions of vocabulary knowledge can be so complicated that it requires linguistic features (e.g., phonological and orthographic) of the single lexis to be fully comprehended. This study was used to make a difference regarding guessing strategies, as

it enforces and encourages second language learners to explore both (at the same time) the context of the new words with their specific meanings to be entirely understood. This dichotomy of vocabulary knowledge is usually treated separately due to so much confusion at early stages of learning new vocabulary. Alharbi (2015) stated, “Due to some confusion between which context fits the word's particular meaning among ELLs, [meaning with context] strategy process helps determine the context of the new word and connects the right meaning or definition to it” (p. 507). Informants from the experimental group were given the chance to look at the meaning of the new words with much concentration on the context in which that word appeared. The participants, continuously monitored by the teacher and the researcher, used their dictionaries to pull out and connect the context of the new words they encountered. This process of VLSs was maintained as the second step of the sequential VLS processes introduced to the participants to help them organize their VLS production. The participants showed very high familiarity and motivation regarding this VLS process as they kept recording each word context in the VLS formula that was given to them (see Appendix C for VLS Formula).

According to this study findings, from the VLSQ outcomes, meaning with context strategies recorded as the highest most used VLSs among all the participants ( $N = 70$ ) with the mean score  $M = 3.78$  (see Table 15). Three items from the meaning-with-context theme were the highest: (a) see new word in examples for better learning it, (b) guess the meaning from the context, and (c) I distinguish between definitions and contexts of new words. Most of the participants' responses to these items were highly preferred when learning vocabulary.

Table 15

*Statistical analysis of the Meaning with Context Items (N = 70)*

	<b>Name of the Items</b>					
	Guess the meaning from the contexts	See new word in examples for better learning it	Visualize new words	Memorize words context to remember its meaning	Check new word while reading to know different context of it	I distinguish between definitions and contexts of new words
<i>Mean</i> <sup>a</sup>	4.13	4.14	3.57	3.73	3.34	3.77
<i>N</i>	70	70	70	70	70	70
<i>SD</i>	.916	.822	1.325	.977	1.034	.765
<i>Median</i>	4.00	4.00	4.00	4.00	3.00	4.00

a. 1 = never use, 5 = use very often.

Schmitt (2010a) stated, “form meaning linkage is the most basic vocabulary knowledge possible” (p. 30). Both intentional and incidental vocabulary learning were considered to ensure the comprehension of new words. Standard monolingual English dictionaries were used (mostly online and or mobile dictionaries) to assist the participants looking up the specific meaning for each new word (more on dictionary use will be discussed in Chapter 5). A fairly acceptance central tendency rates were computed with two items related to dictionary reference in this step: (a) see new word in examples for better learning it with 4.14 out of 5, and (b) check new word while reading to know different context of it with 3.34. These two items received very high acceptance from the participants compared to the other items. Cronbach’s  $\alpha$  for the total items under meaning with context categories is  $\alpha = .46$ .

### **Building synonyms network strategies.**

In vocabulary learning, “The use of synonyms is often a quick and efficient way of explaining unknown words” (Gairns & Redman, 1986, p. 23). The synonyms are usually several forms of words with the same meaning. The words *send*, *ship*, *deliver* (to send), and *dispatch* all

have the same meaning of distributing something to other destination or location. At the first step of the sequential VLS processes, participants were asked to first check and connect the new word with as many synonyms as they can. In other words, they relate and make a connection of the new (unknown) words with the known ones. A semantic map was then drawn for each new word they learn. The focus on this stage is to look at the global theme or information of the new vocabulary before connecting to other details.

Five items related to building a synonym network (see Table 16). Results of the building synonyms network strategies were obtained using descriptive statistics. The central tendency of all the items in this theme is  $M = 3.59$  and the highest of this group was *rely on synonyms to build word in groups* item with  $M = 3.70$ . The significant of this step of VLSs placed as the second most preferred strategy among the five steps.

Table 16

*Statistical analysis of the Building synonyms network Items (N = 70)*

	<b>Name of the Items</b>				
	Rely on synonyms to build word in groups	Lookup synonyms first to know meaning of new words	Recheck synonyms if new words were not understood	Synonyms is more important than meaning alone	Visualize new words
<i>Mean</i>	3.70	3.10	3.69	2.91	3.57
<i>N</i>	70	70	70	70	70
<i>SD</i>	.983	1.144	1.043	.974	1.325
<i>Median</i>	4.00	3.00	4.00	3.00	4.00

### **Listening and pronunciation process strategies.**

Learning vocabulary through listening helps in attaining vocabulary knowledge for L2 learners, according to some researchers. Nation (2013) described this type of learning as meaning-focused input. According to him, Staehr (2009) discovered a high correlation between



performance on a listening test and a measure of vocabulary size (Nation, 2013, p. 161). The ability to listen to any spoken language requires the listener to have a sufficient vocabulary size (3,000-word families) to cover at least 95% coverage (Adolphs & Schmitt, 2003, 2004). There were four items related to listening and pronunciation strategies (see Table 17). The overall mean for the listening and pronunciation items were  $M = 3.53$  while the *listening to media to learn pronunciation* item scored the highest ( $M = 4.19$ ) among this group's items.

Table 17

*Statistical analysis of the Listening and Pronunciation Items (N = 70)*

	<b>Name of the Items</b>				
	Learn pronunciation of new words by checking its syllables	Listen to people how they use words in different context	Listening to media to learn pronunciation of new words	Use new words in speaking and writing to best remember them	Visualize new words
<i>Mean</i>	2.80	3.67	4.19	3.43	3.57
<i>N</i>	70	70	70	70	70
<i>SD</i>	1.258	1.100	1.254	1.174	1.325
<i>Median</i>	3.00	4.00	5.00	4.00	4.00

### **Bookmark word search (note-taking strategies).**

The bookmark word search strategy comprises different ways the second language users may use this strategy. In this study, there were some specific ones selected to generate a ground scheme scale of how much L2 learners behave or perform in this type of learning strategy. After recording participants' answers to the bookmark word search strategy (note-taking strategies), I found that an online dictionary use was the highest bookmark strategy L2 learners relied on to refresh their vocabulary knowledge about newly learned words with  $M = 4.20$ . Retaining new words by checking it from time to time was the second highest strategy preferred with  $M = 3.94$ .

Visualizing new words became the third on the lists compared to the other items with  $M = 3.57$ . Participants of this study did not favor writing new words on a vocabulary note but relied more on their memory or online dictionary for further vocabulary retention.

Table 18

*Statistical analysis of the Bookmark word search Items (N = 70)*

	<b>Name of the Items</b>				
	I use a variety of strategies to keep track of words that I have looked up (bookmarks, writing it down, highlighting)	I do go back sometimes to re-learn the meaning of a word if I feel like I am not sure about what it means	I prefer to use online dictionaries (e.g. Merriam-Webster.com, Google)	I use vocabulary lists to study for new words	Visualize new words
<i>Mean</i>	2.63	3.94	4.20	2.60	3.57
<i>N</i>	70	70	70	70	70
<i>SD</i>	1.353	1.062	1.030	1.221	1.325
<i>Median</i>	2.00	4.00	5.00	2.50	4.00

### **Remembering strategy for writing.**

Both in Alharbi (2015) and in this study, the remembering strategy for writing was the least used during vocabulary learning, which confirms that writing new words may seem less important to students in comprehending or retaining new words. For the purposes of this study, groups of preselected remembering strategy items for writing were used as in Alharbi (2015). Among these items, the *visualizing new words* item scored the highest as preferred by all participants with  $M = 3.57$ . This confirms a new study conducted at University of Georgetown that found that our brain can add new words to its *visual dictionary* even if they are made up and have no meaning attached to them and occurs in the area called the Visual Word Form Area (VWFA). The study concluded that knowing the spelling of a word can be made easier by

looking at the word as an image (Glezer, Kim, Rule, Jiang, & Riesenhuber, 2015). Table 19 breaks down the statistical analysis of the remembering strategies for writing items.

Table 19

*Statistical analysis of the Remembering strategy for writing Items (N = 70)*

	<b>Name of The Items</b>			
	I usually check the part of speech (e.g. noun, verb, etc.) of new words before I see the meaning.	I use new words in speaking and writing to help me remember them.	I use the syllables of a new word to help me learn their spelling	Visualize new words
<i>Mean</i>	2.89	3.43	2.93	3.57
<i>N</i>	70	70	70	70
<i>SD</i>	1.222	1.174	1.255	1.325
<i>Median</i>	3.00	4.00	3.00	4.00

### **Summary of the VLSQ items overall descriptive statistics.**

This section provides the overall statistics analysis for all VLSQ items to draw on a conclusion about their processes during vocabulary learning. The purpose of this study was to investigate how the sequential vocabulary learning strategies help improve vocabulary growth and knowledge for the L2 learners. Figure 3 illustrates the statistical description for the five VLS variables, or as called in Alharbi's (2015), VBS processes compared to each other. The influence of the five variables discussed before shows some interconnectedness between all variables. Learning vocabulary can be dynamic in process, thus these five variables demonstrate a coherence of vocabulary learning processes in which L2 learners can benefit from using the sequential VLSs (Gu, 2005). Learning the meaning of new vocabulary from context is greatly favored as the first process during vocabulary learning. However, according to the statistical data outputs, writing process remains always as the last process of vocabulary learning. As in Alharbi (2015), the synonyms strategy has been placed (according to the average mean of each strategy. See figure 3) as the second strategy followed by listening and pronunciation strategy as step

number three in the order and the bookmark strategy being number four in the same sequence. This VLSs sequence reveals, not only a certain vocabulary learning process, but also a figure of language learning subconscious process as the L2 learners continues learning new lexical units during language learning.

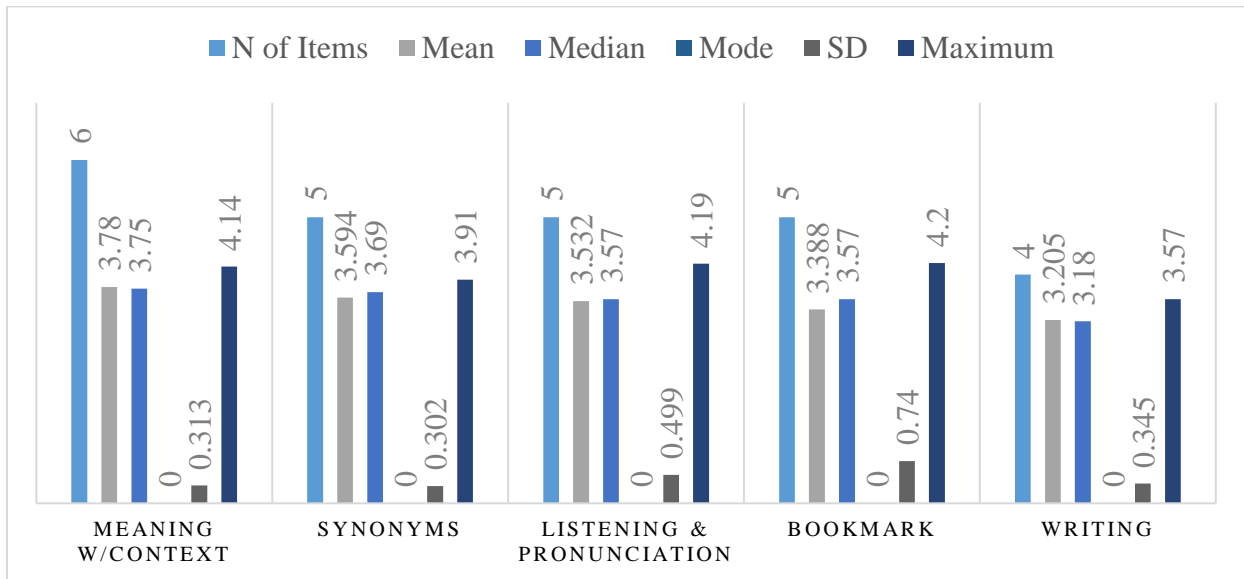


Figure 3. VLSQ Items Overall Descriptive Statistics Correlation/discrepancies.

### Vocabulary Size Data from the Two Groups

After administering the pre-VST, the researcher found the correlation of the two groups' vocabulary size level was very high in general compared to their counterpart of the same EFL/ESL students at their educational stage. The VST scores recorded for all groups indicated that their average vocabulary size is between 7,000-9,000 word-families. Each group performed the same VST pre and post, and only one group was given the VLS intervention sessions (4-week intervention). However, the controlled group participants used their own self-regulation of the VLSs and not provided with further vocabulary learning instructions. Different statistical analysis measurements have been performed to look at the discrepancies of the VST scores before and after the VLS treatment (e.g., central tendency tests, T-test, Test of Normality,

statistical regression analysis, Pearson correlation analysis). Table 20 illustrates the two groups frequency distribution for the general vocabulary sizes from the pre- & post-VST. The average mean scores of the VST for both groups increased between the pre and post tests from  $M=9170$  to  $M=9218$ .

Table 20

*Descriptive Statistics of the Two Groups frequency for the general vocabulary sizes from the Pre- & Post-VST*

		<b>Statistic</b>	<b>Std. Error</b>
<b>PreVST Scores</b>	Mean	9170.00	118.607
	Median	9150.00	
	Std. Deviation	992.340	
	Minimum	6800	
	Maximum	12400	
	Skewness	.376	.287
	Kurtosis	1.447	.566
<b>PostVST Scores</b>	Mean	9218.57	122.724
	Median	9250.00	
	Std. Deviation	1026.785	
	Minimum	7000	
	Maximum	12700	
	Skewness	.286	.287
	Kurtosis	1.005	.566

According to the data gathered from both pre and post VST, the Test of Normality shows that the data were normally distributed with the Shapiro-Wilk statistic for the pretest  $r(70) = .965, p = .048$ , and  $r(70) = .974, p = .162$  for the posttest. The Kurtosis value shows that the bell shape curve is almost perfect in the pretest, however, it is more pointer in the post test with some extra observations data to the left. Additionally, the  $p$  value in the post test indicates that the results were not significantly different. Figure 4 shows histogram of the two groups pre and post VST scores with the normality curve line.

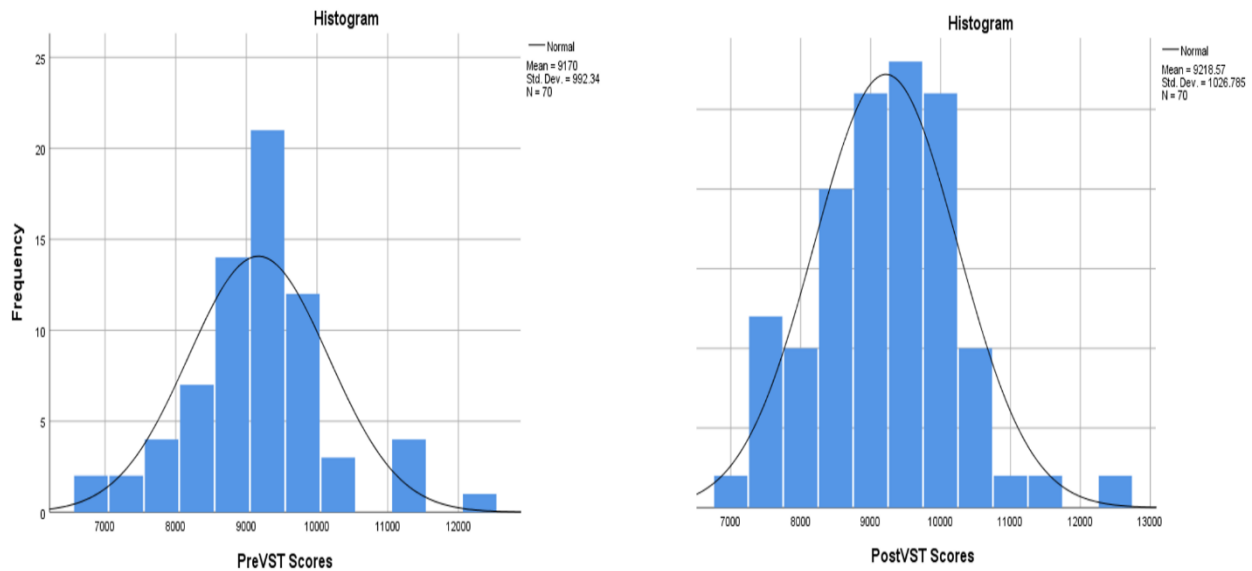


Figure 4. The two groups frequency distribution for the general vocabulary sizes from the pre- & post-VST.

### Result from the experimental group.

The average mean scores for the experimental group increased between the pre and post VST from  $M=9,100$  to  $M=9,240$  (see Table 21). Figure 5 represents the experimental group's pre-VST scores, which is the general vocabulary size, and which are normally scattered among the same group. The participants' vocabulary size in this observed group falls in the middle of the curve between 8,500-10,000 word-families. However, the Shapiro-Wilk statistic (Test of Normality) for the pre VST scores for this group was  $r(35) = .975, p = .589$ , and  $r(35) = .950, p = .117$  for the posttest. This is an indication that the participants' VST scores in the pre- and posttests were not significantly different.

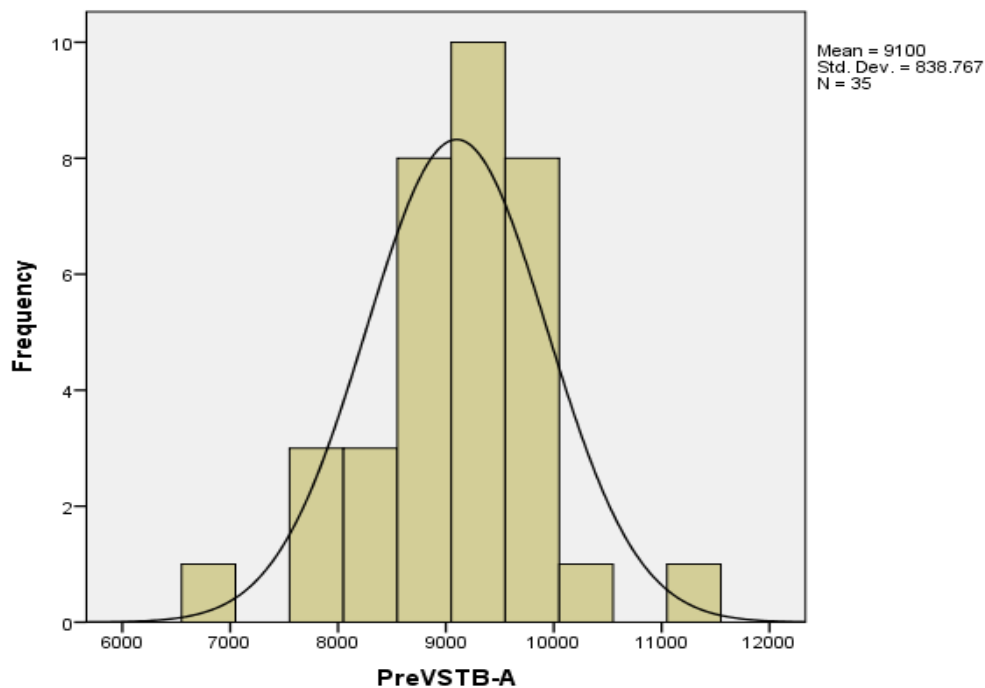


Figure 5. Experimental group frequency distribution for the general vocabulary sizes from the pre-VST.

After completing the pre-VST, the VLS intervention sessions began in which each participant was given Nation's (2013) principals of autonomous vocabulary and Alharbi's (2015) five categories of VLSs to use the specific model of VLSs into the English subject classes during the intervention time. Each participant of this group was provided with a vocabulary notebook file to keep all her/his VLS works in one place and present it to the teacher at the end of the VLS treatment. The *VLS Formula* and *VLSs Model* (see Appendix D & E) were distributed to all participants to use as templates for the VLSs session by session record. Participants were instructed to use both the VLS formula and VLSs model for each new vocabulary they encounter during the class and practice learning them during the last ten minutes of each class (five new words each class). The time and management of the VLSs practices for all the participants were monitored to ensure they applied them correctly and provided with any guidance needed.

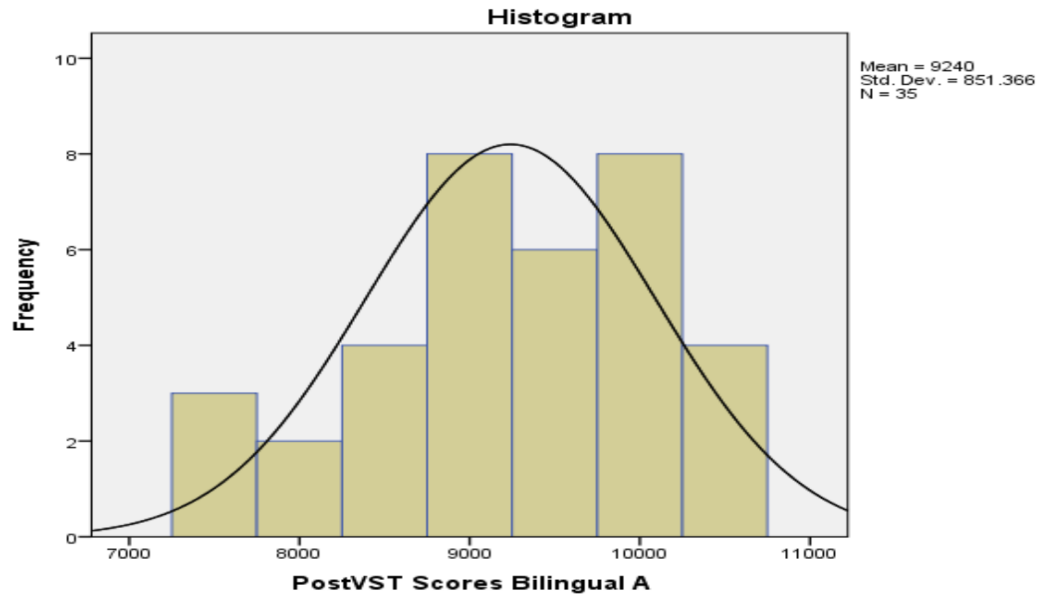
After completing the VLSs intervention sessions and recording the post VST scores, the researcher noted a slight increase of the vocabulary size of the participants. Table 21 shows the experimental group pre- and post-VST mean which is  $M = 9,100$  word-families before the VLS treatment and  $M = 9,240$  after. A change of the frequency of participants' overall VST who scored 9,500 to 10,500 word-families were observed as indicated in Figure 6.

Table 21

*Descriptive Statistics of the experimental group's Pre- and Post-VST*

	<b>Pre VST</b>	<b>Post VST</b>
Mean	9100	9240
Standard Error	141.7774324	143.9070662
Median	9200	9300
Mode	9400	9800
SD	838.7666015	851.3656849
Sample Variance	703529.4118	724823.5294
Kurtosis	1.048720553	-0.293497781
Skewness	-0.41772342	-0.558964847
Range	4300	3200
Minimum	6800	7500
Maximum	11100	10700
Sum	318500	323400
Count	35	35





*Figure 6.* Experimental group frequency distribution for the general vocabulary sizes from the post-VST.

To increase the interpretation of this group's post VTS results, Normal Q-Q Plot analysis of the VST was produced to add a more visual impression of the data. In Figure 7, the scatterplots and linear regression line figure of the participants' general vocabulary sizes fell toward the average 9,000, and 10,000 vocabulary size, which indicates more progress of the participants' vocabulary size scores compared to the pre-VST.

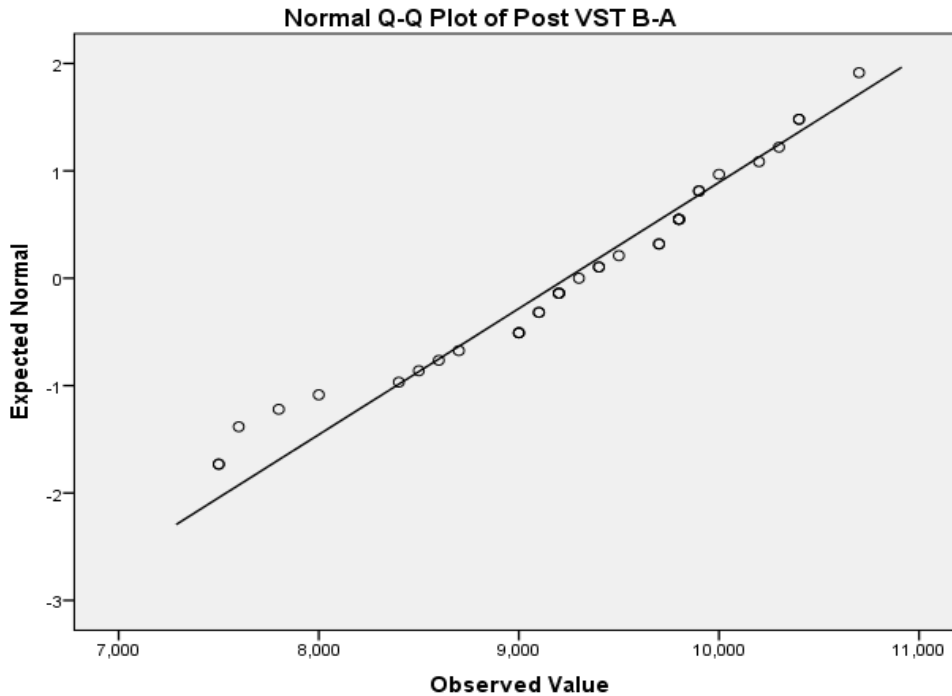


Figure 7. Scatterplots and linear regression line figure of the participants' general vocabulary sizes.

**Result from the controlled group.**

Participants of this group ( $N=35$ ) took the pre and post VST on the same time the experimental group completed it. However, this group was not given any VLSs treatment nor any particular VLS instructions in between the two tests. They used their own self-regulation practices for vocabulary learning. The assumption was made that learning new vocabulary using the sequential VLS process will have more impact on the students' general vocabulary size than those who do not deploy them during their vocabulary learning practices. This group attended their regular English classes without any further VLS instructions. The average mean of this group pre VST was ( $M = 9,240$ ) which indicates high ratio of those who fall in the 9,000-vocabulary size level. This result illustrated and created the baseline of the students' vocabulary size for each group. After I collected the post VST scores, I noted that the vocabulary size average dropped to ( $M = 9,197$ ) and ( $SD = 1189.04$ ). The Shapiro-Wilk statistic (Test of

Normality) for the pre VST scores for this group  $r(35) = .951, p = .118$ , and  $r(35) = .969, p = .422$  for the posttest. This indicates that the participants' VST scores in the pre and posttests were not significantly different.

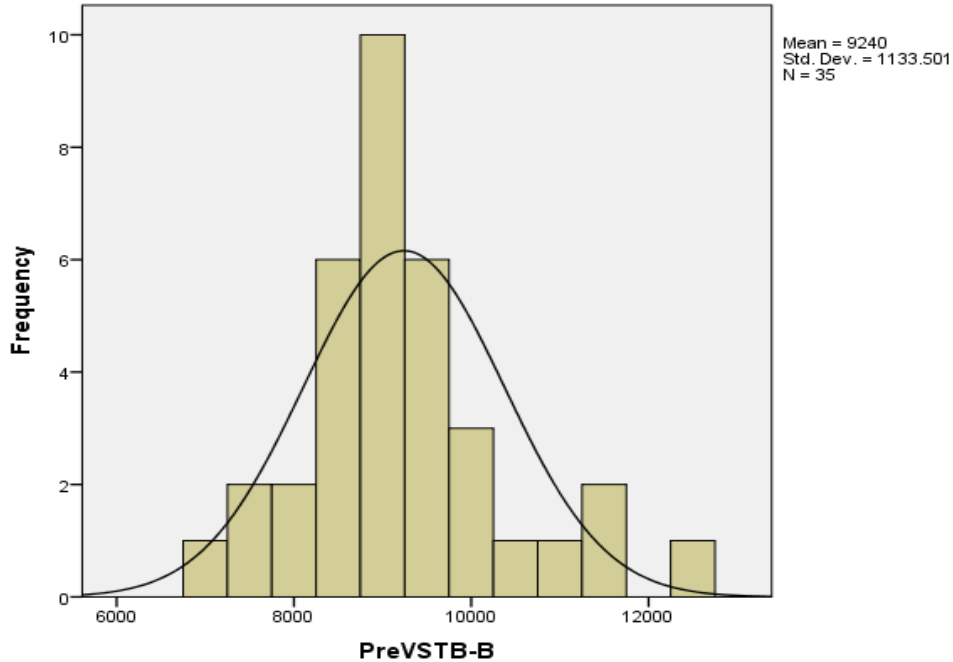


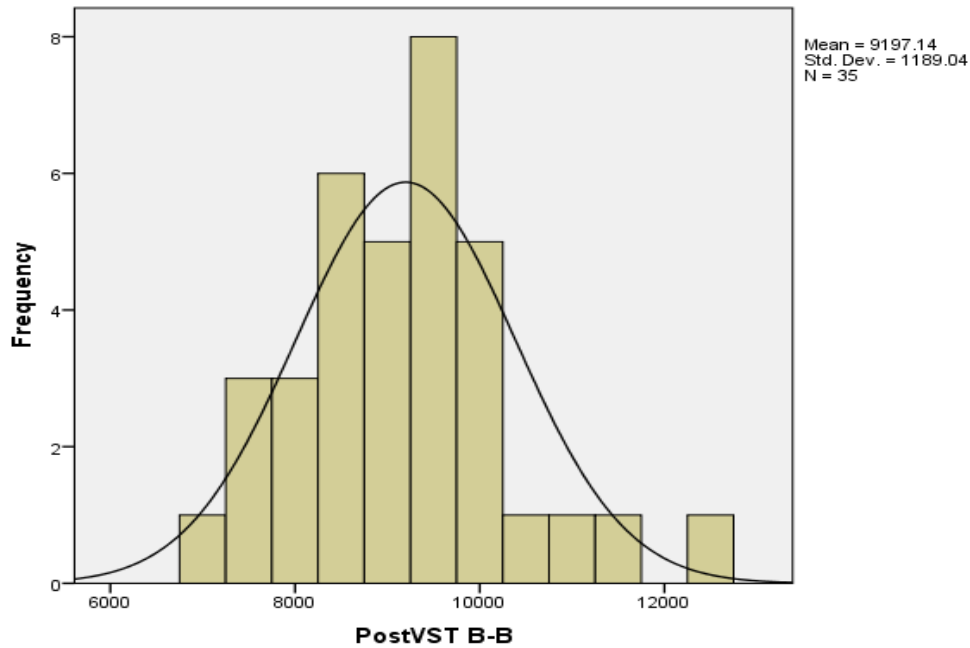
Figure 8. Controlled group frequency distribution for the general vocabulary sizes from the pre-VST.

The average scores of the pre- and post-VST of this group were not significant; however, the mean fluctuated backward slightly. The mean scores of the pre VST recorded at  $M=9,240$  which then dropped to  $M=9,197$ . Figure 9 illustrates the shift of the participants' general vocabulary size. This group completed the same reading and writing activities as the experimental group did during the VLSs intervention.

Table 22

*Descriptive Statistics of the controlled group's Pre- and Post-VST*

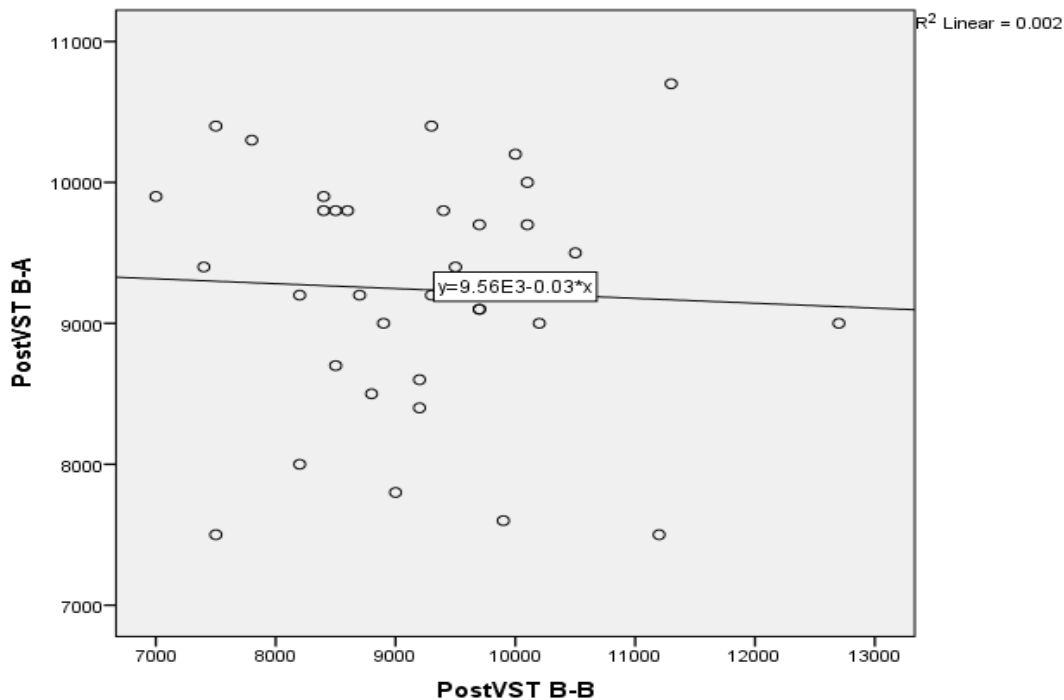
	<b>PreVST</b>	<b>PostVST</b>
Mean	9240	9197
Standard Error	191.5966	200.9843722
Median	9100	9200
Mode	9100	9700
SD	1133.501	1189.039581
Sample Variance	1284824	1413815.126
Kurtosis	1.133061	1.10346603
Skewness	0.608179	0.617862318
Range	5400	5700
Minimum	7000	7000
Maximum	12400	12700
Sum	323400	321900
Count	35	35



*Figure 9.* Controlled group frequency distribution for the general vocabulary sizes from the post-VST.

## Correlation of the Two Groups Vocabulary Level

In this section, a correlation of the two groups' vocabulary level will be discussed to compare and or relate the findings of this data. Two additional statistical analyses tests were computed, the parametric test of correlation and the Pearson statistic. In contrast between the two groups' VST scores, the Pearson correlation statistic for the experimental group was  $r(35) = .884, p = .026$ , while  $r(35) = .617, p = .088$  for the controlled group. The correlation statistics results indicated that the experimental group gained more general vocabulary size than the other group. Figure 10 demonstrates the correlation ecoefficiency between the two groups with the liner regression line.



*Figure 10.* The Post VST association between the two groups. The scatterplots and linear regression line figure demonstrate the significance and the direction of the correlation. (B-A is the experimental and B-B is the controlled).

## **Result and Analysis of the VBS Survey**

This section provides the outcomes of this study's survey based on the five variables mentioned earlier as it is important to compare and or relate any of the findings both in this current study and in Alharbi (2015) or previous studies. Vocabulary learning is a dynamic process by its nature, and validation of what process comes first (e.g., learning meaning from context, listening or notetaking strategies, etc.) was the main focus of this study. Each of the VLSs practice involved one or more combinations of such learning strategies to master new lexical units during language learning. Some studies have investigated and introduced several approaches and models of the vocabulary learning process such as the structural equation model (SEM; Tseng et al., 2006). SEM allows the learners to discover their innate self-regulatory capacity "that fuels their efforts to search for and then apply personalized strategic learning mechanism" (Schmitt, 2010b, p. 93). The SEM approach was used "in attempt to describe what self-regulation entails in terms of vocabulary learning" (Schmitt, 2010b, p. 94), and consists of five aspects: (a) commitment control, (b) metacognitive control, (c) satiation control, (d) emotion control, and (e) environmental control. The same model was expanded and enhanced by Tseng and Schmitt (2008), called *Structural Equation Model of Motivated Vocabulary Learning*, in which they made the model for the vocabulary learning process as a whole (Schmitt, 2010b).

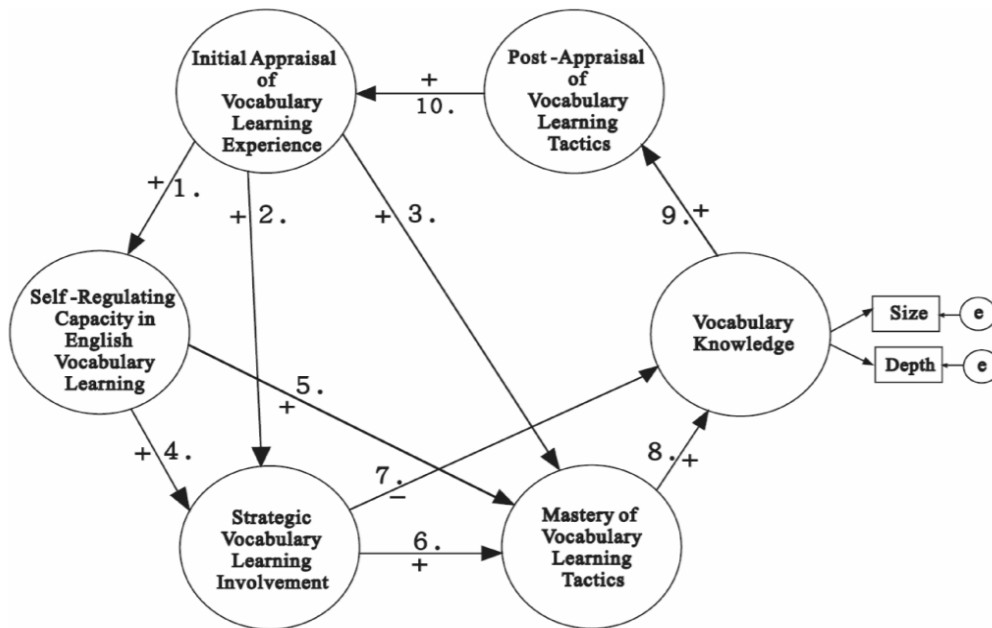


Figure 11. The Structural Equation Model of Motivated Vocabulary Learning (Tseng & Schmitt, 2008).

The model indicates that motivated vocabulary learning process takes a cyclical motion by forming the six latent variables and their relationship among each other as an equation structural diagram (Tseng & Schmitt, 2008). In more elaborations of effective vocabulary learning process, Tseng and Schmitt indicated the postappraisal of vocabulary learning tactics (PAVLT) can affect future vocabulary learning. This phase of the model denotes the period of self-reflection of task processes when the task is completed. On this note, Dörnyei (2001) emphasized on how pre- and post-appraisal of vocabulary learning support this learning process.

According to Dörnyei (2001), this phase is very important in that such a “critical retrospection contributes significantly to accumulated experience, and allows the learner to elaborate his or her internal standards and the repertoire of action specific strategies” (emphasis original, p. 91). In particular, it has been found that learners’ causal attributions as a result of task retrospection exert a critical influence on subsequent

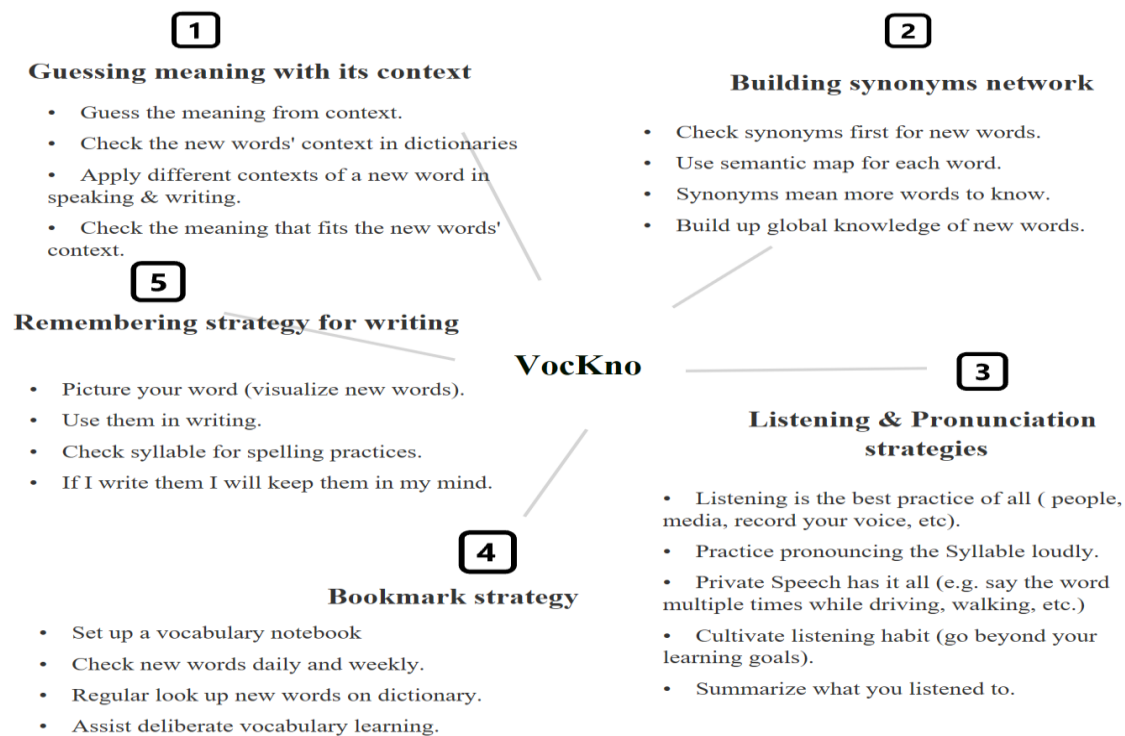
expectancy for success, self-efficacy belief, achievement behaviors, and emotional responses. (As cited in Tseng & Schmitt, 2008, p. 368)

Schmitt (2010b) stated these vocabulary learning models create and drive the use of VLSs by the learners. The importance of discussing these vocabulary learning approaches is to highlight and show the relevance of these studies to the current research.

The VBS model was used to create and merge statistical findings of which of these VLS processes occur in a sequential order. The major difference in this model is that it works closely with the vocabulary learning tactics learners deploy in a sequential manner. Up to writing this dissertation, there has not been any attempt to establish a model of sequential vocabulary learning strategies. A very close study conducted by Clarke and Nation (1980), regarding guessing words meaning from context, investigated four steps of practicing this strategy to increase reading comprehension for second language learners. Also, a recent study by Ma (2009) found and classified VLSs from an alternative *process-oriented* approach, into eight stages or processes of vocabulary acquisition. However, Ma's study illustrates and describes general VLSs practices rather than examining the strategy itself (e.g., dictionary use, learning meaning from context, note-taking strategies). The current research study was used to test different combinations of sequential VLSs to assume more vocabulary growth (see Figure 12). According to the existing VLSs framework, the most relevant findings that fit the purpose of this study is reported in Alharbi's (2015) research which found the same statistical findings as with this study. Of the five VLSs used, the findings of this study survey indicated that learning meaning with context was the most preferred VLS by all the participants of this study.



## Vocab-Backup Strategy VBS



*Figure 12.* Sequential Model of Vocabulary Learning Strategies (adapted and enhanced from Alharbi, 2015). VocKno = Vocabulary Knowledge.

Building a synonym network was the second highest rated strategy used among the five, then listening and pronunciation (speaking) strategy as the third step. The bookmark strategy (note-taking strategy) was the fourth on the list, and the remembering strategy for writing became the last VLS process (see Figure 3). This VLSs sequence reveals not only certain vocabulary learning processes, but also a figure of language learning subconscious processes as the L2 learner continues learning new lexical units during language learning. Learners with good vocabulary knowledge use the systematic learning process to learn new vocabulary. In other words, learners with good vocabulary knowledge used more strategies than those with limited vocabulary knowledge (D. Charkova & K. Charkova, 2018). Also, several studies found that good vocabulary learning can be a result of consecutive and systematic strategies for good

vocabulary knowledge (Fan, 2003; Gu, 1994; Gu & Johnson, 1996). Hence, in this study, the sequential VLSs may lead to substantial progress once they performed routinely and for a longer term.

## **Discussion**

As noted by Schmitt (2010b), “Vocabulary knowledge is multi-faceted, and contains a number of interrelated, though separable, aspects” (p. 79). The investigation of the vocabulary knowledge the participants gained after applying explicit sequential VLSs was conducted in this study. The sequential VLSs used is an enhanced VBS model from Alharbi (2015). The discussion of this part of the study reveals what has been found statistically using different analyses and tests, while the qualitative part of this study will then look at any correlation or comparison between the two data extensively.

The results of this study offer further empirical insights (e.g. Gu, 2005; Ma, 2009) on the theory of vocabulary learning that assumes that in order for second language learners to enhance their vocabulary knowledge, they must deploy different layers of sequential VLS processes instead of relying on one strategy. One of the advantages of using sequential VLSs is that they help learners delve deeper into vocabulary knowledge. The step by step strategies allows them to explore more details and experiences of the new words. After analyzing the data, the five steps of VLSs, (a) guessing meaning of a new word with its context; (b) building synonyms network; (c) listening and pronunciation (speaking) process; (d) bookmark word search (note-taking strategies); and (e) remembering strategy for writing grouped orderly based on their average mean, confirmed a finding that supports Alharbi’s (2015) conclusions.

In the first step, the VLS process of guessing meaning of a new word from its context, offers an accurate learning of vocabulary information in order to look up the exact meaning of

new word that fits the context in which was appeared. Learning the meaning(s) of the new word requires mastering all its contexts. Miller (1999) found, “A very important aspect of knowing a word is having a cognitive representation of the set of contexts in which a given word form can be used to express a given meaning” (Nation, 2013, p. 83). The fundamental process was to establish the knowledge of the new word in the learner’s mind within different contexts.

Learning the new word’s many contexts is as important as learning its meaning. The participants were asked to look up carefully the new word’s meaning that matches the same context in which it appeared. It was obvious that 75% or more of the participants agreed and reported that prior to knowing this step, their main guess of the new word was one meaning within one context. After deploying this initial VLS, participants knew more information related to the new lexical unit and had an understanding that new words may have different meanings that can be applied in several contexts. In fact, the guessing in context strategy was preferred by most participants. This finding corroborates significantly with major studies in VLSs such as Schmitt (2010b), Gu and Johnson (1996), and Nation (2013), in which guessing new word meanings remains as the top ranked VLS used by second language learners.

In the second step, building synonyms networks strategy, the participants reported that knowing new words’ synonyms or antonyms were always one of the main processes to increase their vocabulary knowledge by associating unknown words to the known ones they already knew. Systematic and conscious learning of the new words’ synonyms or antonyms contributes to a deeper vocabulary knowledge (Alharbi, 2015; D. Charkova & K. Charkova, 2018; Nation, 2008; Qian, 1999; Schmitt, 2000).

In the third step, listening and pronunciation (speaking) process, participants significantly scored a higher mean for all the items related to phonological practices. The overall mean for the

listening and pronunciation items were  $M = 3.53$  while *listening to media to learn pronunciation* item, this included listening to these vocabularies through online dictionaries, scored the highest ( $M = 4.19$ ) among this group's items. In terms of practicing listening to new words, Nation (2013) stated learning vocabulary through listening is one type of learning through meaning-focused input (p. 161). Under this VLS step, participants from the experimental group were given some listening principles to follow:

1. Engage in conversations with friends, teachers, service providers, and family members.
2. Enhance listening skills by summarizing what you have listened to (*figuring out the theme, culture, type of language, center of the talk, etc.*).
3. Develop confidence in speaking skill by listening well.
4. Cultivate listening habit (go beyond your learning goals).

Participants were introduced to two listening strategies such as learning the sound of new words through syllables and private speech practice. *Private Speech* or as Lantolf (1997) named it *mental rehearsal*, is described as the self-speaking of utterances or words for the purpose of understanding and maintaining language mediation by language learners, whether as a child or an adult, but not for communicating with other people (as cited in Ohta, 2001).

For the purposes of this study, a vocabulary note-book (VLS Formula, see Appendix D) was designed for the fourth step *bookmark word search* (note-taking strategies), so participants could keep all their vocabulary learning practices, including drawing and writing some examples in one place. In this step, bookmark word search refers to rewriting new words, highlighting them, making word lists, visualizing them by making some drawings and rechecking them on a special vocabulary notebook; however, most participants prefer to use online dictionaries and recheck the meaning of new words as they need. An analysis of the mean for all the items related

to this vocabulary learning process placed it as number four preceding the writing process strategies.

Remembering strategies for writing was the last step and preferred by all the participants. This strategy focused on several tactics the participants agreed on such as checking the part of speech of the new words, using them in their writing output practices (e.g., writing emails, reports, etc.), checking their syllables for spelling practices, and making a visual connection of these new words. Participants of this study reported that learning new vocabulary through writing is last process or strategy they use among the five VLSs mentioned earlier.

Additional findings include the vocabulary size of the experimental group as greater than those participants of the controlled group. A change of the vocabulary size average was also observed and shown in the data figures comparing the two groups. The increase of vocabulary size and use of VLSs have always been a significant requirement for a successful language learning and for reading new English texts.

### **Summary of the Findings**

Due to limitations of this study, only general vocabulary size level of the participants has been measured. In other words, the findings of this study revealed only the average size of the participants' vocabulary knowledge, or the receptive vocabulary knowledge.

The statistical findings can be broken down into the following two parts: (1) the growth of the vocabulary size level due to deploying certain sequential VLS processes, and (2) validation of the assumption of a certain sequential VLS processes as the average model for learning new vocabulary. Regarding the first part of the findings, the average participants' vocabulary size measured in this study was between 7,000-9,000 word-families for all groups. A change of the frequency of participants' overall VST who scored 9,500 to 10,500 word-families

was observed. The growth of the vocabulary size level observed in the experimental group was linked to the use of sequential VLSs, while the controlled group participants made no progress towards their VST scores. This finding is very limited to the 4-week VLS intervention which may provide different results if the treatment period extended for longer sessions. This indication may guide future studies for more robust findings on this area.

The proposed sequential VLSs model in this study confirmed the VBS five steps which include the following (Alharbi, 2015): (a) guessing meaning of a new word with its context; (b) building synonyms network; (c) listening and pronunciation (speaking) process; (d) bookmark word search (note-taking strategies); and (e) remembering strategy for writing. According to the average mean of each of these VLSs, from the highest to the lowest, their orders indicated the priority or the preference which all the participants of this study agreed to use while learning new vocabulary and was obtained through the VLSQ. Overall, the results suggest that using a systematic and a sequential order to mastering a new lexical unit is helpful in vocabulary learning and that the more systematic or sequential VLS processes used, the deeper vocabulary knowledge the language learner is able to achieve. Oxford (1990) and Schmitt (2010b) stated the use of more adequate, frequent, and reliable learning strategies will significantly lead to successful learning outcomes. Finally, this study adhered to the application of the sequential VLSs as a means of improving L2 vocabulary acquisition.

## **Chapter 5: Qualitative Results and Analysis**

This chapter reports the summary of the qualitative results and analysis. The analysis and discussions of the interview data for this study were categorized based on three significant VLS literatures; vocabulary learning strategies, vocabulary learning autonomy, and the hypothesized model called the VBS five variables as preselected VLSs model for this study. This chapter will also summarize the bilingual Spanish–English speakers’ opinions about their VLSs behaviors with concentration on the second phase of the study research questions addressed earlier. Extracts from the participants’ interview data will be given to support the qualitative findings using thematical accumulation analytic approach. Chapter 5 ends with discussions and summary of the findings which cover the second phase of the study research questions.

### **Learner’s Vocabulary Learning Strategies**

As noted, “the study of vocabulary-learning strategies is a promising area of enquiry” (Gu, 2005, p. 4). Looking at this language acquisition input aspect is a very prominent way to discover and evaluate how second language learners “learn and how their learning behaviours relate to their learning results” (Gu, 2005, p. 4). The tactics or the behaviors used to help acquire new vocabulary is always a self-learning role by the second language learners. In addition, “Learners of a foreign language are confronted with vocabulary learning right from the very beginning; and it is a never-ending task” (Gu, 2013, p. 6115). A study by Chamot (1987) found most high school ESL learners reported more strategy use for vocabulary learning than for any other language learning such as listening for comprehension, oral presentation, and social communication (Schmitt, 2010b, p. 90). The main categories of the most known VLSs are as follow:

- 1) Guessing strategies (wide and or specific contexts).

- 2) Known words (relearn about new learned words).
- 3) Analysis or multiple strategies to learn new words.
- 4) Dictionary strategies for comprehension
- 5) Social/Affective strategies (ask teachers or peers)
- 6) Repetition or private-speech strategies (mental rehearsal)
- 7) Grouping
- 8) Association
- 9) Management or metacognitive strategies
- 10) Meaning-oriented and/or Usage-oriented note-taking strategies
- 11) Visual encoding
- 12) Synonyms and or Antonyms relation strategies

The above lists of these VLSs are the most strategies used by ESL learners as reported in several studies. In this study though, participants have reported learning vocabulary through different processes of strategies according to their learning style. The qualitative data gathered in this study using the interview questions was inspired and stimulated from Gu's (2005), but also modified to suit the purpose of this study (see Appendix B). A predetermined VLSs outline and preselected categories were used to examine the extent to which bilingual Spanish-English speakers apply VLSs and or deploy sequential VLS processes and the usage of the five VLSs variables mentioned earlier. A random selection of five participants from each group has been recruited for the interviews. After recording and transcribing the interviews, data were coded for VLSs use, sequential VLS processes, and the usage of the five VLSs variables. Analysis of the interviews' transcripts and data outputs were treated using NVivo 12 software. In the following section, I use and refer to the participants from the experimental group by alphabetic characters, whereas I use numerical characters to refer to the participants from the controlled group.



### Participants' VLSs.

As part of the study theme, the focus of this part of the study shed light on the most common VLSs Spanish–English learners use, the sequential VLS processes, and the usage of the five VLSs variables. On this note, the data from the interviews revealed most participants work on different VLS processes and ways to learn new vocabulary depending on their learning style. Participant A listed the most VLSs he/she applies when learning new vocabulary:

Well just like I previously mentioned when reading I select the words I do not know so I can search the meaning, translation to Spanish (works very well for me although not exact definition of the dictionary but I use it), listen to a word (helps when you are speaking), definition and listening to the words, practice making sentences (with all definitions that the word can be used in).

The cluster analysis diagram in Figure 13 illustrates the participants' VLSs cluster-coding similarity gathered from the interviews data using *Pearson correlation coefficient* analysis. It shows both the most used VLSs and groups of VLSs integration among the codes in the qualitative data outputs.

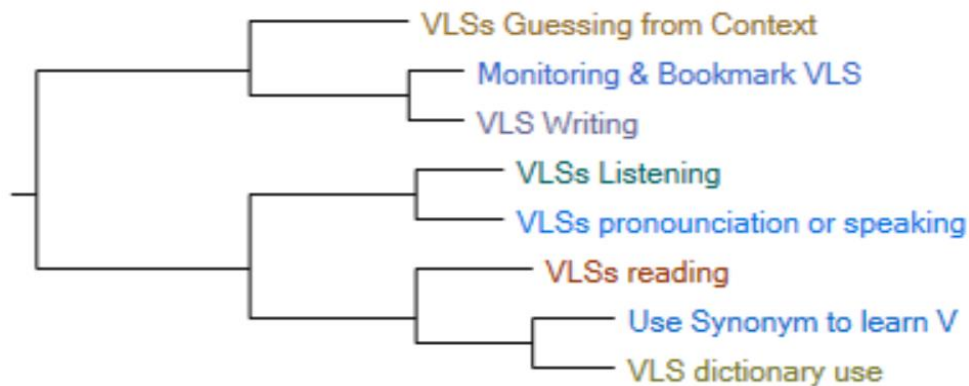


Figure 13. Qualitative Items clustered by coding similarity (Computed by NVivo12).

In a *Hierarchy analysis* that compared by number of coding references for all the nodes, the qualitative data revealed another set of frequencies and hierarchies among all the codes. The codes list also included VLS processes and sequential VLSs codes in which VLS processes code topped the lists followed by sequential VLSs. These two codes were added to trace and track the instances or references of the dynamic process of vocabulary learning by the participants according to their frequency of use. These codes also helped me to count the performance of each VLS they deploy during vocabulary learning.

Regarding the vocabulary learning process, which requires learners perform deeper learning effort to learn L2 word, Barcroft (2002, 2004) developed the Type of Processing-Resource Allocation (TOPRA) model for vocabulary acquisition. This model classifies vocabulary acquisition in three divisions: (a) acquisition of form, (b) acquisition of meaning, and (c) acquisition of form-meaning mapping. Participants of this study were found more likely to learn about the form and/or meaning processing at the time of vocabulary learning.

Guessing meanings from context strategy and using synonym relation were the most frequent VLSs mentioned by the participants followed by dictionary use strategies (e.g., physical dictionary, online, and app dictionary). The following VLSs on the list, according to their appearance hierarchies in the interview data, are remembering strategy for writing, bookmark or note-taking strategies, listening strategies, reading new texts to learn new vocabulary, and finally pronunciation and speaking strategies. This linear finding shows the most frequent and recurrent VLSs used by the participants according to the qualitative data analysis and indicates how much second language learners approach or behave when learning new vocabulary. With that being said, this part of the qualitative findings correlates seemingly with the statistical results. The following VLSs are highlights from the participants' opinion.

*Determination strategies.*

This study uses Schmitt's (1997) and Gu's (2013) VLS frameworks as a reference to support the analysis of the VLS used by the ESL learners. In this category, the determination strategies include but not limited to, analyzing part of speech, using bilingual and or monolingual dictionaries, guessing meaning from context, and word list. Specific questions were sought in the interviews regarding which VLSs participants use to help them learn new lexical items.

*Guessing meaning from context.* The general participants from both groups, according to the qualitative data, have favored guessing the meaning from context to learn new vocabulary which confirms the statistical findings of this study. For instance, participant 1 highlighted the importance of guessing the meaning from context: "The best vocabulary learning strategy and the most important thing for me first of all is learning the context in which they are using it, and also synonyms." Another participant 2 indicated how he/she relies on guessing the meaning from context while listening:

Participant 2: Well when I watch TV in English I try to figure out another word in the context in the face, the actual like the...Oh, I don't know how you say like the...?

Interviewer: Like the facial expression?

Participant 2: Yes, the facial expression and I try to use a meaning with the context part if I can.

While another participant from the experimental group listed some VLSs he/she used to while learning new words: "Check the synonyms, learning the word in context, looking for images of the words."

The attempts of guessing the meaning from context strategy may considered to be easier step for the second language learners to comprehend longer text input such as reading a passage,

watching movies or listening to audio recordings (e.g., television, radio, YouTube, etc.). The following example is from Participant 3, who manages his/her comprehension to understand new words in speech: “I try to understand the context of the word. When I first see a movie, I have an image of the people that are saying the word.” Another participant 4 emphasizes how much he/she learns new vocabulary using guessing meaning from context strategy: “Yes, learning basically yes to see the meaning and then trying to get like an idea or special word that will help me out to use it or recognize the word in any context.”

At this level of comprehension, participants may use more VLS processes as they seek more information for the new vocabulary as they seem to integrate deeper VLSs if guessing the meaning from context strategy fail to help them understand what the new word means. This is an indication of the fundamental aspect of VLS processes for learning new lexical items. One participant from the controlled group shared how he/she uses combinations of strategies in different processes to express his/her personal VLS style:

I think it’s a combination of both, like if their readings I would usually read it and then say it in my head and based on the context see what it means. If I’m having a conversation that I don’t know what the meaning is sometimes I’ll use it in a context and sometimes stop and ask a person what that is, so that’s kind of how it works for me.

*Dictionary use.* Participants reported using dictionaries, in different types and manners, to look up new word’s information. Gu (2013) categorized dictionary strategies as cognitive strategies, while Schmitt’s (1997) determination strategy includes dictionary strategy for comprehension, extended dictionary strategies, and looking-up strategies. In this study, participants mainly used looking-up strategies to learn new vocabulary. Participant 3 pointed how he/she use bilingual dictionary to look up new words: “Sometimes I would look it up in my

language and I think that's the best way." And in another segment stated: "I simply look it up by listening in Spanish or the meaning in Spanish."

Some participants preferred to check new word meanings using a monolingual dictionary every time they encounter new vocabulary. For instance, Participant 5 said: "Yes, I think I have always liked to know more vocabulary myself using the strategies of reading words and looking for them in the dictionary but for me just when I see like a new word." Participant 4 makes an argument that using online dictionaries are easier for him/her than using the physical dictionaries:

I prefer actually to research a dictionary because it's easiest for me. I like the online dictionary it's just for me. Since I was a kid I—I had dictionaries like, physical dictionaries and I don't know why they are so complicated for me.

Some participants indicated they prefer the online dictionary and the app-dictionaries instead of using the physical type. Here are some examples:

Participant C: I do the same I look in *Google* there are pages like the mail-Webster, dictionary app and you can get a recording of the phonetics of the word and that is what I like to do to hear the word.

Participant 2: I use the dictionary app that I had before in my cellphone.

Participant D: Then I try to search it in *Google* or something that might tell me how it's written.

### ***Memory strategies.***

Recalling new learned vocabulary needs some memory practices in order to be fully mastered by ESL learners. Participants were asked about their mental manipulation behaviors to learn new vocabulary. Some examples of these memory strategies the participants use include

making pictorial association with the new word's meaning, using mental rehearsal or private speech (say new word out loud), associating new word with its synonyms or antonyms, making a semantic map, studying the sound of the word, and using the word in sentences.

*Synonym relation strategies.* The hierarchy analysis outputs indicated that *synonym* association strategies topped all the VLSs used by the participants. Linking unknown words to already known strategy is an easy trigger for the mind to capture the global meaning of the new lexical, including knowing the antonyms and even collocations to grasp any previous knowledge linked to the newly learned words. Several studies, such as in Nation (2008), Qian (1999), and Schmitt (2000), discovered “a systematic and conscious effort in learning word's synonyms and antonyms contributes to a deeper knowledge of the target words” (D. Charkova & K. Charkova, 2018, p. 245). Participant 5 indicates how he/she start looking-up new word's information:

When I am reading or listening to a song or watching a movie and they say a word don't know I start to search for synonyms or for how to use the word instead of, what does it mean or how to use it.

Another participant E said: “Yes, I think finding words that are similar like synonyms because I think, ‘Oh, it's similar to this word that I knew before so I can use it instead of that word’ and things like that.”

As mentioned earlier in the statistical descriptive analysis, picturing new words strategies and making mental images of that new learned word has been integrated with all the survey items. After analyzing the qualitative data, I found that some participants indicated that making visual association while learning new lexical is very crucial process for their mind to build a long-term retention of its meaning. One participant from the controlled group said:

Sometimes what I like to do is look only for images of the word and what they can represent or something like that, and not so often synonym only when I encounter a new word and that's like say five times a week or something.

*Using the new learned words in sentences.* Using the new learned words in sentences is one of the common memory strategies that have been reported by the participants. In this deeper vocabulary learning process, ESL learners do not learn only how to write these new words in sentences, but they also use combinations of word in context, practice spelling, use different forms of the words and perhaps sound them out loud. Some participants reported using new words in sentences for mental practices and for long-term retention. The following participant 1 shared his/her VLS when asked about the best one he/she liked the most:

Well, to look in the dictionary maybe or to write a lot—a lot of sentences about that word when I discover the meaning or something so I can remember then in the future, “Oh, I wrote something about this word so I now remember the meaning” something like that.

Another participant reported how she/he practice learning new words by recalling them using writing repetition:

Yes, I think so just like I'm good at spotting some things. I think I have a good memory but I need to write sometimes, like five times or three times. I like to use the word in a sentence, like search for a sequence in which the words are to understand how I can use it.

*Study the sound of the word.* Participants reported doing more phonological and listening strategies because they depend on auditory input (e.g., listening to music and watching movies) as the main source to increase their vocabulary knowledge. Learners in this study understood how important it is to learn the pronunciation of newly learned vocabulary either in contextual or

decontextualized levels. Participants pointed out they learned the target words' pronunciation through online dictionaries or in their mobile app dictionaries to familiarize themselves with the sound system. Among the interview questions, participants were asked about how they approach learning new vocabulary while listening. According to some participants, this part of learning a new vocabulary feature is as important as learning its meaning to avoid misunderstanding when it comes the time to use them in speaking. For example, participant A shared how important it is to learn the new word pronunciation: "So, I prefer to listen to the word or say it out loud, so I can remember the interpretation and it lasts longer than if I see it only on paper." Another participant said: "Well I prefer to listen to the words because I have a great listening memory based on hearing so I prefer to listen to the word or say it out loud." Some participants emphasize learning about the phonetics features of the target words: "Like I was saying I'd rather hear the word. I do two things (1) I learn the word (2) I also know how to say the phonetics stuff."

*Note-taking strategies.* With note-taking strategies or *bookmark word search* as referred in this study, participants were introduced to bookmark strategy in which they draw, make notes, or attach any supporting information to help them remember the target words. Before the beginning of this study, participants used their own note-taking strategy; however, after introducing the VLSs Model, they become more aware of this vocabulary learning activity. According to Ahmed (1989), most ESL learners use their book margins to take notes about new vocabulary. Some participants showed high acceptance of using special notes for their vocabulary learning. Participants were asked to integrate any type of learning outputs to help them remember new learned words. One participant from the experimental group said, "I have a little notebook and word I write it down and it's like a list in some ways. If I don't remember the word I can go back to my notebook and I can see." Another participant indicated that making a



bookmark for every word search with all the details can assist in vocabulary retention and proper use of its context:

For example, the bookmarks were making that really helped me because when I want to remember a word or when I want to say something and don't remember how to say it I can just say that idea, and the word kind of pops into my mind, and how to use in that context.

*Remembering strategy for writing.* Learners take several ways to remember how to write new lexical items for their vocabulary mastery. According to Nation (1990), it usually takes as many as 5–16 times of exposures to master new vocabulary. At this initial vocabulary learning, repetitive writing or making new sentences of the new words, the writing process engages mental manipulation practices. In this study, however, participants reported using writing new words in sentences as a recall trigger or flash back each time they encounter new vocabulary. The orthographical practices made by the participants were not to learn new lexical spelling or its morphological features, but rather establish a space of the new word in the mind to be evoked easily in the future. The following participants described how they deploy remembering strategies for writing:

Participant1: Usually I would say writing the actual definition on a sheet of paper because usually when that happens it's because they are making me do it and that way – When I actually want to do it I—I wouldn't like write the entire definition I just like to understand what it means rather than know the actual dictionary definition of it.

Participant2: or to write a lot—a lot of sentences about that word when I discover the meaning or something so I can remember then in the future, “Oh, I wrote something about this word so I now remember the meaning” something like that.

### *Cognitive strategies.*

Participants repeatedly wrote or said a word several times in order to associate it. The interview results show that both of the groups' participants frequently repeated a new word's verbal or written form, perhaps to learn its pronunciation or meaning, until they successfully learned its form. One participant from the experimental group stated the following: "Well I prefer to listen to the words because I have a great listening memory based on hearing so I prefer to listen to the word or say it out loud." A second participant said: "So I prefer to listen to the word or say it out loud, so I can remember the interpretation and it lasts longer than if I see it only on paper." A third participant stated the following: "Repeat the word to myself (learning how to say the pronunciation)."

### *Social/Affection strategies.*

According to Schmitt (1997), there are two types of social strategies: discovery strategies and consolidation strategies. Some of discovery strategies include: (a) ask teacher for L1 translation or synonyms, (b) ask classmate for meaning, and (c) discover new meaning through group work activity. On the other hand, consolidation strategies such as studying the meaning of new word in group, interacting with native speakers, and teachers checking the student's flash cards or the word list for accuracy. Some of the interview questions were developed to discover if the participants sought out social strategies during vocabulary learning. In this study, however, few participants used social strategies. One participant from the experimental group shared his/her alternative social strategy use if he/she still need some assistance understanding the new words.

I follow some steps but not in an order it depends also on a lot of things. For example if I see a word I don't know and I search in the dictionary and it still is not clear to me I continue to use the other strategies like: Ask someone and [learn] synonyms.

### **Participants' Vocabulary Learning Autonomy**

As part of this study theme, vocabulary learning autonomy is the ontogenesis drive for ESL learners to deploy and apply VLS as a self-learning technique. Participants were presented (before the beginning of this study) with the vocabulary learning autonomy eight principles from Nation (2013). Each one of these principles were organized around and based on the syllabus design process, namely: (a) goals; (b) content and sequencing; (c) format and presentation; and (d) monitoring and assessment.

After completing the VLSs intervention, participants were asked to rank their overall agreement whether they see themselves as autonomous learner in terms of vocabulary learning. Out of 10, the mean score for all the participants, in which they responded positively to the question mentioned earlier, was 7.3%. This brief statistical result about learners being autonomous indicates that learners are taking charge of their vocabulary learning regardless of how or what VLSs they use. Some of the interviews' questions were elaborated and focused on the vocabulary learning autonomy aspects. Regarding the planning and goals for vocabulary learning, some participants considered themselves as self-learners. In regard to the first principle of vocabulary learning autonomy, the goals, the interviews showed that participants (from both groups) have reported that learning new vocabulary occurred instinctively. In this regard, after responding to the interview question which was as follows: "Do you plan your vocabulary learning and how," participants stated learning occurred without planning: "No, I think that it is more spontaneously. If I'm asked to learn some words I learn but it's not like it is a passion of

me or something like that.” Another participant said: “I don’t really plan it I just let it happen naturally when I’m watching movies and if I encounter a new word that’s when I’m interested in learning, but I don’t keep like a plan really.”

Regarding the content and sequencing principles of vocabulary learning autonomy, which refers to learning high-frequency words before learning low-frequency or academic words and seeking more word information beyond the basic meaning of the word, participants of this study acknowledged the deeper processes of learning new vocabulary. The following participant from the experimental group shared how s/he needed to increase her/his vocabulary knowledge by learning more academic words:

Participant A: And reading I find that interesting, so mainly reading because sometimes when the book is Old English you learn new words because we are used to the popular English or the informal English that is the daily English because it’s needed in the office.

Interviewer: Like colloquial English?

Participant A: Colloquial English so we need to know the formal way because in a job or a professional manner on the States or whatever country which is English speaking you just need to use formal language not un-informal.

Another participant from the controlled group indicated how s/he aims to increase her/his vocabulary size from basic vocabulary to more academic or technical:

So, as I am learning in Spanish I also learn in English and extend a little bit my vocabulary, my basic vocabulary the one I use when I’m speaking in English or something like that.

As stated by Gu (2013), VLS depends on the learners, the task, and the learning context. Consequently, this type of vocabulary learning autonomy principles can be marked by several

factors and circumstances of learning. Continuous knowing the new word's information such as its meaning, spelling, and pronunciation, is a key principle to achieve deeper comprehension of newly learned words. In this regard, many participants showed how much they go deeper with their vocabulary learning processes. The following participant A from the experimental group summarized her/his vocabulary learning processes as demanded while reading:

Well just like I previously mentioned when reading I select the words I do not know so I can: Search the meaning, translation to Spanish (works very well for me although not exact definition of the dictionary but I use it), listen to a word (helps when you are speaking), definition and listening to the words, practice making sentences (with all definitions that the word can be used in).

Another key principle of vocabulary learning autonomy is monitoring and assessment processes of the newly learned words to support vocabulary retention for long-term. The interview question which was as follows: "How do you keep track of your progress in vocabulary learning," has been asked to see how participants monitor their vocabulary learning. In as few as seven references of monitoring and bookmark codes, participants indicated they track their vocabulary learning using note-book or specific vocabulary note. Participant 2 stated the following: "I have a little notebook and word I write it down and it's like a list in some ways. If I don't remember the word I can go back to my notebook and I can see."

After introducing the bookmark vocabulary note, the participants from the experimental group realized the importance of building up not just word's meaning but also other lexical features such as forms, morphological structure, semantic, and phonological description. I asked the experimental group to add any details they want to learn about in the bookmark vocabulary note. One participant said:

For example the bookmarks were making that really helped me because when I want to remember a word or when I want to say something and don't remember how to say it I can just say that idea, and the word kind of pops into my mind, and how to use in that context.

### **Vocab-Backup Strategy Five Variables Analysis**

Due to the main focus of the study, a new model of VLS was hypothesized to determine if it leads to vocabulary size and knowledge increase. This VLS model called Vocab-Backup Strategy (VBS), the model developed by Alharbi (2015), comprises five preselected sequential VLS processes as an acquisition trigger factor and is shown in Table 23. This study was designed to investigate how *sequentially* second language learners look up new words following the five steps continuum as follows: (a) guessing meaning of a new word with its context; (b) building synonyms network; (c) listening and pronunciation process; (d) bookmark word search (note-taking strategies); and (e) remembering strategy for writing. The learning of individual words is incremental and each word has its own particular learning burden (Schmitt, 2010b, p. 136). The proposed VLS model was made to explore which of the five strategies L2 learners use orderly (following the five steps continuum mentioned above). Adding to the scope of this research, the qualitative part of the study elicited data about the VLS (the five sets of strategies mentioned above) in order to rearrange their sequence in which learners look up new words. This became part of the study assumption about investigating the use of particular VLS steps or processes to learn and comprehend new vocabulary. In vocabulary acquisition, as noted by Schmitt (2010b), many formulaic sequences are partially known for a number of exposures until the point where they become mastered (p. 136).

Table 23

*Vocab-Backup Strategy Description*

Categories	Name of the strategy	Sub-strategy	Assist learners	LSS*
Cognitive Strategy	<b>Synonyms Relations</b>	<ul style="list-style-type: none"> <li>• Check synonyms first for new words.</li> <li>• Use semantic map for each word.</li> <li>• Synonyms mean more words.</li> <li>• Build up global knowledge of new words by knowing synonyms.</li> <li>• Experience different contexts of new words.</li> </ul>	<ul style="list-style-type: none"> <li>• Expands voc. size in brain!</li> <li>• Easier to learn and remember.</li> <li>• Develop strong connection for word relations and usages.</li> </ul>	R, W
	<b>Learning definition/s with contexts</b>	<ul style="list-style-type: none"> <li>• Guess the meaning from context before knowing the meaning</li> <li>• Check words' context in dictionaries.</li> <li>• Apply different contexts of a word in speaking &amp; writing.</li> <li>• Check the meaning that fits the new words' context.</li> </ul>	<ul style="list-style-type: none"> <li>• Proper use of the new words.</li> <li>• Apply previous knowledge to guess the meaning.</li> <li>• Differentiate specific contexts of new words.</li> </ul>	R, W, L, S.
Social Strategy	<b>Listening &amp; Pronunciation strategy</b>	<ul style="list-style-type: none"> <li>• Keep Listening to (people, media, etc.).</li> <li>• Check syllable for sound.</li> <li>• Private Speech has it all (sound it out loud).</li> </ul>	<ul style="list-style-type: none"> <li>• Engage in conversations.</li> <li>• Enhances listening skills.</li> <li>• Develop confidence in speaking skill.</li> <li>• Improve speaking skill</li> </ul>	L, S.
Memory Strategy	<b>Remembering strategy for writing</b>	<ul style="list-style-type: none"> <li>• If I write them I will keep them in my mind</li> <li>• Picture your word /visualize new words.</li> <li>• Use them in writing.</li> <li>• Check syllable for spelling practices.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase writing comprehension.</li> <li>• Increase vocab. size by visualizing new words.</li> <li>• Evoke learning vocab. by writing</li> </ul>	W, R
Meta-cognitive Strategy; Dictionary Strategies	<b>Bookmark strategy</b>	<ul style="list-style-type: none"> <li>• Set up a vocabulary notebook</li> <li>• Check new words daily and weekly.</li> <li>• Repetition &amp; retention practices.</li> <li>• Deliberate vocab. learning.</li> <li>• Regular look up new words in dictionary.</li> </ul>	<ul style="list-style-type: none"> <li>• Bookmark new words is beneficial to remember.</li> <li>• Evoke your memory to use new words in speech and writing.</li> <li>• Keeps your vocabulary learning updated.</li> <li>• Endorse both speaking and writing skills.</li> <li>• Enhances long-term memory practices.</li> </ul>	R, W, L, S.

\* Language Scale Skills: (R = reading, S = speaking, W = writing, L = listening) Adapted from Alharbi (2015).

After the coding of the qualitative data, a hierarchy analysis compared by number of coding references for all the codes was performed, a list of VLSs have been identified and

corresponded with the vocabulary learning processes that the participants adhere to. In the following section, there will be a detailed discussion of each of the VLS according to their hierarchy order which was computed by NVivo software.

After completing the VLS intervention and from the interview data outcomes, results show that participants deployed some different sequencing of VLS and reported learning vocabulary in a systematic manner. According to some participants from the experimental group, the more frequent VLS processes applied while learning new lexical items the deeper retention of the word. This finding confirms Barcroft's (2002, 2004, 2009) studies on English speakers learning Spanish using a model called Most Frequently used Strategies (MFS). The author found that more frequent use of VLS leads to a better word retention. One participant from the experimental group shared the following opinion about achieving many strategies independently:

Yes, because it's a systematic process and you can get better results if you follow a scheme to get to the goal, and then you don't spend time asking a dozen questions because you can skip steps or miss steps, and don't get to the goal that is learning the new word in this case.

In addition to that, Oxford (1990) and Schmitt (2010b) stated the use of more adequate, frequent, and reliable learning strategies will significantly lead to successful learning outcomes. This indicates that participants from the experimental group become more familiar with the different processes of VLSs each time of the vocabulary learning input. One participant stated the following: "For example in the beginning it might be hard for you to use that process but the more you repeat it—it becomes easier. So, I feel that to learn a process is pretty good." Another participant said: "Yes, I think I have always liked to know more vocabulary myself using the strategies of reading words and looking for them in the dictionary but for me just when I see like



a new word.” The participant also added in different segment: “Yes, I prefer having a process for learning new words. I think there are searches where you search in class and it’s something that I used in junior high.”

### **Building synonyms network strategy.**

According to the number of synonyms association strategy code references, participants reported paying frequent consideration to the new words’ synonyms and or antonyms, strategies associated with making paradigmatic relations between words. This high number of using synonyms relation strategies were counted as the most mentioned strategy from the qualitative data outputs. In regard to the preference for using this strategy in the first place when encountering new vocabulary, some participants from the experimental group acknowledged how beneficial it was to link new words with its synonyms:

The synonym I—I always like to see the synonyms first because that’s – Now that—now that you mentioned that – I love synonyms —you can see those synonyms of those basic words and you can know it is like a combination of these, or it is easier to find another later.

At this process of vocabulary learning, language learners have more opportunities to expand their vocabulary knowledge explicitly. A good example is the *word wheel* strategy to learn more synonyms. The word wheel is defined as a lookup method in which each character typed, moves the on-screen index to the closest match. Peregoy and Boyle (2013) argued using the *word wheel* strategy can help increase students’ ability to shift between the meanings of the words to use it more precisely in different contexts.

### **Guessing meaning from context.**

Incidental vocabulary learning through contextual encounter has been regarded as a major way native speaker increase their vocabulary knowledge (Nation & Webb, 2011). In the case of second language learners, however, this strategy of inferring meaning from context requires some reading skills and a preparation for new text for successful guessing, and not all guessing attempts lead to vocabulary knowledge specially for second language learners. In other words, there is a huge contrary connection of both meaning and context in any new word, so many language learners stick with the meaning as their first step as they deliberate new words and ignore its context. One participant from the controlled group shared his doubt and uncertainty of using guessing strategy and how it leads to some confusion for him:

...but from the context maybe but it depends on how clear it is, if the sentence is a little bit generic you do have the word. Well I don't know if I can imply it but if they are complete sentences with a complete context then I can use that, but most of the time no I can't use that strategy that good.

In this study though, participants from the experimental group were asked to guess the meaning of new words and browse for deeper strategies such as checking different contexts of the same word (they were allowed to use dictionaries and other materials to help them recognize new word's context). If the participants encountered the word *amicable* in a reading text, they had to check the possible contexts in which this new vocabulary could be used. Participant D shared how he/she explore many word's meaning in different contexts:

Since I already know how it is written then I go to try and figure how it is used in the context[s]. For example if I don't know the word I first try to guess what it means like the context of the word.

### **Listening and pronunciation strategies.**

At this stage, participants were allowed to use online sources or dictionary app to check the sound of new words they encountered. The participants were also encouraged to keep listening for the new vocabulary, check the new word's syllables, and say the word out loud for phonological practices. Among all the participants from both groups, listening to music and watching movies were the main resources for vocabulary learning they reported. One participant said: "Well I prefer to listen to the words because I have a great listening memory based on hearing so I prefer to listen to the word or say it out loud." Another participant shared how he/she likes to increase or learn his/her vocabulary knowledge by watching more movies, stated the following: "There are a lot of new words in movies so that's what I like to do just watch movies." Some participants used extra listening and/or pronunciation strategies to learn the phonological features by repeating new lexical several times. One stated, "Like I was saying I'd rather hear the word. I do two things (1) I learn the word (2) I also know how to say the phonetics stuff."

### **Bookmark word search (note-taking) strategies.**

As mentioned earlier, participants from the experimental group were given a vocabulary notebook formula, which it is named *bookmark word search* because this note make participants write, check, mark, and repeat the process of learning new words at one place (see Appendix D), but also record the participants' vocabulary learning outputs for the qualitative analysis purposes. After completing the VLS intervention, almost all the participants from the experimental group maintained high productivity by learning new vocabulary using the VLS formula and added to the vocabulary learning outcomes (more details on this discussion will be presented on the observational notes section).

### **Remembering strategy for writing.**

Participants took the initiative of the writing strategy to learn new words for several reasons. In this study, participants were asked about their writing strategies, with the following question: “When you don’t know an English word when writing, what do you do?” in order to investigate the deeper VLS they deploy during the vocabulary learning process. One participant from the experimental group said, “Basically I look for something that describes this word and then check the synonyms and—and write the synonyms or something like that.” Many participants reported writing new words many times for better mastering it and assist in retention of its meaning. One participant from the controlled group stated:

...or to write a lot—a lot of sentences about that word when I discover the meaning or something so I can remember then in the future, “Oh, I wrote something about this word so I now remember the meaning” something like that.

Deploying writing strategies using cognitive manipulation behaviours for form-meaning recognition is a very common strategy by all the participants. This learning strategy supported the vocabulary acquisition process by acquiring multiples linguistic features at a time (e.g. morphological, syntactic, semantic, and phonological). Approximately 4 out of 5 participants reported using remembering strategies for writing, which was used for the cognitive vocabulary retention purposes during the vocabulary learning process. One participant from the controlled group reported using writing new learned lexical item on a separate note by stating the following: “[I] think a good strategy is, for example right now where doing words in separate papers but what I have is a notebook only with the words not with the meaning only with the words.”

Writing strategy for vocabulary learning was the least used strategy among all the participants. This does not indicate that knowing how to write new learned words is insignificant than other strategies reported in this study. It is the context and the scope of this study where remembering strategies for writing became less favored by the participants involved in this research.

### **Observational Notes from the Experimental Group on VBS**

This section of the study covers the VBS outcomes obtained from the classroom notes, observations, discussions with the teacher and from the vocabulary notebook (bookmark word search formula) given to the experimental group. The motive to include this section is to shed light on the VLS intervention outcomes and to reflect on whether the treatment worked or did not and why. The embedment of the VLS strategy treatment during this study was managed and monitored by the English teacher and the lead investigator. It was purposefully placed within the English class syllabus in which the teacher decided to have this intervention imbedded (at the last 10–15 minutes of each class) with *The Learning Guide* assigned by the school. At this high school, where this study took place, every student must complete, manage, and reflect on their learning guide for each subject. The school describes and defines its main educational competencies model's rational for the English language subject as follows:

This guide helps to develop the competencies established by the Learning Unit English IV of the Bilingual Baccalaureate, which through its four stages proposes activities that develop the second language acquisition according to Marzano's taxonomy. It starts with a diagnosis [stage] to help students identify strengths and areas of opportunity.

Subsequently, it continues with knowledge, organization and hierarchization, application, metacognition activities, and ends with the integrative product of the corresponding

stage. Some of these categories were put together to design activities where two of these levels work alternately. (*The Learning Guide Syllabus*, obtained from the school administrative office, The Universidad Autónoma de Nuevo Leon).

To ensure the validity and correctness of delivering and teaching VLS to the participants, major fundamental procedures in teaching VLSs were shared with and distributed to all the English teachers involved in this study. These guiding VLSs teaching principles were summarized and extracted from Nation (1990, 2013) on teaching and learning vocabulary. They are as follows:

- 1) Identify the strategies that are new for learners.
- 2) Explicitly explain how to use the new information or strategies.
- 3) Model how to use the new information or strategies.
- 4) Explain when to use the new information or strategies.
- 5) Explain to the learners how the new information or strategy will help them.
- 6) Give learners an opportunity to practice using the new information or strategy.
- 7) Give learners an opportunity to discuss the new information or strategy with others.

During the VLS intervention, close observations to all treatment sessions were maintained and followed up with the English teacher and students too to see and narrate every feedback and comments about the VBS model. According to the English teacher, participants demonstrated their best efforts of learning and using VLS in each class to their vocabulary learning outputs on the bookmark formula for each new learned vocabulary (five new words each class). For the English subject, teachers use *Interactive Reader* textbook for grade 10 (McDougal, 2012). The teaching approaches used in this high school is mixed of grammar-translation and communicative methods with some interactive technological resources used

during classes. Each participant from the experimental group, turned in their bookmark-notes formula after completing the intervention sessions altogether. The following Figure 14 illustrates samples of the bookmark-notes collected from the experimental group’s participants:

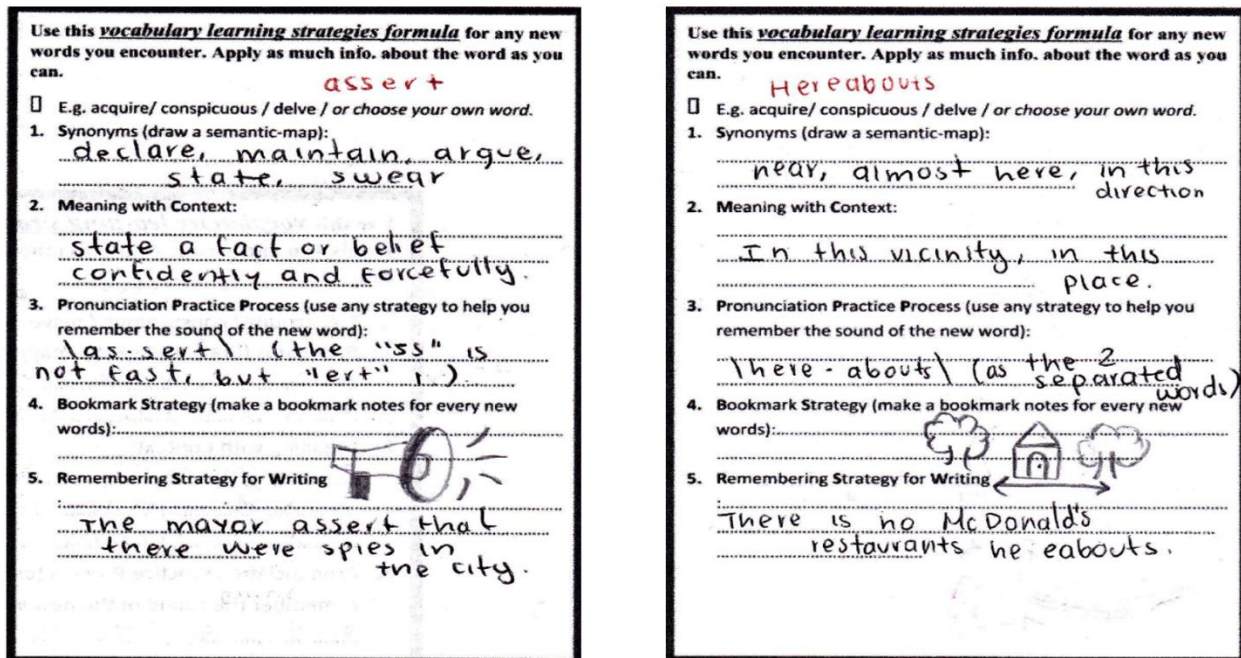


Figure 14. Samples of the participants’ Bookmark-note.

Participants were encouraged to add as much detail of the new word information as they could to master it. Continuing with this sequential VLS process, they applied the strategies and learned different linguistic features for each new vocabulary. Participants established, practiced, and mastered each word *form-meaning linkage*. Schmitt (2010a) stated, “Form meaning linkage is the most basic vocabulary knowledge possible” (p. 30). With the incessant practice using VLS formula, participants reflected on the four strands of (a) meaning-focused input, (b) language-focused learning, (c) meaning-focused output, and (d) fluency development (Nation, 2013).

### VLS learning outcomes

The school principal, the English teachers, and the participants were very engaged with the research study immediately and positively. After the commencement of the VLS

intervention, most participants had very little or no experience on the variations of VLSs. The participants were instructed on how to use and apply the preselected five sequential VLSs beforehand. Fulfilling this study condition was not included with the study treatment period (4-week intervention). Participants were excited and keen about their vocabulary learning development each class. This positive self-regulating motivation about their vocabulary learning translated into their integrations of each step of the proposed VLS model. According to Tseng et al. (2006), *commitment control* in their system of self-regulatory strategies (Self-Regulatory Capacity in vocabulary learning) was confirmed. The participants acknowledged and met Nation's principle eight of the autonomous vocabulary learning that is, building their awareness of their progress in vocabulary learning.

Unlike self-report questionnaires, participants applied and used the preselected VLSs during the intervention time, which support our conclusions about the convergent of both the quantitative and qualitative data. In this regard, the sequence and frequency of use for the VLSs from the interview's findings reported that participants favored mostly guessing meaning from context, synonyms relation strategies, and dictionary use as initial attempts for their vocabulary learning. After these three VLSs, there is a substantial drop in frequency for the other strategies (e.g., bookmark-note taking strategies, listening and pronunciation strategy, remembering strategy for writing).

## **Discussion**

The current chapter encompassed a hypothesized qualitative approach in order to examine the effectiveness of using *sequential* VLS that Spanish–English speakers use and how it leads to vocabulary acquisition and knowledge. The qualitative approach herein was designed and built around preselected VLSs and predefined VLS frameworks, including Schmitt's (1997)



and Gu's (2013). This section discusses the outputs and results of the qualitative data from the interviews which covered the study's second phase of the research questions. Before interpreting and analyzing the qualitative part, twofold significant arguments assumed by Schmitt (2010b) concerning strategy use should be emphasized. In the first argument, Schmitt asserted, "It is not what learners do that makes them strategic learners, but rather the fact that they put creative effort into trying to improve their own learning" (p. 91). The author then argues the more recent learning strategy approach specifies that it is not important how *many* strategies are applied, instead of that, how *well* they are applied. Discrepancies and or frequency of strategy use was always related to the participant's personal learning style, the task, and the way of use. Schmitt stated the following:

At one extreme, one can go a long way by using only one strategy that perfectly suits the learner's personality and learning style; and even if someone uses several strategies, it does not necessarily mean that the person is an able strategy user.

(Schmitt, 2010b, p. 93)

### **Vocabulary Learning Strategy Use.**

Researchers have extensively studied the common variations of VLS categories (Ahmed, 1989; Fan, 2003; Gu, 2005; Gu & Johnson, 1996; Nation, 2013; Sanaoui, 1995; Schmitt, 1997). In vocabulary learning, a common sense in the use of learning strategies is the way "a learner views vocabulary influences the strategies s/he will [use]" (Gu, 2005, p. 3). Alharbi (2015) maintained, "Lexical competence requires rigorous activities in order to [attain] vocabulary knowledge and to assist in language usage" (p. 503).

The present study sought to investigate the effectiveness of using specified sequential processes of VLSs by bilingual learners and the impact it makes on their vocabulary acquisition

development. The findings of this part of the study, correlate with the statistical results as each preselected VLS was recorded (number of references for each strategy) on the same order proposed according to their frequency from the interview data outputs. The findings of the interviews propose the more frequent, consistent, and deeper vocabulary learning process the experimental group participants made, the better vocabulary retention and or knowledge fulfilled. This finding shares some commonalities with many studies on VLS taxonomies (Barcroft, 2009; Clarke & Nation, 1980; Fan, 2003; Gu, 2005; Nation, 2013; Sanaoui, 1995). A particular scope of this study indicated and found that participants usually performed three to four systematic VLS processes for every single new vocabulary they encountered. These VLS processes usually include guessing meaning from context, synonyms relation strategies, dictionary use, bookmark-note taking strategies, and/or listening and pronunciation strategy. Sanaoui identified this type of vocabulary learning approach as a *structured approach*—that is learning vocabulary in a systematic way, setting criteria for the selection of words, engaging in self-initiated learning activities, keeping a systematic note of vocabulary items being learned, and regularly reviewing their records (Gu, 2013, p. 6117). In contrast, the controlled group, used *unstructured approach*, referring to the second type of vocabulary learning approach (Sanaoui, 1995), and maintained fewer or no independent VLSs, did not keep records or notes of the new learned lexical and other learning strategies.

### **Sequential VLS processes.**

The qualitative findings suggest the sequential processes of VLS used led to vocabulary acquisition depending on three factors: (a) accuracy of using the strategy, (b) maintaining continuous self-motivation in vocabulary learning, (c) maintaining frequency of use. In regard to the first factor, the ability to manage and use VLSs properly is what distinguished proficient

learners and nonproficient. Gu (2010) stated several studies were conducted on learner's deliberate and strategic effort in learning vocabulary (Barcroft, 2009; Tseng & Schmitt, 2008). The second factor has a crucial impact on the learners' vocabulary learning outputs since vocabulary learning is a nonending task. The findings suggest the motivation and excitement brought by the participants to learn more vocabulary using a specific process, led to increase in general learning outcomes and particularly in learning vocabulary. Participants were more engaged with the syllabus, classroom discussions, and participations during the VLS intervention time. Regarding the third factor, frequency of use, Barcroft found more frequent use of VLS lead to higher retention of the newly learned words.

Participants from the experimental group also became more familiar with the different processes of VLSs each instance of the vocabulary learning input. According to TOPRA model for vocabulary acquisition by Barcroft (2002, 2004), acquisition of vocabulary occurs or establishes itself in three distinct levels: (a) acquisition of form, (b) acquisition of meaning, and (c) acquisition of form-meaning mapping. Participants of this study were found more likely to learn about the form and or meaning processing at the time of vocabulary learning. The proposed sequential VLS continuum remained at the same hierarchy level for each strategy. There was not majority of one sequence of VLS over the others as L2 learners vary in their vocabulary learning style. Not all participants recorded using more processes during vocabulary learning, and different language input required different learning strategies. Gu (2005) stated, "If the task of vocabulary learning is multifaceted, different dimensions of the lexicon would demand different learning strategies, and strategies suitable for one dimension might not be suitable for another dimension" (p. 194). The preselected strategies interrelating with vocabulary size was revealed in this study, which is more associated with vocabulary knowledge dimension. The findings of

this study apply only to its specific context which was limited to an explicit group of participants. As part of the sequential VLSs use, participants were recorded performing two types of VLS: *initial-VLS* processes and *consolidated-VLS* processes. In the first type, participants tended to use more cognitive and/or meaning-oriented strategies such as guessing meaning from context strategy, synonym relation, note-taking strategy, saying a new word out loud, dictionary use (look-up strategy) or repetitive writing of the newly learned lexical (see description of each strategy above). In the consolidated-VLS processes, participants relearn the new vocabulary using more social and/or metacognitive strategies. Due to the fact this study was conducted within a 4-week intervention period, significant findings of this particular scope might support follow-up research with longer VLS treatment time. This limitation of the study emerged after the analysis and the interpretation of the qualitative data.

### **Participants' autonomy of vocabulary learning**

It is indisputable to think of learning vocabulary without considering the self-control or self-regulation aspect of it. Nation (2013) suggested that the more learners are aware of how learning is best carried out, the better the learning is likely to be (p. 583). Nation also proposed that autonomy relies on three factors: attitude, awareness, and capability. In the context of the present study, participants were introduced to and educated about how they could be autonomous learners for the purpose of applying the proposed VLS model. The participants were also presented with the eight autonomous vocabulary learning principles developed by Nation in order to elevate their awareness of this aspect and become active autonomous learners. In this regard, and according to the VLS formula notes outputs, participants from the experimental group achieved a higher level of being autonomous learners compared to the controlled group participants. Their attitude toward autonomy and awareness of it were evident as they integrated

and deployed the best knowledge of their learning styles. Participants were also capable of handling and taking charge of their learning every step of the VLS processes. Indication and outputs of their autonomy in vocabulary learning were observed through their VLS formula notes.

### **Summary of the Findings**

By means of a qualitative method, Chapter 5 outlined the beliefs and the strategy use profile of bilingual learners in learning vocabulary. The output of this study concerned the participants' view points from both groups. The participants' pool for the interview consisted of 10 12<sup>th</sup> grade bilingual Spanish–English speakers at a high school in Mexico. This study indicated that participants (from both groups) usually performed three to four systematic VLS processes for every single new vocabulary they encountered. Preselected VLSs were used and examined in relation to vocabulary size and knowledge. Demonstrations of sequential VLS processes were identified and recorded significantly among the participants from the experimental group. The findings of this part of the current study concerned itself *only* with the vocabulary size and the use of sequential VLS for vocabulary acquisition development but not to English proficiency.

The context of this study was concerned with different sets of predefined VLS categories such as cognitive strategies, memory strategies, metacognitive strategies, and dictionary strategies. The qualitative outcomes supported and confirmed the VLSs sequencing processes from the statistical data. The results showed participants deploy some different sequencing of VLS and reported they learned new vocabulary in a systematic manner. Participants from the experimental group reported that the more frequent VLS processes were applied while learning new lexical items the deeper the retention of the new word. In short, as part of the sequential

VLS use, participants were recorded performing two types of VLS: *initial*-VLS processes and *consolidated*-VLS processes. In this regard, the sequence and frequency of use for the VLSs from the interview's findings reported that participants favored mostly guessing meaning from context, synonyms relation strategies, and dictionary use as initial attempts for their vocabulary learning. Last but not least, acknowledgment of the sequential VLS processes were utilized to support vocabulary acquisition to increase vocabulary size scores. The findings herein are applicable only to its contexts, instruments used, methodology, and the participants. This type of qualitative study in VLS has not been investigated previously with the same application of a specific scheme of sequencing VLSs. Future research and follow up studies are recommended to consider choosing L2 learners from different linguistic backgrounds and expanding the study pool and the intervention time to reach a robust finding.

## **Chapter 6: Discussion and Conclusion**

In this chapter, I provide a synopsis of the major findings (from both the quantitative and qualitative data) in the present study. Also, this chapter includes and concludes the current study's pedagogical implications drawn from the study questionnaire, pre and post VST results, VLS intervention outcomes, interview data, discussion, and conclusion. I present the contributions of this study regarding the current knowledge on vocabulary learning strategies considering the limitations of this study.

### **Summary and Discussion**

Prior to discussing the study's main findings, it is important to highlight which areas and frameworks of vocabulary acquisition are covered in this study to acknowledge commonalities of previous research findings with the current study. This study on vocabulary acquisition intersects with multidisciplinary frameworks including language learning strategies, VLSs, psycholinguistics, neurolinguistics, vocabulary teaching and learning, text coverage and vocabulary size, specialized vocabulary, and the four language skills. This section includes a synopsis of the major findings and offers the implications that I believe are most important and essentially relevant to bilingual Spanish–English learners. Then, the chapter ends with recommendations for further research, highlights of the study's limitations, and the conclusion.

In this study, I highlighted the above-mentioned frameworks and how the recent vocabulary acquisition literature helps us understand the strategies/tactics ELLs use for their vocabulary learning. Due to the fact that second-language learners fail to have sufficient vocabulary knowledge, VLSs have been considered as a determinant for a successful growth of their language learning. However, recent studies on learning strategies (e.g., Gu, 2010; Oxford, 2011) and on VLS (e.g., Schmitt, 2010b; Tseng et al., 2006) address the need of the quality

factors of the learning strategies research rather than quantity factors. Ma (2009) stated that “Deep or shallow strategies determine the quality of vocabulary knowledge” (p. 166). With such emphasis and focus in VLSs research, the current study looked at the quality side of the participants’ VLSs use by considering and using multiple vocabulary acquisition measurements (e.g., VLSQ, VST, VLS intervention, observations, interviews). In this study, the experimental group participants gained a larger vocabulary size due to deploying the preselected sequential VLS processes. This achievement in language development and more particularly in L2 vocabulary acquisition were linked to the use of deeper VLS processes during vocabulary learning. Similarly, Ma (2009) suggested that the process of vocabulary acquisition is cyclical based on her VLSs *process-oriented* approach findings, which supports Tseng and Schmitt’s (2008) model of vocabulary learning called the *Structural Equation Model of Motivated Vocabulary Learning* (see Chapter 4 for more detail) an enhanced version of the SEM by Tseng et al., (2006). Hence, this finding shares some commonalities with many studies (e.g., Barcroft, 2009; Clarke & Nation, 1980; Fan, 2003; Gu, 2005; Ma, 2009; Nation, 2013; Sanaoui, 1995). Accordingly, validation of the assumption of a certain sequential VLS processes as one model for learning new vocabulary has been confirmed. In this model, guessing meanings from context strategy and using synonym relation were the most frequent VLSs mentioned by the participants followed by dictionary use strategies (e.g., physical dictionary, online, and app dictionary). Determining whether the participants follow VLS schemes or processes during vocabulary learning have been also identified as it pertains to one of the current study’s main goal.

Additionally, vocabulary size, text coverage, and the word-lists (first 14<sup>th</sup> word-families) are linked with successful growth of the vocabulary knowledge (Nation, 2013; Nation & Webb, 2011; Schmitt, 2010b; Schmitt & Tseng, 2008). Although, in this study text coverage of the



participants' vocabulary knowledge was not investigated during data collection and analysis, only vocabulary size and the word-lists were examined and analyzed in order to determine any significant change of the overall vocabulary size. Autonomous vocabulary learning was another factor related to the successful use of VLSs among second-language learners (Nation, 2013). In general, the participants acknowledged and met good *commitment control* of their self-regulatory strategies (Tseng et al., 2006) and Nation's principle eight of the autonomous vocabulary learning, that is, they built an awareness of their progress in vocabulary learning. Setting these vocabulary acquisition frameworks (the above mentioned) were accounted for as fulfilling this study's main goals. My main VLSs models that have been used to answer this study research questions are Schmitt's, (1997), Gu's (2013), and Alharbi's (2015) VBS.

### **Major findings.**

To reiterate, the study answered two phases of the research question which will be addressed herein. In general, the data show the vocabulary size and knowledge gained by the study's bilingual Spanish–English speakers ( $N = 70$ ) before and after a VLS intervention. Also, the findings indicated different use of the preselected sequential VLS processes to reach a common ground theory about the hypothesized VLS model. The results of this study yielded further empirical insights on the theory of vocabulary learning, which assumes that for second language learners to enhance their vocabulary knowledge, they must deploy different layers of sequential VLS processes instead of learning the basic meaning of the new lexical unit or relying on one strategy during vocabulary development. Answering the first phase of the research question (Which VLSs do bilingual learners deploy for their vocabulary learning and how effective are they?), the study suggests participants prefer and perform sets of learning strategies for their vocabulary learning. Of the five VLSs used, learning meaning with context and

synonym relation strategies were the most frequent and effective VLSs among all the participants. However, other sets of VLSs, such as listening and pronunciation, bookmark or note-taking strategies, and remembering strategy for writing, have been reported at different usage frequencies. The statistical analysis suggested the following two major findings: (1) the growth of vocabulary size is due to deploying certain sequential VLS processes, and (2) the assumption of certain sequential VLS processes as one model for learning new vocabulary is validated. Regarding the second phase of the research question, the effective use of sequential VLS processes, I recorded participants performing two types of VLSs: *initial*-VLS processes and *consolidated*-VLS processes. Furthermore, the sequence and frequency of use of the VLSs from the interview data conveyed that participants preferred regularly guessing meaning from context, synonym relation strategies, and dictionary use as initial attempts for vocabulary learning. In short, the bilingual Spanish–English speakers who participated in this study instituted a systematic VLS process, but this varied according to the following three factors: (1) the participants’ motivation to learn vocabulary, (2) when the task required constant vocabulary learning, and (3) the consistency and frequency of VLS use.

### **Vocabulary size.**

This study’s findings concern only receptive vocabulary knowledge and the vocabulary size scores of the participants. Testing vocabulary is similar to testing in other areas of language knowledge and use (Nation, 2013, p. 514). The participants’ general vocabulary size recorded in this study ranged between 7,000–9,000 word-families (prior to the VLS intervention). However, a change in the vocabulary size level of the experimental group participants ( $N = 35$ ) was significantly observed (from pre VST 7,000–9,000 to 9,500–10,500 word-families). A significant change of the frequency of the experimental group participants’ overall VST who scored 9,500–

10,500 word-families was recorded, which means the phenomenon of vocabulary acquisition occurred during the VLS intervention.

In vocabulary studies, vocabulary size tests can indicate the average vocabulary size of the language learners; however, different levels of vocabulary knowledge require more sophisticated tests such as the Vocabulary Knowledge Scale (Wesche & Paribakht, 1996), the Vocabulary Level Test (Nation, 1990), and the Vocabulary Size Test (Beglar, 2010; Nation & Beglar, 2007). Each of these tests focuses on one area of vocabulary knowledge that can be tested either with a yes/no test or by using a scale to measure degrees of word knowledge. The average vocabulary size required to comprehend and be able to communicate in English as a second language has been researched extensively. Tseng and Schmitt (2008) summarized the English vocabulary size needed for lexical requirements as follows:

- 2,000–3,000 word families for basic everyday conversation (chat);
- 3,000 word families to begin reading authentic texts;
- 5,000–9,000 word families to independently read authentic texts; and
- 10,000 word families, a wide vocabulary, to allow most language use.

#### **VLS use.**

One approach of facilitating vocabulary learning that has attracted increasing attention is VLS (Schmitt, 2000, p. 132). Thus, in this study I instituted several measurements of what and how VLSs are being applied to learn new words. However, as stated earlier, I investigated only the preselected VLSs to find out which VLS sequence or process most commonly leads to vocabulary acquisition. In other words, I developed the present study to investigate the effectiveness of using specified sequential processes of VLSs by bilingual learners and the impact it makes on their vocabulary acquisition. In general, both quantitative and qualitative

findings of the study correlate with the sequential VLS model proposed and the subsequent increases in vocabulary size scores. As discussed in Chapter 4, all participants agreed to use the proposed sequential VLS model in this study. This also confirms Alharbi's (2015) five VBS steps including the following: (1) Guessing meaning of a new word with its context; (2) Building synonym network; (3) Listening and pronunciation (speaking) process; (4) Bookmark word search (note-taking strategies); and (5) Remembering strategy for writing. Correspondingly, the findings of the interviews proposed that the more frequent, consistent, and deeper vocabulary learning process the experimental group participants made, the better vocabulary retention and/or knowledge fulfilled. The qualitative findings show that participants performed two types of VLS: *initial-VLS* processes and *consolidated-VLS* processes. In this regard, the sequence and frequency of use for the VLSs from the interview's findings reported that participants favored mostly guessing meaning from context, synonym relation strategies, and dictionary use as initial attempts for their vocabulary learning. While this study offers a specified VLS model, it is highly significant to note here that VLS use varies depending on the learners' motivation to learn new vocabulary. Tseng and Schmitt (2008) identified two components of VLS use: *strategic vocabulary learning involvement* (SVLI) and *mastery of vocabulary learning tactics* (MVLTL). The SVLI dealt more with the quantity dimension of strategy use, while the MVLTL entailed the quality of strategy use to master a specific strategy. Finally, several studies have shown that deeper processes of VLS, such as keyword method (Hulstijn, 1997), guessing the meanings of words from context (Clarke & Nation, 1980), note-taking (Ahmed, 1989), and forming association (Cohen & Aphek, 1981) are crucial in language learning.

## **Pedagogical Implications**

Over many decades, researchers have offered several teaching implications about vocabulary learning in second language learning (e.g., Barcroft, 2012; Gu, 2005; Nation, 2008; Schmitt, 2010a; Sökmen, 1997). In the context of this study, the outcomes offer some significant implications for bilingual Spanish–English learners and might apply to other bilingual learners from different linguistic backgrounds. Participants of this study were advanced bilingual students and were in the last semester of high school level. The average vocabulary size they attained prior this study was 7,000–9,000 word-families, which is higher than their counterparts (EFL learners at the same level). However, despite their vocabulary size scores, none of those participants had learned VLSs at schools or in their current class syllabi. Thus, the lack of teaching VLSs was obvious in several English curricula during the study period. There are infinite boundaries on how to teach VLSs in second language teaching. Also, researchers must consider many factors in vocabulary learning and teaching altogether, for instance, teachers’ role, vocabulary teaching strategies, learners’ proficiency level, and the method used to deliver the learning strategies. The central argument here is that educational institutions should teach VLSs as they offer an essential way for bilingual learners to be autonomous and take charge of their vocabulary learning at every new step of their language learning process. Furthermore, building on the essence that it is impossible to teach all vocabulary to students nor they can learn every new word by themselves, Sökmen (1997) asserted that helping second language learners “learn how to continue to acquire vocabulary on their own” is highly important. Consequently, ESL/EFL teachers must: (1) be trained in teaching VLSs; (2) add VLS training sessions to the English syllabus; (3) expand opportunities for learners to explore their beliefs and the different categories of VLSs (e.g., cognitive, metacognitive, social, and affective strategies), and (4) ask

learners to pick their favorite strategies in a group-work session with their peers to “experience what Resnick, (1989) calls a ‘cognitive apprenticeship’” (Sökmen, 1997, p. 255). Additionally, building on previous studies, Alharbi (2015) asserted that endorsement of VLSs would significantly assist ELLs to “maintain their skills to build intact relationship with vocabulary during language development. It is to be suggested to offer and expose ELLs to different VLSs in order to sustain their self-regulation practices in the classroom” (p. 510). However, learning to use a learning strategy requires more effort and time. Hence, to get the students familiar with any strategy, Nation (2008) offered strategy training recommendations as follows:

Complex strategies like guessing from context, using word cards, using word parts, and dictionary use are not learned by spending one lesson on them. They need to be built up, practiced and made more fluent over a reasonably long period of time. It is thus worth planning a mini-syllabus for the development of a strategy. The factors involved in the stages of this syllabus can involve a movement from the teacher demonstrating the strategy, the learners and the teacher doing it together, the learners doing it in groups and finally the learners doing it individually. (p. 77)

The value of considering teaching VLS in the L2 classroom context can positively influence many linguistics features that the language learners need to be competent at (e.g., speaking, writing, reading skills, etc.). They can build on different learning styles that they might not be aware of which in turn, could assist them succeed in language development. Another aspect of this study is to make the learners aware of the deeper processes of vocabulary learning since vocabulary knowledge is incremental in nature. Teachers can explore with the learners the different sequences of VLS process they deploy for each new word to be fully mastered. The variations of different strategies used among learners are expected to arise, but teachers must

encourage them to use the ones they feel more competent in. Additionally, EFL/ESL teachers must continue encouraging the learners to expand their vocabulary size, plan their vocabulary learning, and setting-up strategies plans, and explore new texts everyday for best vocabulary knowledge development.

Another facet of this study implication is helping learners become autonomous learners and explore self-regulation in language learning. Indeed, learning to use VLS cannot be achieved or accomplished unless learners become independent in their vocabulary learning. Also, since learning vocabulary is a nonending task, teaching vocabulary should be built on how to make learners autonomous and familiar with the different strategies of vocabulary learning including language learning strategies. According to this study's outcomes, participants were excited and keen about their vocabulary learning development in each class. This positive self-regulating motivation about their vocabulary learning translated into their integrations of each step of the proposed VLS model. Thus, introduction of Nation's eight principles of autonomous vocabulary learning is highly encouraged to be presented in L2 classrooms to build vocabulary learning awareness practices among L2 learners.

### **Limitations**

Due to the fact that this study answered very specific research questions, it has some limitations. First, all self-reported VLSQ responses may yield different outputs depending on the learners' attention and focus to answer each item. Second, the study uses only VST in order to gauge learners' vocabulary size (general vocabulary knowledge). However, it would be more in-depth if other vocabulary tests (e.g., Vocabulary Level Test) were used to examine the participants' productive vocabulary knowledge level. Also, this limitation could not be met due

to the long lengths of these vocabulary tests which may interrupt students' participations in their regular classes.

Furthermore, the 4-week VLS intervention time was not enough for the participants to tryout the proposed sequential VLS model which could have more washback effect if it was for longer treatment sessions. It was not possible to extend this study time due to participants' academic involvement and participations in other subjects and preparations for midterm tests. Finally, the study pool was limited to ( $N = 35$ ) for each group due to the lack of access to a bigger number of students on the same academic level.

### **Future Research Recommendations**

This study embarked from a new perspective to look at and investigate the deeper sequential processes of VLSs used by bilingual learners for their vocabulary acquisition development. Most studies on VLS identify or explore what kind of learning strategies second language learners deploy during vocabulary learning (e.g., Gu & Johnson, 1996; Kudo, 1999; Schmitt, 1997; Stoffer, 1995), VLS frequency of use as in Barcroft (2009), or how well they use them (e.g., Ahmed, 1989; Fan, 2003; Lawson & Hogben, 1996; Sanaoui, 1995). Consequently, I think future research on VLS should focus more on the dynamic processing side entailed in vocabulary learning. As Schmitt (2000) stated, "vocabulary acquisition is incremental in nature"; language learners typically perform sets of VLS processes for each new word they encounter to master these new lexical units. To my knowledge, no single study (both quantitatively and qualitatively or even mixed method) has investigated the sequential VLS processes that language learners use for vocabulary development except Alharbi's (2015); however, Gu (2005) addressed the need for "vocabulary research that systematically focus on the process of vocabulary acquisition" (p. 195). His study marked the only research that looked at VLS processes in the



EFL context. Future research should explore the variations of these sequential VLSs processes and which one leads to more effective vocabulary acquisition. Since this area of research needs replication studies, future research should focus on teaching learners how to best use VLSs rather than testing hypotheses or looking at one common VLS taxonomy. As such, SLA research needs to broaden experimentation and interventions on strategy training to discover the interrelationship among substrategies used, which sequences or combinations of VLSs lead to more vocabulary acquisition, which type of language learners usually attain these different processes, and in which context they have been used.

### **Conclusion**

“The conception of vocabulary as a dynamic complex of knowledge plus skill is especially important in the understanding of vocabulary learning strategies” (Gu, 2005, p. 194). Learning and teaching VLSs are necessary to address the urgent need to improve second language vocabulary learning. Thus, it is imperative for SLA research to reveal which sequential VLS processes most efficiently and effectively lead to L2 vocabulary acquisition. This study intended to investigate and explore the variety of VLS sequences/processes that bilingual learners perform, mapping out the harmony between strategies and the learning results. The VLS model presented in this study, VBS, is definitely not comprehensive, but it does look at different VLS processes and how they impact vocabulary learning. Accordingly, our knowledge of this particular research area is still in the early stage, and consequently, we need more explanatory and exploratory research to move forward.

## References

- Adolphs, S., & Schmitt, N. (2003). Lexical coverage of spoken discourse. *Applied Linguistics*, 24(4), 425–438.
- Adolphs, S., & Schmitt, N. (2004). Vocabulary coverage according to spoken discourse context. In P. Bogaards & B. Laufer (Eds.), *Vocabulary in a second language: Selection, acquisition, and testing* (pp. 39–49). Amsterdam, the Netherlands: John Benjamins.
- Ahmed, M. (1989). Vocabulary learning strategies. In P. Meara (Ed.), *Beyond words* (pp. 3–14). London, England: CILT.
- Alharbi, A. M. (2015). Building vocabulary for language learning: Approach for ESL learners to study new vocabulary. *Journal of International Students*, 5(4), 509–510.
- Anderson, J. (1985). *Cognitive psychology and its implications* (2nd ed.). New York, NY: Freeman.
- Anderson, J. R. (2005). *Cognitive psychology and its implications*. New York, NY: Macmillan.
- Anderson, R. C., & Freebody, P. (1981). Vocabulary knowledge. In J. T. Guthrie (Ed.), *Comprehension and teaching: Research reviews* (pp. 77–117). Newark, DE: International Reading Association.
- Barcroft, J. (2002). Semantic and structural elaboration in L2 lexical acquisition. *Language Learning*, 52(2), 323–363. doi:10.1111/0023-8333.00186
- Barcroft, J. (2004). Second language vocabulary acquisition: A lexical input processing approach. *Foreign Language Annals*, 37(2), 200–208.
- Barcroft, J. (2009). Strategies and performance in intentional L2 vocabulary learning. *Language Awareness*, 18(1), 74–89. doi:10.1080/09658410802557535
- Barcroft, J. (2012). *Input-based incremental vocabulary instruction*. Alexandria, VA: TESOL International Association.
- Beglar, D. (2010). A Rasch-based validation of the Vocabulary Size Test. *Language Testing*, 27, 101–118.
- Carter, R. (1998). *Vocabulary: Applied linguistic perspectives* (2nd ed.). London, England: Routledge.
- Carter, R., & McCarthy, M. (1988). Developments in the teaching of vocabulary. In R. Carter & M. McCarthy (Eds.), *Vocabulary and language teaching* (pp. 39–59). London, England: Longman.

- Carvalho, C. M. M. d. (2013). *Vocabulary teaching and learning strategies in a foreign/second language* (Master's thesis). Available from ProQuest Dissertations & Theses Global. (1490789442).
- Chamot, A. U. (1987). The learning strategies of ESL students. In A. Wenden & J. Rubin (Eds.), *Learner strategies in language learning*. New York, NY: Prentice Hall.
- Chamot, A., & O'Malley, J. (1987). The cognitive academic language learning approach: A bridge to the mainstream. *TESOL Quarterly*, 21(2), 227–249. doi:10.2307/3586733
- Charkova, D., & Charkova, K. (2018). Exploring the connection between second language vocabulary learning strategies and vocabulary knowledge. *International Online Journal of Education and Teaching (IOJET)*, 5(2), 235–250. Retrieved from <http://iojet.org/index.php/IOJET/article/view/317/232>
- Cheung, C. (2004). *The effectiveness of vocabulary learning strategies of Chinese low achievers* (Unpublished master's thesis). The University of Hong Kong, Hong Kong.
- Clarke, D. F., & Nation, I. P. (1980). Guessing the meanings of words from context: Strategy and techniques. *System*, 8(3), 211–220.
- Cohen, A. D. (1990). *Language learning: Insights for learners, teachers, and researchers*. New York, NY: Newbury House.
- Cohen, A. D. (1996). Second language learning and use strategies: Clarifying the issues. Working paper. Center for Advanced Research on Language Acquisition, University of Minnesota, Minneapolis, MN.
- Cohen, A. D., & Aphek, E. (1981). Easifying second language learning. *Studies in Second Language Acquisition*, 3(2), 221–236.
- Coxhead, A. (1998). *An academic word list* (ELI Occasional Publications, Vol. 18). Wellington, New Zealand: Victoria University of Wellington.
- Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, 34, 213–238.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: SAGE.
- Crow, J. T. (1986). Receptive vocabulary acquisition for reading comprehension. *The Modern Language Journal*, 70(3), 242–250.
- Dickinson, L. (1987) *Self-instruction in language learning*. Cambridge, England: Cambridge University Press.
- Dörnyei, Z. (2001). *Teaching and research motivation*. Harlow, England: Pearson Education.

- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Erlbaum.
- Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford, England: Oxford University Press.
- Dreyer, C., & Brits, J. (1994). Memory strategies and ESL vocabulary acquisition. *Per Linguam Journals*, 10(1), 33–40.
- Elgort, I., & Warren, P. (2014). L2 vocabulary learning from reading: Explicit and tacit lexical knowledge and the role of learner and item variables. *Language Learning*, 64(2), 365–414.
- Ellis, N., & Beaton, A. (1995). Psycholinguistic determinants of foreign language vocabulary learning. In B. Harley (Ed.), *Lexical issues in language learning* (pp.107–165). Ann Arbor, MI: Benjamins.
- Ellis, R. (1994). Factors in the incidental acquisition of second language vocabulary from oral input: A review essay. *Applied Language Learning*, 5(1), 1–32.
- Fan, M. (2003). Frequency of use, perceived usefulness, and actual usefulness of second language vocabulary strategies: A study of Hong Kong learners. *Modern Language Journal*, 87(2), 222–240.
- Francis, W. N., & Kucera, H. (1982). *Frequency analysis of English usage*. Boston, MA: Houghton Mifflin.
- Gairns, R., & Redman, S. (1986). *Working with words: A guide to teaching and learning vocabulary*. Cambridge, England: Cambridge University Press.
- Gardner, D. (2013). *Exploring vocabulary: Language in action*. New York, NY: Routledge.
- Gass, S. (1989). Second language vocabulary acquisition. *Annual Review of Applied Linguistics*, 9, 92–106.
- Gass, S. (1999). Discussion: Incidental vocabulary learning. *Studies in Second Language Acquisition*, 21(2), 319–333.
- Glezer, L., Kim, J., Rule, J., Jiang, X., & Riesenhuber, M. (2015). Adding words to the brain's visual dictionary: Novel word learning selectively sharpens orthographic representations in the VWFA. *The Journal of Neuroscience*, 35(12), 4965–4972.
- Goulden, R., Nation, P., & Read, J. (1990). How large can a receptive vocabulary be? *Applied Linguistics*, 11(4), 341–363.
- Gu, Y. (1994). *Vocabulary learning strategies of good and poor Chinese EFL learners*. Paper presented at TESOL 94, Baltimore, MD.

- Gu, Y. (2003). Vocabulary learning in a second language: Person, task, context, and strategies. *TESL-EJ*, 7(2), 1–25.
- Gu, Y. (2005). *Vocabulary learning strategies in the Chinese EFL context*. Singapore: Marshall Cavendish Academic.
- Gu, Y. (2010). Learning strategies for vocabulary development. *Reflections on English Language Teaching*, 9(2), 105–118.
- Gu, Y. (2013). Vocabulary learning strategies. In C. A. Chapelle (Ed.), *The encyclopedia of applied linguistics*. Blackwell. <https://doi.org/10.1002/9781405198431.wbeal1329>
- Gu, Y. (2017). Validation of an online questionnaire of vocabulary learning strategies for ESL learners. *Studies in Second Language Learning and Teaching*, 8(2), 325–350.
- Gu, Y., & Johnson, R. K. (1996). Vocabulary learning strategies and language learning outcomes. *Language Learning*, 46(4), 643–679.
- Hedge, T. (2000). *Teaching and learning in the language classroom*. Oxford, England: Oxford University Press.
- Heigham, J., & Croker, R. A. (2009). *Qualitative research in applied linguistics: A practical introduction*. Houndmills, England: Palgrave Macmillan.
- Huckin, T., & Coady, J. (1999). Incidental vocabulary acquisition in a second language. *Studies in Second Language Acquisition*, 21(2), 181–193.
- Hulstijn, J. H. (1997). Mnemonic methods in foreign language vocabulary learning. In *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 203–224). Cambridge, England: Cambridge University Press.
- Hunt, A., & Beglar, D. (2005). A framework for developing EFL reading vocabulary. *Reading in a Foreign Language*, 17(1), 1–31.
- Hyland, K., & Tse, P. (2007). Is there an “academic vocabulary”? *TESOL Quarterly*, 41(2), 235–253.
- Ivankova, N. V., & Creswell, J. W. (2009). Mixed methods. In J. Heigham & R. A. Croker (Eds.), *Qualitative research in applied linguistics: A practical introduction* (pp. 135–161). New York, NY: Palgrave Macmillan.
- Jiang, N. (2004). Semantic transfer and development in adult L2 vocabulary acquisition. In P. Bogaards & B. Laufer (Eds.), *Vocabulary in a second language: Description, acquisition, and testing* (pp. 101–126). Amsterdam, the Netherlands: Benjamins.
- Kelly, P. (1990). Guessing: No substitute for systematic learning of lexis. *System*, 18, 199–208.

- Kojic-Sabo, I., & Lightbown, P. (1999). Students' approaches to vocabulary learning and their relationship to success. *The Modern Language Journal*, 83(2), 176–192. Retrieved from <http://www.jstor.org.ezproxy.memphis.edu/stable/330334>
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *The Modern Language Journal*, 73(4), 440–464.
- Kudo, Y. (1999). *L2 vocabulary learning strategies* (Unpublished doctoral thesis). University of Hawaii, Manoa, HI.
- Kulikova, O. (2015). *Vocabulary learning strategies and beliefs about vocabulary learning: A study of beginning university students of Russian in the United States* (Ph.D. dissertation, University of Iowa). Available from ProQuest Dissertations & Theses Global. (1733635434).
- Lantolf, J. P. (1997). The function of language play in the acquisition of L2 Spanish. In W. R. Glass & A. T. Perez-Leroux (Eds.), *Contemporary perspectives on the acquisition of Spanish* (Vol. 2, pp. 3–24). Somerville, MA: Cascadilla Press.
- Laufer, B. (2000). Task effect on instructed vocabulary learning: The hypothesis of 'involvement.' In AILA '99 Tokyo Organizing Committee (Ed.), *Selected papers from AILA '99 Tokyo* (pp. 47–62). Tokyo, Japan: Waseda University Press.
- Laufer, B., & Nation, I. S. P. (1999). A vocabulary size test of controlled productive ability. *Language Testing*, 16(1), 33–51.
- Laufer, B., & Ravenhorst-Kalovski, G. (2010). Lexical threshold revisited: Lexical text coverage, learners' vocabulary size and reading comprehension. *Reading in a Foreign Language*, 22(1), 15–30.
- Laufer, B., & Rozovski-Roitblat, B. (2011). Incidental vocabulary acquisition: The effects of task type, word occurrence and their combination. *Language Teaching Research*, 15(4), 391–411.
- Lawson, M. J., & Hogben, D. (1996). The vocabulary learning strategies of foreign language students. *Language Learning*, 46(1), 101–135.
- Levenston, E. A. (1979). Second language acquisition: Issues and problems. *Interlanguage Studies Bulletin*, 4, 147–160.
- Lowie, W., & Seton, B. (2013). *Essential statistics for applied linguistics* (pp. 3–16). Houndmills, England: Palgrave Macmillan.
- Ma, Q. (2009). *Second language vocabulary acquisition*. Bern: Peter Lang AG, International Academic Publishers.
- Mackey, A., & Gass, S. M. (2016). *Second language research: Methodology and design* (2nd ed.). New York, NY: Routledge, Taylor & Francis Group.

- McCarthy, M. J. (1994) *Vocabulary*. Oxford, England: Oxford University Press.
- McCarthy, M. J., & O'Dell, F. (1994). *English vocabulary in use*. Cambridge, England: Cambridge University Press.
- McDougal, H. O. L. T. Holt McDougal Literature© 2012.
- McNeill, A. (1990). Vocabulary learning and teaching: evidence from lexical errors in the spontaneous speech of ESL learners. *Institute of Language in Education Journal*, 7, 141–153.
- Meara, P. (1980). Vocabulary acquisition: A neglected aspect of language learning. *Language Teaching*, 13(3–4), 221–246.
- Meara, P. M. (1983). *Vocabulary in a second language. Specialised Bibliography 3 [Covering 1960–1980]*. London, England: Regent's University.
- Meara, P. (1989). Matrix models of vocabulary acquisition. *AILA Review*, 6, 66–74.
- Meara, P. M. (1996). The dimensions of lexical competence. In G. Brown, K. Malmkjaer, & J. Williams (Eds.), *Performance and competence in second language acquisition* (pp. 35–53). Cambridge, England: Cambridge University Press.
- Meara, P. (1997). Towards a new approach to modelling vocabulary acquisition. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 109–121). Cambridge, England: Cambridge University Press.
- Meara, P. (2004). Modelling vocabulary loss. *Applied Linguistics*, 25(2), 137–155.
- Meara, P. (2006). Emergent properties of multilingual lexicons. *Applied Linguistics*, 27(4), 620–644.
- Meara, P., & Miralpeix, I. (2017). *Tools for researching vocabulary*. Multilingual Matters.
- Miller, G. A. (1999). On knowing a word. *Annual Review of Psychology*, 50(1), 1–19.
- Mizumoto, A., & Takeuchi, O. (2008). Exploring the driving forces behind TOEIC scores: Focusing on vocabulary learning strategies, motivation, and study time. *JACET Journal*, 46, 17–32.
- Moir, J., & Nation, I. S. P. (2002) Learners' use of strategies for effective vocabulary learning. *Prospect*, 17(1), 15–35.
- Nassaji, H. (2003). L2 vocabulary learning from context: Strategies, knowledge sources, and their relationship with success in L2 lexical inferencing. *TESOL Quarterly*, 37(4), 645–670.

- Nassaji, H. (2006). The relationship between depth of vocabulary knowledge and L2 learners' lexical inferencing strategy use and success. *The Modern Language Journal*, 90(3), 387–401.
- Nation, I. S. P. (1990). *Teaching and learning vocabulary*. New York, NY: Newbury House.
- Nation, I. S. P. (1998). Helping learners take control of their vocabulary learning. *GRETA*, 6(1), 9–18.
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge, England: Cambridge University Press.
- Nation, I. S. P. (2005). Teaching and learning vocabulary. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 581–595). Mahwah, NJ: Lawrence Erlbaum.
- Nation, I. S. P. (2006). How large a vocabulary is needed for reading and listening? *Canadian Modern Language Review*, 63(1), 59–82.
- Nation, I. S. P. (2008). *Teaching vocabulary: Strategies and techniques*. Boston, MA: Heinle and Heinle.
- Nation, I. S. P. (2011) Second language speaking. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (Vol. 2, Ch. 27, pp. 444–454). New York, NY: Routledge.
- Nation, I. S. P. (2013). *Learning vocabulary in another language* (Second ed.). Cambridge, England: Cambridge University Press.
- Nation, I. S., & Gu, P.Y. (2007). *Focus on vocabulary*. Sydney: National Center for English Language Teaching and Research.
- Nation, I. S., & Webb, S. A. (2011). *Researching and analyzing vocabulary*. Boston, MA: Heinle, Cengage Learning.
- Nation, P., & Beglar, D. (2007). A vocabulary size test. *The Language Teacher*, 31(7), 9–13.
- Nation, P., & Newton, J. (1997). Teaching vocabulary. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition*. Cambridge, England: Cambridge University Press.
- Nation, P., & Waring, R. (1997). Vocabulary size, text coverage, and word lists. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 6–19). Cambridge, England: Cambridge University Press.
- Nattinger, J. (1988). Some current trends in vocabulary teaching. *Vocabulary and Language Teaching*, 1, 62–82.
- NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 12, 2018.



- Ohta, A. S. (2001). *Second language acquisition processes in the classroom: Learning Japanese*. Mahwah, NJ: Lawrence Erlbaum Associates.
- O'Malley, J., & Chamot, A. (1990). *Learning strategies in second language acquisition*. Cambridge, England: Cambridge University Press.
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Boston, MA: Heinle & Heinle.
- Oxford, R.L. (1999). Relationships between learning strategy use and language proficiency across studies with the Strategy Inventory for Language Learning. Presentation at the Invitational Symposium for Researchers on Language Learning Strategies in the Context of Autonomy, Teachers College, Columbia University, New York.
- Oxford, R. L. (2011). *Teaching and researching language learning strategies*. Harlow, England: Pearson/Longman.
- Oxford, R. L. (2017). *Teaching and researching language learning strategies: Self-regulation in context* (2nd ed.). New York, NY: Routledge.
- Pavičić Takač, V. (2008). *Vocabulary learning strategies and foreign language acquisition*. Clevedon, England: Multilingual Matters.
- Peregoy, S. F., & Boyle, O. (2013). Words and meanings: English learners' vocabulary development. In K. Cadiero-Kaplan (Ed.), *Reading, writing, and learning in ESL: A resource book for teaching K-12 English learners* (6th ed., pp. 224–248). Boston, MA: Pearson.
- Pressley, M., Levin, J. R., Kuiper, N. A., Bryant, S. L., & Michene, S. (1982). Mnemonic versus non-mnemonic vocabulary-learning strategies: Additional comparisons. *Journal of Educational Psychology*, 74, 693–707.
- Pressley, M., Levin, J. R., & Miller, G. E. (1982). The keyword method compared to alternative vocabulary-learning strategies. *Contemporary Educational Psychology*, 7, 50–60.
- Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *The Canadian Modern Language Review*, 56, 282–307.
- Read, J. (2000). *Assessing vocabulary*. Cambridge, England: Cambridge University Press.
- Read, J. (2004). Plumbing the depths: How should the construct of vocabulary knowledge be defined. In P. Bogaards & B. Laufer (Eds.), *Vocabulary in a second language: Selection, acquisition, and testing* (Vol. 10, pp. 209–227). Amsterdam, the Netherlands: Benjamins.
- Read, J. (2012). Assessing vocabulary. In C. Coombe, P. Davidson, B. O'Sullivan, & S. Stoyhoff (Eds.), *The Cambridge guide to second language assessment* (pp. 257–263). Cambridge, England: Cambridge University Press.

- Rubin, J. (1975). What the “good language learner” can teach us. *TESOL Quarterly*, 9, 41–51.
- Rubin, J. (1981). Study of cognitive processes in second language learning. *Applied Linguistics* 2(2), 117–131.
- Rubin, J. (2001). Language learner self-management. *Journal of Asian Pacific Communication*, 11(1), 25–37.
- Sahin, N. T., Pinker, S., Cash, S. S., Schomer, D., & Halgren, E. (2009). Sequential processing of lexical, grammatical, and phonological information within Broca’s area. *Science*, 326(5951), 445–449. doi:10.1126/science.1174481
- Sanaoui, R. (1995). Adult learners’ approaches to learning vocabulary in second languages. *The Modern Language Journal*, 79(1), 15–28.
- Schmitt, N. (1997). Vocabulary learning strategies. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 199–227). Cambridge, England: Cambridge University Press.
- Schmitt, N. (2000). *Vocabulary in language teaching* (pp. 116–141). New York, NY: Cambridge University Press.
- Schmitt, N. (2007). Current perspectives on vocabulary teaching and learning. In J. Cummins & C. Davison (Eds.), *International handbook of English language teaching* (pp. 827–841). New York, NY: Springer.
- Schmitt, N. (2010a). Key issues in teaching and learning vocabulary. In R. Chacón-Beltrán, C. Abello-Contesse, & M. Torreblanca-López (Eds.), *Insights into non-native vocabulary teaching and learning* (pp. 28–40). Bristol, England: Multilingual Matters.
- Schmitt, N. (2010b). *Researching vocabulary: A vocabulary research manual*. Basingstoke, England: Palgrave Macmillan.
- Schmitt, N., & McCarthy, M. (Eds.). (1997). *Vocabulary: Description, acquisition and pedagogy*. Cambridge, England: Cambridge University Press.
- Schmitt, N., Schmitt, D., & Clapham, C. (2001). Developing and exploring the behavior of two new versions of the vocabulary levels test. *Language Testing*, 18, 55–88.
- Scholfield, P. J. (1982). The role of bilingual dictionaries in ESL/EFL: A positive view. *RELC Journal Guidelines*, 4, 84–98.
- Schunk, D. H., & Ertmer, P. A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. In *Handbook of self-regulation* (pp. 631–649).
- Simpson, M., Nist, S., & Kirby, K. (1987). Ideas in practice: Vocabulary strategies designed for college students. *Journal of Developmental Education*, 11(2), 20–24.

- Sökmen, A. J. (1997). Current trends in teaching second language vocabulary. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 237\_257). Cambridge, England: Cambridge University Press.
- Staehr, L. S. (2009). Vocabulary knowledge and advanced listening comprehension in English as a foreign language. *Studies in Second Language Acquisition*, 31, 4, 577-607.
- Stern, H. H. (1975). What can we learn from the good language learner? *Canadian Modern Language Review*, 31(4), 304–318.
- Stoffer, I. (1995) University foreign language students' choice of vocabulary learning strategies as related to individual difference variables. Unpublished PhD Dissertation, University of Alabama.
- Swan, M. (1997). The influence of the mother tongue on second language vocabulary acquisition and use. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 156–180). Cambridge, England: Cambridge University Press.
- Thornbury, S. (2002). *How to teach vocabulary*. London, England: Longman.
- TOEFL ITP® Assessment Series [Language assessment]. Princeton, NJ: ETS. Retrieved from [http://www.ets.org/toefl\\_itp/about](http://www.ets.org/toefl_itp/about)
- Tseng, W., Dörnyei, Z., & Schmitt, N. (2006). A new approach to assessing strategic learning: The case of self-regulation in vocabulary acquisition. *Applied Linguistics*, 27(1), 78–102.
- Tseng, W., & Schmitt, N. (2008). Toward a model of motivated vocabulary learning: A structural equation modeling approach. *Language Learning*, 58(2), 357–400. doi:10.1111/j.1467-9922.2008.00444
- Vasiljevic, Z. (2010). Word associations as a vocabulary teaching strategy in an advanced L2 reading class. In R. Chacón-Beltrán, C. Abello-Contesse, & M. Torreblanca-López (Eds.), *Insights into non-native vocabulary teaching and learning* (pp. 186–203). Buffalo, NY: Multilingual Matters.
- Waldvogel, D. A. (2013). The relationships between vocabulary learning strategies and vocabulary size among adult Spanish foreign language learners. *Journal of Language Teaching and Research*, 4(2), 209–219. doi:10.4304/jltr.4.2.209-219
- Wesche, M., & Paribakht, T. S. (1996). Assessing second language vocabulary knowledge: Depth versus breadth. *Canadian Modern Language Review*, 53(1), 13–40.
- Wu, W. (2005). Use and helpfulness rankings of vocabulary learning strategies employed by EFL learners in Taiwan. *Journal of Humanities and Social Sciences*, 1(2), 7–13.
- Zhang, B., & Li, C. (2011). Classification of L2 vocabulary learning strategies: Evidence from exploratory and confirmatory factor analysis. *RELC Journal*, 42(2), 141–154.

Zheng, Y. (2009). Exploring Chinese EFL learners' receptive and productive vocabulary knowledge: Implications for EFL vocabulary teaching. *The Journal of Asia TEFL*, 6(1), 163–188.

Zimmerman, C. B. (1997). Historical trends in second language vocabulary instruction. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition*. Cambridge, England: Cambridge University Press.

## Appendices

### Appendix A: Vocabulary Learning Strategies Demographic Questionnaire

#### Biographical Information

1. What is your gender?
2. What is your grade?
3. What is your Coded Name?  
1) Use your First and Last name initial (e.g. Andrew Michele: AM). 2) Then add the month and the year of your date of birth (2/4/1994: 41994). 3) Your Coded Name will look like this AM41994. 4) Once you finish these steps, try save your coded name in a safe place.
4. Please select your native language from the list?
5. What language/s do you speak other than your native language? (Choose your second language that you are learning right now).
6. How many years did you learn your second language? (This include all your time reading, writing or studying the second language).
7. Have you been to any English-speaking country?
8. Please indicate which of the following countries you have been to. (Lists of English-Speaking Countries).
9. How many years did you live there?

## Appendix B: Vocabulary Learning Strategies Interview Questions

Some of the interview questions of this study are stimulated and adapted from P. Y. Gu's, book "*Vocabulary Learning Strategies in the Chinese EFL Context*" (2005) Appendix 3 p. 204.

- **About self in vocabulary learning**

1. Do you see yourself as good at learning vocabulary? In what ways are you good at it? (e.g., having a good memory, Found successful strategies, or some other strategies).
2. People have different styles of vocabulary learning. Some must see the word before it is remembered, others might prefer to hear the word. What is your personal style?

- **About vocabulary learning strategies**

1. What, do you think, are the vocabulary learning strategies that work best for you? And those that don't work for you? Why?
2. Did you develop any vocabulary learning strategies at and/or while studying English language at school? Or did you develop it as a self-learn technique for yourself?
3. Do you prefer using more than one strategy to learn and comprehend the new vocabulary? In other words, do you use certain processes or sequences of strategies to help you learn and retain the new words? (e.g., first check the word meaning, then see how it pronounced, third, see the synonyms or antonyms, and so on).

- **About vocabulary learning planning**

1. Do you plan your vocabulary learning? How?
2. Do you prefer using more than one strategy to learn and comprehend the new vocabulary?
3. Do you deliberately try new strategies to learn vocabulary? If so how often do you do that?

- **Monitoring vocabulary learning**

1. How do you keep track of your progress in vocabulary learning?

- **Evaluation**

1. When someone tells you about a "good" strategy to learn vocabulary, what do you do when see that it doesn't work for you? ( do you simply abandon it, try it again and see if it works, try to find a better strategies, or fall back to your original strategies?)

- **Cognitive aspect of vocabulary learning**

1. Can you think of as many strategies as possible that YOU YOURSELF USE to learn English vocabulary?
2. What do you do when you encounter new words while listening?
3. What do you do when you encounter new words while reading?
4. When you don't know an English word when speaking, what do you do?

5. When you don't know an English word when writing, what do you do?
6. How do you enlarge your passive vocabulary size?

- **Affective aspect of vocabulary learning**

1. Some say vocabulary learning is tiring, boring, and even overwhelming. What is your comment on this? And how do you cope with these problems?
2. Do you learn certain vocabulary learning strategies at your school?
3. Do you learn new and/or academic vocabulary using *sequential vocabulary learning strategies* process? If so, to what extent do you use sequential vocabulary learning strategies to learn them?

## Appendix C: The Vocabulary Size Test (First five-thousands).

Circle the letter a, b, c, or d with the closest meaning to the key word in the question.

### First 1,000

1. SEE: They **saw** it.
  - a. cut
  - b. waited for
  - c. looked at
  - d. started
2. TIME: They have a lot of **time**.
  - a. money
  - b. food
  - c. hours
  - d. friends
3. PERIOD: It was a difficult **period**.
  - a. question
  - b. time
  - c. thing to do
  - d. book
4. FIGURE: Is this the right **figure**?
  - a. answer
  - b. place
  - c. time
  - d. number
5. POOR: We are **poor**.
  - a. have no money
  - b. feel happy
  - c. are very interested
  - d. do not like to work hard
6. DRIVE: He **drives** fast.
  - a. swims
  - b. learns
  - c. throws balls
  - d. uses a car
7. JUMP: She tried to **jump**.
  - a. lie on top of the water
  - b. get off the ground suddenly
  - c. stop the car at the edge of the road
  - d. move very fast
8. SHOE: Where is your **shoe**?
  - a. the person who looks after you
  - b. the thing you keep your money in
  - c. the thing you use for writing
  - d. the thing you wear on your foot
9. STANDARD: Her **standards** are very high.
  - a. the bits at the back under her shoes
  - b. the marks she gets in school
  - c. the money she asks for
  - d. the levels she reaches in everything
10. BASIS: This was used as the **basis**.
  - a. answer
  - b. place to take a rest
  - c. next step
  - d. main part



## Second 1,000

1. MAINTAIN: Can they **maintain** it?
  - a. keep it as it is
  - b. make it larger
  - c. get a better one than it
  - d. get it
2. STONE: He sat on a **stone**.
  - a. hard thing
  - b. kind of chair
  - c. soft thing on the floor
  - d. part of a tree
3. UPSET: I am **upset**.
  - a. tired
  - b. famous
  - c. rich
  - d. unhappy
4. DRAWER: The **drawer** was empty.
  - a. sliding box
  - b. place where cars are kept
  - c. cupboard to keep things cold
  - d. animal house
5. PATIENCE: He has no **patience**.
  - a. will not wait happily
  - b. has no free time
  - c. has no faith
  - d. does not know what is fair
6. NIL: His mark for that question was **nil**.
  - a. very bad
  - b. nothing
  - c. very good
  - d. in the middle
7. PUB: They went to the **pub**.
  - a. place where people drink and talk
  - b. place that looks after money
  - c. large building with many shops
  - d. building for swimming
8. CIRCLE: Make a **circle**.
  - a. rough picture
  - b. space with nothing in it
  - c. round shape
  - d. large hole
9. MICROPHONE: Please use the **microphone**.
  - a. machine for making food hot
  - b. machine that makes sounds louder
  - c. machine that makes things look bigger
  - d. small telephone that can be carried around
10. PRO: He's a **pro**.
  - a. someone who is employed to find out important secrets
  - b. a stupid person
  - c. someone who writes for a newspaper
  - d. someone who is paid for playing sport, etc.

### Third 1,000

1. SOLDIER: He is a **soldier**.
  - a. person in a business
  - b. student
  - c. person who uses metal
  - d. person in the army
2. RESTORE: It has been **restored**.
  - a. said again
  - b. given to a different person
  - c. given a lower price
  - d. made like new again
3. JUG: He was holding a **jug**.
  - a. a container for pouring liquids
  - b. an informal discussion
  - c. a soft cap
  - d. a weapon that explodes
4. SCRUB: He is **scrubbing** it.
  - a. cutting shallow lines into it
  - b. repairing it
  - c. rubbing it hard to clean it
  - d. drawing simple pictures of it
5. DINOSAUR: The children were pretending to be **dinosaurs**.
  - a. robbers who work at sea
  - b. very small creatures with human form but with wings
  - c. large creatures with wings that breathe fire
  - d. animals that lived a long time ago
6. STRAP: He broke the **strap**.
  - a. promise
  - b. top cover
  - c. shallow dish for food
  - d. strip of material for holding things together
7. PAVE: It was **paved**.
  - a. prevented from going through
  - b. divided
  - c. given gold edges
  - d. covered with a hard surface
8. DASH: They **dashed** over it.
  - a. moved quickly
  - b. moved slowly
  - c. fought
  - d. looked quickly
9. ROVE: He couldn't stop **roving**.
  - a. getting drunk
  - b. travelling around
  - c. making a musical sound through closed lips
  - d. working hard
10. LONESOME: He felt **lonesome**.
  - a. ungrateful
  - b. very tired
  - c. lonely
  - d. full of energy

## Fourth 1,000

1. COMPOUND: They made a new compound.
  - a. agreement
  - b. thing made of two or more parts
  - c. group of people forming a business
  - d. guess based on past experience
2. LATTER: I agree with the **latter**.
  - a. man from the church
  - b. reason given
  - c. last one
  - d. answer
3. CANDID: Please be **candid**.
  - a. be careful
  - b. show sympathy
  - c. show fairness to both sides
  - d. say what you really think
4. TUMMY: Look at my **tummy**.
  - a. cloth to cover the head
  - b. stomach
  - c. small furry animal
  - d. thumb
5. QUIZ: We made a **quiz**.
  - a. thing to hold arrows
  - b. serious mistake
  - c. set of questions
  - d. box for birds to make nests in
6. INPUT: We need more **input**.
  - a. information, power, etc.  
put into something
  - b. workers
  - c. artificial filling for a hole in wood
  - d. money
7. CRAB: Do you like **crabs**?
  - a. sea creatures that walk sideways
  - b. very thin small cakes
  - c. tight, hard collars
  - d. large black insects that sing at night
8. VOCABULARY: You will need more **vocabulary**.
  - a. words
  - b. skill
  - c. money
  - d. guns
9. REMEDY: We found a good **remedy**.
  - a. way to fix a problem
  - b. place to eat in public
  - c. way to prepare food
  - d. rule about numbers
10. ALLEGE: They **alleged** it.
  - a. claimed it without proof
  - b. stole the ideas for it from someone else
  - c. provided facts to prove it
  - d. argued against the facts that supported it

## Fifth 1,000

1. DEFICIT: The company had a large **deficit**.
  - a. spent a lot more money than it earned
  - b. went down a lot in value
  - c. had a plan for its spending that used a lot of money
  - d. had a lot of money in the bank
2. WEEP: He **wept**.
  - a. finished his course
  - b. cried
  - c. died
  - d. worried
3. NUN: We saw a **nun**.
  - a. long thin creature that lives in the earth
  - b. terrible accident
  - c. woman following a strict religious life
  - d. unexplained bright light in the sky
4. HAUNT: The house is **haunted**.
  - a. full of ornaments
  - b. rented
  - c. empty
  - d. full of ghosts
5. COMPOST: We need some **compost**.
  - a. strong support
  - b. help to feel better
  - c. hard stuff made of stones and sand stuck together
  - d. rotted plant material
6. CUBE: I need one more **cube**.
  - a. sharp thing used for joining things
  - b. solid square block
  - c. tall cup with no saucer
  - d. piece of stiff paper folded in half
7. MINIATURE: It is a **miniature**.
  - a. a very small thing of its kind
  - b. an instrument to look at small objects
  - c. a very small living creature
  - d. a small line to join letters in handwriting
8. PEEL: Shall I **peel** it?
  - a. let it sit in water for a long time
  - b. take the skin off it
  - c. make it white
  - d. cut it into thin pieces
9. FRACTURE: They found a **fracture**.
  - a. break
  - b. small piece
  - c. short coat
  - d. rare jewel
10. BACTERIUM: They didn't find a single **bacterium**.
  - a. small living thing causing disease
  - b. plant with red or orange flowers
  - c. animal that carries water on its back
  - d. thing that has been stolen and sold to a shop

## Appendix D: VLSs Formula

For the purpose of this study, this VLS Formula has been created and developed (Bookmark vocabulary notebook).

Use this ***vocabulary learning strategies formula*** for any new words you encounter. Apply as much info. about the word as you can.

☞ E.g. acquire/ conspicuous / delve / *or choose your own word.*

1. **Synonyms** (draw a semantic-map):

.....  
.....

2. **Meaning with Context:** (remember to fit the meaning w/ its context for each word you encounter):

.....  
.....  
.....

3. **Pronunciation Practice Process** (use any strategy to help you remember the sound of the new word):

.....  
.....

4. **Bookmark Strategy** (make a bookmark notes for every new word in your vocab. note-book, e.g. draw image):

.....  
.....

5. **Remembering Strategy for Writing**

.....  
.....

## Appendix E: VLSs Model (VBS)

# VOCABULARY LEARNING STRATEGIES



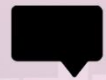
### 1. LOOK FOR SYNONYMS FIRST

- A. Use a semantic map for each word.
- B. Check synonyms for new words.
- C. Synonyms build more words.
- D. Build up global knowledge of new words by knowing synonyms.
- E. Experience different contexts of new words.



### 2. MEANING WITH CONTEXT

- A. Guess the meaning from context before learning the meaning.
- B. Check the word's context in dictionaries.
- C. Apply different contexts of the word in speaking and writing.
- D. Check the meaning that fits the new word's context.



### 3. PRONUNCIATION PRACTICE PROCESS

- A. Listening is the best practice of all (listen continuously).
- B. Syllable is for sound (use word's syllable(s) to learn how to pronounce new words).
- C. Private speech has it all (say it loudly to yourself).



### 4. BOOKMARK YOUR VOCABULARY SEARCH

- A. Set up a vocabulary notebook.
- B. Check new words daily and weekly.
- C. Use repetition and retention practices.
- D. Engage in deliberate vocabulary learning.



### 5. DON'T FORGET TO WRITE THEM

- A. If you write them, you will keep them in your mind.
- B. Picture your word (associate image with the new word).
- C. Use them in writing.
- D. Check syllable for spelling practices.

Developed and created by Adel M. Alharbi  
mlharbi1@memphis.edu

## Appendix F: IRB Approval

Institutional Review Board  
Division of Research and Innovation  
Office of Research Compliance  
University of Memphis  
315 Admin Bldg  
Memphis, TN 38152-3370

Sep 22, 2017

**PI NAME:** Adel Alharbi

**PROJECT TITLE:** Investigating sequential vocabulary learning strategies as a means of improving L2 vocabulary acquisition

**FACULTY ADVISOR NAME:** Teresa Dalle

**IRB ID:** #PRO-FY2017-545

**APPROVAL DATE:** Sep 22, 2017

**EXPIRATION DATE:** Sep 22, 2018

**LEVEL OF REVIEW:** Expedited

Approval of this project is given with the following obligations:

1. This IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished or terminated, a completion form must be submitted.
3. No change may be made in the approved protocol without prior board approval.