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INVESTIGATING VOCABULARY LEARNING STRATEGIES OF SAUDI UNIVERSITY
STUDENTS IN THE US

by

Ahmed Abdullah Alahmadi

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: English

The University of Memphis

May 2019

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Dedication

To my wife, Eman, who has always supported me in all my endeavors.

To my sweet children, Abdullah and Yusef.

Acknowledgments

I would like to express my deepest appreciation to Dr. Teresa Dalle for her academic advice, emotional support, and generosity in giving me so much of her time.

My sincere thanks also go to the members of my committee, Dr. Emily Thrush, Dr. Joseph Jones, and Dr. Angela Thevenot, for their guidance and feedback, which greatly improved many aspects of the study.

I am deeply and forever indebted to my parents, brothers, and sisters for their never-ending encouragement to continue my education and for their many prayers.

Thanks also go to all of my colleagues in the Applied Linguistics program for being so helpful and friendly during my studies. I would also like to thank the participants who took part in this study.

Last but certainly not least, I would like to express my heartfelt gratitude to my wife and my sweet children, Abdullah and Yusef, for being beside me throughout this journey. I love you all so much. You are the joy of my life.

Abstract

Alahmadi, Ahmed Abdullah. Ph.D. The University of Memphis. May 2019. Investigating Vocabulary Learning Strategies of Saudi University Students in the US. Major Professor: Teresa Dalle, Ph.D.

The main purpose of this study was to investigate the use of vocabulary learning strategies reported by Saudi university students in the US. It also explored how the use of vocabulary learning strategies varied based on gender in this population. An explanatory mixed-methods design was used to provide an in-depth understanding of strategies employed. In the quantitative phase, data were collected using self-reported questionnaires, while semi-structured interviews were conducted to collect the qualitative data. A total of 123 students participated, eight of whom were interviewed.

The quantitative results showed participants used various vocabulary learning strategies. The most common were guessing the meaning from context, using a bilingual/monolingual dictionary, learning new words from English sentences, studying the sound and spelling of new words, connecting new words with synonyms and antonyms, using verbal and written repetition, and learning new words from English media. The analysis found no significant differences between or within vocabulary learning strategy groups based on gender.

The qualitative results revealed participants perceived guessing the meaning from context and dictionary use to be very helpful when learning new English vocabulary. In addition, they believed a monolingual dictionary was a valuable strategy to learn other aspects of vocabulary knowledge as well as improve their writing and reading ability. All participants agreed their reading fluency and vocabulary knowledge had improved in the US due to several activities in English as a second language (ESL) centers or during their studies. Extensive reading in ESL centers was reported as the most effective way to improve their reading fluency and vocabulary.

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Chapter 1

Introduction

Vocabulary plays a major role in learning a second language (L2), making it an important area of second language acquisition (SLA) research. Possessing a large vocabulary can distinguish proficient learners from novices (Hoey, 2005; Laufer, 1997; Lewis, 1993; Schmitt, 2000), while insufficient vocabulary is a serious problem among English as a foreign language (EFL) and English as a second language (ESL) learners (Haynes, 1993; Nation, 1990). Therefore, the goal of most studies on L2 vocabulary acquisition is to investigate the factors that impact learning outcomes.

Vocabulary learning strategies are a subset of language learning strategies and have been described at length using various taxonomies in the literature. For instance, Gu and Johnson (1996) and Kojic-Sabo and Lightbown (1999) examined the use of vocabulary learning strategies and their relation to learning outcomes. In addition, Gu (2003) examined several approaches reported as successful or unsuccessful by L2 learners. In a similar vein, Schmitt (1997) and Fan (2003) examined the usefulness of the most common taxonomies of strategies for learning L2 vocabulary. Thus far, the ultimate goal of these studies is to enhance students' independent vocabulary learning, not only to learn new words but also to learn other aspects of these words, such as parts of speech, examples of word usage in various situations, and applications of vocabulary within different contexts. Schmitt (1997, 2000), for example, proposed a taxonomy of strategies to learn L2 vocabulary and classified them into two main groups: "strategies for the discovery of a new word's meaning" (e.g., analyze part of speech, affixes and roots, and the use of dictionaries) and "strategies for consolidating a word once it has been encountered" (e.g.,

interact with native speakers, connect a word to other synonyms and antonyms, and connect a word to a personal experience) (p. 7).

One of the most prominent challenges facing L2 learners is acquiring sufficient vocabulary to sustain meaningful communication. Numerous studies (e.g., Gu, 2002, 2003, 2005; Moir & Nation, 2002, 2008; Nation, 2001, 2005; O'Malley & Chamot, 1990; Schmitt, 1997; Schmitt & Schmitt, 1993, 1995) have explored the use of vocabulary learning strategies with respect to differences between learners, such as motivation, aptitude, age, and gender, in various contexts in search of possible solutions to this issue. For example, O'Malley and Chamot (1990), examined two contexts in vocabulary instruction and found that Spanish speakers learning English who received vocabulary strategy training performed better at learning vocabulary than Chinese learners of English who used a traditional repetition strategy. Schmitt and Schmitt (1995) and Schmitt (1997) found Japanese EFL learners varied in the vocabulary learning strategies they used and their perceptions of those strategies. Thus, cultural, linguistic, and educational background can strongly influence the strategies used to learn L2 vocabulary (Gu, 2003).

Therefore, it is necessary to know how vocabulary strategies vary across learners from different cultural backgrounds. Based on my experience as an EFL teacher for more than nine years, learning vocabulary has always been one of the most difficult tasks Saudi ESL/EFL students face. Whenever I asked Saudi students about the difficulties they encountered learning English in an ESL or EFL context, they always specified learning vocabulary as challenging, with understanding the meaning of a new word and using it in the correct context among their main problems. This could be attributed to the predominant method of teaching and learning English in Saudi classrooms being the grammar translation method, in which teachers tend to

focus on grammar explanation and vocabulary memorization. As such, English instruction mainly comprises grammar/vocabulary drills and reading/writing activities, with teachers acting as the primary source of knowledge and students acting as passive learners. This traditional way of teaching is still predominant in Saudi classrooms. Accordingly, Saudi classrooms are mostly teacher-centered instead of student-centered, and such an environment heavily influences the process of learning English (Isman, Abanmy, Hussein, & Al Saadany, 2012). Given these challenges, it is important to explore the use of vocabulary learning strategies among Saudi university students in the US. The present study addresses this issue to offer a deeper understanding of vocabulary learning strategy use in this context.

Purpose of the Study

This study sought to investigate the overall use of vocabulary learning strategies reported by Saudi university students in the US. A quantitative phase statistically analyzed findings reported on questionnaires. In a qualitative phase, semi-structured interviews shed light on the quantitative data based on students' experiences with and beliefs about vocabulary learning strategies.

Significance of the Study

The population of this study consisted of Saudi graduate and undergraduate students at a large southeastern university in the US. The number of Saudi university students in the US has reached unprecedented levels. In the 2013–2014 academic year, more than 100,000 Saudi students were registered at US colleges and universities, making Saudi Arabia the fourth largest supporter of international students studying in that country (Taylor & Albasri, 2014). More than one-third of those 100,000 students were registered in ESL programs nationwide (Saudi Arabian Cultural Mission to the U.S., 2012). Since learners from different backgrounds routinely face

obstacles in learning English vocabulary, it is not surprising that Saudi ESL/EFL learners often describe it as one of the most difficult aspects of learning English and have different approaches to and perceptions about vocabulary learning strategies. To date, however, little research has explored the use of these strategies by Saudi university students in the US or investigated such strategies using a mixed-methods design. Therefore, the present study used a mixed-methods approach to analyze the vocabulary learning strategies of Saudi university students in the US.

This study is important in three respects. First, it contributes to the applied linguistics, ESL, EFL, and teaching English to speakers of other languages (TESOL) literature by providing a better understanding of the vocabulary strategies reported by Saudi university students in the US. Second, as the ESL learners investigated were graduate and undergraduate students in the US, they could be considered relatively successful in English vocabulary acquisition, and it is worthwhile to learn from successful learners. As Naiman, Frohlich, Stern, and Todesco (1978) stated, what such learners have done could be applied by other ESL/EFL learners interested in enriching their vocabulary. Third, this study provides valuable findings for ESL/EFL educators about the use of vocabulary learning strategies among Saudi university students in the US.

Research Questions

Due to this study's mixed-methods design, the research questions are divided into quantitative and qualitative questions. The quantitative research questions are as follows:

1. What vocabulary learning strategies do Saudi university students report using in the US?
2. What are the most and least frequently used vocabulary learning strategies among Saudi university students in the US?
3. Are there significant differences in the use of vocabulary learning strategies between

male and female Saudi university students in the US?

The following are the qualitative research questions:

4. Why do Saudi university students in the US report using certain vocabulary learning strategies?
5. What strategies are reported as most effective at helping Saudi university students learn English vocabulary, and how do those strategies work?

Outline of the Study

This dissertation consists of five chapters. Chapter 1 introduces the importance of vocabulary learning strategies in L2 acquisition, presents the background of the educational system in Saudi Arabia, and provides the purpose, significance, and research questions of the study. Chapter 2 defines and discusses vocabulary knowledge, vocabulary learning strategies, language learning strategies, their importance in L2 vocabulary acquisition, and literature related to vocabulary learning challenges faced by ESL/EFL learners from various backgrounds. Chapter 3 presents the methodology. Chapter 4 presents and analyzes the results. Chapter 5 discusses and interprets these findings, presents limitations, and offers recommendations for future research.

Chapter 2

Literature Review

Definition of Vocabulary

Linguists and scholars have introduced various definitions of vocabulary. For example, Barcroft, Sunderman, and Schmitt (2011) defined vocabulary as “all the words in a language, the entire vocabulary of a language” (p. 571), while Graves, August, and Martinez (2013) described it as a set of letters or words that are vital to convey a message in written or spoken form in any language. Carter (2012) defined vocabulary as “the words of a language, including single items and phrases or chunks of several words which convey a particular meaning, the way individual words do” (p. 2). Richards and Schmidt (2002) proposed a neutral term “lexeme” (or lexical unit or lexical item) to replace the term “word” and described the lexeme as the smallest abstract unit of a language that can be distinguished semantically from similar units, which can occur in many different forms in spoken or written sentences and is considered the same lexeme even when modified. Wilkins (1972) stated that “without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (p. 111–112). Such definitions show the necessity of vocabulary in order to learn and communicate in any language.

Vocabulary Learning in SLA

In the past, learning a language was heavily based on grammar rules, while vocabulary was considered less important. Meara (1980) and Maiguashca (1993), for example, assumed vocabulary took care of itself and could be learned through communication. As a result of not stressing vocabulary acquisition, many learners with inadequate vocabulary knowledge faced difficulties in the receptive and productive use of the target language.

In the early 1980s, this situation changed, and L2 vocabulary acquisition became a major area of research for many scholars (e.g., Carter & McCarthy, 1988; Coxhead, 2014; McCarthy, 1990; Nation, 2008; Nation & Laufer 2012; Schmitt, 2010; Schmitt & McCarthy, 1997), who consider vocabulary a key part of language learning. According to them, language learners would not be able to communicate and express themselves in the target language without sufficient vocabulary, and inadequate vocabulary knowledge would most likely lead learners to develop common lexical errors. These scholars indicated that lexical errors are the most serious and disruptive issues not only for L2 learners but also for native speakers in terms of interpretation. Similarly, Richards (2000) considered vocabulary a major linguistic unit to be employed in discourse. Furthermore, Gass (1988) explained how grammatical errors are less serious than lexical ones because grammar errors can still result in understandable structures (e.g., he a boy), whereas lexical errors are more likely to interfere with communication (e.g., he tried to “hold” the bus instead of “catch” the bus).

Vocabulary is therefore now viewed as a core part of SLA (Goulden, Nation, & Read, 1990; Richards & Rodgers, 2001; Zimmerman, 1997). Hulstijn and Laufer (2001) emphasized that intermediate and advanced ESL/EFL learners in particular need to store thousands of words to communicate effectively with accurate and precise vocabulary. For this reason, Laufer (1997) described the process of vocabulary acquisition in SLA as a never-ending task.

According to Krashen (1989), “A large vocabulary is, of course, essential for mastery of a language. Second language acquirers know this; they carry dictionaries with them, not grammar books, and regularly report that lack of vocabulary is a major problem” (p. 440). Therefore, a rich vocabulary is essential in reading comprehension as well as verbal communication (Laufer, 1997; Richards & Rodgers, 2001; Schmitt, 2000). Hatch (1983) stated

that “when our first goal is communication, when we have little of the new language at our command, it is the lexicon that [...] will make basic communication possible” (p. 74). Thus, McCarthy (1990) proposed L2 vocabulary was important in order to communicate a wide range of meanings regardless of the student’s mastery of L2 grammar or pronunciation.

Many studies have discussed the importance of vocabulary in the comprehension of L1 or L2 tasks. Laufer (1997), for example, illustrated how comprehension of reading texts is attributed to the knowledge of that text’s vocabulary. In the same way, “vocabulary is not just a set of linguistic units, but [is] also an attribute of individual language learners, in the form of vocabulary knowledge and the ability to access that knowledge for communicative purposes” (Read, 2000, p. 14). It can be observed from the above insights about vocabulary and its role in SLA that English learners who have sufficient knowledge of English vocabulary are able to communicate in English successfully, which cannot happen without vocabulary learning.

Definition of Vocabulary Knowledge

Before further discussion of strategies and their role in vocabulary learning and knowledge, it is necessary to discuss aspects and types of vocabulary knowledge, which have been described in a number of studies (e.g., Carter, 1987, 2001; Graves, 2006; Laufer, 2005; Nation, 1990, 2001, 2005, 2008, 2013; Nation & Laufer, 2012; Richards, 1976; Schmitt, 2000; Schmitt & Meara, 1997; Taylor, 1990; Thornbury, 2002). Graves (2006) defined vocabulary knowledge as “the ability to select situations in which it is appropriately applied, recall different meanings of the word, and recognize exactly in what situations the word does not apply” (p. 12). According to Thornbury (2002), the nine aspects of word knowledge include spoken form, written form, grammatical behavior, derivations, connotations, register, collocations, frequency, and meaning.

Interrelated areas of sub-knowledge, such as knowledge of the spoken and written form or morphological and grammatical knowledge, are also involved in knowing a word (Nation & Laufer, 2012). According to Nagy and Scott (2013), “knowing a word means being able to do things with it: To recognize it in connected speech or in print, to access its meaning, to pronounce it and to be able to do these things within a fraction of a second” (p. 463). The ability to connect a word and a definition is considered one aspect of vocabulary knowledge; thus, learners should be aware that words can have multiple meanings and someone’s knowledge of a word can be partial rather than complete (Read & Nation, 1986). Word knowledge is considered by Gass (1988) to be the process of combining features to make novel words. Therefore, in order to communicate successfully, L2 learners need to not only learn new words but also have other aspects of vocabulary knowledge in spoken and written forms, such as grammar, phonics, and other meanings of new words.

Laufer (1997) classified words into several groups, including unfamiliar words, words that look familiar even though they are unknown, and words whose meaning cannot be guessed. On the other hand, Nation (2008) classified vocabulary into four major groups: high frequency words, academic words, technical words, and low frequency words. Moreover, words are distinguished from vocabulary by some authors, such as Nation and Gu (2007), who stated that while a word is a single lexical item, vocabulary is the overall dictionary-like mental lexicon of interrelated words. Therefore, learning words and developing one’s vocabulary in an L2 requires developing different aspects of vocabulary knowledge.

Learners need to know a word before they can use it spontaneously in a variety of contexts. The goal of vocabulary learning is to remember and use words spontaneously, and as

vocabulary acquisition includes both knowing and being able to use words, both explicit and implicit approaches to learning are required (Nation & Gu, 2007).

Nation (2001, 2013) postulated a model of what is involved in knowing a word, which includes knowing three general aspects: its form (spoken, written, word parts), its meaning (form and meaning, concepts and referents, and associations), and its uses (grammatical functions, collocations, and constraints on use, such as register and frequency). Furthermore, Nation classified the three general aspects of knowing a word into two main types: the receptive knowledge needed to understand a word when listening or reading and the productive knowledge needed to use a word when speaking or writing. For example, knowing how a word sounds involves receptive knowledge, and knowing how to pronounce a word involves productive knowledge. Both forms of knowledge are present in all three major components of a word (form, meaning, and use), as shown in Table 1, reproduced from Nation (2013, p. 59).

Table 1

What Is Involved in Knowing a Word

	spoken	R	What does the word sound like?
		P	How is the word pronounced?
Form	written	R	What does the word look like?
		P	How is the word written and spelled?
	word parts	R	What parts are recognizable in this word?
		P	What word parts are needed to express the meaning?
	form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
Meaning	concepts and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?

Note. R = receptive knowledge, P = productive knowledge.

Given the importance of vocabulary, teachers should introduce ESL/EFL learners to all major aspects of vocabulary knowledge to improve their English vocabulary knowledge and use (Lessard-Clouston, 2013; Nagy & Scott, 2013; Nation, 2013).

Incidental vs Explicit Vocabulary Learning

Incidental and explicit learning are the two major methods of acquiring L1 and L2 vocabulary. Incidental learning occurs when reading a text for pleasure but without following a plan for learning new vocabulary (Schmitt, 2010). Explicit learning follows a plan to learn vocabulary (Hatch & Brown, 1995), such as by studying a list of new words or completing activities in a workbook (Barcroft, 2009).

The effectiveness of one method over the other is an ongoing debate. Some scholars, for example, have claimed explicit learning does not help language learners acquire a sufficiently large number of words (Graves et al., 2013; Nagy & Townsend, 2012) and comprehend a text (Pulido, 2004). Furthermore, they have claimed incidental learning is a more effective method of acquiring a large vocabulary (Beck, McKeown, & Kucan, 2013; Graves, 2006). Krashen (1985) indicated it provided learners with meaningful comprehensible input, and several researchers have argued reading is the most effective source of developing L1 and L2 vocabulary knowledge because it involves repeated exposure in multiple contexts (e.g., Krashen, 2004, 2011; Nagy & Scott, 2013). In fact, Ellis (1994) argued incidental learning from reading alone was an effective method that met the objectives of most L2 programs to develop learners' reading proficiency and receptive vocabulary knowledge. He maintained that L2 teaching programs should also focus on expanding learners' vocabulary and improving productive skills to measure what learners have learned.

As a result of this research, the position that L2 learners acquire most of their vocabulary through reading, particularly comprehensible written input, is now embedded within L2 instruction (Waring & Nation, 2004). Gardner (2004) noted that the role of extensive reading in vocabulary development continues to receive considerable attention in L1 and L2 research and pedagogy. Schmitt (2000) argued that extensive reading, narrow reading, and reading numerous authentic texts on the same topic may be the most beneficial for L2 students. He also postulated that incidental learning was not as feasible around the world since it required greater L2 exposure, which could only be achieved where the L2 was the primary language.

In contrast, Milton (2009) argued that little vocabulary could be learned from genuinely incidental learning activities. Marzano (2004) found reading alone could not help learners acquire many words incidentally and that learning vocabulary from context was influenced by several factors, such as students' ability, grade level, and the density of the text. The number of words students acquire per year through reading has various estimates based on their grade level (e.g., first grade = 2,703 to 26,000 words, third grade = 2,000 to 25,000 words, seventh grade = 4,703 to 51,000 words). Furthermore, Na and Nation (1985) claimed learners needed a minimum of 3,000 words to start learning vocabulary from context. Thus, Nation and Waring (1997) recommended introducing explicit learning in the early stages to prepare students for incidental learning later on. According to Nation (2005), flashcards helped increase vocabulary, and Nation (2001) mentioned several advantages of the direct approach to vocabulary learning:

1. It is efficient in terms of return for time and effort,
2. It allows learners to consciously focus on an aspect of word knowledge that is not easily gained from context or dictionary use and

3. It allows learners to control the repetition and processing of the vocabulary to make learning secure. (p. 302)

Schmitt (2008) claimed there is no right or best methodology to teach vocabulary. Pigada and Schmitt (2006) found that incidental acquisition was a time-consuming, unpredictable process for learning L2 vocabulary. Therefore, the best method may depend on context as learners with more vocabulary and vocabulary knowledge have a greater chance to learn through incidental reading. Gass (1999), on the other hand, contended there was no clear method to show that a word had been learned incidentally or intentionally.

Researchers have revealed several factors that may influence vocabulary acquisition: 1) similarities and differences in orthographic characters between L1 and L2, 2) linguistic features of lexical items to be taught (e.g., morphemes, phonemes, graphemes), 3) the influence of the L1 and learning context (e.g., L2 learners with limited input in the classroom outside the target language cannot significantly expand their vocabulary through exposure to language input alone), and 4) the role of the teacher and vocabulary teaching strategies (Ellis, 1995, 2012; Takač, 2008). As a result, students who learned English outside the target environment, where the language was not used in daily communication, could not learn a large amount of vocabulary solely from incidental learning and repeated exposure in reading activities; repeated exposure to words in reading can be helpful, but there is no consensus on the amount of exposure needed to retain words over time (Barcroft, 2009; Nation, 2001, 2013; Nation & Laufer, 2012; Schmitt, 2010). For instance, Rott (1999) suggested exposure to a word six times led to better acquisition, Waring and Takaki (2003) claimed at least eight times was needed to recognize a word's form, and Pigada and Schmitt (2006) and Webb (2007) found 10 times led to better word recognition.

Other potential issues related to incidental vocabulary learning include the following: 1) guessing from context is a very slow process which may result in errors, 2) students' limited vocabulary makes comprehension slow, 3) some students may prefer other ways of learning vocabulary, and 4) guessing from context does not guarantee that the word is stored in long-term memory (Sökmen, 1997). Nonetheless, an explicit approach has been found to be more effective for L2 learners for several reasons: 1) it encourages students to learn vocabulary, 2) it leads to lasting vocabulary expansion, 3) it enhances consciousness of encountered words, and 4) it helps learners acquire knowledge of systematic strategies that facilitate vocabulary acquisition (Nation & Meara, 2002; Waring & Nation, 2004).

Given these findings, researchers have recognized the important role of explicit and implicit learning of L2 vocabulary. According to Schmitt (2010), both are necessary and should be used together to compensate for the gaps in each approach. Nation (2001, 2013) concluded that studies showed that both methods were important in learning L2 vocabulary, with incidental learning more effective in reading and other activities and explicit learning needed for L2 learners to develop the skills and strategies to carry out such activities.

Given the importance of both methods, it is worthwhile to investigate whether Saudi ESL students learn English vocabulary incidentally or explicitly in the US and which type of learning has worked for them to inform the strategies used by future learners and educators.

Definition of Language Learning Strategies

Language learning strategies have attracted the interest of scholars since the mid-1970s (e.g., Cohen, 2011; Cohen & Dörnyei, 2002; Griffiths, 2008, 2013; Ogeyik, 2009; O'Malley & Chamot, 1990; Oxford, 1990, 2001, 2011; Rubin, 1975; Stern, 1975; Weinstein & Mayer, 1986; Wenden, 1986). The research on learning strategies has been influenced by theories in two fields:

SLA and cognitive psychology. Whereas research in SLA describes the strategies employed by successful language learners, cognitive psychology analyzes the influence of strategy training on language learners (Kudo, 1999; O'Malley, Chamot, Manzanares, Russo, & Küpper, 1985).

Although scholars in these two areas have introduced a useful theoretical background in learning strategies, they were not able to form a common unified definition of language learning strategies. Tseng, Dörnyei, and Schmitt (2006) called this issue the “definitional fuzziness of language learning strategies” (p. 95). Rubin (1975) defined language learning strategies as “techniques or devices which a learner may use to acquire knowledge” (p. 43), while Wenden (1986) defined them as “steps or mental operations used in learning or problem-solving that require direct analysis, transformation, or synthesis of learning materials in order to store, retrieve, and use knowledge” (p. 10). O'Malley and Chamot (1990) called them “special thoughts or behaviors that individuals use to help them comprehend, learn or retain new information” (p. 1). According to Oxford (1990, 2001), they are “operations employed by the learner to aid the acquisition, storage, retrieval and use of information; specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more efficient, and more transferable to new situations” (p. 166). Cohen and Dörnyei (2002) defined them as conscious and semiconscious thoughts and actions employed by learners with the prior explicit plan of developing their knowledge and understanding of a target language. Cohen (2011) refined this definition into “thoughts and actions, consciously selected by learners, to assist them in learning and using language in general, and in the completion of specific language tasks” (p. 682).

Such definitions and theories are described with no consensus on the actual acts and thoughts employed during language learning. Therefore, Rubin (1975) and Stern (1975) studied

learning strategies employed by successful language learners and identified a number of common characteristics.

Classifications of Language Learning Strategies

Rubin (1981) classified language learning strategies into two major categories: strategies that directly affect learning and strategies that indirectly affect learning. The strategies that directly affect learning include six learning strategies: classification/verification, monitoring, memorization, guessing/inductive reasoning, deductive reasoning, and practice. The strategies that contribute indirectly to learning include two main strategies: creating an opportunity for practice and production tricks. It should be mentioned that Rubin's classification scheme was based on the cognitive category of learning strategies. O'Malley and Chamot (1990) proposed a different classification scheme based on three categories of language learning strategies: 1) metacognitive strategies (e.g., planning, monitoring, self-evaluation); 2) cognitive strategies, which entail different learning tasks and direct manipulation of information (e.g., repeating, translating); and 3) social-mediating strategies, which relate to interaction with others (e.g., asking the teacher, cooperating with classmates).

Oxford (1990, 2001) developed Rubin's classification of direct and indirect strategies. The direct category includes three sub-categories: 1) memory strategies, which learners use to retain information (e.g., placing new words in context, applying images and sounds, structured reviewing, using physical response); 2) cognitive strategies, which are used to comprehend and produce the language (e.g., practicing, repeating, translating, and summarizing); and 3) compensation strategies, which are used by learners with limited language knowledge to try to learn from using multiple aspects of language skills (e.g., guessing and coining words). The indirect strategies also contain three sub-categories: 1) metacognitive strategies, which learners

use to plan, study, and assess their learning process (e.g., overview and linking with known materials, seeking practice opportunities and self-monitoring and evaluating); 2) affective strategies, which learners use to power their learning (e.g., lowering their anxiety and encouraging themselves); and 3) social strategies, which are used to learn through communication (e.g., asking questions and cooperating with others). Based on her classification system, Oxford (1990) developed the Strategy Inventory for Language Learning (SILL), which has been translated into many languages and utilized widely for ESL and EFL students by researchers as a standardized instrument to measure the learning-strategy use of more than 10,000 learners worldwide.

Although various classifications of language learning strategies have been developed and found to be applicable to different tasks, researchers are still concerned about variables that affect the choice of strategy. Ellis (2008b), for example, indicated that the use of such strategies varied across students based on learner factors and social and situational factors. Oxford (1994) added further factors, including learner motivation, attitudes and beliefs, type of task, gender, age, level of L2 learning, tolerance of ambiguity (students more tolerant of ambiguity used significantly different learning strategies in some instances than did those less tolerant of ambiguity), learning style, and cultural background.

Similarly, Oxford and Nyikos (1989) presented the following factors: language being learned, stage of language learning (e.g., proficiency or course), degree of metacognitive awareness, gender, affective variables (e.g., attitudes, motivation, and objectives in language learning), specific personality behaviors, type of personality, learning style, field of career or specialization, origin or nationality, aptitude, methods of language teaching, task requirements, type of strategy training. Oxford and Nyikos believed stage of language learning, origin or

nationality, field of career or specialization, and methods of language teaching had a significant effect on learners' choice of strategy and that "the degree of expressed motivation to learn the language was the most powerful influence on strategy choice" (p. 294).

Language Learning Strategies of Successful Learners

Rubin (1975) was the first to investigate learning strategies used by successful language learners. She identified seven characteristics of successful language learners:

1. They are willing and accurate guessers.
2. Have a strong drive to communicate with others and learn from that communication.
3. Are usually not afraid of making mistakes and appearing foolish.
4. Beside communication, they also pay attention to form.
5. Intend to practice and use the language.
6. Monitor their speech and that of others.
7. They pay attention to meaning. (pp. 45–47).

In addition, Rubin identified several variables that affected learners' use of strategies and recommended further studies take them into consideration. These variables included learning task, learning stage, the age of the learner, learning style, learning context, and cultural context. Rubin's goal of analyzing the strategies employed by successful learners was to provide teachers with insight to help less successful learners. Chamot (2001) likewise stated that such research provided deeper insight into the cognitive, social, and affective process for this purpose. Teaching the strategies of successful learners to less successful learners has been seen as helpful within many theoretical frames in SLA. Griffiths (2015), for example, contended that "successful strategy development programs must be based on sound theoretical principles and should include several key elements: awareness raising, practice, and evaluation, and these should be taught

using both explicit and implicit instructional techniques” (p. 431).

Definition of Vocabulary Learning Strategies

Similar to the efforts in defining language learning strategies, scholars have not agreed on a common definition of vocabulary learning strategies. Nation (2001) defined them as “a part of language learning strategies which in turn are a part of general learning strategies” employed when learning and storing new words for later recall and use (p. 217). Nation pointed out that vocabulary learning strategies can be broken down into steps building learners’ vocabulary, learning efficiency, and usage. Cameron (2001) defined these strategies as the actions taken by a learner to recognize and recall vocabulary. Catalan (2003) gave a more detailed definition:

[They are] knowledge about the mechanism (e.g., processes, strategies) used in order to learn vocabulary as well as steps or actions taken by students to find out the meaning of unknown words, retain them in long-term memory, recall them at will and use them in oral or written mode. (p. 56)

Cohen and Dörnyei (2002) described these strategies as involving several actions, including memorizing, reviewing, recalling, and making use of vocabulary. Gu (2003) postulated they should involve strategies for using as well as for knowing a word. Takač (2008) defined them as “activities, behaviors, steps, or techniques used by learners (deliberately) to facilitate learning. Vocabulary learning strategies can help learners to discover lexical items (both their meaning and form), and to internalize, store, retrieve and actively use these in language production” (p. 106). To this end, Nation (2013) stated that vocabulary learning strategies did the following:

1. involve choice, that is, there are several strategies to choose from and one choice could be not to use the strategy;

2. be complex, that is, there are several steps to learn;
3. require knowledge and benefit from training; and
4. increase the efficiency and effectiveness of vocabulary learning and vocabulary use.

(p. 326)

Taxonomies of Vocabulary Learning Strategies

Several scholars have attempted to improve L2 vocabulary acquisition by identifying vocabulary learning strategies with various categories and taxonomies. Cook and Mayer (1983) and Nation (1990), for example, were among the first to classify these strategies into two main groups: discovery strategies, which help learners find out the meaning of a new word, and consolidation strategies, which facilitate remembering and retaining that meaning.

In a similar vein, Stöffer (1995) developed a 53-item vocabulary learning strategies survey. Based on a factor analysis of her survey, she classified the strategies into nine groups:

1. Strategies involving authentic language use (e.g., read L2 newspapers and magazines)
2. Strategies involving creative activities (e.g., write poetry using new words)
3. Strategies used for self-motivation (e.g., enjoy learning new vocabulary)
4. Strategies used to create mental linkages (e.g., link word to similar L1 word)
5. Memory strategies (e.g., use flashcards)
6. Visual/auditory strategies (e.g., draw pictures of new words)
7. Strategies involving physical action (e.g., use pantomime and gestures to practice)
8. Strategies used to overcome anxiety (e.g., try to relax when afraid of using word)
9. Strategies used to organize words (e.g., group words by grammatical class)

Nation (2001, 2013) developed a taxonomy of vocabulary learning strategies and classified them into four major groups: planning, sources, processes, and skill in use (see Table

2). The planning strategies help vocabulary learners decide what words to choose, what aspects of word knowledge to focus on, and what strategies to employ to determine the meaning of the word and remember it in the future. The sources strategies involve seeking additional information through contextual guessing, dictionaries, and cognates in the L1 or L2. The process strategies are used to remember new words (e.g., studying word lists and notebooks) and enable learners to use words in various contexts. The skill in use strategies help find meaningful input about words encountered outside class through readings, recordings, and videos to enhance fluency. This categorization is mostly based on word knowledge and the process of lexical acquisition but is not supported by empirical evidence.

Table 2

Nation's Taxonomy of Vocabulary Learning Strategies

Class of strategies	Types of strategies
Planning: choosing what to focus on and when to focus on it.	Choosing words. Choosing the aspects of word knowledge. Choosing strategies. Planning repetition and spelling time.
Sources: finding information about words.	Analyzing words. Using context. Consulting a reference source in L1 or L2. Using parallels in L1 and L2.
Processes: establishing knowledge.	Noticing. Retrieving. Generating (creative use).
Skill in use: enriching knowledge.	Gaining in coping with input through listening and speaking. Gaining in coping with output through reading and writing. Develop fluency across the four skills.

According to Schmitt (1997, 2000), most taxonomies have focused on a small number of vocabulary learning strategies and neglected other categories of strategies. To address this issue, Schmitt (2000) designed a 58-item taxonomy of vocabulary learning strategies based on

Oxford's (1990, 2001) classification system. Schmitt found Oxford's six categories of language learning strategies useful and adapted four—social, memory, cognitive, and metacognitive—for vocabulary but criticized Oxford's system for lacking a category for vocabulary learning strategies or strategies to discover the meaning of a new word without seeking help from someone in the class. Schmitt believed individual effort had a greater influence on vocabulary acquisition than aptitude. Therefore, Schmitt created additional categories, called determination strategies, and classified social, memory, cognitive, and metacognitive strategies into two main groups based on distinctions suggested by Cook and Mayer (1983) and Nation (1990), namely discovery and consolidation strategies. The discovery group includes strategies used to discover the meaning of new words and are classified into two subcategories:

1. Determination strategies include vocabulary strategies used individually to discover the meaning of new vocabulary (e.g., contextual guessing of the meaning of new words or using a dictionary).
2. Social strategies include vocabulary strategies used to discover the meaning of new words by interacting with peers or asking the teacher.

The consolidation strategies are used to remember the meaning of a new word that has been encountered before and are classified into four subcategories (see Appendix A):

1. Social strategies are used to remember the meanings of new words by studying with others in a group or pair and asking the teacher.
2. Memory strategies depend on learners' previous knowledge and experiences to retain words in long-term memory.
3. Cognitive strategies are used to manipulate information about a new word by notetaking in order to recall the meanings later.

4. Metacognitive strategies are used to plan, control, and assess vocabulary learning.

Schmitt (2000) mentioned that individual effort had a greater influence on vocabulary acquisition than aptitude, leading researchers to identify a large number of vocabulary learning strategies. Schmitt's (1997, 2000) taxonomy of vocabulary learning strategies is one of the most comprehensive in SLA, and his VLSQ has been widely used and adapted as a measure of such strategies (e.g., Bernardo & Gonzales, 2009; Catalan 2003; Doczi, 2011; Kasmani & Bengar, 2013). Catalan (2003), for instance, adapted Schmitt's VLSQ and found several advantages:

1. A standardized test that can be used to explore learners' strategies use;
2. It is based on the theory of learning strategies as well as on theories of memory;
3. It is applicable for learners' various ages, educational backgrounds and target languages;
4. It is rich and sensitive to the varieties of learning strategies; and
5. It allows comparison with other research studies. (p. 60)

Schmitt's (2000) taxonomy was adapted to the context of the current study. As with language learning strategies in general, the use of vocabulary learning strategies is influenced by various factors, such as learners' beliefs, proficiency level, learning style, context, and motivation, as discussed below (Dörnyei, 2009; Ellis, 2008a, 2008b; Wong, 2005).

Research on Vocabulary Learning Strategies

Since the late 1980s, scholars (e.g., Ahmed, 1989; Catalan, 2003; Fan, 2003; Gu, 2002; Gu & Johnson, 1996; Kojic-Sabo & Lightbown, 1999; Kudo, 1999; O'Malley & Chamot, 1990; Qian, 2004; Schmitt, 1997; Stöffer, 1995) have investigated vocabulary learning strategies and their relation to factors such as learner proficiency, learning context, strategy instruction, gender, and cultural background. Like the majority of early work on language learning strategies, which

focused on successful learners, Ahmed (1989) attempted to investigate the strategies used by EFL learners to acquire new vocabulary. Three instruments (think-aloud tasks, direct observation, and an interview) revealed a difference between the strategy use of good and poor learners. Good learners employed more strategies because they were aware of what they could learn about new words, such as collocations and spelling, while underachieving learners used fewer strategies, were not aware of what they could learn about new words, and did not use previous word knowledge to learn new words. Ahmed classified strategies into macro-strategies, which refer to general approaches to learning, and micro-strategies, which are “the more detailed, specific learner behaviors” (p. 4). Ahmed identified 38 micro-strategies and grouped them into six macro-strategies:

1. Information sources (e.g., ask classmates or teacher, use dictionary, guess)
2. Dictionary use (e.g., monolingual or bilingual dictionary, look up derivation)
3. Memorization (e.g., write and repeat aloud, L2 synonym)
4. Practice (e.g., use new word in real or imaginary situation, self-test)
5. Preferred source of information (e.g., ask somebody, groupwork, dictionary)
6. Notetaking (e.g., take notes, vocabulary book, spelling information)

O'Malley and Chamot (1990) conducted an experimental study on whether strategy instruction in a normal classroom could improve English vocabulary acquisition. The study employed 75 male and female ESL learners of intermediate level at mid-Atlantic suburban high schools. Participants were divided into two groups based on their cultural background (Asian learners and Hispanic learners). They were further divided into two subgroups: experimental and control groups. Each group was given vocabulary wordlist tasks to determine their use of cognitive strategies. The experimental groups received 50 min of explicit instruction and practice

with imagery and grouping strategies for eight days and were tested for recall after a 5-min study period. The control groups did not receive any such instruction and were free to use their preferred strategies. The Hispanic experimental group outperformed the Hispanic control group on all vocabulary tests, while the Asian control group in using their preferred memorization strategies outperformed the Asian experimental group. Furthermore, Hispanic learners who benefited from strategy training and became more interested in learning the new strategy performed better on vocabulary tests than Asian learners who had resisted the training and preferred to use their familiar rote learning strategy. O'Malley and Chamot concluded that the difference between Asian and Hispanic learners in their strategy approach was correlated with the vocabulary learning task and their cultural and educational backgrounds.

Sanaoui (1995) examined the strategies of 50 ESL students enrolled in a six-week vocabulary course. Two major types of approaches were employed by students: structured approaches and unstructured approaches. The students who learned vocabulary systemically showed greater success at remembering new words learned in class compared to those who did not employ a structured approach. This was the case with advanced students as well as beginners. Students taught with a structured approach tended to use strategies such as recording the word, immediate repetition, spaced repetition, contextual association, and linguistic association in vocabulary learning. However, in a similar study, Lessard-Clouston (1996) failed to correlate students' approaches in learning English vocabulary with proficiency as surveyed through a questionnaire and participants' TOEFL scores.

Gu and Johnson (1996) developed a taxonomy to investigate the relationship between vocabulary learning strategies and learning outcomes. Participants included 850 Chinese EFL university students registered in non-English majors. The instruments consisted of a vocabulary

learning questionnaire, a vocabulary size test, and proficiency measures. The questionnaire included 91 self-reported statements that aimed to examine students' beliefs about vocabulary learning strategy use and its relationship to learning outcomes. Their vocabulary taxonomy included beliefs about vocabulary learning and the following strategy categories:

- Metacognitive regulation (e.g., selective attention, self-initiating).
- Guessing strategies (e.g., using background knowledge/wider context).
- Dictionary strategies (e.g., dictionary strategies for comprehension).
- Notetaking strategies (e.g., meaning-oriented notetaking strategies).
- Rehearsal strategies (e.g., using wordlists).
- Encoding strategies (e.g., association/elaboration).
- Activation strategies (e.g., making up personalized sentences using the new word).

Most learners employed a wide range of strategies (e.g., dictionary, guessing, rehearsal, and metacognitive strategies) rather than only one or two. Learners' beliefs, two metacognitive strategies (self-initiating and selective attention), and a number of cognitive strategies (e.g., notetaking) were positively correlated to general proficiency and vocabulary size. Although the descriptive analysis indicated learners tended to employ memorization more than rehearsal strategies, the correlation results revealed their belief in memorization was negatively associated with proficiency and vocabulary size.

Using cluster analysis of reported strategy outcomes, Gu and Johnson (1995) clustered five types of learners:

1. Readers (use reading, guessing, and contextual encoding to learn vocabulary).
2. Active Strategy Users (use almost every strategy and spend a lot of time and effort learning English to improve vocabulary size and proficiency).

3. Passive Strategy Users (use memorization strategies).
4. Encoders (use encoding strategies).
5. Non-Encoders (use the same strategies all the time).

Based on these clusters, Gu and Johnson indicated that most successful learners were readers, active strategy users, and encoders, who used various strategies and worked hard to learn vocabulary. Less successful were the passive strategy users, who used a specific strategy (e.g., visual repetition) and spent less time learning English. Furthermore, learners' varied strategies were attributed to social and educational background, as Chinese cultural values appeared to motivate students to spend more time and effort on learning.

Schmitt (1997, 2000) studied 600 Japanese EFL learners within different age levels—junior high school, high school, university, and adult students—to investigate their use of vocabulary learning strategies and perceptions about the helpfulness of these strategies. The 58-item questionnaire divided vocabulary learning strategies into discovery and consolidation strategies. The most commonly used strategies involved using bilingual dictionaries, guessing from context, asking classmates for meanings, verbal repetition, studying the spelling, saying the new word aloud, taking notes in class, studying the sound of a word, and referring to wordlists. The least common were checking for L1 cognates, using physical actions, using semantic maps, and having teachers check their flashcards for accuracy. The most helpful strategies as perceived by students were using bilingual dictionaries, asking the teacher for a paraphrase/synonym, analyzing pictures/gestures, saying the new word aloud, written repetition, connecting the word with synonyms/antonyms, continuing over time, studying spelling, taking notes in class, and verbal repetition. The least helpful involved skipping a new word, imagining the word's meaning, using cognates, the keyword method, and imagining the word form.

According to Schmitt (1997, 2000), the use of these strategies was attributed to the educational system in Japan, which encourages students to memorize grammar and vocabulary through repetition. Furthermore, the patterns of strategy use between students varied across age groups as they matured or achieved a higher proficiency level. Japanese learners lacked an interest in using social strategies, particularly group activities, and only 50% believed social strategies were helpful for learning and practicing vocabulary. This was attributed to their cultural background, which encourages individual work.

Using a questionnaire similar to that of Schmitt (1997), Kudo (1999) conducted a study on 504 Japanese EFL senior high school students to investigate what strategies they used to learn L2 vocabulary. The most frequent strategies were using a bilingual dictionary and rote learning, and the less commonly used strategies involved deep cognitive processing, such as the keyword technique and semantic mapping. Japanese students seldom used social strategies to learn new vocabulary, similar to Schmitt (1997).

Kojic-Sabo and Lightbown (1999) studied 47 ESL students at Concordia University Montreal and 43 EFL senior students registered in pre-university schooling from Northern Yugoslavia. The purpose of the study was to examine students' approaches to vocabulary learning and their relationship to success. Three instruments were employed: a questionnaire, a set of tests to assess vocabulary knowledge, and a measure of general language proficiency in the form of a cloze test. ESL and EFL students showed similarities and differences in how they approached vocabulary learning. Due to the advantages of the learning environment, ESL learners appeared to use some strategies naturally and enjoyed better opportunities outside the classroom to initiate independent learning geared to vocabulary acquisition. EFL students may have to create opportunities to encounter and practice new English words and were found to

engage in a greater variety of direct, specifically vocabulary-targeted activities; they also took and reviewed notes more frequently.

Fan (2003) conducted a study on 1,067 first-year EFL university students (40% male, 60% female) from various disciplines at the Institute of Higher Education in Hong Kong. The purpose of the study was to determine the relationship among frequency of use, perceived usefulness, and actual usefulness of L2 vocabulary learning strategies. A self-reported questionnaire was used to investigate vocabulary learning strategies reported by learners, and a vocabulary test was used to find out their proficiency in English vocabulary. Based on the findings of Gu and Johnson's (1996) taxonomy of vocabulary learning strategies, Fan (2003) developed a questionnaire with 56 items divided into nine categories: management strategies, sources strategies, guessing strategies, dictionary strategies, repetition strategies, association strategies, grouping strategies, analysis strategies, and known words strategies. The strategies used most often and perceived as most useful were guessing words from context, known words strategies (e.g., revising words recently learned, using them in context, and learning their usage), analysis strategies (e.g., memorization), and dictionary strategies. Students perceived vocabulary learning strategies as useful, although they did not use them often.

Moreover, Fan (2003) supported the findings of Ahmed (1989), Sanaoui (1995), Gu and Johnson (1996), and Schmitt (1997), as more proficient students employed a larger number and variety of strategies than did less proficient students. However, unlike the Japanese learners in Schmitt (1997), Chinese EFL learners in Fan (2003) did not employ repetition more than other strategies. Furthermore, the unwillingness to use association strategies by Chinese learners in general and Hong Kong learners in particular was attributed to differences between Chinese and English. Accordingly, Fan stated that "learners in different Asian countries may have similar as

well as different ways of learning the same L2 and so may Chinese students in different parts of the world” (p. 233).

Vocabulary Learning Strategies and Gender

Several studies have investigated the effects of gender on students’ use and choice of vocabulary learning strategies. Stöffer (1995), for example, conducted a study on 707 English native speakers learning various foreign languages (French, Spanish, German, Japanese, Russian) in the US. To investigate learners’ use of vocabulary strategies in relation to a number of variables (including gender), Stöffer employed a questionnaire containing 58 statements about vocabulary strategies. Female participants used such strategies more frequently, but the only significant differences among male and female participants were attributed to certain vocabulary strategies, such as memory strategies, creating mental links, and organizing words, in which female students reported significantly higher mean scores.

In a similar vein, Gu (2002, 2005) conducted a study on 645 Chinese EFL learners (337 male, 308 female) registered in non-English majors at Beijing Normal University. Gu employed Gu and Johnson’s (1996) vocabulary-learning questionnaire, vocabulary size tests, and general proficiency measures. Contextual guessing, dictionary use, notetaking, and oral repetition were most frequently reported. Female students performed significantly better than male students on the vocabulary size test and general proficiency test. Female students also reported more use of all patterns of vocabulary learning strategies. The researcher attributed these differences to women being expected to succeed in language learning in Chinese culture, and “failure in English for female students will be more face threatening than for male students” (p. 44).

Catalan (2003) surveyed 581 Spanish students (279 male, 302 female) studying EFL in elementary school, high school, and university, with their L2 proficiency varying from beginner

to advanced. For data collection, Catalan adapted Schmitt's (1997) questionnaire and listed 60 strategy items. The most commonly used strategies for discovering new English word meanings were using a bilingual dictionary, guessing from context, and asking the teacher or classmates. However, the most favored strategies for remembering and retaining the meanings of English vocabulary were saying the word aloud when studying, taking notes, and using English social media. These findings agreed with Schmitt's (1997) and Kudo's (1999) findings on Japanese EFL learners. Catalan (2003) stated that several studies have viewed the use of bilingual dictionaries and guessing from context as universal strategies among people from various cultural backgrounds (e.g., China, Japan, and Spain). Furthermore, female students obtained a higher mean score in memory strategies, which included saying a word aloud and studying the word's pronunciation, while male students favored physical action and imagining the word's meaning. Catalan concluded that the differences in vocabulary strategy use between male and female students could be attributed to two factors: female students having a higher motivation and differences in students' learning preferences.

Numerous studies (e.g., Catalan, 2003; Fan, 2003; Gu, 2002; Gu & Johnson, 1996; Kudo, 1999; Schmitt, 1997) have used a self-reported questionnaire as the main measurement tool in investigating vocabulary strategies. While questionnaires are common in SLA, they do not necessarily reflect learners' actual activities and perceptions of vocabulary use. This is stressed by Schmitt (2010), who insisted on the importance of including learners' own accounts to provide an accurate assessment of strategy use and to compare qualitative and quantitative results:

Interviewing a sample of informants can tell much about how carefully and accurately they completed their surveys. Vocabulary knowledge is a complex construct, and [...] any single measure of it will give only a very minimal impression of the overall lexical

knowledge constellation. This means that good vocabulary research is advantaged by multiple measures of vocabulary, to better capture a wider range of lexical knowledge.

(pp. 149–152)

Therefore, the present study used a questionnaire and interviews to investigate the use of vocabulary learning strategies by Saudi students in the US to contribute to a better understanding of this issue.

Chapter 3

Methodology

This chapter describes the methodology employed to investigate the use of vocabulary learning strategies by Saudi university students in the US. It describes the research questions, research design, participants, and instruments involved in data collection and analysis.

Research Questions

Due to this study's mixed-methods design, the research questions are divided into quantitative and qualitative questions. The quantitative research questions are as follows:

1. What vocabulary learning strategies do Saudi university students report using in the US?
2. What are the most and least frequently used vocabulary learning strategies among Saudi university students in the US?
3. Are there significant differences in the use of vocabulary learning strategies between male and female Saudi university students in the US?

The following are the qualitative research questions:

4. Why do Saudi university students in the US report using certain vocabulary learning strategies?
5. What strategies are reported as most effective at helping Saudi university students learn English vocabulary, and how do those strategies work?

Research Design

This study employed an explanatory mixed-methods design and was divided into quantitative and qualitative phases. In the quantitative phase, a questionnaire was distributed to investigate the use of vocabulary learning strategies reported by Saudi university students in the

US and determine whether their use of these strategies differed on the basis of gender. In the qualitative phase, semi-structured interviews were conducted to collect more detailed responses.

An explanatory mixed-methods design was used because it can draw from the strengths and minimize the weaknesses of quantitative and qualitative research (Creswell & Plano Clark, 2007; Johnson & Onwuegbuzie, 2004). In contrast, using only one approach could lead to insufficient or limited data and thus only provide a partial understanding of the results (Johnson & Gray, 2010; Schmitt, 2010). Especially in research on learning strategies, drawing only from a questionnaire might not reflect respondents' actual strategy use in practice (Hsiao & Oxford, 2002). Thus, learning strategy research needs to combine quantitative and qualitative data to more accurately interpret the strategies learners use to acquire vocabulary.

Participants

Participants consisted of 123 Saudi university students (88 male, 35 female) studying at a regional university in the southeastern United States. Participants were from different majors, including applied linguistics (31), marketing (6), finance (10), computer science (10), criminal justice (7), physics (4), electrical engineering (10), mechanical engineering (18), civil engineering (21), and industrial engineering (9). Of these, 40 were graduate students and 83 were undergraduate students, and all participants were 22-38 years old.

Eight of these participants, four men and four women, agreed to participate in semi-structured interviews to share their experience with vocabulary learning strategies. The interviewees were also from different majors and education levels to better illuminate the quantitative findings.

Instruments

Questionnaire. The questionnaire consisted of a demographic section and a section on

vocabulary learning strategies. A questionnaire was used because this type of instrument can collect a large amount of information in a short time (Dörnyei, 2007). Oxford (1996) stresses the importance of using the questionnaire because it is the most comprehensive and efficient tool to measure the frequency of language strategy use.

The first section of the questionnaire provided a brief introduction to the study, instructions about the content of the questionnaire, and questions regarding learners' demographic information, such as age, gender, major, education level, time spent learning English, and length of stay in the US. In the second section, the study adapted Bennet's (2006) version of Schmitt's (1997, 2000) Vocabulary Learning Strategies Questionnaire (VLSQ) to fit the context of the current study (see Appendix A). The VLSQ classifies vocabulary learning strategies into five categories, which are subdivided into two major groups: discovery strategies and consolidation strategies. Discovery strategies are used by learners to discover a new word's meaning and include two main categories:

1. Determination strategies (e.g., guessing the meanings of words from context or using bilingual or monolingual dictionaries).
2. Social strategies (e.g., asking classmates or teachers for the meanings of new words).

On the other hand, consolidation strategies are used by learners to remember the meanings of a new word once it been encountered and include four main categories:

1. Social strategies (e.g., interacting with native speakers or studying the meanings of new words with classmates).
2. Memory strategies (e.g., relating new words to a personal experience or using them in sentences to remember and retain them in long-term memory).

3. Cognitive strategies (e.g., taking notes of new words to remember their meaning in the future).
4. Metacognitive strategies (e.g., using English media or studying the meanings of new words over time). (See Appendix A).

Participants were asked to respond to the 39 statements of the modified questionnaire (see Table 3) by rating their use of vocabulary strategies on a 5-point Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always).

Table 3

How the 39 Items of the Questionnaire relate to Vocabulary Learning Strategies

No.	Category	Items	Total
1	Determination Strategies (DET)	1-7	7
2	Social Strategies (SOC)	8-12	5
3	Memory Strategies (MEM)	13-29	17
4	Cognitive Strategies (COG)	30-36	7
5	Metacognitive Strategies (META)	37-39	3
	Total		39

This modified questionnaire was piloted with a group of Saudi ESL students and Saudi PhD students in the Department of English at the University of Memphis before it was distributed in the main study. The piloted questionnaire was critically reviewed to identify ambiguities or any issues that might arise. This feedback was used to improve questionnaire items. After the pilot study, a link to the questionnaire entitled “Investigating Vocabulary Learning Strategies of Saudi university students in the US” was created on Qualtrics.

To ensure the validity of the questionnaire, two faculty members at the University of Memphis reviewed the original and modified versions of the questionnaire.

Semi-structured interview. The semi-structured interview was designed to examine how Saudi university students actually used vocabulary learning strategies and whether this use

differed based on gender. The questions were based on Schmitt's (1997, 2000) theoretical framework of vocabulary strategies (see Appendix A). The ultimate goal of semi-structured interviews in a mixed-methods design is to elicit more insights from participants and to better understand the quantitative results by providing more in-depth and detailed information (Creswell & Plano Clark, 2011). Thus, the semi-structured interviews were essential to gain a better understanding of participants' vocabulary strategies and to give a more in-depth analysis of their daily use of strategies to facilitate their L2 vocabulary learning.

Eight participants agreed to 30–45-min interviews in English, which were digitally recorded. After participants were briefed on the purpose and confidentiality of the interviews, they were given opportunities to further explain their use of certain strategies over others. The recordings were deleted from the recording device after they were downloaded to a password-protected personal computer. All data were transcribed, and participants' names were changed in the transcripts to protect their confidentiality.

Data Collection Procedures

Questionnaire. After the University of Memphis Institutional Review Board (IRB) granted permission to conduct the study, a flyer was distributed to invite Saudi students at the university to participate. Only those who contacted the researcher were invited to complete a 10–15-min questionnaire hosted on Qualtrics. A consent form and background information were provided on the first two pages of the questionnaire. Participants were informed that their personal information would be kept confidential, and their responses would only be used in the research.

Semi-structured interview. At the end of the questionnaire, participants were asked if they would be willing to voluntarily participate in a face-to-face interview by providing their

email address in the provided space on the questionnaire. Only participants who provided their email address were invited to a 30–45-min interview via Skype. All interviews were conducted in English and recorded.

Data Analysis Procedures

Quantitative data analysis. The participants' online questionnaire responses were entered by the researcher into SPSS (Version 23). To investigate their overall use of vocabulary learning strategies and the frequency of this use, descriptive statistics, including mean and standard deviation, were calculated. As mentioned earlier, the participants were asked to rate their use of vocabulary strategies on a 5-point Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always).

To explore whether there were any significant differences in strategy use among male and female students, a one-way analysis of variance (ANOVA) test was conducted with the independent variable of gender and the dependent variables of vocabulary learning strategies. ANOVA was used because gender was the only independent variable to compare with the dependent variables. Regarding reliability, the statistical analysis revealed the 39 items of the questionnaire had a Cronbach's alpha score of 0.87, which is considered very high.

Qualitative data analysis. For the qualitative data, semi-structured interviews were conducted to provide more in-depth responses on participants' actual use of vocabulary learning strategies through stories and experiences. To check the validity of the interviews, ESL teachers and Applied Linguistics PhD candidates were asked to review the questions and determine whether they reflected the study's central goal.

To facilitate the qualitative data analysis, I transcribed the eight interviews, read them all, and then analyzed each interview transcript individually. Next, I did a cross analysis of the

transcripts (Onwuegbuzie & Combs, 2010). The data analysis process was based on Schmitt's (1997, 2000) theoretical framework and research questions built on predetermined categories of vocabulary strategies (see Appendix A). Referring to the theoretical framework and research questions throughout the analysis of the transcripts helped make sense of the data and capture participants' experiences in vocabulary learning (Manuel, 2015).

Chapter 4

Results

This chapter presents a detailed analysis of the quantitative and qualitative results to answer the research questions. The analysis was based on Schmitt's (1997, 2000) theoretical framework for vocabulary learning strategies. The quantitative data are explored first through descriptive statistics to reveal information about the use of vocabulary learning strategies among Saudi university students in an ESL context. The qualitative analysis of the interviews data is presented second to better understand the quantitative data.

Quantitative Data Analysis

Schmitt's (1997, 2000) VLSQ was modified to collect the quantitative data. The 39 questionnaire items were divided into two groups: discovery strategies and consolidation strategies. The nine items in the discovery strategies group were further divided into two categories: seven determination strategies and two social strategies to discover the meanings of unknown words. The consolidation strategies group contained 30 items for strategies to recall the meanings of learned words and were divided into four categories: three items for social strategies, 17 for memory strategies, seven for cognitive strategies, and three for metacognitive strategies.

This quantitative phase of data collection included 123 participants (88 male, 35 female) from different academic levels and majors of study. Students were asked to rate their responses on a 5-point Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = always). SPSS (Version 23) was used to provide statistical analysis of these results. To this end, strategies with mean scores lower than 3 were considered to be least frequently used, those with mean

scores of 3 were considered sometimes used, and strategies with mean scores over 3 and close to 5 were considered most frequently used.

Research Question 1. Research Question 1 asked, “What vocabulary learning strategies do Saudi university students report using in the US?” The following subsections present the descriptive statistical analysis of the discovery strategies and consolidation strategies, providing data addressing the first research question.

Discovery strategies group. The descriptive analysis revealed that participants used a wide range of discovery strategies, particularly determination strategies, to discover the meanings of new English words (see Table 4). Participants reported using all determination strategies listed but they did not always use both social strategies listed (Items 8 and 9) for this purpose.

Table 4

Discovery Strategies

Category	Item	Discovery Strategy	Min	Max	M	SD
DET	1	Check the new word’s form (verb, noun, etc.)	1	5	3.2	1.025
	2	Look for any word parts that I know (<u>im</u> possible, color <u>ful</u>)	1	5	3.4	1.068
	3	Check if the word is also an Arabic word (e.g. carton)	1	5	3.1	1.397
	4	Use any pictures or gestures to help me guess the meaning	1	5	3.0	1.176
	5	Guess meaning from context	1	5	4.1	0.955
	6	Use an English-Arabic dictionary	1	5	3.7	1.255
	7	Use an English-English dictionary	1	5	3.4	1.079
SOC	8	Ask my classmates for the meaning	1	5	2.7	0.965
	9	Ask the teacher to give me the definition or a sentence containing the new word	1	5	2.5	1.104

Note. DET = determination strategies, SOC = social strategies, MEM = memory strategies, COG = cognitive strategies, META = metacognitive strategies.

Consolidation strategies group. The following statistical findings reported differences on the use of consolidation strategies in order to study and remember the meanings of new English

words (see Table 5).

Table 5

Consolidation Strategies

Category	Item	Consolidation Strategy	Min	Max	M	SD
SOC	10	Study the word with my classmates	1	5	2.0	1.051
	11	Ask the teacher to check my definition	1	5	2.2	1.201
	12	Talk with native speakers	1	5	3.3	1.147
MEM	13	Draw a picture of the word to help remember it	1	5	2.1	1.247
	14	Make a mental image of the word's meaning	1	5	3.1	1.248
	15	Connect the word to a personal experience	1	5	3.4	1.049
	16	Remember the words that follow or proceed the new word	1	5	3.0	1.075
	17	Connect the word to other words with similar or opposite meanings	1	5	3.5	0.934
	18	Remember words on "scales" (always-often-sometimes-never)	1	5	2.5	1.119
	19	Group words together to study them	1	5	2.8	1.099
	20	Use new words in sentences	1	5	3.7	0.825
	21	Write paragraphs using several new words	1	5	2.7	1.279
	22	Study the spelling of a word	1	5	3.5	1.155
	23	Study the sound of a word	1	5	3.6	1.162
	24	Say new words out loud when I first see them	1	5	3.4	1.283
	25	Make a mental image of the word's form	1	5	3.2	1.306
	26	Remember the word using its parts (im-, in-, -able, -ful, -ment, ex-)	1	5	3.2	1.181
	27	Remember the word using its word form (verb, noun, adjective)	1	5	3.2	1.143
28	Make my own definition for the word	1	5	3.2	1.121	
29	Use physical action when learning a word	1	5	2.5	1.14	
COG	30	Repeat the words many times	1	5	3.7	1.072
	31	Write the words many times	1	5	3.5	1.197
	32	Make lists of new words	1	5	3.3	1.306
	33	Use flashcards to record new words	1	5	2.4	1.338
	34	Take notes or highlight physical objects	1	5	3.0	1.267
	35	Put English labels on physical objects	1	5	2.3	1.255
	36	Keep a vocabulary notebook	1	5	3.0	1.277
META	37	Use English language media (songs, movies, the Internet)	1	5	3.7	1.176
	38	Test myself with word tests	1	5	2.8	1.207
	39	Study new words many times	1	5	3.2	1.093

Note. DET = determination strategies, SOC = social strategies, MEM = memory strategies, COG = cognitive strategies, META = metacognitive strategies.

That is, the participants use more vocabulary strategies from memory category (Items 17, 20, 22, and 23) for consolidating the meaning of new English word, but a few strategies from cognitive category (Items 30 and 31) and metacognitive category (Item 37) were reported for the same purpose. The statistical findings also revealed that the participants did not always use social strategies in order to consolidate the meaning of new English words. Therefore, the use of vocabulary strategies from memory category is reported by Saudi university ESL students to be more common to study and remember the meanings of new English words, however, other vocabulary strategies from cognitive and metacognitive category are less commonly used for the same propose.

The previous statistical findings indicate that the participants discover the meanings of new English vocabulary more commonly with using a wide range of determination strategies. In addition, they study and practice these meanings by using more commonly memory strategies to keep remembering the meanings of these words.

Research Question 2. Research Question 2 asked, “What are the most and least frequently used vocabulary learning strategies among Saudi university students in the US?” After the results for the overall use of vocabulary learning strategies were reported in the previous section, this question focuses on the most and least used strategies among participants. To answer this question, it was necessary to look at the highest and lowest mean scores of vocabulary learning strategies and categories reported in the statistical analysis and rank them in order from most to least used. This analysis will help compare the results of this study with those in the literature in order to obtain a clear view of strategy use and provide pedagogical implications for the teaching and learning practices of Saudi ESL students.

Discovery vocabulary learning strategies. The following descriptive statistics rank the vocabulary learning strategies from most to least frequently used to discover the meanings of new English words (see Table 6).

Table 6

Most to Least Frequently Used Discovery Strategies

Rank	Discovery Strategy	Category	<i>M</i>	<i>SD</i>
1	Guess meaning from context	DET	4.1	0.955
2	Use an English-Arabic dictionary	DET	3.7	1.255
3	Look for any word parts that I know (<u>impossible</u> , <u>colorful</u>)	DET	3.4	1.068
4	Use an English-English dictionary	DET	3.4	1.079
5	Check the new word's form (verb, noun, etc.)	DET	3.2	1.025
6	Check if the word is also an Arabic word (e.g. carton)	DET	3.1	1.397
7	Use any pictures or gestures to help me guess the meaning	DET	3.0	1.176
8	Ask my classmates for the meaning	SOC	2.7	0.965
9	Ask the teacher to give me the definition or a sentence containing the new word	SOC	2.5	1.079

Note. DET = determination strategies, SOC = social strategies.

As shown in Table 6, determination strategies were the category of discovery strategies most frequently used by Saudi university students in the US. Of these, the most common were “Guess meaning from context” ($M = 4.1$, $SD = 0.955$) and “Use an English-Arabic dictionary” ($M = 3.7$, $SD = 1.255$). Participants appeared to rely mainly on determination strategies that involved consulting available materials, such as contextual guessing or dictionaries, to independently discover the meanings of new English word. Such strategies have been rated among the most common worldwide in various learning contexts (Catalan, 2003; Fan, 2003; Gu, 2002; Gu & Johnson, 1996; Kudo, 1999; Schmitt, 1997).

On the other hand, the two social strategies were reported as being the least frequently used discovery strategies. These included “Ask the teacher to give me the definition or a sentence containing the new word” ($M = 2.5$, $SD = 1.104$) and “Ask my classmates for the

meaning” ($M = 2.5$, $SD = 0.965$). Thus, the least popular strategies required interaction with peers or the teacher.

Consolidation vocabulary learning strategies. Table 7 summarizes the descriptive statistics ranking the consolidation vocabulary learning strategies from most to least frequently used to remember and study new English words once they have been encountered. Four out of the seven most frequently used consolidation strategies were memory strategies, suggesting participants relied more on mechanical strategies (memorization or repetition) to remember the meanings of new words.

Another interesting finding was that participants simultaneously employed multiple consolidation strategies to study and remember the meanings of new words. Thus, the most frequently employed consolidation strategies included three different categories: four memory strategies (using new words in sentences and studying their sound or spelling), two cognitive strategies (verbal or written repetition), and one metacognitive strategy (using English media).

On the other hand, the least frequently reported consolidation strategies were “Study the word with my classmates,” “Draw a picture of the word to help remember it,” “Ask the teacher to check my definition,” “Put English labels on physical objects,” and “Use flashcards to record new words.” This indicated that social strategies involving interaction with classmates or the teacher were the least frequently employed category in both consolidation and discovery strategies. However, the social strategy, “Talk with native speakers” was reportedly “sometimes” used to remember and retain new English vocabulary.

Table 7

Most to Least Frequently Used Consolidation Strategies

Rank	Consolidation Strategy	Category	<i>M</i>	<i>SD</i>
1	Use new words in sentences	MEM	3.7	0.825
2	Repeat the words many times	COG	3.7	1.072
3	Use English language media (songs, movies, the Internet)	META	3.7	1.176
4	Study the sound of a word	MEM	3.6	1.162
5	Connect the word to other words with similar or opposite meanings	MEM	3.5	0.934
6	Study the spelling of a word	MEM	3.5	1.155
7	Write the words many times	COG	3.5	1.197
8	Connect the word to a personal experience	MEM	3.4	1.049
9	Say the new words out loud when I first see them	MEM	3.4	1.283
10	Talk with native speakers	SOC	3.3	1.147
11	Make lists of new words	COG	3.3	1.306
12	Study new words many times	META	3.2	1.093
13	Make my own definition for the word	MEM	3.2	1.121
14	Remember the word using its word form (verb, noun, adjective)	MEM	3.2	1.143
15	Make a mental image of the word's form	MEM	3.2	1.306
16	Make a mental image of the word's meaning	MEM	3.1	1.248
17	Remember the words that follow or proceed the new word	MEM	3.0	1.075
18	Take notes or highlight physical objects	COG	3.0	1.267
19	Keep a vocabulary notebook	COG	3.0	1.277
20	Group words together to study them	MEM	2.8	1.099
21	Test myself with word tests	META	2.8	1.207
22	Write paragraphs using several new words	MEM	2.7	1.279
23	Use physical action when learning a word	MEM	2.5	1.14
24	Remember words on "scales" (always-often-sometimes-never)	MEM	2.5	1.119
25	Use flashcards to record new words	COG	2.4	1.338
26	Put English labels on physical objects	COG	2.3	1.255
27	Ask the teacher to check my definition	SOC	2.2	1.201
28	Draw a picture of the word to help remember it	MEM	2.1	1.247
29	Study the word with my classmates	SOC	2.0	1.051

Note. SOC = social strategies, MEM = memory strategies, COG = cognitive strategies, META = metacognitive strategies.

Strategy use across all five categories. Table 8 and Figure 1 rank the five vocabulary learning strategy categories within the discovery and consolidation groups from most to least

frequently used. The descriptive analysis indicated the determination category ($M = 3.4$, $SD = 0.483$) was the most frequently used by Saudi university students in the US to discover the meaning of new English words (e.g., via contextual guessing or dictionaries).

Table 8

Most to Least Frequently Used Categories of Discovery and Consolidation Strategies

Category	Rank	M	SD
Determination	1	3.4	0.48373
Metacognitive	2	3.2	0.77802
Memory	3	3.1	0.61517
Cognitive	4	3.0	0.80009
Social	5	2.5	0.74046

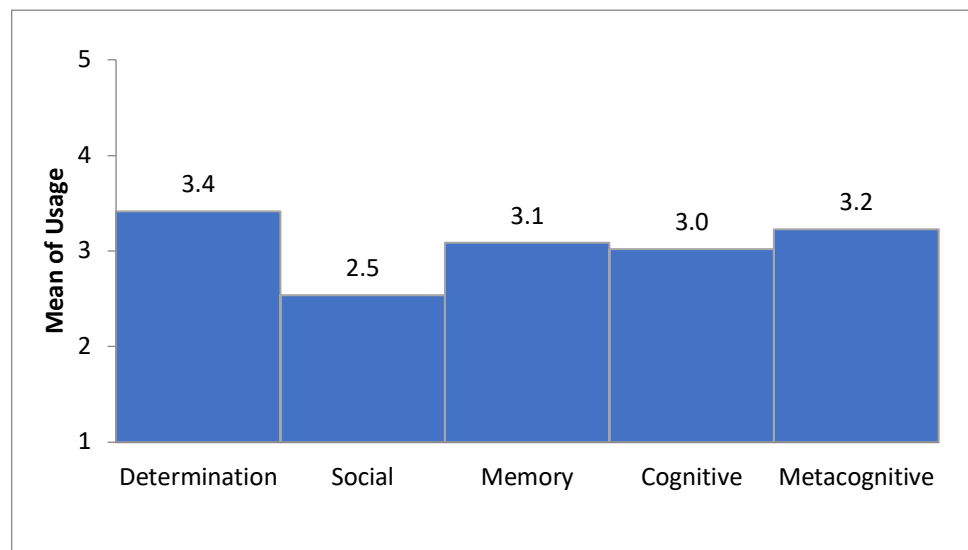


Figure 1 Vocabulary learning strategy use by category.

The second most common category was metacognitive strategies ($M = 3.2$, $SD = 0.778$) (e.g., using English media, studying words over time). The least frequently used were the social strategies ($M = 2.5$, $SD = 0.740$). According to the previous analysis, participants determined the meaning of a new English word mostly through determination strategies, such as contextual guessing or dictionaries, and to remember the meaning of that word, they mostly used memory strategies, such as using the word in a sentence or studying its pronunciation and spelling.

Research Question 3. Research Question 3 asked, “Are there significant differences in the use of vocabulary learning strategies between male and female Saudi university students in the US?” To answer this question, an ANOVA was conducted with the independent variable of gender and the dependent variables consisting of the strategy variables in vocabulary learning strategies. The following analysis covers gender variations in the use of all 39 vocabulary learning strategies and in terms of the five categories of determination, memory, social, cognitive, and metacognitive strategies.

Overall use of vocabulary learning strategies based on gender. Table 9 presents the differences between male and female participants in using the 39 vocabulary learning strategies. The mean score for male ($M = 3.1$, $SD = 0.469$) and female ($M = 3.1$, $SD = 0.515$) participants was the same.

Table 9

Overall Use of Vocabulary Learning Strategies Based on Gender

Gender:	<i>M</i>	<i>N</i>	<i>SD</i>
Male	3.1	88	0.469
Female	3.1	35	0.515
Total	3.1	123	0.481

Table 10 provides further results of the ANOVA to show gender variations in all 39 vocabulary learning strategies. The results showed no statistically significant differences between or within vocabulary learning strategies groups based on gender, $p = 0.848$.

Table 10

Overall Use of Vocabulary Learning Strategies Between and Within Groups by Gender

Gender	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Between VLS Groups (combined)	0.009	1	0.009	0.037	0.848
Within VLS Groups	28.235	121	0.233		
Total	28.243	122			

Gender variation across all five categories of vocabulary learning strategies. The following subsections present the results for gender variation in the use of determination, memory, social, cognitive, and metacognitive of vocabulary learning strategies.

Determination strategies. Table 11 presents the results for gender variations in using determination strategies. The mean score of male ($M = 3.4$, $SD = 0.486$) and female ($M = 3.4$, $SD = 0.481$) participants was the same for this category.

Table 11

Use of Determination Strategies Based on Gender

Gender	<i>M</i>	<i>N</i>	<i>SD</i>
Male	3.4	88	0.486
Female	3.4	35	0.481
Total	3.4	123	0.483

Table 12 offers further results from the ANOVA to show any variations in the use of determination vocabulary learning strategies between male and female Saudi students. The results found no statistically significant differences between or within vocabulary learning strategies groups based on gender, $p = 0.656$.

Table 12

ANOVA Results for Gender Differences in Determination Strategy Use

Gender	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Between VLS Groups (combined)	0.047	1	0.047	0.199	0.656
Within VLS Groups	28.501	121	0.236		
Total	28.548	122			

Memory strategies. Table 13 presents the results for gender variations in using memory strategies. The mean score of male ($M = 3.1$, $SD = 0.610$) and female ($M = 3.1$, $SD = 0.636$) participants was the same for this category.

Table 13

Use of Memory Strategies Based on Gender

Gender	<i>M</i>	<i>N</i>	<i>SD</i>
Male	3.1	88	0.610
Female	3.1	35	0.636
Total	3.1	123	0.615

Table 14 provides further results from the ANOVA. The results found no statistically significant differences in the use of memory strategies between or within vocabulary learning strategies groups based on gender, $p = 0.992$.

Table 14

ANOVA Results for Gender Differences in Memory Strategy Use

Gender	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Between VLS Groups (combined)	0	1	0	0	0.992
Within VLS Groups	46.168	121	0.382		
Total	46.168	122			

Social strategies. Table 15 presents the results for gender variations in using social strategies. The mean score of male ($M = 2.5$, $SD = 0.755$) and female ($M = 2.5$, $SD = 0.711$) participants was the same for this category.

Table 15

Use of Social Strategies Based on Gender

Gender	<i>M</i>	<i>N</i>	<i>SD</i>
Male	2.5	88	0.755
Female	2.5	35	0.711
Total	2.5	123	0.740

Table 16 provides further results from the ANOVA. The results revealed no statistically significant differences in the use of social strategies between or within vocabulary learning strategies groups based on gender, $p = 0.949$.

Table 16

ANOVA Results for Gender Differences in Social Strategy Use

Gender	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Between VLS Groups (combined)	0.00	1	0.002	0.004	0.949
Within VLS Groups	66.888	121	0.553		
Total	66.89	122			

Cognitive strategies. Table 17 presents the results for gender variations in using cognitive strategies. The mean score of male participants ($M = 3.0$, $SD = 0.754$) was slightly lower than that of female participants ($M = 3.1$, $SD = 0.908$) for this category.

Table 17

Use of Cognitive Strategies Based on Gender

Gender	<i>M</i>	<i>N</i>	<i>SD</i>
Male	3.0	88	0.754
Female	3.1	35	0.908
Total	3.0	123	0.800

Table 18 provides more results from the ANOVA. These results uncovered no statistically significant differences in the use of cognitive strategies between or within vocabulary learning strategies groups based on gender, $p = 0.35$.

Table 18

ANOVA Results for Gender Differences in Cognitive Strategy Use

Gender	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Between VLS Groups (combined)	0.564	1	0.564	0.88	0.35
Within VLS Groups	77.533	121	0.641		
Total	78.097	122			

Metacognitive strategies. Table 19 presents the results for gender variations in using metacognitive strategies. The mean score of male ($M = 3.2$, $SD = 0.769$) and female ($M = 3.2$, $SD = 0.810$) participants was the same for this category.

Table 19

Use of Metacognitive Strategies Based on Gender

Gender	<i>M</i>	<i>N</i>	<i>SD</i>
Male	3.2	88	0.769
Female	3.2	35	0.810
Total	3.2	123	0.778

Table 20 provides additional results from the ANOVA. These results revealed no statistically significant differences in the use of cognitive strategies between or within vocabulary learning strategies groups based on gender, $p = 0.35$.

Table 20

ANOVA Results for Gender Differences in Metacognitive Strategy Use

Gender	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Between VLS Groups (combined)	0.005	1	0.005	0.009	0.926
Within VLS Groups	73.843	121	0.61		
Total	73.848	122			

The statistical analysis of gender differences in strategy use showed no significant differences between male and female participants in their overall use of the 39 vocabulary learning strategies or in the five categories of vocabulary learning strategies.

Qualitative Data Analysis

The aim of the qualitative phase was to illuminate the statistical findings obtained in the quantitative phase. This was done by analyzing semi-structured interview data, focusing on participants' use and perceptions of vocabulary learning strategies. The qualitative analysis was based on Schmitt's (1997, 2000) theoretical framework of vocabulary learning strategies. Out of 123 participants, eight (four female, four male) volunteered to participate in the interviews to describe their experiences and use of vocabulary learning strategies.

Interviewees’ background information. Background information on participants is provided below to better understand their learning context, the challenges they face in L2 learning, and their comments and experiences in relation to vocabulary strategy use. The interviews were conducted in English, recorded on a smartphone. Participants were each assigned a pseudonym (see Table 21).

Table 21

Demographic Characteristics of the Interviewees

Name	Gender	Major	Degree	Length of Stay in the US
Abeer	F	Computer Science	PhD	8 years
Ali	M	Business	BA	5 years
Eman	F	Physics	BA	4 years
Fatin	F	Applied Linguistics	PhD	7 years
Mohammad	M	Communication	PhD	5 years
Omar	M	Electrical Engineering	BA	3 years
Saleh	M	Applied Linguistics	PhD	4 years
Sarah	F	Nursing	MA	6 years

All participants had studied English in the US for at least one year and six months. They had started studying English in middle school in Saudi Arabia. The following sections present their answers to the interview questions related to learning English vocabulary to answer Research Questions 4 and 5.

Research Question 4. Research Question 4 asked, “Why do Saudi university students in the US report using certain vocabulary learning strategies?”

Activities or skills that improved participants’ English. The interviewees described several experiences and activities that improved their English during their stay in the US. Abeer, for example, noted that ESL centers in the US provided several activities inside and outside the classroom that quickly improved her English. She mentioned that extensive reading in an ESL center helped her develop her reading skills and vocabulary knowledge: “I still remember when I

was at beginner level at the ESL center. I encountered massive difficulties in reading tasks, especially with unknown English vocabulary reading texts at that time, but my English improved fast.” She further noted the ESL center provided conversation partners who were native English speakers to help students practice their English. According to her, these activities were the most effective and helped many ESL learners improve their English skills and fluency.

When Ali was asked about the skills that most improved his English during his stay in the US, he said, “In order to master English successfully, English learners need to be immersed in English by interacting with English native speakers, which enriches many aspects such as English vocabulary and pronunciation a lot.” He added, “I interact with English native speakers inside or outside school on a daily basis since I am living in the US, and such an activity is difficult to find back home in Saudi Arabia in order to develop many aspects in English.”

Eman mentioned several factors that improved her English, including extensive reading, daily interactions with English native speakers, and being exposed to English media on a daily basis inside and outside the classroom, such as listening to or watching the daily news. According to her, these activities helped many ESL learners in the US improve their English vocabulary knowledge and pronunciation. She said that when English learners are immersed in an English-speaking community, they have to learn the language to survive in that community.

In another interview, Fatin stated that “Reading skills have changed my English language level not only in the US but since I was back home.” In her opinion, reading is the most beneficial skill to improve English, especially vocabulary. She mentioned that her English developed faster in the US since English is the only language spoken in daily life.

Omar thought speaking was the most beneficial activity to improve his English. He said, “I am a big fan of video games, and I usually spend my weekend socializing and playing video

games with English native speakers in my apartment or online.” He believed interacting with native speakers had improved his pronunciation, which he considered a barrier in speaking English before coming to the US.

The interviewees largely felt reading as practiced in the US in ESL centers or during their studies had developed their reading fluency and vocabulary knowledge. In addition, they agreed that interaction or socializing with native speakers in the US was the most effective activity that improved many aspects of their English and that being exposed to audio or visual English media on a daily basis helped them improve their English dramatically.

Approaches previously taught to master English vocabulary. The participants agreed ESL centers in the US had taught them how to use a wide range of methods to learn English vocabulary effectively. In addition, some said they felt more restricted in Saudi Arabia by having fewer methods to learn English vocabulary. For example, when Sarah was asked if she had been taught or trained with any methods for learning English vocabulary, she stated the following:

When I first started learning English at the ESL center, I was limited to using my electronic bilingual dictionary to learn English vocabulary, but as I improved in English, I learned to use several methods, such as guessing the meaning from other words in the contexts and checking suffixes and prefixes of new words. ESL teachers always recommend the use of a monolingual dictionary instead of a bilingual dictionary in order to improve our English vocabulary. The types of activities and assignments that I practice in groups and pairs in ESL classes [showed] me various types of methods in order to master English vocabulary.

Similarly, Saleh reported being taught with several methods to learn English vocabulary when he was in Saudi Arabia, but students never tried to practice these methods in group

activities in class the way they did in ESL classes in the US.

Mohammad said he was used to relying mainly on bilingual dictionaries to learn English vocabulary, but in his ESL classes, he was introduced to many other ways to learn English vocabulary such as contextual guessing, connecting the meanings of a new word to other similar or opposite words, looking to words' part or form and using new word in sentences. He knew some of these methods previously, but he never practiced them with fellow students in class before, which helped him understand the purpose of using different methods of learning vocabulary.

Abeer stated that learning more vocabulary was one of the most important factors that improved her English. She encountered difficulties in memorizing vocabulary in the early stages at the ESL center. However, as she improved, she learned to use several methods of learning vocabulary, such as contextual guessing and checking a word's form and components: "Such approaches minimized my reliance on using a bilingual dictionary, and instead I was able to learn English words independently." Like some of the others, she also knew about some of these methods of improving vocabulary before but had not tried them until she came to the US and practiced them in an ESL center.

The participants' experiences learning English vocabulary revealed a reliance on bilingual dictionaries and memorization. Although they were previously aware of different approaches, they never put them into practice until studying in the US. These responses showed the importance of using various methods of learning English vocabulary in group or pair work. In addition, interviewees indicated learners needed previous knowledge of English vocabulary in order to use certain approaches, such as contextual guessing or looking at suffixes and prefixes. This might have been a barrier preventing them from practicing these approaches earlier in their

studies in their home country.

Research Question 5. Research Question 5 asked, “What strategies are reported as most effective at helping Saudi university students learn English vocabulary, and how do those strategies work?” Similar to the quantitative analysis, the themes and categories from the transcripts of the qualitative semi-structured interviews were analyzed based on Schmitt’s (1997, 2000) five categories of vocabulary learning strategies: 1) determination strategies, 2) social strategies, 3) memory strategies, 4) cognitive strategies, and 5) metacognitive strategies. The following sections present participants’ perspectives and experiences in relation to each of these types of strategies.

Determination strategies. In the eight interviews, guessing the meaning from context was one of the most frequent strategies participants used to discover the meanings of new English vocabulary. The participants’ perceptions and experiences about the use of contextual guessing are shown in the excerpts below. For instance, when Abeer was asked what strategies she used to determine the meanings of new words, she responded as follows:

Whenever I meet a new English word, I guess the meaning of that word from context. I believe that is a very useful strategy and convenient to discover the meaning of a new word without being interrupted in reading or listening. However, I think learners at the beginner level may encounter difficulties with contextual guessing since it requires previous knowledge of English vocabulary. When I was a beginner ESL learner, it was not easy to find out the meanings of new words through guessing from context.

In another interview, Ali reported the following:

Guessing the meaning from context is my first strategy as long as I am familiar with that context. Contextual guessing usually leads me to discover the meaning of new words through my understanding of the main topic of a text.

Eman gave the following response:

I usually skip the meaning of a new word in a text as long as that unknown word doesn't impair my comprehension of a text. I believe that guessing the meaning of a new word from the context is an effective strategy that enables you to discover the meaning of that word from your understanding of that context.

The second most frequently cited determination strategy to discover the meaning of a new word was the use of bilingual and monolingual dictionaries. Several participants reported using such dictionaries when they could not guess the meaning of a new word based on context.

This was reflected in Eman's response about her process:

First, I try to guess the meaning of a new word from the context, and if I fail to do so, I look up the new word in a bilingual dictionary. The use of a bilingual dictionary is very helpful in discovering the meaning of new English words directly. However, I need to use the monolingual dictionary to learn other meanings of English words and how they can be used.

In another interview, Saleh explained his process:

When I was a student in the ESL center, I was instructed to use only monolingual (English-English) dictionaries in order to improve my English vocabulary, but currently I mainly use bilingual (English-Arabic) dictionaries to get the meaning of novel words. A bilingual dictionary is a very useful strategy to discover the meaning of a new word quickly, especially when I use my computer or even my smartphone online. In addition, I

need to use a monolingual dictionary when I need to know how [to use] a new word [in a way that is] grammatically correct.

Mohammad pointed out the following:

I usually use Google's bilingual translator on the web. I believe it is useful and fast when you are not able to guess the meaning of new English words from the context. I also use an English-English dictionary when I need to check other meanings of a new word while reading or writing.

The main role of determination strategies is to help language learners discover the meanings of novel words, which was reflected by all the interviewees, who reported relying heavily on contextual guessing. They also used bilingual and monolingual dictionaries if context was insufficient and to learn about how to use the words grammatically. This use of different vocabulary learning strategies may be attributed to their having advanced knowledge of English vocabulary that enabled them to make greater use of context before resorting to a dictionary.

Social strategies. The interviewees reported socializing with native speakers to be a useful strategy to retain and practice new English words. For example, when Omar was asked about other strategies he used to remember new English words, he said, "I have improved my knowledge of English vocabulary by talking with native speakers. This strategy is very useful not only to practice and recall English vocabulary but also to develop fluency in English language." In a similar vein, Sarah said, "To improve learned English vocabulary, I intend to talk with native speakers to practice and remember the meaning of that new vocabulary. The use of this strategy has also improved my pronunciation of new learned English vocabulary." Eman gave a similar response:

I usually socialize and talk with English native speakers whether inside or outside the university. Interacting with native speakers helped my English to improve, especially with learning and building up my English vocabulary. In addition, talking with native speakers [helped me] learn the right pronunciation of new English vocabulary.

All interviewees said their daily experiences involved interacting and socializing with English native speakers, who they viewed as an important factor in improving their English in general and their vocabulary in particular. They also tended to interact with native speakers to learn other aspects of vocabulary knowledge, such as pronunciation and grammatical features of new words. Therefore, they used this social strategy not only to learn the meanings of new English vocabulary but also to learn how it is articulated and used by native speakers.

Memory strategies. The analysis of the interviews revealed the most frequent memory strategies employed to remember and study the meanings of new English words: 1) use new words in sentences, 2) study the spelling of a word, 3) study the sound of a word, and 4) connect the word to other words with similar or opposite meanings. Participants used different kinds of memory strategies simultaneously for this purpose. For instance, when Abeer was asked what strategies she used to remember and study the meanings of new English vocabulary, she said the following:

I always connect the new learned English words to other words with similar or opposite meanings and start using these new words in several sentences to remember and study their meanings. This strategy enhanced my comprehension of the new learned words and enabled me to recall them again in the future.

Mohammad gave a similar response: “I usually study the meanings of new English words by using them in several sentences. I also study the spelling and pronunciation of new English

words, which helps me to recall and understand new English vocabulary effectively.” These ideas were reflected in Fatin’s response as well: “To not forget the meanings of new learned English words, I study the sound and the spelling of the new words. Then, I use these new words in various sentences to study and remember their meanings in the future.”

The role of memory strategies is to recall the meanings of new vocabulary over time, which was illustrated by the interviewees, who used these strategies to store the meanings of new words in long-term memory. Therefore, the analysis indicated participants were aware of the importance of using memory strategies.

Cognitive strategies. The cognitive strategies most frequently mentioned in the interviews to remember and retain the meanings of English vocabulary were 1) repeat the words many times and 2) write the words many times. In addition, participants used these cognitive strategies with the memory strategy of using new words in a sentence. When Omar was asked what strategies he used for this purpose, he said the following:

I repeat the new learned word multiple times in my mind to make sure that I will not forget that word in the future. I also intend to use these new learned words in sentences to study and remember their meanings.

Sarah gave a similar response:

I find repeating the sound of words many times to study and remember the meanings of the new learned words is a useful strategy. I also study the spelling of the new learned words by writing them down several times to study and remember the new learned words.

Similarly, Ali said, “When I learn a new English word, I write it down many times to retain the meaning of that new word. I also use the new learned words in sentences to enhance my remembering the meaning of the new words.”

Interviewees’ perspectives and experiences demonstrated an affinity for using verbal and written repetition to retain and retrieve the meanings of new words, combined with a cognitive memory strategy. This indicated they could self-regulate their vocabulary learning process.

Metacognitive strategies. The metacognitive strategy most frequently mentioned in the interviews to remember the meanings of new English vocabulary was watching and listening to English-language media, such as songs, movies, and the Internet. When Sarah was asked what strategies she used to remember and study words over time, she responded as follows:

I watch a lot of movies with English subtitles in order to learn more English words and remember the meanings of the new words. Since I live in the US, I also like to check daily news by watching TV or listening to the radio. This improved my English, particularly my knowledge of English vocabulary.

In another interview, Mohammad gave the following explanation:

I always watch recorded programs, such as Ted Talk or documentaries on TV or the Internet. These programs were one of the activities that I learned about while learning English at the ESL center. English media has improved my English in general and learning English vocabulary in particular. When I discover new words from these programs, I try to practice them in my daily life.

Ali gave a similar response:

I have learned a lot of new English vocabulary through watching English movies and listening to English music. When I listen to English music, I like to look at the lyrics of a

song, and I do the same thing with English movies by watching a movie with English subtitles. I believe my English vocabulary is still developing a lot by using various sources of English media.

The main goal of metacognitive strategies is to study the meanings of new words and remember them over time. As illustrated above, participants relied on English media on a daily basis, which they considered an important resource to improve their English vocabulary. Furthermore, they were encouraged to use English media for this purpose when they were studying in an ESL center.

Chapter 5

Discussion and Conclusion

This chapter integrates and discusses the quantitative and qualitative results to offer a more meaningful picture of vocabulary learning strategy use among Saudi university ESL students. The key findings are compared to the existing research findings in order to shed further light on the issues explored. Additionally, this chapter presents practical implications for ESL/EFL educators, organizations, and policymakers and suggests future directions for research.

This study used a mixed-methods research design to obtain rich and meaningful. It combined quantitative and qualitative results from survey questionnaires and semi-structured interviews to address the following five research questions:

1. What vocabulary learning strategies do Saudi university students report using in the US?
2. What are the most and least frequently used vocabulary learning strategies among Saudi university students in the US?
3. Are there significant differences in the use of vocabulary learning strategies between male and female Saudi university students in the US?
4. Why do Saudi university students in the US report using certain vocabulary learning strategies?
5. What strategies are reported as most effective at helping Saudi university students learn English vocabulary, and how do those strategies work?

Discovery Strategies Group

The quantitative findings demonstrated that Saudi university students in the US mainly used determination strategies ($M = 3.4$) to discover the meanings of new English words. The

most frequent strategies were 1) guessing the meaning from the context ($M = 4.1$), 2) using a bilingual dictionary ($M = 3.7$), 3) looking at the parts of the word ($M = 3.4$), and 4) using a monolingual dictionary ($M = 3.4$). The qualitative analysis of the interview transcripts confirmed these quantitative findings, as all interviewees agreed guessing the meaning from the context was very helpful with new vocabulary. Ali, for example, noted that contextual guessing could be used as a first step to determine a word's meaning, which partially depends on its context. They also believed contextual guessing was easier for advanced learners. For example, Abeer said contextual guessing helped her avoid interrupting her reading or listening tasks by having to look up unfamiliar words, but this strategy requires a strong knowledge of English vocabulary; therefore, novice learners may encounter difficulties using this strategy.

Although participants believed contextual guessing was useful, they asserted its usefulness was affected by various factors. This finding is supported by Laufer (1997), who found availability of clues, familiarity with clue words, the presence of misleading clues, and compatibility between the reader's schemata and the text content were factors influencing the usefulness of contextual guessing. Since the participants of the present study had a good command of English, they might have found guessing unknown words from context a more workable strategy, which would explain why it appeared at the top of the list of most-used strategies for vocabulary learning.

Another interesting finding from the interviews was the use of both bilingual and monolingual dictionaries to look up new vocabulary. This was perceived as a valuable strategy not only to learn new words but also to learning other aspects of vocabulary knowledge. In fact, participants said dictionaries could help learners improve their English vocabulary on their own as well as their writing and reading ability. For example, Eman used a bilingual dictionary if she

could not determine the meaning of a new English word, but she needed a monolingual dictionary to learn how other forms of a word were spelled or pronounced. Mohammad also mainly used an online bilingual translation service to look up new English words but believed a monolingual dictionary was important to check the different meanings of new words when reading or writing. Saleh further mentioned the ease of using a bilingual dictionary online as well as the need to use a monolingual dictionary to check how to use a new word correctly.

These findings agree with other studies (e.g., Barcroft et al., 2011; Graves, 2006; Lessard-Clouston, 2013; Nation, 2013; Nation & Laufer, 2012; Nagy & Scott, 2013; Richard, 1976) that found knowing other aspects of vocabulary knowledge, such as the form of a new word (spoken and written), meaning (form and meaning), and use (grammatical functions), were important elements for successful communication. In other words, dictionaries can improve language and vocabulary knowledge, leading to greater proficiency and fluency (Crossley, Salsbury, McNamara, & Jarvis, 2011). Participants' belief in the present study that dictionaries could improve their writing is supported by Scholfield's (1981) argument that errors in writing could be prevented and corrected by dictionary use.

Furthermore, the majority of participants thought dictionaries should only be used when students could not guess the meaning of a word from its context. This is also in agreement with Scholfield (1997), who asserted that because dictionary consultation could reduce fluency in writing and reading, it should come at the final stage for discovering the meanings of unknown words. In addition, Fan (2003) found that although the most proficient participants reported guessing more frequently, they perceived dictionary use as significantly more useful, in keeping with the present study's findings.

Previous studies have shown students who rely on a text, context, and structure of words to make sense of new words tend to be independent learners, and regardless of the learning context, these strategies have been rated among the top most frequently used strategies (Fan, 2003; Gu, 2002; Gu & Johnson, 1996; Schmitt, 1997). The results of the present study confirmed such results, as guessing a word's meaning from context and using dictionaries were the two most popular vocabulary learning strategies. In fact, guessing new words from context was likewise the most popular strategy in Fan (2003), in line with Nation's (2001) recommendation that guessing from context would be at the top of any list of such strategies.

According to the quantitative data, social strategies ($M = 2.5$) were the least used among Saudi university students in the US to discover the meanings of new English words, including "Ask the teacher to give me the definition or a sentence containing the new word" ($M = 2.5$) and "Ask my classmates for the meaning" ($M = 2.7$). The eight interviewees preferred talking with a native speaker to practice and retain new vocabulary. These results agree with studies that found English learners from various countries did not have a strong affinity for social strategies that involved cooperative learning with peers, instead preferring vocabulary learning strategies that involved independent learning, such as through rote learning, contextual guessing, or using a bilingual dictionary (e.g., Fan, 2003; Gu, 2002; Gu & Johnson, 1996; Kudo, 1999; O'Malley & Chamot, 1990; Schmitt, 1997). Schmitt and Schmitt (1993), for example, asserted that "some cultures favor certain strategies, perhaps because those strategies are stressed in the culture's school systems" (p. 32). Thus, participants in the present study might have avoided social strategies since it is not encouraged in their educational system in Saudi to discover the meanings of new words. This follows from the finding that strategies that work for learners in one context might not be appropriate in other contexts (Gu, 2003).

Consolidation Strategies Group

The quantitative data revealed memory ($M = 3.1$), metacognitive ($M = 3.2$), and cognitive strategies ($M = 3.1$) were the most frequently used consolidation strategies by Saudi university students in the US when learning English vocabulary. The four most common consolidation strategies were within the memory category: “Use new words in sentences” ($M = 3.7$), “Study the sound of a word” ($M = 3.6$), “Connect the word to other words with similar or opposite meanings” ($M = 3.5$), and “Study the spelling of a word” ($M = 3.5$). The next most common category in the consolidation strategies group was the metacognitive strategy “Use English language media (songs, movies, the Internet)” ($M = 3.7$). This was followed by the most frequently used cognitive strategies in the consolidation group: “Repeat the words many times” ($M = 3.7$) and “Write the words many times” ($M = 3.5$). Again, social strategies were reported as the least frequently used in this group, including “Ask the teacher to check my definition” ($M = 2.2$) and “Study the word with my classmates” ($M = 2.1$). The avoidance of using social strategies and students’ preference of using memorization in learning English vocabulary is attributed to the students’ educational practices in Saudi Arabia which does not support socializing activities in order to learn English vocabulary.

The eight interviews suggested that participants perceived the aforementioned memory, cognitive, and metacognitive strategies to be very helpful in retaining new words over time. Interestingly, participants used multiple patterns of strategies simultaneously to study new words. For example, Abeer said she studied the meanings of new words by connecting them to other words with a similar or opposite meaning and using them in sentences. Similarly, Sarah memorized the meanings of new words by saying and writing them in sentences repeatedly.

However, Mohammad tended to study the meanings of new words through various media, such as videos, and interacting with native speakers.

The interviews highlighted how participants created learning opportunities to self-regulate vocabulary acquisition. These findings corroborate recent studies in SLA that indicated strategies are self-oriented actions, behaviors, or steps used by learners in various contexts to improve their English (e.g., Cohen, 2007; Cohen & Macaro, 2007; Gu, 2005; Manchón, Roca De Larios, & Murphy, 2007; Nation, 2013; Nyikos & Fan, 2007; Oxford, 2011; Schmitt, 1997, 2000, 2010). For example, Gu (2005) found language learners adopted and combined various types of strategies based on their preferred learning style or cultural background.

The findings on how participants adopted memory and cognitive vocabulary learning strategies were similar to previous studies in the field (e.g., Catalan, 2003; Fan, 2003; Gu, 2002; Gu, 2005; Gu & Johnson, 1996; Kojic-Sabo & Lightbown, 1999; Kudo, 1999; Lawson & Hogben, 1996; O'Malley & Chamot, 1990; Sanaoui, 1995; Schmitt, 1997). Furthermore, learners' professed awareness of the importance of learning vocabulary was in line with numerous other studies considering such behavior characteristic of successful language learners (e.g., Anderson, 2008; Griffiths, 2008, 2013, 2015; Gu & Johnson, 1996; Lawson & Hogben, 1996; Lessard-Clouston, 1996, 2008; Nation & Moir, 2008; Oxford, 2011; Rubin, 1975; Rubin & McCoy, 2008; Sanaoui, 1995; Stern, 1975). Moreover, the findings were parallel with studies showing the importance of autonomous language learning (e.g., Dörnyei, 2001, 2005; Dörnyei & Ryan, 2015; Dörnyei & Ushioda, 2011; Nation, 2013; Schmitt, 2010; Tseng, Dörnyei, & Schmitt, 2006; Tseng & Schmitt, 2008). To this end, the findings of this study are in agreement with previous studies in which Saudi learners use vocabulary learning strategies in much the same way as other learners from other cultures.

Gender Variation in the Use of Vocabulary Learning Strategies

An ANOVA with the independent variable of gender and the dependent variables consisting of the vocabulary learning strategies was conducted to find any significant variations between or within vocabulary learning strategy groups based on gender. The descriptive analysis showed that male ($M = 3.1$, $SD = 0.207$) and female students ($M = 3.1$, $SD = 0.515$) reported the same overall results. These results demonstrated no significant differences between or within vocabulary learning strategy groups based on gender, $p = 0.848$. This finding was supported by the eight interviews, in line with Stöffer (1995).

Beliefs about Learning English Vocabulary

Activities that improved participants' English. All participants agreed their reading fluency and vocabulary knowledge had improved in the US due to several activities in ESL centers or during their studies. For example, Abeer improved her fluency and vocabulary knowledge quickly through extensive reading and interacting with conversation partners who were native English speakers. Eman added that being exposed to English media on a daily basis improved her pronunciation and vocabulary. This belief in the role of extensive reading in learning English vocabulary was in line with Krashen (2004, 2011), who postulated reading was the best source of vocabulary knowledge and development, as learners could recall words they acquired before in different contexts. Moreover, participants in the present study indicated that the extensive reading taught in ESL centers was the most effective way to improve their reading fluency and vocabulary. Similarly, Ellis (1994) argued incidental vocabulary learning from reading alone was an effective teaching method that met the objectives of most L2 programs to develop learners' reading proficiency and receptive vocabulary knowledge.

Approaches previously taught to learn English vocabulary. Participants indicated that they had learned about some effective approaches to acquiring English vocabulary in their home country but could practice more approaches in ESL centers in the US. For example, Abeer said she improved her English vocabulary through pair and group activities in ESL classes as well as conversing with native speakers. Sarah had relied on bilingual dictionaries to learn English vocabulary, but when her English improved in the US, she learned to discover the meanings of new words through contextual guessing and by analyzing the structure of the words. This finding was apparent in Fan (2003), who pointed out that using dictionaries was an intentional strategy for learning novel words, while guessing strategies were closely associated with the incidental learning of vocabulary. The approaches reported by participants in learning new words were likewise congruent with the stance advocated by Hulstijn (1996), who stated that both incidental and intentional learning are needed for words to be acquired, rather than viewing these as exclusive approaches.

Implications

The results provided a number of implications for L2 learners, instructors, policymakers, and curriculum designers. First, participants were introduced to some vocabulary learning strategies in Saudi Arabia but had not been trained to use them until they took ESL classes in the US. To address this issue, ESL/ESL teachers should introduce learners to a wide range of vocabulary strategies and train them how and when to use the strategies that help them take control of their learning (Nation, 2013; Schmitt, 2010).

Second, extensive reading was reported to be the most effective task at improving participants' reading fluency and vocabulary knowledge (cf. Ellis, 1994; Krashen, 2004, 2011).

Thus, it is important for ESL/EFL teachers to employ more reading tasks to enrich students' vocabulary.

Third, guessing from context and using dictionaries were among the most used vocabulary learning strategies reported in this study. However, the ability to engage in contextual guessing might be facilitated by knowing how and when to guess and how to confirm whether a guess is correct. Therefore, teachers should train students to use different approaches to contextual guessing (Clarke & Nation, 1980; Nation & Coady, 1988; Nation, 2001). In addition, participants consulted bilingual (English-Arabic) dictionaries about the meanings of new English words if they could not guess from context. Consulting a dictionary as a second step after guessing can help students more easily remember the meanings of new words (Fraser, 1999).

Finally, participants believed a monolingual English dictionary could be useful in learning how to say and use new words from the pronunciation guide and example sentences showing typical usage. However, learners often fail to take advantage of many types of information available in the dictionary (Fan, 2000; Harley & Hart, 2000; Nyikos & Fan, 2007). Therefore, ESL/EFL learners should receive training on how to make full use of the dictionary, especially a monolingual dictionary.

Limitations and Suggestions for Future Research

This study was conducted with Saudi students enrolled in the University of Memphis, so the results could not be generalized to all such students in the US. Future studies could include Saudi ESL students enrolled in intensive English programs to measure how their English skills improve in such programs and what strategies they employ to learn vocabulary. Studies of this sort could also be undertaken with Saudi students enrolled in other universities. In addition, only eight participants were recruited for the interviews. Future researchers could recruit a larger

sample size to provide more results about students' use of vocabulary learning strategies in relation to gender, education level, and other variables.

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Appendix A

Vocabulary Learning Strategies Questionnaire (Adapted from Schmitt, 2000)

Dear Students,

You are being invited to volunteer in a research study about vocabulary learning strategies of Saudi ESL learners. Research studies include only people who choose to take part. This document is called an informed consent form. If you volunteer to take part in this study, you will be among 125 Saudi students at the university of Memphis who will help the researcher to successfully complete the research on the above-cited topic. Please read the information provided in this document carefully and take your time in making your decision. If there is any word or information that you do not understand, please ask me.

I am Ahmed Alahmadi, a graduate student at the University of Memphis, Department of English, being guided in this research by Dr. Teresa Dalle, Associate Professor, Department of English at the University of Memphis.

For any concerns and queries with regard to this research study, please let me know via alahmadi@memphis.edu or contact me at 785-424-5410 or if you have questions about your rights as a research subject, contact Beverly Jacobik, Administrator for the Institutional Review Board for the Protection of Human Subjects either via email at irb@memphis.edu or by phone at 901-678-2705 or both. You can also contact Dr. Teresa Dalle, the advisor for this study via (901) 678-3542 or tsdalle@memphis.edu or both.

By signing this form, you acknowledge that you understand the nature of the study, the potential risks to you (if any) as a participant, and the means by which your identity will be kept confidential.

Your signature on this form also indicates that you are 18 years old or older, and that you give your permission to voluntarily serve as a participant in the study described.

Thank you for volunteering and I appreciate your efforts for sparing time for this research study.

Part I: Students' Background Information

Please answer the following questions:

A. Gender:

- Male
- Female

B. Age:

- 20 – 25.
- 26 – 30
- 31 – 35
- 36 – 40
- 41 and more

C. Current educational level:

- High School
- Bachelor's
- Master's
- PhD

D. Major:

- English
- Linguistics
- Engineering
- Science
- Medical
- Business & Economics
- Education
- Communication
- Art
- Other, please mention below

E. Years spent on studying English including your (elementary, middle, and High schools)?

- 6 years
- 7 to 10 years
- More than 10 years

F. Years living in the U.S.?

- Less than a year
- 1-3 years
- More than 3 years

Part II: Schmitt's' Vocabulary Learning Strategies Questionnaire (1997,2000).

Section One: Please indicate *how Frequently* do you use the following strategies to **discover a new English word** by choosing one of the following options: **Never, Seldom, Sometimes, Often** or **Always**.

1. When I find a new English word that I don't know, I **Check the new word's form (verb, noun etc.)**

- A. Never B. Seldom C. Sometimes D. Often E. Always

2. When I find a new English word that I don't know, I **Look for any word parts that I know (impossible, colorful)**

- A. Never B. Seldom C. Sometimes D. Often E. Always

3. When I find a new English word that I don't know, I **Check if the word is also an Arabic word. (e.g. carton)**

- A. Never B. Seldom C. Sometimes D. Often E. Always

4. When I find a new English word that I don't know, I **Use any pictures or gestures to help me guess the meaning**

- A. Never B. Seldom C. Sometimes D. Often E. Always

5. When I find a new English word that I don't know, I **Guess meaning from context**

- A. Never B. Seldom C. Sometimes D. Often E. Always

6. When I find a new English word that I don't know, I **Use an English-Arabic dictionary**

- A. Never B. Seldom C. Sometimes D. Often E. Always

7. When I find a new English word that I don't know, I **Use an English-English dictionary**

- A. Never B. Seldom C. Sometimes D. Often E. Always

8. When I find a new English word that I don't know, I **Ask the teacher to give me the definition or a sentence of new word**

- A. Never B. Seldom C. Sometimes D. Often E. Always

9. When I find a new English word that I don't know, I **Ask my classmates for the meaning**

- A. Never B. Seldom C. Sometimes D. Often E. Always

Section two: Please indicate *how Frequently* do you use the following strategies to remember new words and build vocabulary by choosing one of the following options: **Never, Seldom, Sometimes, Often** or **Always**.

10. When I want to remember new words and build my vocabulary I **Study the word with my classmates**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

11. When I want to remember new words and build my vocabulary I **Ask the teacher to check my definition**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

12. When I want to remember new words and build my vocabulary I **Talk with native speakers**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

13. When I want to remember new words and build my vocabulary I **Draw a picture of the word to help remember it**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

14. When I want to remember new words and build my vocabulary I **Make a mental image of the word's meaning**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

15. When I want to remember new words and build my vocabulary I **Connect the word to a personal experience**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

16. When I want to remember new words and build my vocabulary I **Remember the words that follow or proceed the new word**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

17. When I want to remember new words and build my vocabulary I **Connect the word to other words with similar or opposite meanings**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

18. When I want to remember new words and build my vocabulary I **Remember words on 'scales'(always-often-sometimes-never)**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

19. When I want to remember new words and build my vocabulary I **Group words together to study them**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

20. When I want to remember new words and build my vocabulary I **Use new words in sentences**

- A. **Never** B. **Seldom** C. **Sometimes** D. **Often** E. **Always**

21. When I want to remember new words and build my vocabulary I **Write paragraphs using several new words**
A. Never B. Seldom C. Sometimes D. Often E. Always
22. When I want to remember new words and build my vocabulary I **Study the spelling of a word**
A. Never B. Seldom C. Sometimes D. Often E. Always
23. When I want to remember new words and build my vocabulary I **Study the sound of a word**
A. Never B. Seldom C. Sometimes D. Often E. Always
24. When I want to remember new words and build my vocabulary I **Say the new words a loud when I first meet them**
A. Never B. Seldom C. Sometimes D. Often E. Always
25. When I want to remember new words and build my vocabulary I **Make a mental image of the word's form**
A. Never B. Seldom C. Sometimes D. Often E. Always
26. When I want to remember new words and build my vocabulary I **Remember the word using its parts (im-, in-, -able, -ful, -ment, ex-)**
A. Never B. Seldom C. Sometimes D. Often E. Always
27. When I want to remember new words and build my vocabulary I **Remember the word using its word form (verb, noun, adjective)**
A. Never B. Seldom C. Sometimes D. Often E. Always
28. When I want to remember new words and build my vocabulary I **Make my own definition for the word**
A. Never B. Seldom C. Sometimes D. Often E. Always
29. When I want to remember new words and build my vocabulary I **Use physical action when learning a word**
A. Never B. Seldom C. Sometimes D. Often E. Always
30. When I want to remember new words and build my vocabulary I **Repeat the words many times**
A. Never B. Seldom C. Sometimes D. Often E. Always
31. When I want to remember new words and build my vocabulary I **Write the words many times**
A. Never B. Seldom C. Sometimes D. Often E. Always
32. When I want to remember new words and build my vocabulary I **Make lists of new words**
A. Never B. Seldom C. Sometimes D. Often E. Always

33. When I want to remember new words and build my vocabulary I **Use flash cards to record new words**

- A. Never B. Seldom C. Sometimes D. Often E. Always

34. When I want to remember new words and build my vocabulary I **Take notes or highlights on physical objects**

- A. Never B. Seldom C. Sometimes D. Often E. Always

35. When I want to remember new words and build my vocabulary I **Put English labels on physical objects**

- A. Never B. Seldom C. Sometimes D. Often E. Always

36. When I want to remember new words and build my vocabulary I **Keep a vocabulary notebook**

- A. Never B. Seldom C. Sometimes D. Often E. Always

37. When I want to remember new words and build my vocabulary I **Use English language media (songs, movie, the internet)**

- A. Never B. Seldom C. Sometimes D. Often E. Always

38. When I want to remember new words and build my vocabulary I **Test myself with word tests**

- A. Never B. Seldom C. Sometimes D. Often E. Always

39. When I want to remember new words and build my vocabulary I **Study new words many times**

- A. Never B. Seldom C. Sometimes D. Often E. Always

Almost done!

If you are willing **to participate in an interview**, please leave your Email address below.

.....

Thank you so much for your time.

Appendix B

Semi-Structured Interview Prompts

A. Interviewee background Information

1. What do you study?
2. How long have you been living in the US?
3. How long have been learning English?

B. Interview questions about learning English and Vocabulary Strategies.

4. What activities did you do to improve your English during your stay in the US?
5. Have you been taught how to use vocabulary strategies to learn English vocabulary? if yes, where? and how?
6. What strategies do you use to discover the meaning of the new word? Can you explain more and give me an example, please?
7. What strategies do you use to help you remember the meaning of that word? Explain how? and Can you give me an example, please?
8. Do you study the new learned words over time to remember them? If yes, how?
9. Do you use any other strategies in learning vocabulary? Please, tell me about it?

Appendix C

IRB Approval

4/2/19, 7:08 PM

PRO-FY2017-83 - Modification: Approval - Modification

irb@memphis.edu

Mon 10/16/2017 1:30 PM

To: Ahmed A Alahmadi (alahmadi) <alahmadi@memphis.edu>; Teresa S Dalle (tsdalle) <tsdalle@memphis.edu>



Institutional Review Board
Office of Sponsored Programs
University of Memphis
315 Admin Bldg
Memphis, TN 38152-3370

Oct 16, 2017

PI Name: Ahmed Alahmadi

Co-Investigators:

Advisor and/or Co-PI: Teresa Dalle

Submission Type: Modification

Title: Vocabulary Size and Vocabulary Learning Autonomy and Strategies: An Investigation of Saudi Advanced ESL Learners in the U.S.

IRB ID : #PRO-FY2017-83

Level of Review:

Approval: Oct 13, 2017

Expiration: *

The modification is approved.

Approval of this project is given with the following obligations:

1. This IRB approval for modification 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.

**Modifications do not extend the expiration of the original approval*

IRB #: PRO-FY2017-83

Title: Vocabulary Size and Vocabulary Learning Autonomy and Strategies: An Investigation of Saudi Advanced ESL Learners in the U.S.

Creation Date: 9-4-2017

Status: **Review Complete**

Principal Investigator: Ahmed Alahmadi

Section 1 Modification Description

Reminder: Investigators can no longer submit a Modification WITH a Renewal. ALL Investigators are required to submit their Renewal separately --- New Submission > Renewal. For more information contact the IRB Administrator at (901) 678-2705 or at irb@memphis.edu.

Please proceed with the submission of your **Modification**.

What is being modified? Describe all the changes requested and provide a brief rationale for each.

Modification is needed for the title as a result of the slight change of the study instruments (questionnaire). The instruments will be used to investigate the most and least frequent vocabulary learning strategies used by Saudi advanced ESL learners as well as their perception of these strategies. In the second qualitative part of the research, semi-instructed interviews will be used to examine in depth the factors that affect Saudi advanced ESL learners' choice of vocabulary learning strategies in ESL setting and how these strategies vary based on the learning contexts (i.e., ESL vs. EFL settings)

Modified title: Vocabulary Learning Strategies by Saudi advanced ESL learners in the U.S.

Modified questionnaire: the questionnaire will be adapted from Schmitt's (1997) VLSQ (Vocabulary Learning Strategies Questionnaire), in order to explore the Saudi advanced ESL learners' use of vocabulary learning strategies.

1