CHAPTER TWO LITERATURE REVIEW

This chapter provides a review of the historical trends in vocabulary instruction, the development of vocabulary learning strategy taxonomies, and previous studies on vocabulary learning strategy instruction. Following Zimmerman's classification (2000), the role of vocabulary instruction throughout the history of important language teaching approaches is first reviewed. The taxonomy of vocabulary learning strategies proposed by Schmitt (1997) and six vocabulary learning strategies selected for instruction in the present study are subsequently presented. Finally, empirical studies of the effects of VLSI on high school students in Taiwan are reported.

Historical Trends in Second Language Vocabulary Instruction

The status of vocabulary has waxed and waned with the tide of teaching methods throughout the past two centuries. Prior to the 20th century, the Grammar Translation Method dominated in the second language learning. Vocabulary in the Grammar Translation Method was used to illustrate grammatical rules, learned by a bilingual list, and taught by definition and explanations of etymology. In the end of the 20th century arose a reaction against the Grammar Translation Method—the Direct Method, which gained its name from learning the L2 meaning directly with objects or the target language without the translation of the native language. Unlike those students in the Grammar Translation Method who learned literary words, students taught in the Direct Method were exposed to vocabulary that was relevant to everyday life (Zimmerman, 2000). Concrete vocabulary was explained through physical demonstration or with realia and pictures while abstract vocabulary was presented according to association of ideas or topic (Richards & Rodgers, 1992; Zimmerman, 2000). During the 1950s and 1960s, the Audio-lingual Method, which emphasized

learning language through practice and memorization of sentence patterns, prevailed over teaching methodology due to the increasing and urgent needs for aural and oral linguistic abilities. With the focus on practicing drills, new vocabulary was rationed, and only added to keep the drills viable (Zimmerman, 2000). During 1970s and 1980s, lexical instruction was assumed to occupy the dominant role in the process of language acquisition due to the popularity of two meaning-based methods: Communicative Language Teaching and the Natural Approach. However, vocabulary teaching was once again placed in the subordinate role of language acquisition. The attention of Communicative Language Teaching was given to mastering functions appropriately in different L2 situations and connecting language to a larger discourse level rather than a sentence level (Schmitt, 2000). In the Natural Approach, lexical instruction highlighted the importance of interesting and relevant input; learners could acquire the lexicon naturally through considerable exposure to the target language like reading (Krashen & Terrell, 1983). These two meaning-based methods, like the previous approaches, assumed that L2 vocabulary, like L1 vocabulary, would "take care of itself" and provided little guidance for handling the acquisition of vocabulary.

However, since the 1990s, lexical instruction has received great attention (Nation, 2001; Schmitt, 1997). Many studies have been done to explore the characteristics of successful language learners (e.g., Gu, 1994; Gu & Johnson, 1996; Kojic-Sabo & Lightbown, 1999) and to investigate the effectiveness of different vocabulary learning and teaching methods (e.g., Hsu, 2004; Laufer, 2003; Lee, 1994; Li, 1998). Currently, one approach to fostering vocabulary learning that has attracted emerging attention is vocabulary learning strategies (Schmitt, 2000). There are several reasons why instruction of vocabulary learning strategies may be critical to L2 vocabulary learning. For one thing, from the observation of good and poor language learners, applying a variety of strategies to language learning seems to be a significant predictor of

language achievement (Gu, 1994; Gu & Johnson, 1996; Kang, 1997; Kojic-Sabo & Lightbown, 1999; Oxford, 1990). Provided that vocabulary learning strategies are explicitly instructed, they can be made available and used by less successful learners to bridge the gap between the good and poor learners; the successful learners can be more aware of applying appropriate strategies to language acquisition in different situations. For another, since no single teaching method can serve as the best one to all the English classrooms and to all the learners due to variations in learning environments and learners' needs, strategy instruction may help learners in most contexts by empowering them to learn in a more self-directed and effective way. For example, ESL learners, who are exposed to the second language every day in their daily life, can be assisted with vocabulary learning strategies (e.g., guessing from context and interacting with native speakers) in incidental lexical learning (Kojic-Sabo & Lightbown, 1999); EFL learners, who receive little input outside the classroom, may benefit from mnemonic strategies which help intentional lexical learning. Instruction of vocabulary learning strategies may also suit different learners' needs. For example, self-directed vocabulary learning strategies (e.g., keeping vocabulary notebooks and using dictionaries) can help build the lexicon of the students who major in business and those who major in engineering. More advanced language learners can acquire vocabulary through guessing from the context and confirming a word's meaning by analyzing word parts while doing extensive reading, and they can consolidate vocabulary through using it in communication. Low-achievers can use techniques such as "keywords" and "phonological analysis" to retain the meanings of vocabulary longer and more efficiently. Teaching vocabulary learning strategies, therefore, is encouraged in the literature (i.e., Blachowicz & Fisher,1996; Coady & Huckin, 1997; Hunt & Beglar, 2002; Nation, 2001; Oxford & Scarcella, 1994; Schmitt, 2000; Sökmen, 1997).

Vocabulary Learning Strategies

Learning strategies are defined by Oxford (1990) as "special actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 8). O'Malley and Chamot (1990) define them as "special thoughts or behaviors that individuals use to comprehend, learn, or retain new information" (p. 1). Therefore, vocabulary learning strategies can be viewed as skills or steps taken to enhance the comprehension and storage of words, and to facilitate the retrieval of these words from memory and the application of them in appropriate situations. A model of five essential steps of vocabulary learning was identified by Brown and Payne (1994, cited in Fan, 2003). The steps include:

(a) having sources for encountering new words,

(b) getting a clear image, either visual or auditory or both, of the forms of the new words,

(c) learning the meaning of the words,

(d) making a strong memory connection between the forms and the meanings of the words, and

(e) using the words. (p. 223)

According to Fan (2003), all vocabulary learning strategies are, to some extent, associated with these five steps.

In regard to a comprehensive list of vocabulary learning strategies, several researchers (e.g., Fan, 2003; Gu & Johnson, 1996; Nation, 1990; Schmitt, 1997; Stoffer, 1995) have attempted to develop a classification system when they investigated learners' strategy use. Stoffer developed a 53-item Vocabulary Learning Strategy Inventory (VOLSI), which was administered to 707 students at the university of Alabama. By factor analysis, those items could be further classified into nine categories: strategies involving authentic language use, strategies involving creative

activities, strategies used to create mental linkages, memory strategies, visual/auditory strategies, strategies involving physical action, strategies used to overcome anxiety, strategies used to organize words, and strategies used for self-motivation. Gu and Johnson (1996) established a questionnaire for their study of vocabulary learning strategies used by Chinese university learners of English. The total number of strategies in their study was 74 items clustered into: beliefs about vocabulary learning, metacogonitive regulation, guessing strategies, dictionary strategies, note-taking strategies, memory strategies (rehearsal and encoding), and activation strategies. In his study of Japanese EFL learners' use and perception of vocabulary learning strategies, Schmitt (1997) developed an extensive taxonomy, following Nation's (1990) discovery/consolidation distinction and Oxford's classification of learning strategies. Of the established systems, this one developed by Schmitt (1997) seems to capture the wide range of vocabulary learning strategies identified and "*has the advantage of being organized around an established scheme of learning strategies*" (Segler, Pain & Sorace, 2002, p. 413). As a result, Schmitt's taxonomy of vocabulary learning strategies is chosen as the instrument to examine students' strategy use in the present study.

Next section presents studies done based on Schmitt's categorization of vocabulary learning strategies, followed by discussion on the six learning strategies selected for instruction.

Schmitt's Taxonomy of Vocabulary Learning Strategies and Related Studies

Schmitt's (1997) taxonomy of vocabulary learning strategies (VLS), containing 58 items, is organized around two classification dimensions (Segler et al., 2002). First, four strategy categories were adopted from Oxford's (1990) classification scheme of six learning strategies. They were social, memory, cognitive and metacognitive

categories. Social strategies are strategies, which "*use interaction with others to improve language learning*," memory strategies, which "*relate new materials to existing knowledge*," cognitive strategies, which "*manipulate or transform the target language*," and metacognitive strategies, which "*involve a conscious overview of the learning process and making decisions about planning, monitoring, or evaluating the best ways to study*" (Schmitt, 1997, p. 205). Since Oxford's classification system was unsatisfactory to describe the kind of strategies used by an individual who discovers the meaning of a new word by himself or herself, Schmitt added a fifth category, Determination Strategies, to the taxonomy. In the second classification, following Nation's (1990) scheme, Schmitt made a distinction between the initial discovery of a word's meaning (Discovery) and remembering that word once it has been introduced (Consolidation). A clear overview of Schmitt's VLS taxonomy is presented in Table 1.

Based on this taxonomy, Schmitt (1997) investigated VLS used by 600 Japanese EFL learners, consisting of junior high, senior high, university students and adult learners. His study aimed to investigate the relationship between actual strategy use and perceived helpfulness. In the VLS questionnaire, the participants were required to determine whether they actually used a particular strategy or not and whether they perceived it helpful or not. The results indicated that six strategies "use of a bilingual dictionary," "written repetition," "verbal repetition," "saying a new word aloud," "studying the spelling of a word," and "taking notes in class" were reported to be both already used and helpful by Japanese learners of English.

Table 1. Excerpts from Schmitt's VLS Taxonomy

Dimension	Discovery	Consolidation
Determination Strategies	Analyze part-of-speech Analyze affixes, roots Check for L1 cognate Guess from context Consult dictionary Use word lists Use flash cards	--
Social Strategies	Ask teacher Ask classmates Group work	Teacher checks students' flash cards Group study and practice Interact with native speakers
Memory Strategies	--	Image of word meaning Connect to related words Connect to synonyms/antonyms Group words together within a storyline Study word sound/ spelling Keyword method Use cognates Use new words in sentences Use physical action Remember affixes and roots Remember parts-of-speech Use semantic maps Paraphrase word meaning
Cognitive Strategies	--	Verbal/written repetition Note-taking Flash cards Word lists Use vocabulary section in textbook Listen to tape of word lists Keep vocabulary notebook Put L2 labels on objects
Metacognitive Strategies	--	Test oneself with word tests Continue study over time Practice words/studying words over time Find more opportunities to get access to the target language (e.g. English songs, movies,newspapers)

Source: Adapted from Segler et al. (2002).

Parallel to Schmitt's survey procedures, Chen (1998) examined the vocabulary learning strategies used by 174 college freshmen and 81 senior high school students in Taiwan. The purpose of Chen's study was to compare Taiwanese learners' use and perceived helpfulness of vocabulary strategies with that of Schmitt's (1997) Japanese learners. The results showed some similarities. Both Taiwanese and Japanese learners considered using a bilingual dictionary an effective way of discovering the meaning of a new word. Regarding consolidation of words introduced before, both groups paid close attention to word's phonological or orthographical forms and believed relatively shallow strategies such as verbal and written repetition to be the most helpful. Such findings were in line with O'Malley's (1987) findings that Asian students persisted in using rote repetitive strategies to learn vocabulary.

Schmitt's (1997) and Chen's (1998) studies combined data from different educational levels. Yeh and Wang's (2004) study focused on vocabulary learning strategies used by senior high school students in Taiwan. Another purpose of their study was to identify the differences in strategy use between good and poor learners. Their participants were 271 twelfth-grade female students. A Vocabulary Level Test was administered to divide participants into good or poor learners, and a VLS questionnaire based on Schmitt's taxonomy was used to elicit information about the frequency of VLS used by participants on a 5-point Likert scale. The results were as follows: (1) cognitive strategies were the most frequently used while social strategies were the least frequently used; (2) the most frequently used strategies were related to rote repetition or the forms (i.e., orthographic and phonological forms) of a word; (3) the least frequently used strategies were the use of study aids, interacting with others, and dictionaries with L2 definition; (4) good and poor learners used vocabulary learning strategies in significantly different ways. Although both groups favored rote learning, good learners favored verbal repetition while poor learners favored written

repetition. Good learners tended to learn words in context while poor learners tended to learn words in isolation.

Yeh and Wang (2004) focused on frequency of strategy use. Tseng (2006) however argued that measurement by the frequency of strategy use failed to reveal the qualitative aspect of strategic learning and could not assess whether a learner was capable of applying a particular technique appropriately. In his model of motivational cyclic process of vocabulary acquisition, instead of viewing frequent use of strategies as the indicator of successful vocabulary learning, he further claimed that high frequency of strategy use, which indicated "unorganized or ineffective learning," had negative effect on vocabulary knowledge but mastery of strategies, which represented the quality of strategic learning, had positive effect on successful acquisition of vocabulary. As for the relationship between frequency and mastery, it was hypothesized that "the motivated vocabulary learning involvement" measured by frequency would have direct impact on the mastery level of vocabulary learning tactics used. As a result, in his model, frequency (how often) was distinguished from mastery (how well) to examine whether these two factors influence the level of vocabulary knowledge differently.

Chen's (1998), Schmitt's (1997), Tseng's (2006), and Yeh and Wang's (2004) studies provided self-reported information about EFL learners' vocabulary strategy use. As noted above, there is also a large amount of empirical research into the effects of vocabulary learning strategies on retention. According to Gu and Johnson (1996), so far most studies of vocabulary learning strategies have followed two trends: "memory strategies" and "learning vocabulary from context." These studies tended to focus on one particular strategy or to compare two strategies rather than exploring them as a whole (Schmitt, 2000). However, according to Lawson and Hogben's (1996) observation of language learners' behavior, learners seldom employed only one

certain technique; they typically combined various strategies when attempting to learn the meaning of new foreign language words. Therefore, in the present study, instead of focusing on one vocabulary strategy or comparison of two strategies, six vocabulary learning strategies were selected to be taught based on the literature of vocabulary strategy instruction. Below is a review on these strategies.

Vocabulary Learning Strategies Selected to Be Taught at the Present Study

Because English is a living language and its vocabulary is still growing, it seems impossible and overwhelming for teachers to teach all the words. Therefore, instruction of vocabulary learning strategies is more efficient for teachers than teaching every vocabulary item encountered (Nation, 1990). It may also be more beneficial for learners in the long run because once strategies are learned, language learners can continue to expand their vocabulary on their own and become independent word learners over time (Blachowicz & Fisher 1996; Oxford & Scarcella, 1994; Sökmen, 1997). The vocabulary learning strategies taught in the present study do not involve pure rote repetition. The use of them demands more learners' cognitive efforts and deeper processing. According to Cohen and Aphek (1981), and Ellis (1997), the more efforts learners invest in processing vocabulary, the more likely they are to retain it in memory. Gu and Johnson's (1996) study also revealed that the "shallow" strategy like visual repetition tends to be the strongest negative predictor of learning outcomes (vocabulary size and general English proficiency), in contrast to "deeper" strategies such as dictionary use, note-taking, and metacognitive strategies. Lawson and Hogben (1996), who investigated the effects of vocabulary strategies used by fifteen experienced language learners on retention of vocabulary, also discovered the superiority of the strategies involving elaborate processing over the repetition-based ones. Besides, as noted above, no single vocabulary learning strategy

would work in every case and for every student. As a result, in the present study six vocabulary learning strategies were chosen to be instructed to the students. The selected vocabulary learning strategies include "using dictionaries," "keeping vocabulary cards," "phonological analysis," "word-part analysis," "using keyword," and "using words in a context."

Using Dictionaries

A dictionary is the main reference resource for foreign language learners to check the meaning of a new word. In addition to meaning, a dictionary can offer linguistic information about a word such as its spelling, pronunciation, grammatical class, collocation, and related words. However, referring to a dictionary in reading was disapproved by some researchers (Haynes, 1993; Huckin & Bloch, 1993), worrying that the frequent lookup of a dictionary would interrupt the reading flow. Dictionary use is often regarded negatively by some language teachers who think that dictionary lookup keeps students from making effort to guess unknown words. Nevertheless, it is not easy for students to guess with high accuracy the meaning of new words encountered in reading. The use of dictionaries is also an important self-learning strategy in an EFL environment (Hunt & Beglar, 2002), yet dictionary lookup skills are often ignored by teachers (Waring, 2001) and viewed as no more than knowing alphabetical order. Several researchers (Nesi & Haill, 2002; Waring, 2001) have noted the complex nature of dictionary use and promoted instruction of knowing when and how to use dictionary effectively. By explicitly teaching dictionary skills, students can disentangle information in dictionaries and gain more control over their learning. Waring (2001) provides steps and techniques for teachers to instruct EFL students like Japanese students how to use bilingual dictionaries and gradually move on to monolingual dictionaries. He further suggests that the use of

bilingual dictionaries should not be prevented and can serve as a good start of promoting wise dictionary use for beginners and low intermediate learners, which paves the way for good practice with monolingual dictionaries.

Keeping Vocabulary Cards

The use of vocabulary notebooks or cards is widely advocated by many scholars (Hulstijn, 2001; McCarthy, 1990; Nation, 2001; Schmitt & Schmitt, 1995). Once designed correctly, keeping vocabulary notebooks or cards regularly can benefit language learners in two aspects: vocabulary memorization and self-directed learning. According to the studies summarized by Nation (1990), a word requires five to sixteen or more repetitions to be learned. With a portable vocabulary notebook or vocabulary cards, learners can deliberately and efficiently recycle unfamiliar words whenever and wherever they want to until they master them (Nation, 2001; Schmitt & Schmitt, 1995). Furthermore, helping students keep their own lexical notebooks can also aid autonomous learning and equip them with a life-long strategy for dealing with vocabulary outside the classroom (Schmitt & Schmitt, 1995). Because learners can plan, monitor, and evaluate their vocabulary learning at their own pace by using their own vocabulary notebooks or cards, the strategy may suit various needs and harmonize with learning styles which different learners may have. McCarthy (1990), Nation (2001), and Schmitt and Schmitt (1995) provide some inspiring ideas, activities, and techniques for teachers to help their students or for learners to set up their own word cards or notebooks. In the present study, vocabulary cards are favored over lexical notebooks because the use of cards has the advantage of reviewing words in varying order (Hulstijn, 2001; Nation, 2001). For example, a lexical entry which is "not known and in need of frequent rehearsal" can be put at the beginning of a vocabulary card package and may get more attention. When the unknown entry

gradually becomes well known to a learner, it can be removed to the end of the package or from the package. Generally, this rehearsal technique is to write down a word's form (its orthographic and phonological forms) on one side of an index card and to write other information on the other side, like its L1 translation, collocation, and example sentences. This technique can also be used together with other mnemonic strategies like the keyword method (see the section of using keyword for further explanation): on one side of a card a picture can be drawn to help establish the association between a word's form and meaning.

Phonological Analysis

Phonological analysis can assist learners in pronunciation of vocabulary correctly by using phonics, phonetics, and syllabification. Once learners are equipped with the knowledge of phonics—sound-letter corresponding rules, and phonetic symbols, they will be able to pronounce a word easily and independently (Huang, 1999). For language learners, knowing how to say words aloud is essential for them to communicate with others and may help them learn the words more quickly with better retention in a variety of ways such as verbal repetition, rhymes and phonetic spelling (Gu & Johnson, 1996; Huang, 1999; Nation, 2001; Oxford, 1990; Schmitt, 1997). In other words, the sounds of vocabulary can facilitate learners' memorization of its form and their later retrieval of its meaning via familiar sounds or rhythms. Furthermore, offering instruction of phonological awareness is especially important for EFL learners like those in Taiwan. Since in Chinese, a logographic language, words tend to be recognized by written forms and meanings instead of sounds, Chinese learners of English are likely to encounter difficulties in detecting, decoding and combining the sounds and syllables of the new English words encountered (Huang, Lin, & Su, 2004). Therefore, in Taiwan, phonics and K. K. (Kenyon & Knott)

phonetic symbols are required to be instructed in the school curriculum. However, among 272 participants from a technological university in Huang, Lin and Su's (2004) study, nearly 85 % of them indicated their needs for phonological remedial instruction. The results reported from the empirical studies done by Huang et al. (2004) and Hung (2004) lend support to more phonological analysis training above the junior high school level. The phonological analysis instruction helped Huang et al.'s students at technological university level effectively improve their letter-sound correspondence and significantly increased their vocabulary knowledge more than those without receiving PA instruction. In Hung's (2004) study, though the participants did not show significant improvement in the word production post-test, phonics instruction helped the vocational senior high school students gain more confidence in pronunciation of English words and memorization of English words.

Word-part Analysis

Many researchers (Blachowicz & Fisher, 1996; Nation, 2001; Nattinger, 1988; Thompson, 1958) propose that identification of morphological elements within words is an important skill for learning vocabulary. By analyzing the word parts such as prefixes, roots, or suffixes, learners can derive the meaning of a new word and memorize it effectively (Schmitt, 1997). For example, the target word *unforgivable* can be divided into three parts: a stem *forgive*, a prefix *un* meaning *not* and an adjective suffix *able*. Thus, by relating the familiar parts such as "un" (not) and "forgive" to the new word, a learner may infer its meaning correctly or remember it efficiently. According to White, Power and White (1989), through morphological analysis nearly 60% of words with four prefixes *un-*, *re-*, *in-*, *dis-* can be learned from the meaning of the base words. Nation's (2001) review of the studies on word forms in corpus further confirms the frequent occurrence of derivational affixes in English

vocabulary and the relatively limited number of useful affixes that can be attached to form numerous words. In view of these corpus findings, once introduced a small group of useful, accessible affixes and provided with an additional analytic technique, students are likely to enrich their vocabulary in a short period of time and develop the lifelong skill of lexical building. Since this strategy is efficient and teachable, word-part analysis deserves time and repeated attention (Nation, 2001). Several scholars (Blachowicz & Fisher, 1996; Nation, 2001; Taylor, 1992) provide principles, steps, and activities to train students' skills of morphological analysis.

Using Keyword

The keyword method is a mnemonic device of elaborating the link between a to-be-learned word's form and meaning via a familiar mediating word (Hulstijn, 1997; Nation, 2001). More precisely, it combines acoustic and imagery mnemonics (Atkinson, 1975). According to Hulstijn (1997), the keyword method comprises three stages:

(1) an L1 or L2 word is chosen as the mediator (or keyword) based on it's acoustic and/or orthographic similarity with the L2 target word;

(2) a strong association between the target word and the keyword must be constructed, so that the learner, when seeing or hearing the target word, is reminded immediately of the keyword;

(3) a visual image must be constructed combing the referents of the keyword and the target word, preferably in a salient or bizarre fashion in order to increase its memorability. (p. 204)

Consider the instance in which a student has to learn that the English word MELANCHOLY means *sadness*. In this example, Chinese "沒人可理" (me/lan/cho/ly) could be a suitable keyword on the basis of the pronunciation of the

target word. Then the learner may repeat saying the target word and the keyword together to form association. Finally, a learner is required to form a visual image of a sad little boy crying alone. Since the boy is cared about by nobody and therefore has a feeling of sadness, the image is strongly connected with the meaning of the target word MELANCHOLY. Later, when recall is prompted by the cue MELANCHOLY, the keyword 沒人可理 would be retrieved along with the keyword-based image involving a sad little boy cared about by nobody. The sound and the meaning of the target word, therefore, can be linked and then remembered more easily and effectively. The effectiveness of the keyword method has been demonstrated in many studies (see Hulstijn, 1997 for a review of those studies). However, to employ the keyword method effectively, learners need extended training and explicit instruction with this technique (Hall, 1988 cited in Nation, 2001). Fortunately, its standardized procedure makes it more teachable and trainable to students.

Using Words in a Context

Besides remembering the form-meaning association, a language learner has to further develop the skill of using words correctly and appropriately in the meaningful context due to the fact that vocabulary does not appear in isolation but in context. This strategy involves placing newly-learned words in a meaningful context, like a spoken utterance, written sentence, or story as a way of memorization (Gu & Johnson, 1996; Oxford, 1990; Schmitt, 1997). Oxford (1990) argues that this strategy is concerned with a form of association or elaboration, in which the new information is linked with a meaningful and personalized context. Schmitt (1997) views it as a way of consolidation of to-be-learned words in memory. Gu and Johnson (1996) categorize it into "activation strategies" and found positive correlations between vocabulary size and activation strategies. As for the role of production in vocabulary memorization,

the experiments done by Laufer (2003) and Webb (2005) revealed the superiority of productive learning (e.g., cloze exercises, sentence generation, composition writing) over receptive learning (e.g., looking up words in a dictionary, matching words with their meaning or definitions, guessing from context, and learning from L2-L1 word pairs) in vocabulary gains. The active production of vocabulary in context is also widely recommended in the literature (Carter & McCarthy, 1991; Gu & Johnson, 1996; Nation, 2001; Oxford, 1990; Schmitt, 1997; Sökmen, 1997). Some laboratory tasks confirmed the effectiveness of a story-formation (i.e., chaining) strategy on helping the participants commit words to memory more efficiently (McNamara & Scott, 2001). Through using words in context, learners can internalize and personalize the target words in a meaningful way. If students are not instructed the technique and given the chance to use words in a sentence or utterance, they may fail to use the right word in the right situations.

Yet to date, vocabulary learning strategy instruction has not been recognized by most of EFL teachers in Taiwan. Most of EFL teachers usually adopt the Grammar Translation Method in their classrooms where reading and grammar are emphasized and vocabulary is often taught through English-Chinese correspondence, or English definition (Su, 2003). It is thought that teachers' job is done once vocabulary is taught, and students will automatically memorize it without any difficulty; however, many students keep complaining that vocabulary learning is a nuisance for them. The literature also shows that vocabulary learning cannot be left to learners alone. Therefore, teaching vocabulary learning strategies may be a profitable way to help EFL students in Taiwan speed up their acquisition of English and learn English lexicon more effectively. In the next section, some empirical studies on the effects of VLSI in Taiwan are reviewed.

Previous Empirical Studies on Vocabulary Learning Strategy Instruction in Taiwan

A few researchers in Taiwan have conducted empirical studies on the effects of vocabulary learning strategy instruction (e.g., Chao, 2004; Hsu, 2004; Jiang, 2001; Li, 1998; Lin, 1999; Lu, 2002). Some of them compared the effect of one vocabulary learning strategy to another (e.g., Hsu, 2004; Li, 1998). Some of them examined the effectiveness of instructing combined vocabulary learning strategies (Chao, 2004; Jiang, 2001; Lin, 1999; Lu, 2002). In the present study, it is believed that no single strategy can suit all the learners and work in every case, so a variety of strategies should be introduced to students. Therefore, four empirical studies, which investigated the mixed approach to vocabulary learning strategy instruction (VLSI), are reviewed to show what has been known so far about VLSI in Taiwan's context.

Lin's (1999) Study

Lin's study aimed to evaluate the effects of explicit instruction of two types of vocabulary learning strategies: (1) the *vocabulary memory strategies*—"rote rehearsal," "imagery," "total physical response," "keywords," "syllabification," "word disassembling," and "phonics"; (2) the *vocabulary application strategies*—"checking the dictionary," "making the imperative sentences," "identifying the position the new words shown up in the example sentences in the dictionary," and "making phrases or sentences," as translated by Lu (2002). These two types of strategies were instructed to two groups of junior high students respectively.

Seventy-one eighth-grade students from two classes in junior high school were chosen to participate in this experiment. Between two classes existed no significant difference in terms of their scores in the IQ test and in the first monthly English achievement test. The two classes were assigned to two experimental groups: one

group receiving the seven selected vocabulary memory strategies (VMS group) and the other the six vocabulary application strategies (VAS group). Within the groups, the participants were further divided into three vocabulary levels: high, middle, and low according to their scores on the vocabulary pretest in order to compare the teaching effects on students with different vocabulary levels.

Two types of teaching materials were prepared and instructed to two groups respectively. One vocabulary achievement test, containing recognition and production of English vocabulary, was used to measure the progress the participants made after instruction. Three questionnaires were employed to examine their attitude toward vocabulary learning, their strategies applied to memorizing words, and responses to the vocabulary learning strategy instruction.

The overall research design of the study was divided into five phases: preparation, pre-test, instruction, post-test and data analysis. During the preparing period, the researcher designed two different teaching materials and did a four-week pilot study on two different classes of eighth-year junior high students. During the formal experimental period, both of the experimental groups took a vocabulary achievement test as the pre-test and filled in the questionnaire on the attitude toward vocabulary learning. Subsequently, the researcher instructed the VMS and VAS groups respectively during the morning study period for four weeks, eight hours in total. After instruction, the subjects were asked to memorize thirty words within 20 minutes, then do the post-test, and finish the attitude questionnaire. In addition to the attitude questionnaire, the VMS group was required to complete two more questionnaires on the strategies employed in memorizing new words and the feedback to the researcher's strategy instruction. Finally, all the data collected from the above instruments were analyzed by the SPSS statistical package to determine whether there was any significant difference between the results obtained before and after the

experiment and between two experimental groups.

The major findings are as follows. First, the VMS and VAS groups both made progress in the posttest, but no significant difference was observed in the average scores of these two groups. Within the groups, the participants of middle and low vocabulary levels made more progress in the vocabulary achievement test. Second, after VLSI, the participants in the VMS group showed more positive attitude toward vocabulary learning in the questionnaire and were more motivated by memory strategies than those by application strategies. Regarding the attitude the students of different levels held, there were no significant differences. Third, comparing the results in the questionnaire of vocabulary memory strategies before and after the instruction, the VMS group used strategies significantly more often and was more capable of using a variety of strategies after VLSI than they did before instruction. Fourth, among the instructed memory strategies, "rote rehearsal" was reported to be the most often used and the most effective, followed by "word part analysis," "syllabification," "phonics" and "keyword." "Keyword" was the strategy the participants felt the most interested in, followed by "total physical response," "imagery," "rote rehearsal," "word part analysis," and "syllabification." Most of them considered strategy instruction beneficial and vocabulary learning strategies essential to their language learning. It could be concluded that the VMS group held positive attitude toward vocabulary strategy instruction and seemed to be capable of employing a variety of strategies in memorizing vocabulary after the instruction.

Jiang's (2001) Study

The purpose of Jiang's study was to examine the vocabulary learning strategies employed by senior high school students with different English achievement levels before and after the instruction, and to investigate the effects of explicit VLSI.

Two intact classes of tenth-grade students from 2 different senior high schools were recruited in this study. The participants were 74 male senior high students and were divided into two groups: high- and low- achievement levels according to their scores in the English proficiency pretest. A *t*-test was performed to make sure that the English proficiency scores of the two groups were significantly different.

The study was conducted in the following steps. First, a proficiency test was administered to all the participants in order to categorize them into high- and low-achievers. Subsequently, the participants were asked to memorize Word List One and write down their strategies of memorizing the 12 target words in the list, and then to take Quiz One. Based on the successful vocabulary strategies the participants used to get correct answers in the quiz and related literature, the researcher designed teaching materials to instruct both groups vocabulary learning strategies: "acoustic method," "pictorial method," "keyword," "comparison," "blending method," "phonetic symbolism," and "morphemic analysis." After the fifty-minute instruction, following the same procedure as Quiz One, the participants spent 35 minutes memorizing another list of 12 target words, described the strategies they used, and took Quiz Two. In the end of the experiment, both groups finished the questionnaire on their responses to the instruction. Finally, all the data were analyzed through descriptive statistics, *t*-tests, and *z*-values to explore the differences between the high-achiever and low-achiever groups before and after VLSI.

The results are summarized as follows. First, before and after VLSI, the high-achiever (HA) students adopted a significantly larger number and more kinds of vocabulary learning strategies than the low-achiever (LA) students. Besides, the HA students did significantly better than the LA students in the vocabulary recall post-test after VLSI. Second, as for the effectiveness of adopting techniques, both HA and LA groups applied a larger number of successful vocabulary strategies to getting the

correct answers in the recall post-test after VLSI. On average, HA students outperformed LA students in using vocabulary strategies to recall the meaning and retrieve the spelling of the words. Moreover, the same techniques resulted in different effects on recognition and production parts of the vocabulary recall test. Third, as far as the performance of the students with the same level in the vocabulary pretest and posttest are concerned, the HA group made significant progress in the recognition of vocabulary, but not in the production; the LA group made no significant progress either in the recognition or in the production. Fourth, regarding the strategies adopted to memorize new words, though the HA group did not increase the number of techniques, they seemed to be capable of using the strategies more effectively after VLSI; though the LA group employed the strategies more frequently after VLSI, they did not gain higher grades in the post-test in comparison to their scores before VLSI. Fifth, in comparison with the results before VLSI, both HA and LA groups enhanced their effectiveness of adopting vocabulary strategies to memorize the meaning of target words, but not the spelling. The results were in line with vocabulary learning process: "learning a word productively is more difficult than learning it receptively" (Nation, 1990). Laufer and Goldstein's (2004) trial of four vocabulary test modalities also demonstrated that the ability to retrieve meaning precedes the ability to recall form. Sixth, in the questionnaire on the participants' response to the VLSI, both HA and LA groups expressed their appreciation toward VLSI and their interest in applying those strategies. It was concluded that these vocabulary learning strategies were more beneficial and effective than rote repetition.

Chao's (2004) Study

Following the similar research procedure to Jiang (2001), Chao (2004) explored the effects of using vocabulary learning strategies to instruct English abstract words

on the students with different proficiency levels. More precisely, the study aimed to examine six categories of linguistic strategies and six categories of applied linguistic strategies (Oxford, 1990) used by high and low English achievers in junior high school before and after instruction.

Ninety ninth-grade students in junior high school were recruited to attend this study and further divided into two sub-groups: high English achievers (HEA) and low English achievers (LEA) according to their average scores of three monthly English exam scores. Before the instruction, all the participants were asked to memorize 30 words in Glossary One within 30 minutes and then took Quiz One as a pretest, in which they also described the strategies adopted to memorize the words. Based on the effective skills adopted in Quiz One and in the literature, six linguistic strategies (word feature analysis, using dictionaries, the acoustic method, the pictorial method, the keyword method, and word compounding method) were chosen by the researcher to instruct the participants intensively. The instruction of vocabulary decoding strategies was implemented for 20 minutes in every English class for six weeks. After the instruction, Glossary Two with 30 target words was distributed to the participants to memorize, and 30 minutes later Quiz Two was held as a posttest. In the end of the study, the participants completed two questionnaires. One questionnaire was adapted from Lin (1999) and Jiang (2001) to investigate the participants' response to the abstract word instruction and the other was adopted from Oxford's Strategy Inventory for Language Learning (1990) to identify their strategy use in learning abstract words.

The overall findings include the following. First, after instruction, both HEA and LEA groups made progress in the receptive and productive tests, but the progress in the production of vocabulary did not reach a significant level. The difference between HEA and LEA groups in the performance of vocabulary tests was significant. This finding was in line with Jiang's (2001) study that HEA students benefited from VLSI

more than the LEA. It was suggested that the LEA might need more time and practice to mater the effective application of vocabulary strategies. Second, both groups also had a positive attitude to the linguistic strategy instruction and agreed that linguistic strategies were more helpful and effective than rote repetition in memorizing the target words. Third, as for the difference between HEA and LEA in the strategy use, the HEA group adopted a larger number and a wider variety of vocabulary learning strategies than the LEA group before and after the instruction. This finding supported Gu's (1994) and Jiang's (2001) findings that successful learners employed more and a wider variety of strategies than those poor ones. Regarding six categories of applied linguistic strategies adopted by the two groups, the significant differences between HEA and LEA existed in cognitive, compensation, and metacognitive strategies while no significant differences in affective, memory, and social strategies. To sum up, the students with different proficiency levels may employ vocabulary learning strategies to different degrees of effectiveness. It was recommended that teachers should take students' proficiency into consideration when introducing vocabulary learning strategies to students.

Lu's (2002) Study

In her report of an evaluation of the effects of vocabulary learning strategy instruction (VLSI) on junior high school students, Lu (2002) conducted a four-month qualitative study in order to further investigate the use of strategies by individuals in detail.

Fifteen ninth-grade students from junior high school were asked to participate in this study. In order to gain a clear picture of the effects of VLSI and the VLS use on students with different English proficiency levels, the participants were further divided into two sub-groups: High-level proficiency group and Low-level proficiency

group (hereafter HL and LL) according to their average scores in English achievement tests in the first semester.

The main instruments in this study were two different reading passages in the pretest and post-test, and a questionnaire on vocabulary memorization strategies. In each reading passage are eight target words for the participants to identify the meanings and detail the strategies adopted to memorize them. The questionnaire, which included the nine instructed strategies, was adapted from Lin (1999) to explore the use of the vocabulary learning strategies before and after the experiment.

The overall design of this study could be divided into pre-test, treatment, post-test, and data analysis. First, the pre-test of vocabulary comprehension and the questionnaire were administered to all the participants. During the four-month instruction period, the researcher selected nine vocabulary strategies and integrated them into vocabulary teaching. The instructed vocabulary strategies included (1) *cognitive methods*: "rote repetition," "word formation," "phonological analysis," "collocative patterns," and (2) *memory methods:* "imagery," "keywords," "physical responses," "word association," "placing new words into a context." After the instruction, the post-test of vocabulary comprehension and the questionnaire were administered. Besides tests, the researcher also interviewed participants to gain details of vocabulary strategy used by the participants for each word. The data collected from the above phases were analyzed qualitatively and quantitatively. The qualitative analysis was detailed and then confirmed by the quantitative analysis in order to have a thorough understanding of the effects of VLSI.

The results revealed that participants with different proficiency levels benefited from VLSI to different degrees. On the posttest, HL participants, who seemed to be more capable of adopting the new strategies to retain the meaning, significantly outperformed the LL ones, who made only slight progress. However, in the interview

with HL and LL participants, it was commonly agreed that VLSI could help them retain the meaning of vocabulary longer and memorize vocabulary more easily. With regard to the frequency of employing strategies, cognitive strategies involving rote repetition and phonological analysis were much more often used than memory methods before and after the treatment while memory methods were increasingly used after VLSI. This means after instruction, the participants gradually acquired those techniques and put them into practice while encountering new words instead of drawing upon repetition only. The total frequency of vocabulary strategies adopted by HL and LL participants increased. Eight out of the fifteen participants also made progress in the vocabulary comprehension test. The factors that facilitated the participants in constant practice of applying vocabulary strategies might be L1 equivalents (e.g., finding L1 keyword, matching L2 pronunciation to L1's sound, and memorizing collocative patterns in L1-L2 correspondence) and comprehensible input (e.g., using comprehensible imagery or physical responses to memorize unfamiliar word forms, guessing the word meanings from the known word parts, and grouping words with similar features together). It was concluded that VLSI could motivate students to learn English and teachers should integrate vocabulary strategy training into their syllabus.

Summary

Summary of these four empirical studies is presented in Table 2. From the results of the above four empirical studies, it can be concluded that VLSI can assist vocabulary learning among students of different proficiency levels, and motivate students to learn English. However, there are some limitations in those studies. First, most of those studies focus on the instruction of vocabulary mnemonic strategies and ignore the fact that vocabulary learning is a life-long process; therefore, self-learning

strategies (e.g., keeping vocabulary notebooks, dictionary use) are important for learners. Second, in Lin's (1999), Jiang's (2001), and Chao's (2004) studies, a short period of time (no more than thirty-five minutes) was given to the students for memorization of a list of the target words and the immediate posttests were held; therefore, the students' performance may have been largely determined by their short-term memory capacity. This does not address the essential of vocabulary learning—a long-term process. Third, none of those studies adopted a research design with one experimental group and one control group. It was not clear if the progress the participants made was truly due to the vocabulary learning strategy instruction. In the literature, it is commonly recommended that language teachers should instruct vocabulary explicitly to learners and integrate vocabulary learning strategy instruction into their syllabus rather than let the learners deal with vocabulary by themselves. However, EFL students in Taiwan are seldom taught how to increase and consolidate their vocabulary knowledge outside the classroom. Their lack of self-study learning strategies may gradually demotivate them from learning English. Thus, research is needed to explore if VLSI can be applied at the senior high school level in Taiwan and whether VLSI can improve vocabulary learning of senior high school students. It is hoped that this study can shed light on how to help high school students learn vocabulary more effectively, reach the threshold of vocabulary size to read extensively, gain the autonomy of learning, and eventually be responsible for their learning outside the classroom.

Table 2. Summary of Four Empirical Studies on VLSI in Taiwan

Author/ *Thesis Title*	Instruction Period	Research Design: Vocabulary Strategies Instructed
Lin (1999) *The Effect of the Strategy Training of Memorizing English Vocabulary on Junior High Students*	4 weeks (2 hours per week)	Quantitative Study Two experimental groups: 1. Voc memory strategy group (*N* = 35): rote repetition, imagery, keyword, phonics, syllabification, total physical response, word part analysis. 2. Voc application strategy group (*N* = 36): listening and identifying words, dictionaries using words in a storyline, making sentences.
Jiang (2001) *Effects of Vocabulary Learning Strategy Instruction on Senior High Students with Different English Achievement*	50 minutes	Quantitative Study 74 participants from high-achievement and low-achievement groups all received the following VLSI: acoustic method, pictorial method, blending, keyword, comparison, phonetic symbolism morphemic analysis.
Lu (2002) *A Study of the Effects of Vocabulary Learning Strategy Instruction on Junior High School Students in Taiwan*	4 months	Qualitative Study 15 students received the following VLSI: rote repetition, imagery, keyword, collocation, using physical responses, placing new words into a context, phonological analysis, word formation, word association.
Chao (2004) *The Effects of English Abstract Word Instruction on High and Low English Achievers in Junior High School*	6 weeks (20 minutes per English class)	Quantitative Study 90 participants received the following VLSI: word feature analysis, acoustic method, pictorial method, keyword, using dictionaries word compounding.

Note. *N* = the number of the participants. Voc = vocabulary. VLSI = vocabulary learning strategy instruction.