# English Vocabulary Learning Strategies Employed byThai Tertiary-Levels Students with Different Genders and Levels of Vocabulary Proficiency

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*Abstract-* The present study aims to examine the vocabulary learning strategies employed by Thai-tertiary level students with different genders (female/male) and levels of vocabulary proficiency (high , moderate and low) . The VLS questionnaire was employed to elicit the data from 905 Thai EFL students studying in the Northeast of Thailand. Data analysis involved descriptive statistics, an Analysis of Variance (ANOVA) and the chi-square test. The results revealed that students' gender andvocabulary proficiency level affected their overall VLS use, use of VLSs by the category and the individual strategy levels.The variation patterns of students' VLS use were found in relation the two variables**.**

*Index Terms*- vocabulary learning strategies, gender, vocabulary proficiency

## I. INTRODUCTION

In the sphere of second language learning, vocabulary is an indispensable part of the four language skills. Without vocabulary, the skills of language learning including reading, writing, speaking and listening may not be successfully achieved (Zhi-liang, 2010). Mastery of vocabulary is very important for L2 learners as vocabulary can support them when they communicate in the target language. L2 learners who lack vocabulary knowledge may find it difficult to find the right words to communicate in the target language. They may, however, express their meaning with gestures and mere sounds. English vocabulary skill is considered a necessary skill that students studying at the tertiary level need to be equipped with, since so many textbooks and journals assigned to be read are written in English. According to Baba (2009), L2 learners are aware that their limited vocabulary will hinder a good quality of writing. They perceive the importance of vocabulary knowledge to their writing performance. When language learners are assigned to write a composition, vocabulary is a necessary tool for them to complete the task. If the learners have enough vocabulary items in their repertoire, they will be able to choose the right words to convey the meanings and their ideas in writing. Therefore, L2 learners need to have sufficient vocabulary knowledge so that they can perform at levels that are required for them to succeed.

"Vocabulary learning is one of the major challenges that foreign language learners face during the process of learning a language" (Ghazal 2010, p. 84). It is a continual process of encountering new vocabulary items in meaningful and comprehensible language contexts (Harmon, Wood and Kiser, 2009). Further, it is a more complex process than simply memorising the meanings of words because it encompasses seeing, hearing and using words in meaningful contexts (Bintz, 2011; Daniels and Zemelman, 2004). In the context of English teaching in Thailand, some Thai EFL students are taught to repeat the English words spoken and memorise the words' spelling and meanings in a teaching method which seems to be passive (Khuvasanond, Sildus, Hurford and Lipka, 2012). This may account for the inadequacy of vocabulary knowledge among some Thai secondary school students, which is then passed on through their tertiary-level education. However, there are other students who can tackle the vocabulary problems on their own. They seem to have sufficient vocabulary knowledge and are considered better English language learners. For these students, vocabulary learning strategies (VLSs) may help facilitate their vocabulary learning; as has been asserted by Nation (2001), a large and rich vocabulary can be acquired with the help of VLSs.

In the context of instruction in English as a foreign language in Thailand, a small number of research works have been carried out to investigate the students' VLS use. One research work conducted by Intaraprasert (2004) is considered a preliminary exploratory investigation into the types of VLSs that have been reported without any variables taken into account. Other research works by Siriwan (2007) and Suppasetseree and Saitakham (2008) have been carried out to examine whether the students' VLS use is related to a limited number of investigated variables. No empirical research work in the area of VLSs has been carried out in a wider context as in a tertiary level. The present study seeks to fill out the gaps by examining how tertiary-level students of different genders and levels of vocabulary proficiency deal with their vocabulary learning. Specifically, the present study aims to answer 1) What is the frequency of the VLSs reported being employed by tertiary level students of different genders and levels of vocabulary proficiency and 2) Do the students' choices of VLSs vary significantly according to two investigated variables? If they do, what are the main patterns of variation?

## II.    RESEARCH ELABORATION

### A. Terms Used in the Study

**-**Vocabulary Learning Strategies (VLSs)

The term 'vocabulary learning strategies' refers to any set of techniques including actions or mental processes that Thai students studying at the tertiary level report employing in order to facilitate their vocabulary learning with the purpose of enhancing their vocabulary knowledge.

-Tertiary-Level Students

The term 'tertiary-level students' refers to undergraduate students who have been studying in a regular programme provided by the four types of institutions which are the institutions offering formal education mainly for the tertiary level. They are public/autonomous public university, private college/ university, Rajabhat University and Rajamangala University of Technology.

-Students' Vocabulary Proficiency

The term 'students' vocabulary proficiency' refers to the students' vocabulary proficiency test scores which were rated as high, medium and low proficiency. The students' test scores were obtained through the researcher-constructed vocabulary proficiency test.

### B. Participants

As the population under this study was the students studying in the four different types of institutions (33 institutions) offering education for the tertiary level in the Northeast of Thailand, a stratified random sampling was employed to ensure that students studying in different types of institution would not be excluded. A total of 905 students from 11 out of 33 institutions participated in the study. The distributions of students within gender were 261 female and 644 male students. In regard to the levels of students' vocabulary, the 'Third Technique'suggested by Madsen (1983) was employed to classify the students into high, moderate and low vocabulary proficiency levelsbased on the scored obtain through the vocabulary proficiency test.  In this technique, the students' test scores were divided into three equal groups, the top scoring third, the middle scoring third and the bottom scoring third. Thus the proportion of the participants with high, moderate and low proficiency was well balanced as 302, 295,308 students, respectively.

### C. Instrument

In the present study 2 research instruments were employed; the VLS questionnaire and the vocabulary proficiency test.     In the questionnaire, a 4 point rating scale  in which 'never' was scored as 1, 'sometimes' was scored as 2, 'often ' was scored as 3 and 'always or almost always' was scored as 4, was employed to collect the data. The main VLS items were modified from Intaraprasert (2004) and Siriwan (2007). A few VLS items were modified from Schmitt (1997), Pemberton (2003) and Wink & Adulh (2007). 40 strategies altogether  were singled out from the VLSs proposed by the scholars mentioned above. Some were adopted without modification (16 items), while the others were adapted (24 items). Alpha Coefficient ($\alpha$) was used to estimate the internal consistency of the questionnaire. The reliability estimate based on 905 students of the whole set of VLS items was .94. Reliability was also estimated for VLS items in each of three analytic categories; DMV, EKV and RKV. Based on 905 students, these reliability measures were .81,.88 and .86. Therefore, the reliability estimate of the whole set of VLS items as well as the items in each of the categories was considerably higher than the acceptable reliability coefficient of .70, which is the rule of thumb for research purpose (Fraenkel and Wallen, 2000).

With regard to the vocabulary proficiency test (VPT), Thornbury (2007) has suggested that to construct any vocabulary test, the various aspects of word knowledge must be involved. The VPT was designed to assess students' vocabulary knowledge in as many aspects as possible, for examples, word association, synonym, antonym, polyseme, vocabulary in contexts of sentences, paragraphs, and entire passages. In the VPT, a variety of test formats was designed to assess the students' vocabulary proficiency level, i.e., multiple-choice, matching the right meaning, finishing the sentence, word substitution, multiple-choice paraphrasing and gap-filling. In selecting the acceptable test items of the VPT, the content validity, test reliability, level of difficulty and the power of discrimination of the test items were taken into consideration. In terms of the content validity, the VPT was accepted by 5 experts in the field of English language teaching as appropriate to be used to assess the students' vocabulary proficiency level in terms of the test formats and test tasks.

In order to check the test reliability, level of difficulty and the power of discrimination of the test items, the draft of VPT containing 77 items were administered to 180 students whose characteristics were similar to those who subsequently participated in the main stage. Split-half method was employed to estimate the test reliability of the VPT. The result of the split-half procedure  was 0.78 which was above the acceptable criterion of 0.7 for test reliability as suggested by Fraenkel and Wallen (2000).  In relation to the level of difficulty and the power of discrimination of the test items, the "Third Technique" as mentioned earlier was employed to measure the item difficulty and the power of discrimination of the test items in the VPT. Only the test items which  met the criterion value of  0.20-1.00 for the level of difficulty and 0.20-0.80 for  power of  discrimination  as suggested by Garrett (1996, cited in Castillo, 1990) were accepted to be used  as final  test items in the VPT. 66 out of 77 test items were acceptable; however, 60 items were needed to be used  in the test the students' vocabulary proficiency.

### E. Procedure

The VLS questionnaire, as well as  the VPT was administered to 905 participants from 11 educational institutions. The VPT was administered first, followed by the VLS questionnaire.

### F. Analysis

Data obtained through the VLS questionnaire were analysed at three different levels: 1) overall VLS use; 2) use of overall VLSs by the three main categories, including the Discovery of Meaning or Other Aspects of Vocabulary Items (DMV), the Retention of the Knowledge of Newly-Learned Vocabulary Items (RKV) and the Expansion of Knowledge of Vocabulary (EKV); and 3) use of 40

individual VLSs.  Descriptive statistics (mean and its S.D.) was employed to describe the students' VLS use for two levels; overall VLS use and use of overall VLSs by the category level.  An analysis of variance (ANOVA) was performed to assess the overall mean frequency score of the strategy used in relation to 1) gender and 2) vocabulary proficiency. If there was a situation in which the researcher obtained significant differences among the variables with more than two levels, like levels of vocabulary proficiency, then the post hoc Scheffe's test was performed to pinpoint which pair was significantly different. The chi-square testwas performed to examine the significant variation patterns in students' reported VLS use at the individual VLS level by gendersandlevels of vocabulary proficiency. For the chi-square test facilitated by SPSS program, the responses of 1 and 2 ('Never' and 'Sometimes')  were consolidated into "low strategy use" category, while the responses of 3 and 4 ('Often'  and  'Always' or 'Almost always') were consolidated into "high strategy use" category.

## III.   FINDINGS

Findings are presented according to the three different levels of data analysis; the overall VLS use, use of VLSs by the three main categories and use of individual VLS use.  Each of the three levels is presented in according to students' gender and level of vocabulary proficiency, respectively.

### 3.1   Variation in the Students' Reported Overall VLS Use

Table 1. Summary of the Students' Reported Overall Reported VLS Use

| Variable | | Number | Mean | S.D. | Sig. Level | Variation Pattern |
|---|---|---|---|---|---|---|
| 1.Gender | Female | 644 | 2.29 | .40 | P<.001 | Female > male |
| | Male | 261 | 2.17 | .44 | | |
| 2.Vocabulary Proficiency | High | 302 | 2.44 | .39 | P< .001 | High>Moderate,High>Low |
| | Moderate | 295 | 2.20 | .38 | | |
| | Low | 308 | 2.13 | .40 | | |

As indicated in Table 1, the frequency of students' overall VLS use varied significantly according to gender. The mean frequency scores of female and male students were 2.29 and 2.17, respectively. That is, the female students reported employing VLSs significantly more frequently than their male counterparts in overall VLS use.  In respect of the vocabulary proficiency level, the ANOVA results reveal that the frequency of students' overall VLS use varied significantly according to this variable. The results of post hoc Scheffe's test reveal that students with high vocabulary proficiency employed VLSs significantly more frequently than those with moderate and low proficiency levels with the mean frequency scores of 2.44, 2.20 and 2.13, respectively. However, no significant differences in the use of VLSs were found between those whose vocabulary proficiency levels were moderate and low.

### 3.2   Variation in the Students' Reported Use of VLSs by the Three Categories

Table 2. Variation in the Students' Reported use of VLSs by the DMV, RKV and EKV Categories according to Gender

| Strategy Category | Female(n=644) | | Male(n=261) | | Sig. Level | Variation Pattern |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | S.D. | $\bar{x}$ | S.D. | | **Pattern of Variation** |
| 1) DMV | 2.52 | .49 | 2.41 | .52 | P<.01 | Female > male |
| 2)RKV | 2.12 | .41 | 2.01 | .46 | P<.01 | Female > male |
| 3) EKV | 2.36 | .43 | 2.23 | .46 | P<.001 | Female > male |

Table 2 reveals that significant variations were found according to gender. Female students reported employing VLSs significantly more frequently than their male counterparts in all three categories.

Table 3. Variation in the Students' Reported use of VLSs by the DMV, RKV and EKV Categories according to Levels of Vocabulary Proficiency

| Proficiency Level | High (n=302) | | Moderate (n=295) | | Low(n=308) | | Sig.Level | Variation Pattern |
|---|---|---|---|---|---|---|---|---|
| Strategy Category | $\bar{x}$ | S.D. | $\bar{x}$ | S.D. | $\bar{x}$ | S.D. | | |
| 1)DMV | 2.72 | .48 | 2.41 | .47 | 2.34 | .47 | P<.001 | High>Moderate, High>Low |
| 2)RKV | 2.25 | .42 | 2.04 | .40 | 1.97 | .43 | P<.001 | High>Moderate, High>Low |
| 3)EKV | 2.50 | .43 | 2.26 | .42 | 2.21 | .43 | P<.001 | High>Moderate, High>Low |

The ANOVA results in Table 3 present significant differences in the mean frequency scores of students' use of VLSs in all three categories according to the students' vocabulary proficiency levels.  The results of post hoc Scheffe's test indicate that students with high vocabulary proficiency employed VLSs significantly more frequently than those with moderate and low vocabulary proficiency

levels in DMV, RKV and EKV categories.  However, no significant differences in the use of VLSs were found between those with moderate and low vocabulary proficiency levels in all three categories.

### 3.3   Variation in the Students' Reported Use of Individual VLSs

Table 4. Variation in the Students' Reported Use of Individual VLSs according to Gender

| Individual VLS use | % of high use (3 or 4) | | Observed $x^2$ |
|---|---|---|---|
| **Used more by  female (12 VLSs)** | **Female** | **Male** | |
| **1.EKV7**  Attending classes of every module regularly to expand knowledge of vocabulary items | 81.2 | 74.3 | $x^2 = 5.34*$ |
| **2.DMV5**  Using a dictionary to discover the meaning or other aspects of vocabulary items | 70.7 | 49.0 | $x^2 = 37.84***$ |
| **3.EKV13** Singing or listening to English songs to expand knowledge of vocabulary items | 64.3 | 55.2 | $x^2 = 6.53*$ |
| **4.DMV6**. Asking friends to discover  the meaning or other aspects of vocabulary items | 55.2 | 47.5 | $x^2 = 4.69*$ |
| **5.EKV15** Practicing vocabulary translation from Thai into English and vice versa to expand knowledge of vocabulary items | 50.2 | 42.1 | $x^2 = 4.78*$ |
| **6.RKV 8**  Associating pictures to vocabulary items to retain knowledge of newly-learned vocabulary items | 45.2 | 36.8 | $x^2 = 5.36*$ |
| **7.DMV7** Asking teachers  to discover  the meaning or other aspects of vocabulary items | 42.1 | 34.9 | $x^2 = 4.03*$ |
| **8.EKV4** Studying vocabulary section in one's textbook to expand knowledge of vocabulary items | 39.0 | 29.5 | $x^2 = 7.21**$ |
| **9.EKV10** Watching English programme channels or listening to English radio programmes to expand knowledge of vocabulary items | 37.7 | 29.5 | $x^2 = 5.51*$ |
| **10.EKV11** Surfing the Internet especially the websites for vocabulary learning to expand knowledge of vocabulary items | 37.0 | 24.5 | $x^2 = 12.92***$ |
| **11.EKV 6** Doing extra English exercises or tests from different  sources, such as texts, magazines, internets, etc. to expand knowledge of vocabulary items | 32.9 | 24.1 | $x^2 = 6.77**$ |
| **12.RKV 14** Recording the words/phrases one is learning   and playing them to oneself whenever one has some spare time to retain knowledge of newly-learned vocabulary items | 18.6 | 8.8 | $x^2 = 13.47***$ |
| **Used more by  male (1 VLS)** | **Male** | **Female** | |
| **1.RKV 4**  Looking at real objects and associating them with vocabulary items to retain knowledge of newly-learned vocabulary items | 32.2 | 24.1 | $x^2 = 6.29*$ |

**Note :** *P<.05, ** P<.01, *** P<.001

     Table 4 reveals that a greater percentage of female students  reported significantly higher use of 12 VLSs than their male counterparts. Meanwhile,   a greater percentage of male students  reported  significantly higher use of 1 VLS than their female counterparts. It is **'**_Looking at real objects and associating them with vocabulary items to retain knowledge of newly-learned vocabulary items'_ (RKV 4).Among the 13 VLSs of which significant differences were found according to gender, 2 VLSs were reported  high frequency of use by more than 50 percent of the female and male students.  These include_'Attending classes of every module regularly to expand knowledge of vocabulary items'_(EKV7), (DMV 5) and _'Singing or listening to English songs to expand knowledge of vocabulary items'_(EKV13).

### 3.4   Variation in the Students' Reported Use of Individual VLSs

Table 5. Variation in the Students' Reported Use of Individual VLSs according to Levels of Vocabulary Proficiency

| Individual VLS use | % of high use (3 or 4) | | | Observed $x^2$ |
|---|---|---|---|---|
| Used more by Hi>Mo>Lo   (Positive  27  VLSs) | Hi | Mo | Lo | |
| **1.EKV 7** Attending classes of every module regularly to expand knowledge of vocabulary items | 87.4 | 77.3 | 73.1 | $x^2=20.21$*** |
| **2.DMV5** Using a dictionary to discover the meaning or other aspects of vocabulary items | 76.2 | 62.4 | 54.9 | $x^2=30.95$*** |
| **3.EKV13** Singing or listening to English songs to expand knowledge of vocabulary items | 76.2 | 56.5 | 52.3 | $x^2=41.53$*** |
| **4.DMV 4** Surfing the Internet  to discover the meaning or other aspects of vocabulary items | 74.5 | 54.6 | 50.6 | $x^2=41.26$*** |
| **5.EKV 12** Watching an English-speaking film with subtitles  to expand knowledge of vocabulary items | 69.9 | 48.4 | 45.8 | $x^2=42.07$*** |
| **6.DMV 6**  Asking friends  to discover the meaning or other aspects of vocabulary items | 66.2 | 49.5 | 43.8 | $x^2=33.06$*** |
| **7.EKV 15**  Practicing  vocabulary translation  from Thai into English and vice versa to expand knowledge of vocabulary items | 61.9 | 42.7 | 39.0 | $x^2=36.83$*** |
| **8.DMV  2**  Guessing the meaning from contexts, such as   a single vocabulary, grammatical structure of a sentence to discover the meaning  of vocabulary items | 58.3 | 32.9 | 27.9 | $x^2=67.14$*** |
| **9.EKV 3**  Studying vocabulary items from advertisements, public relations, notices, traffic signs, etc. to expand knowledge of vocabulary items | 57.9 | 47.5 | 45.5 | $x^2=10.91$** |
| **10.DMV 3**  Guessing the meaning from contexts, such as   pronunciation and real situation to discover the meaning  of vocabulary items | 55.6 | 37.3 | 33.4 | $x^2=34.95$*** |
| **11.RKV 8**  Associating pictures to vocabulary items to retain knowledge of newly-learned vocabulary items | 52.6 | 39.7 | 36.0 | $x^2=18.1$*** |
| **12.EKV 10**  Watching English programme channels or listening to English radio programmesto expand knowledge of vocabulary items | 48.0 | 29.2 | 28.9 | $x^2=31.76$*** |
| **13.EKV 4**  Studying vocabulary section in one's textbook to expand knowledge of vocabulary items | 47.7 | 32.2 | 28.9 | $x^2=26.38$*** |
| **14.RKV 7**  Connecting  newly-learned vocabulary items to one's previous learning experience to retain knowledge of newly-learned vocabulary items | 45.7 | 26.1 | 20.5 | $x^2=50.03$*** |
| **15.RKV 9**  Associating the target word in English with a word that sounds similar in Thai language to retain knowledge of newly-learned vocabulary items | 45.7 | 34.2 | 29.2 | $x^2=18.73$*** |
| **16.RKV 5**  Using new words in writing | 43.4 | 20.3 | 19.8 | $x^2=54.45$*** |
| **17. RKV 6** Associating newly-learned vocabulary items with previously-learned ones to retain knowledge of newly-learned vocabulary items | 41.1 | 22.7 | 21.4 | $x^2=35.86$*** |
| **18. RKV 12** Using vocabulary items to converse with  teachers of English or native speakers of English to retain knowledge of newly-learned vocabulary items | 38.1 | 16.6 | 13.6 | $x^2=61.24$ *** |
| **19. DMV 8** Asking other people or native speakers of  English  to discover the meaning or other aspects of vocabulary items | 36.4 | 23.4 | 21.8 | $x^2=19.76$*** |
| **20.RKV13** Memorising with or without a word list to retain knowledge of newly-learned vocabulary items | 36.1 | 22.4 | 21.1 | $x^2=21.44$*** |
| **21. EKV2**  Reading different types of different English printed material e.g. leaflets, brochures, textbooks,  or newspapers | 35.4 | 21.4 | 21.1 | $x^2=21.12$*** |
| **22 RKV 11** Using vocabulary items to converse with friends to retain knowledge of newly-learned vocabulary items | 34.4 | 24.1 | 16.9 | $x^2=25.25$*** |
| **23. EKV1**  Playing English games, such as scrabble, crossword puzzles to expand knowledge of vocabulary items | 33.8 | 21.4 | 20.5 | $x^2=17.78$*** |
| **24. RKV 10** Reviewing previous English lessons to retain knowledge of newly-learned vocabulary items | 30.8 | 21.4 | 20.1 | $x^2=11.27$** |
| **25. RKV 1** Saying or writing the word with its meaning repeatedly to retain knowledge of newly-learned vocabulary items | 24.5 | 13.2 | 7.5 | $x^2=35.78$ *** |

Table 5. Variation in the Students' Reported Use of Individual VLSs according to Levels of Vocabulary Proficiency (cont)

| Individual VLS use | % of high use (3 or 4) | | | Observed $x^2$ |
|---|---|---|---|---|
| **Used more by Hi>Mo>Lo (Positive  27  VLSs)** | Hi | Mo | Lo | |
| **26. RKV 17** Grouping  words together according to the similarity of meanings, pronunciation, spelling or any other aspects  that can link the words to be grouped together to retain knowledge of newly-learned vocabulary items | 24.2 | 13.9 | 13.0 | $x^2 = 16.52***$ |
| **27. RKV 2** Saying vocabulary items in rhymes to retain knowledge of newly-learned vocabulary items | 15.2 | 10.5 | 8.8 | $x^2 = 6.68*$ |
| **Mixed :Used more by Hi>Low>Mo (9 VLSs)** | Hi | Lo | Mo | |
| **1.DMV 1** Guessing  the meaning by analysing the structure of words (prefixes, roots and suffixes) to discover the meaning  of vocabulary items | 52.0 | 32.1 | 28.8 | $x^2 = 40.22***$ |
| **2.DMV 7** Asking teachers  to discover the meaning or other aspects of vocabulary items | 46.4 | 38.6 | 34.9 | $x^2 = 8.50*$ |
| **3.EKV 8** Learning words through literature,  poems and traditional culture to expand knowledge of vocabulary items | 42.4 | 19.5 | 17.6 | $x^2 = 58.81***$ |
| **4.EKV11** Surfing the Internet, especially the websites for vocabulary learning to expand knowledge of vocabulary items | 39.1 | 32.1 | 28.8 | $x^2 = 7.38*$ |
| **5.EKV 6** Doing extra English exercises or tests from different  sources, such as texts, magazines, internets, etc. to expand knowledge of vocabulary items | 38.7 | 27.9 | 24.4 | $x^2 = 15.84***$ |
| **6.EKV14** Listening to English lectures, presentation, or English conversation to expand knowledge of vocabulary items | 37.1 | 21.4 | 20.0 | $x^2 = 28.01***$ |
| **7.RKV4** Looking at the real objects and associating them with vocabulary items to retain knowledge of newly-learned vocabulary items | 36.4 | 23.1 | 19.7 | $x^2 = 24.28***$ $x^2 = 8.95*$ |
| **8.RKV 14** Recording the words/phrases one is learning   and playing them to oneself whenever one  has some spare time to retain knowledge of newly-learned vocabulary items | 20.9 | 14.0 | 12.5 | |
| **9.EKV 9** Taking an extra job or getting trained by the companies where one can use English, such as  tour offices, hotels, etc. | 19.2 | 9.4 | 8.1 | $x^2 = 20.52***$ |

**Note :** *P<.05,  ** P<.01,   *** P<.001

The chi-square results in Table 5 reveal that the significant variations in students' use of 36 individual VLSs which were found according to vocabulary proficiency level can be presented into two main patterns of variation: 27 VLSs as 'positive' and 9 VLSs as 'mixed'.

The first variation is positive or 'Hi>Mo>Lo'.  This pattern indicates that a greater percentage of students with high vocabulary proficiency  reported significantly higher use of 27 VLSs than those with moderate and low vocabulary proficiency levels. Among 27VLSs of which significance differences were found, 11 VLSs were used to retain knowledge of newly-learned vocabulary items (RKV), 9 VLSs were used to expand knowledge of vocabulary (EKV) and 7 VLSs were used to discover the meaning or other aspects of new vocabulary items (DMV). Of the 27 VLSs with significant differences as positive variation pattern, 4 VLSs were reported with the high frequency of use by more than 50 percent of students with high, moderate and low vocabulary proficiency levels. They were *'Attending classes of every module regularly to expand knowledge of vocabulary items'*(EKV 7),*'Using a dictionary to discover the meaning or other aspects of vocabulary items'* (DMV 5),*'Singing or listening to English songs to expand knowledge of vocabulary items'*(EKV 13)and *'Surfing the Internet  to discover the  meaning or other aspects of vocabulary items'*(DMV 4).

The  second variation pattern is mixed or 'Hi>Lo>Mo'.  This pattern indicates that a greater percentage of students with high vocabulary proficiency reported significantly higher use of 9 VLSsthan those with low and moderate vocabulary proficiency levels. Among 9 VLSs of which significance differences were found, 5 VLSs were used to expand knowledge of vocabulary items (EKV), 2 VLSs were used to retain knowledge of vocabulary (RKV) and the other 2 VLSs were used to discover the meaning or other aspects of new vocabulary items (DMV).

## IV.DISCUSSIONS

### Use of VLSs and Gender

In the context outside Thailand, gender differences have been taken into consideration to study in relation to students' VLS Use. Many previous research studies found the relationship between students' gender and their VLS use (Gu, 2002; Catalan, 2003; Marttinen, 2008; Si-xiang, 2009; Zhi-lang, 2010; Cengizhan, 2011 and Alhaysony 2012). In the Thai context, gender differences have received little attention as a factor that might affect students' VLS use. In the present study, students' gender is one of the key factors

that is shown to have affected students' VLS use. The findings reveal that female students employed VLSs significantly more frequently than their male counterparts in overall VLS use, the three main categories  and the individual strategy level.   The findings are consistent with Siriwan (2007) who discovered that female students in Thailand employed VLSs with greater frequency than their male counterparts.

The first possible explanation can be made based upon the innate characteristics of female and male brains. Females and males are of equal intelligence; however, they are likely to operate differently as they seem to use different parts of their brains to encode memories, sense emotions, solve problems and make decisions (Zaidi, 2010).  According to Zaidi (2010), certain characteristics in the brain play important roles in female and male learning processes and language development.  Regarding the regions of the brain that play important roles in visual processing and storing language and personal memories, apart from being bigger in volume, the frontal and the temporal areas of the cortex  are more precisely organised in female's brain. This contributes their better language learning and predisposes female students as a whole to be more strategic vocabulary learners than their male counterparts.

Another possible explanation might be attributable to the female and male cognitions. Males and females have different cognitive profiles (Baron-Cohen, Knickmeyer, and Belmonte, 2005). Concerning a visual link to learning, male learners tend to rely more on pictures and moving objects for word connections than female learners (Gurain, 2006). One VLS which is directly related to visual connections is, *'Looking at real objects and associating them with vocabulary items to retain knowledge of newly-learned vocabulary item'* (RKV 4). Not surprisingly, it was found in the present study  that male students reported employing this VLS significantly more frequently than their female counterparts. On the other hand, females  were found to be better than the males in verbal skill (Baron-Cohen et al.,2005) Some VLS items in the VLS questionnaire rely on the students' verbal skill, such as   *'Saying or writing the word with its meaning repeatedly, 'Saying vocabulary items in rhymes, 'Singing or listening to English songs'.* The better verbal skill in female than male students which is used in vocabulary learning may explain why females employed a greater variety and a higher frequency of VLSs than their male counterparts.

A popular belief is that females are better L2 learners than males. If so, it probably resulted from the development of more effective social interaction skills and strategies in female than male students (Hall, 2011). The VLS, '*Asking teachers to discover the meaning or other aspects of vocabulary items'* was employed significantly more frequently by female students than their male counterparts at individual strategy level. There are other strategies that rely on the students' social interaction skill, such as *'Using vocabulary items to converse with friends', Using vocabulary items to converse with  teachers of English or native speakers of English', 'Asking other people or native speakers of  English for the meanings or other aspects of  vocabulary item's'.* The more effective social interaction skills and strategies in female than males could be another possible explanatory factor  for the observation that females  employed more variety and at a  greater frequency of VLSs than their male counterparts.

More possible explanation for the significant differences that were found is the linkage between gender difference and learning style. Learning styles may result from personal disposition, choice, previous learning experience and are not wholly innate and not completely fixed (Hall, 2011). Females show a higher preference for auditory learning styles (Sabeh et al., 2011).  Males are likely to learn less by listening.  Many VLSs in the present study rely on aural skills, such as *'Watching English programme channels or listening to English radio programmes'*, *'Watching an English-speaking film with subtitles','Recording the words/phrases one is learning  and playing them to oneself whenever one have some spare time', 'Listening to English lectures, presentation, or English conversation'.* Auditory-oriented learning style preferred by female studentsmight be the explanatory factor  that contributes the more variety and  greater frequency  of VLSs that are used.

We might say that VLSs play a significant role in assisting students to develop vocabulary skills and gender differences are obviously connected to the differences between male and female use of VLSs.  English language teachers need to understand and be aware of the differences between female and male VLS use and their unique development in vocabulary learning processes. For example, male students might not be able to gain greater benefits from vocabulary learning processes that require verbal repetition, cooperative learning, oral and aural practices as much as female students. However, practice with visual connections needs to be introduced and supplemented for male students as they seem to respond better with this learning process.

*Use of VLSs and Vocabulary Proficiency*

Vocabulary knowledge has received attention by previous researchers as a factor influencing students' VLS use.  Considerable research works support the link between students' vocabulary knowledge and their VLS use. (Siriwan, 2007; Lachini, 2008; Hamzah, Kafipour and Abdullah, 2009; Kafipour, Yazdi, Soori and Shokrpour,  2011; Waldvogel, 2011; and Tilfarlioglu  and Bozgeyik, 2012). The findings of these previous studies have revealed the differences in VLS use between students with high and low vocabulary knowledge. The findings of the present study are consistent with the previous research works mentioned above in that students with high and low vocabulary knowledge reported employing VLSs differently. The possible factors  are discussed below;

The first possible explanation  is that the students who already have a high vocabulary proficiency are presumably more motivated. According to Ushioda (2008), good language learners are motivated. Motivation is dealing with 'what moves a person to make certain choices, to engage in action, and to persist in action' (p.19). In the present study, a greater percentage of students with high vocabulary proficiency reported high use of 36 VLSs than those with moderate and low vocabulary proficiency. This implies that high vocabulary proficiency students are likely to have personal motivation  that drives them to engage in actions or behaviors regarding vocabulary learning  and persist in these actions or behaviors more frequently.  Students' motivation has also been found to be positively correlated with their VLS use (Fu, 2003; Marttinen, 2008). Motivation is considered one of the three essential variables on which good language learning depends (Rubin, 1975). In the present study personal motivation is assumed to be one of the factors that drive high vocabulary proficiency students to employ VLSs significantly different from moderate and low vocabulary proficiency ones.

Another possible explanation for the higher use of VLSs by students in high-proficiency group is their learning style. 'Learning styles are moderately strong habits rather than intractable biological attributes, and thus they can be modified and extended' (Reid, 1987, p.10). Chapelle and Roberts (1986) point out that good language learners are flexible to adapt their learning style to the needs of a given situation or task, while less successful language learners are less likely to adapt when specific need arises and more likely to persist with a particular style. It can be clearly seen by the VLS use at the individual VLS level that students with high vocabulary proficiency seem to be more adaptive in employing techniques or strategies to deal vocabulary items than those with moderate and low vocabulary proficiency levels.

More possible explanation is the high awareness of vocabulary learning of students in a high-proficiency group. When taking a closer look at the individual VLS level, it was found that a greater percentage of students with high vocabulary proficiency than those with moderate and low vocabulary proficiency levels try to put themselves in an environment where they can learn vocabulary items, such as *'Playing English games, such as scrabble, crossword puzzles to expand knowledge of vocabulary items'* (EKV1), *'Using vocabulary items to converse with teacher of English or native speakers to retain knowledge of newly-learn vocabulary items'* (RKV 12), and '*Taking an extra job or getting trained by the company where one can use English to expand knowledge of vocabulary item'* (EKV 9). Moreover, the high-proficiency studentss try to make use of the resources, including human and material resources to help facilitate their vocabulary learning. It can be seen that a greater percentage of students with high vocabulary proficiency level than those with moderate and low vocabulary proficiency levels reported significantly higher use of the VLSs, for examples, *'Asking friends to discover the meaning or other aspects of vocabulary items'* (DMV6), '*Asking teachers to discover the meaning or other aspects of vocabulary items'* (DM6), *and 'Surfing the Internet to discover the meaning or other aspects of vocabulary items* (DMV4). The high awareness of vocabulary learning in high-vocabulary proficiency students might provoke their high frequency and a variety of VLSs that are used.

## V.CONCLUSIONS AND IMPLICATIONS

The present study examined the VLSs employed by Thai-tertiary level students.It was found that gendersaffected the students' three levels of VLSs use. The results may shed some lights in terms of gender that gender-based VLS strategy training should be taken into consideration. English language teachers should supplement instructions to their male students with strategies dealing with picture-reliance, visual connectionsas they respond well with these learning skills. The female students should be encouraged to use VLSs that make full use of oral, aural and social skills as they have high possibility of success in learning with these skills. In terms of vocabulary proficiency, it was found that levels of vocabulary proficiency affected the students' three levels of VLS use. The high-proficiency group reported employing VLSs significantly more frequently than the moderate and low-groups. The two latter groups should be encouraged to beaware of how VLSs can help them increase their vocabulary, moreover,they should be motivated to make use of the resources including human and material resources to help facilitate their vocabulary learning. In addition, they should be introduced to be more adaptivewhen dealing with the vocabulary items.

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