

A Study on the Correlation Between English Vocabulary Learning Strategies and Breadth of Vocabulary Knowledge on Elementary Chinese English Learners

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Abstract: Vocabulary is the basic building block of language, and the acquisition of any language relies heavily on vocabulary knowledge. The use of vocabulary learning strategies is one of the main factors affecting vocabulary learning. In view of this, this study is an attempt to examine the correlation between the use of vocabulary learning strategies and breadth of vocabulary knowledge on elementary Chinese English learners. By ways of analyzing the data of the questionnaire and vocabulary level test, the author finds out that social/ affective strategy is the most popular strategy and is followed by metacognitive and cognitive strategies. A positive and significant correlation exists between these two variables and cognitive strategies have the most significant correlation among these three strategies. Based on these findings, elementary English learners are recommended to frequently use a variety of vocabulary learning strategies to increase vocabulary knowledge, especially cognitive strategies.

Keywords: Vocabulary Learning Strategies, Breadth of Vocabulary Knowledge, Correlation, Chinese English Learners.

1. Introduction

Lewis (1993) proposes that vocabulary acquisition is the central task of second language acquisition. Therefore, it is worthwhile to use some strategies to help English learners acquire vocabulary effectively and increase their vocabulary knowledge. Breadth of vocabulary knowledge, (i.e., the vocabulary size) is a good way to test their command of the vocabulary. Therefore, it is worthwhile to investigate the relationship between vocabulary learning strategies and breadth of knowledge. By doing that, we can better understand which vocabulary strategies are more effective for English vocabulary learning. However, previous studies are conducted to figure out this relationship by focusing on undergraduates and advanced English learners. Thus, little attention has been paid to elementary English learners. This study aims to fill in this gap by finding out the correlation between English vocabulary learning strategies and breadth of vocabulary knowledge on Chinese elementary English learners. Elementary English learners in this study refer to junior students in their first year in middle school in China. The present study is based on O'Malley and Chamot's classification of learning strategies and Gu and John's classification of vocabulary learning strategies. By ways of questionnaire and vocabulary level test, this study aims to figure out what vocabulary learning strategies were used by elementary English learners in China and in what ways the strategies correlate with their breadth of vocabulary knowledge.

2. Literature Review

2.1. Learning Strategies

Learning strategies, to put it simply, are behaviors and thoughts of learners in the learning process, which can make their learning more effective (Weinstein and Mayer 1986, O'Malley and Chamot 1990, Oxford 1990, Cohen 2000, Wen 1996). Based on cognitive psychology, O'Malley et al. (1990)

divided learning strategies into the following three categories: metacognitive strategies, cognitive strategies and social/affective strategies. Metacognitive learning is about knowing what to learn and how to go about learning it. Different from metacognitive strategy, cognitive strategy is about the specific method that people use to solve problems, including all sorts of reasoning, planning, arithmetic, etc. Social/affective learning strategies are the different mental and behavioral mechanisms learners use either to come to grips with emotional and socio-cultural challenges they encounter or to improve their learning capacities.

There are also other classifications raised by Oxford (1990) and Cohen (2000). The former divides it into direct strategies and indirect strategies according to whether the use of the strategy is directly related to the language being learned while the latter divides it into language learning strategies and language using strategies, which are based on the purpose of the use of the strategy.

Ellis (1994) once suggests that O'Malley and Chamot's taxonomy is useful and has been widely accepted. On their categorization, metacognitive strategies rank higher than the other two strategies and are used to evaluate, manage and monitor cognitive strategies and social/affective strategies. Direct strategies of Oxford are similar to O'Malley and Chamot's cognitive strategies. Indirect strategies contain the metacognitive and social/affective strategies of O'Malley and Chamot. In Oxford's view, there is no hierarchical relationship between direct and indirect strategies. Cohen's classification is distinct and concise, but it does not mention metacognitive strategies, which are essential in learning strategies. In addition, it is difficult to judge whether the learning behavior belongs to language use or language learning. Therefore, the present study adopts the classification of O'Malley and Chamot because it is more systematic and inclusive.

2.2. Vocabulary Learning Strategies

The classification of vocabulary learning strategies (VLS) is usually based on that of general learning strategies.

However, it still varies from one researcher to another.

Two dimensions of VLS are established in Gu and Johnson's (1996) research. These two dimensions are metacognitive regulation and cognitive strategies, which contain 91 vocabulary learning behaviors. The former strategies involve selective attention and self-initiation while the latter strategies cover six sub-strategies: guessing strategies, dictionary strategies, note-taking strategies, memory strategies by rehearsal, memory strategies by encoding and activation strategies.

Schmitt (1997, 2000) proposes two types of VLS: discovery strategies and consolidation strategies, which refers to Oxford's taxonomy of learning strategies. Hatch and Brown (2000) believe that vocabulary learning strategies can be divided into five basic steps, namely encountering new words, creating mental pictures of word form, learning the word's meaning, creating a strong link between the form and the meaning of words in memory and using words in collocations, dialogues, example sentences, and various contexts.

In summary, the taxonomy of Gu and John (1997, 2000) is concrete and comprehensive, covering various aspects of vocabulary learning. Schmitt's classification includes only the main vocabulary learning strategies based on the author's subjective estimation. Sometimes it is difficult to decide whether a procedure qualifies as an individual and independent strategy (Takac, 2008). Hatch and Brown (2000) only present the steps, and it is hard to judge at which step the learner's vocabulary learning is. Thus, this research mainly consults Gu and John's classification to study.

2.3. Breadth of Vocabulary Knowledge

Vocabulary knowledge refers to the breadth of vocabulary knowledge as well as the depth of vocabulary knowledge. As one part of the vocabulary knowledge, breadth of vocabulary knowledge (also known as BVK) refers to "the size of vocabulary or the number of words the meaning of which one has at least some superficial knowledge" (Qian, 2002: 515). Meanwhile, depth of vocabulary knowledge refers to "how well a learner knows a word" (Qian, 2002: 515). Qian (1999) argues that the depth of vocabulary knowledge should comprise pronunciation, spelling, meaning, register, frequency, and morphological, syntactic, and collocational attributes. Therefore, the measurement of depth is more complicated than that of breadth. Because depth involves various components of individual words. As Chinese elementary English learners' vocabulary knowledge is limited, depth of vocabulary knowledge will be difficult for them to acquire. At this stage, they only have a basic understanding of the meaning of the vocabulary they learn, so breadth of vocabulary knowledge is more suitable to be studied among this level's English learners.

Researchers have designed many tests to investigate the vocabulary breadth. The most widely used measurement is vocabulary level test (VLT). The VLT is designed to give an estimate of vocabulary size for second language learners of general or academic English (Schmitt et al., 2001), which includes the 2,000, 3,000, 5,000, 10,000 word level test, and the academic vocabulary test. From the 1980s to now, the VLT has experienced several different versions, and the various versions are a refinement of the original. Besides, there are also the first and second 1,000 words bilingual tests raised by Nation (2001), which are more suitable for elementary learners of English as a foreign language in this

study, because the meaning choices are the translation of the word. This study will adopt the first 1,000 words bilingual tests to investigate junior students' breadth of vocabulary knowledge.

2.4. Relevant Studies

At the very beginning, a large number of studies have been carried out on English vocabulary learning strategies. And these studies can be basically divided into two dimensions: the strategic investigation research in learning (Atkinson 1975, Cohen and Apehke 1980, Skehan 1989, Nation 1990) and the research on the use of vocabulary learning strategies (Wen Qiufang 1996, Wu Xia and Wang Qiang 1998, Wang Songchang 2011). Afterwards, some scholars began to realize that using the vocabulary learning strategy as the sole variable do not contain a lot of practical values, because different strategies will be adopted in learning and only know the status quo of the use of vocabulary learning strategies is not enough. As a result, some studies occur on investigating the relationship between vocabulary learning strategies and vocabulary knowledge.

At this field, Gu and Johnson's (1996) research into the relationship between vocabulary learning strategies and vocabulary learning ability is a ground-breaking study, which also provides a basic framework for conducting the present study. In their study, they assess the relationship between Chinese tertiary-level EFL students' frequent use of strategies and learning proficiency. Results demonstrate that vocabulary retention strategies are only positively correlated with vocabulary size test performance. Afterwards, Chinese scholars Wu and Wang (1998), Miao (2008) also study the vocabulary learning strategies of advanced English learners in college. Their results show that Chinese students apply a variety of strategies to acquire vocabulary and the correlation is discovered between vocabulary learning strategies and the quality and quantity of vocabulary knowledge. Besides, the use of multiple vocabulary strategies can effectively promote the growth of learners' vocabulary size, especially metacognitive strategies and cognitive strategies; students with different vocabulary size have significant differences in the use of vocabulary learning strategies.

In conclusion, some studies have already been carried out showing that there are certain correlations between vocabulary strategies and vocabulary size. However, whether this finding also suits to elementary English learners needs to be further testified. Therefore, the present investigation is designed to answer the following questions:

vocabulary learning strategies are frequently used by elementary English learners?

In what ways do vocabulary learning strategies correlate the breadth of vocabulary knowledge?

3. Research Methodology

3.1. Participants

Participants of this study are 93 students in grade two of a Junior High School in Zhejiang Province, with the average age of 14 years. Nine of them did not finish the questionnaires completely, so 84 valid tests were collected at the end. The reasons for choosing these two classes of this school are as follows: firstly, both classes are taught by the same English teacher with the same learning material and have the same English learning experience; secondly, grade two students in junior high school are relatively more representative than

grade one and three students. For one thing, they have a better command of English than grade one. For another, they are more suitable than grade three students for doing the research because they do not have the high pressure in preparing for high school entrance exam.

3.2. Instruments

3.2.1. Questionnaire

The questionnaire was adapted from O'Malley and Chamot's (1990) language learning strategy classification, Gu and Johnson's (1996) vocabulary learning strategy questionnaire and Wu Xia and Wang Qiang's (1998) classification of each strategy. To avoid participants' misunderstanding of the meaning of the item, the questionnaire is written in their native language (Chinese). In this study, vocabulary learning strategies are classified into metacognitive strategies, cognitive strategies and social/emotional strategies, with a total of 16 categories and 58 items.

The present questionnaire adopts a 5-point Likert Scale ranging from "totally disagree" to "totally agree". A total of 84 valid data are collected, and the scale is analyzed by Cronbach's Alpha coefficient. The value of reliability coefficient ranges from 0.00 to 1.00. The overall reliability of the questionnaire is .920, and the sub-item is .778, .889, .688. This indicates that the questionnaire has good internal consistency.

3.2.2. Vocabulary Level Test

Considering participants are only second-year junior high school students and their English proficiency is limited, the Vocabulary Level Test used in this study is the first 1000-word level bilingual test, which can be found at this website (<http://www.victoria.ac.nz/lals/about/staff/paul-nation>). On this test, students are required to pair the three of six words with the three Chinese definitions. In the score, each correct answer gets one point. Maximum possible score for the test is 24. Taking one cluster as an example.

- 1 could
- 2 during
- 3 this _____ 可以
- 4 piece _____ 在...期间
- 5 of _____ 为了
- 6 in order to

3.2.3. Data Collection and Data Analysis

The questionnaire and vocabulary test were conducted during a regular class period about 30 minutes. Before learners took the test, they had been told the purpose of the study and their performance on the test would not affect their course outcome. All the data were put into the SPSS 26.0 (Statistic Package for Social Science). The analysis was carried out in two steps. First, descriptive statistics was carried out to describe the specific score of each dimension of the vocabulary learning strategies. Second, the Pearson correlation test was performed to analyze the correlation between vocabulary learning strategies and the breadth of vocabulary knowledge.

4. Results and Discussion

4.1. Use of Vocabulary Learning Strategies

According to the data, the mean of each VLS is 2.67, 2.63 and 2.68, which belongs to the scope of middle degree with the description of sometime use (2.5-3.4), indicating that the majority of the students use learning strategies in a moderate frequency. This result differs from Wu and Wang's study (1998) showing that Chinese college students apply a variety of strategies ($M > 3$) to acquire vocabulary. According to them, the mean number over 3 in the 5-point Likert Scale indicates the strategy is frequently used.

Table 1. Descriptive statistics of VLS use of each category

Strategies	Mean	SD
Selective attention	2.93	0.88
Planning	2.33	1.07
Self-monitoring	2.64	0.90
Self-evaluation	2.58	1.03
Guessing	2.73	0.95
Dictionary	2.63	0.77
Note-taking	3.01	1.08
Repetition	2.95	0.95
Association	2.70	1.04
Imagery	2.11	1.01
Word-structure	2.41	1.01
Grouping	2.34	0.92
Contextualization	2.44	1.05
Practice	2.50	1.03
Social activity	2.39	1.05
Emotional regulation	3.03	1.20

From the table we can see that the preference of metacognitive strategies is: selective attention > self-monitoring > self-evaluation > planning.

Selective attention is the most frequently used in metacognitive strategies, which indicates that these students are able to predetermine specific aspects of input that require attention. It will make their study more efficient. Self-monitoring comes in second place, which means learners often review, check and monitor the learned vocabulary. However, self-evaluation and planning are not that frequently used, which implies that these subjects do not pay much attention to making and implementing the vocabulary learning plan. Also, they are not good at checking learning outcomes after the learning has been completed. That is accountable because junior high school students are more likely to attach great importance to the process of learning and they have not realized the importance of pre-learning (planning) and post-learning (evaluating). However, without planning and evaluating, they will not achieve great progress. As a result, teachers should emphasize the significance of these two procedures.

In all of the 10 cognitive strategies, except for the note-taking, the mean scores of other 9 strategies are all lower than 3, which means that the note-taking strategies are relatively more popular with students. According to the mean score of each item among cognitive strategies, the preference of use is: note-taking ($M=3.01$) > repetition ($M=2.95$) > guessing ($M=2.73$) > association ($M=2.70$) > dictionary ($M=2.63$) > practice ($M=2.50$) > contextualization ($M=2.44$) > word-structure ($M=2.41$) > grouping ($M=2.34$) > imagery ($M=2.11$).

Note-taking ranks first. The popular use of this strategy can be explained for the reason that referring to notes made by themselves will make the review easier. It also corresponds to the results in metacognitive strategies that students frequently adopt selective attention.

The traditional way of memorizing—repetition lies on the second place. For elementary English learners who have not mastered lots of strategies in learning, the frequent use of repetition is acceptable. However, the defect of this strategy is that when students adopt it unconsciously, their vocabulary learning is more likely to be a mechanical recitation.

Guessing is a relatively complex strategy, which includes determine the word class, analyze the word formation and context etc (Takac, 2008). This strategy is relatively widely used by them, so it is indicative that they are able to apply some knowledge learned in their studies to guess the word meaning. They also adopt the association strategies. By ways of connecting synonyms, antonyms, superordinate and hyponyms of the word, they build a connection between old and new words.

However, these learners do not consult the dictionary in that frequent way, especially in using the English-English dictionary. Practice strategies and Contextualization are not frequently used either, which means students are not good at putting the words into a certain context to use them. Word-structure analysis requires some knowledge of suffixes, roots and prefixes. The little use of this strategy shows that they lack this knowledge. Grouping and imagery strategies are the

least frequently used. These strategies require more demanding skills, like creating various vocabulary connections, using imagination. The little use of them shows these students' vocabulary learning are relatively simple and traditional. They have not mastered various strategies in vocabulary learning.

In terms of social/ affective strategies, these students are good at regulating their emotion while learning the vocabulary, with the mean score at 3.03. However, they tend to avoid the way of social activity to acquire vocabulary (with the mean score of 2.39). As we know, the purpose of acquiring the language is to communicate. The lack of proper English language environments may be one of the factors.

4.2. Correlation Between Vocabulary Learning Strategies and Breadth of Vocabulary Knowledge

According to the table below, it is observed that there is a significant positive correlation between learners' vocabulary learning strategies and breadth of vocabulary knowledge ($r = .515, p < .001$).

Besides, as shown below, cognitive strategies have the most significant correlation with the BVK ($r = .553, p < .001$). Significant correlation is also found between the social/affective strategies and breadth of vocabulary knowledge ($r=0.467^{**}$). The correlation coefficients between metacognitive strategies and breadth are 0.385^{**} .

Table 2. Correlations between three dimension and breadth of vocabulary knowledge

Strategies	Breadth of vocabulary knowledge	
	r	Sig.
Vocabulary learning strategies	0.515**	.000
Metacognitive strategies	0.385**	.000
Cognitive strategies	0.553**	.000
Social/affective strategies	0.467**	.000

(**. Correlation is significant at the 0.01 level(2-tailed))

With respect to each strategy, except for self-evaluation and imagery, other strategies are all correlated with BVK. It can be said that vocabulary learning strategies are correlated with the breadth of vocabulary knowledge to some extent.

At metacognitive dimension, self-attention significantly correlates with the breadth ($r = .407, p < .001$). That is reasonable because only when you know what kind of knowledge is important, will you be able to learn the knowledge more attentively and effectively. Weinstein and Mayer (1986) also present evidence emphasizing the central role monitoring plays in effective learning. The data correspond with their finding.

Among cognitive strategies, except for the imagery strategy, other strategies are all significantly correlated with BVK. The correlation between these two indicates that it is of great importance to adopt different cognitive strategies and combine them in vocabulary learning to improve the breadth of vocabulary knowledge.

To be specific, the positive correlation of note-taking is consistent with the finding of Gu and Johnson's (1996). That is, learners write down useful information they encounter to expand their vocabulary size. The finding in this study also confirms the results in Wu Xia and Wang Qiang' s study (1998), suggesting that repetition is a mechanical memory method, but it is an effective way for short memory. If learners often review the vocabulary knowledge in memory, they will

remember it deeply. According to Cohen and Apek (1981), association strategies are the deep processing of words. The more efficient application of this strategy, the better the vocabulary learning effect will be. Our results also correspond with this. Analysis of roots and affixes can be useful in guessing the meaning of new words, and it can also help to remember and use this meaning later (Schmitt, 1993). Apart from this, Fan Lin and Wang Qinghua's (2002) research also shows that grouping strategies can improve memory effect and enlarge vocabulary size. In view of the phenomenon that grouping strategies are not often used by the subjects, teachers should guide students to group words into different categories. Meanwhile, Gu and Johnson (1996) suggest that by learning words from context, we can obtain not only referential meaning, but also syntactic, pragmatic and even emotional information. Combining our results, we can safely draw a conclusion that learning vocabulary from context is also an effective way to improve BVK. Practice strategies also have a positive correlation with the breadth which are mainly employed to deepen and consolidate vocabulary knowledge rather than expand vocabulary knowledge.

In cognitive strategy, only the imagery strategy has no significant correlation with the vocabulary size. That can be accepted due to the reason that this strategy is the least used ($M=2.11$) among all these strategies. Since the students hardly

use it, how can it be beneficial for their learning?

The breadth of vocabulary knowledge is positively correlated with social/affective strategies. As Oxford (1990) said “language is a form of social behavior”. Therefore, social activity is the process of continuous input and output of words. Meanwhile, learners who know how to control their emotions and attitudes toward learning will get a good result. As a result, a good control over emotion may speed up vocabulary learning.

5. Conclusion

This study is aimed at investigating the use of vocabulary learning strategies among elementary English learners and its correlation between the breadth of vocabulary knowledge. The data show that the majority of the students use learning strategies at a moderate frequency and among the three strategies, social/ affective strategies are the most popular which is followed by metacognitive strategies. Different from other scholars’ findings (Wu Xia and Wang Qiang 1998, Wang Songchang 2011), cognitive strategies are the least popular among elementary learners. A positive and significant correlation surely exists between vocabulary learning strategies and the breadth of vocabulary knowledge. Cognitive strategies have the most significant correlation among these three strategies, followed by social/ affective strategies and metacognitive strategies. To be specific, selective attention, self-monitoring, guessing, dictionary, note-taking, repetition, association, word-structure, grouping, contextualization, practice, social activity and emotional regulation strategies have a significant correlation with the breadth of vocabulary knowledge.

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