

Vocabulary Learning Strategy Instruction with Chinese EFL Learners: An Intervention Study

Chunmei Yang

(Corresponding Author)

School of Translation Studies, Qufu Normal University

Rizhao, Shandong, China, Postal code: 276826

E-mail: chunmayyang@163.com

Xiaowu Liu

School of Computer Science, Qufu Normal University

Rizhao, Shandong, China, Postal code: 276826

E-mail: forpapersub@163.com

(Received: 31-7-13 / Accepted: 5-9-13)

Abstract

This paper reports an intervention study on vocabulary learning strategies in English as a foreign language (EFL) context. The strategy instruction was conducted with its integration into a first-year intensive English course which lasted 12 weeks. The subjects were 33 newly admitted Chinese university students majoring in English. A vocabulary test and a vocabulary learning questionnaire were administered at the beginning and the end of the instruction to elicit the subjects' information on vocabulary proficiency, vocabulary learning beliefs and learning strategies. The effectiveness of the instruction was examined by comparing the pre-test and the post-test data. The results showed that there have been increases in strategy use and vocabulary proficiency in the subjects. Thus the instruction is useful in bringing out better strategy use and better vocabulary learning for EFL learners unskilled at using vocabulary learning strategies.

Keywords: Vocabulary, learning strategies, strategy instruction.

1. Introduction

Vocabulary constitutes the basis of language comprehension and production and accordingly forms an important aspect of language learning. However, the question of how to conduct English vocabulary learning in an effective way confronts Chinese university students majoring in English. They often complain that they have a limited ability to use the words communicatively although they have devoted a large amount of time to vocabulary learning. Also, the researcher as a practitioner of EFL teaching is frequently asked this question.

Oxford (1990) contended that learning strategies are steps of enhancing learners' own learning and tools for active, self-directed involvement in language learning. This view is supported by O'Malley and Chamot (1990), Cohen (1998) and Macaro (2001). In addition,

research on learning strategy instruction has discovered that strategy training is effective in improving learners' task performance in reading, writing and vocabulary retention (Atkinson & Raugh, 1975; Graham et al., 1987; Weinstein, 1978). Thus the study assumes that if Chinese English majors are introduced vocabulary learning strategies in the first year of their university study, they will have a better idea of how to learn English vocabulary. With this hypothesis in mind, the researcher seeks to examine whether the instruction in vocabulary learning strategies promotes vocabulary learning by Chinese learners of English.

2. Theoretical Background

2.1 The Definition of Vocabulary Learning Strategies

O'Malley and Chamot (1990, p.1) described learning strategies as "the special thoughts or behaviors that individuals take to help them comprehend, learn, or retain new information." Adapted from the definition, this study defines vocabulary learning strategies in two ways. Broadly speaking, vocabulary learning strategies are the special thoughts or behaviors that learners employ to aid them in comprehending, learning, or retaining new words. Narrowly speaking, vocabulary learning strategies are the special thoughts or behaviors that learners use to assist them in learning new vocabulary items. What this study focuses on is the latter one. For the convenience of making clear what sort of vocabulary learning strategies is being denoted, the study names the vocabulary learning strategies in a broad sense vocabulary strategies and calls the vocabulary learning strategies in a narrow sense vocabulary learning strategies in the following part of the paper.

The reason this study defines vocabulary learning strategies from two perspectives is that it is necessitated to clarify what type of vocabulary learning strategies this study concentrates on. There has been a large amount of research into mnemonics, especially the keyword method (e.g. Atkinson, 1975; Atkinson & Raugh, 1975; Avila & Sadoski, 1996; Levin, Levin, Glasman & Nordwall, 1992; Pressley, Levin & Miller, 1982; Pressley et al., 1980; Pressley et al., 1982; Pressley et al., 1981), which is also regarded as one sort of vocabulary learning strategies. However, "the method has been investigated most extensively with respect to recall of definitions from vocabulary words" (Pressley, Levin and Delaney, 1982, p. 61). This has led to people's understanding that "vocabulary learning strategies have been tantamount to techniques that help commit (word) lists to memory" (Gu & Johnson, 1996, p. 644). But this study views differently. On one hand, it does not think that vocabulary learning is equivalent to memorizing form-meaning association because "learning a word includes much more than remembering the orthographic and phonological forms and their corresponding meanings...and vocabulary learning should aim toward vocabulary in action" (ibid, p. 659). On the other hand, it regards learning and retention as two separate processes. In a broad sense, retention can be seen as a kind of learning behavior because it is part of learning process. In a narrow sense, retention differs from learning because learning occurs prior to retention.

2.2 Research on Vocabulary Learning Strategies

Vocabulary learning strategies, being an important domain of learning strategies, have attracted the attention of language learning researchers. Their work mainly centers around four aspects: vocabulary learning strategies used by learners pertaining to a particular vocabulary learning task (e.g. Ding, 2006; Lawson & Hogben, 1996; Moir & Nation, 2002), vocabulary learning strategies in general use (e.g. Chen, 2001; Fan, 2003; Feng, 2003; Gu & Johnson, 1996; Sanaoui, 1995; Schmitt, 1997; Wu & Wang, 1998; Zhang, 2001; Zhang et al., 2003), the comparison of the effectiveness of vocabulary learning strategies (Brown & Perry, 1991; Zhang & Wu, 2002), and the gender difference in vocabulary learning strategies (Gu, 2002; Zhang et al., 2002).

The findings of the studies on vocabulary learning strategies can be summarized into five aspects. First, learners use strategies in their vocabulary learning. For example, repetition is

one of the strategies frequently used by learners in their vocabulary learning (Lawson & Hogben, 1996; Moir & Nation, 2002; Zhang *et al.*, 2003).

Second, there are differences in strategy use between successful and unsuccessful vocabulary learners. Successful vocabulary learners are characterized by a variety of strategies in stock and high frequency and high flexibility of strategy use (Fan, 2003; Gu & Johnson, 1996; Lawson & Hogben, 1996; Moir & Nation, 2002; Sanaoui, 1995; Wu & Wang, 1998; Zhang *et al.*, 2003). They can be described as follows: successful vocabulary learners have a scientific understanding of word knowledge. The L2 definitions, the pronunciation, the derived forms, and the appropriate usage of an unknown L2 word are all their concerns in vocabulary learning. They consult dictionaries for comprehension, or for learning, or for both (Fan, 2003; Moir & Nation, 2002; Wu & Wang, 1998). They often actively practise using newly learned words in speaking and writing activities either inside or outside class (Gu & Johnson, 1996; Moir & Nation, 2002; Sanaoui, 1995; Wu & Wang, 1998; Zhang *et al.*, 2003). They also regularly use guessing strategies (Fan, 2003; Gu & Johnson, 1996), note-taking strategies (Gu & Johnson, 1996; Sanaoui, 1995), context strategies (Gu & Johnson, 1996; Wu & Wang, 1998), reading strategies (Fan, 2003; Gu & Johnson, 1996; Sanaoui, 1995; Wu & Wang, 1998; Zhang *et al.*, 2003), grouping strategies (Wu & Wang, 1998), and reviewing strategies (Fan, 2003; Sanaoui, 1995).

Third, there is also a change in the pattern of strategy use as learners age. For example, there is difference in strategy use between first-year English majors and third-year English majors (Feng, 2003). For year-one English majors, they use English-Chinese monolingual dictionaries or electronic dictionaries, only pay attention to the Chinese meanings of English words and seldom use the newly learned words in their speech or writing. For year-three English majors, they use English-Chinese bilingual dictionaries or English-English monolingual dictionaries, activate the newly learned words in their oral or written tasks and use contextual knowledge to guess the meaning of unknown words. In addition, the change is found between learners of different age groups (Schmitt, 1997). The use of mechanical strategies like repetition, word lists and studying spelling of word decreases while the use of strategies involving deeper processing increases as learners mature. Obviously, the development of learners' strategies is typified as a dynamic process (Zhang *et al.*, 2003).

Fourth, some vocabulary learning strategies are detected to be positively correlated with vocabulary proficiency. For example, the use of dictionary strategies (Gu & Johnson, 1996; Wu & Wang, 1998; Zhang, 2001), note-taking strategies (Gu & Johnson, 1996; Wu & Wang, 1998), activation strategies (Fan, 2003; Feng, 2003; Gu & Johnson, 1996), reading strategies (Feng, 2003; Zhang, 2001), context strategies and grouping strategies (Feng, 2003; Wu & Wang, 1998; Zhang, 2001) and paying attention to word formation (Gu & Johnson, 1996) contributes to the improvement of vocabulary proficiency.

Fifth, some problems exist concerning learners' use of vocabulary learning strategies. On one hand, some learners do not have a comprehensive knowledge of what is involved in learning a vocabulary item (Moir & Nation, 2002). They think that being able to identify the form and know the L1 translation of an unknown L2 word will guarantee effective use of the word. On the other hand, some learners are not equipped with adequate and effective vocabulary learning strategies (Chen, 2001). They only focus on the L1 meaning of a new word when consulting dictionaries. They mainly depend on memorizing the L1 translation of an unknown L2 word to understand it without using context and semantic relations. Also, some learners do not prepare a suitable dictionary for vocabulary learning.

Based on these findings, researchers made suggestions that vocabulary learning strategies should be taught to language learners and instruction in vocabulary learning strategies should be conducted to help learners develop their own effective vocabulary learning strategies and improve the quality of their vocabulary learning (Chen, 2001; Fan, 2003; Gu & Johnson, 1996; Wu & Wang, 1998). In particular, great importance should be attached to vocabulary learning strategy instruction for EFL learners who are at the very beginning of their university education (Feng, 2003; Zhang *et al.*, 2003).

The findings are helpful to understand how learners learn vocabulary and improve the quality of vocabulary learning and teaching. What is more important is that the direction for future research on vocabulary learning strategies is made clear. However, there have been a very small number of intervention studies which aim at training language learners to learn vocabulary effectively in a second language or foreign language context.

Mizumoto and Takeuchi (2009) researched into the effectiveness of a 10-week instruction in vocabulary learning strategies with Japanese EFL university students. The study administered the same vocabulary test, vocabulary learning strategies questionnaire and motivation questionnaire at the beginning and the end of the strategy instruction for the analysis of the difference between the experimental group and the control group. The results indicated that the strategy instruction was useful in improving learners' vocabulary test score, frequency of strategy use, strategy awareness and intrinsic motivation. Also, it was found that different groups of learners reacted differently to the strategy instruction. Less frequent strategy users and moderate strategy users benefited the most from the learner training.

The findings of Mizumoto and Takeuchi (2009) confirm the teachability of vocabulary learning strategies and the usefulness of instruction in vocabulary learning strategies. But the effect of strategy instruction is influenced by learner factors including educational and cultural background, life experience, motivation and age (O'Malley & Chamot, 1990; Rees-Miller, 1993). Thus the effectiveness of instruction in vocabulary learning strategies with Chinese EFL learners needs to be addressed.

In China, few studies relating to the usefulness of instruction in vocabulary strategies have been done. Fan and Wang (2002) and Fan, Liu and Li (2008) are typical intervention studies done in China. The results of the studies showed that learner training resulted in increases in vocabulary proficiency and vocabulary retention skills. But these two studies focus on probing into the effectiveness of instruction in vocabulary memory strategies. The question of whether instruction in vocabulary learning strategies benefits Chinese EFL learners remains unanswered. Thus this study is designed to provide vocabulary learning strategy instruction to Chinese EFL learners with the purpose of analyzing the effectiveness of the learner training.

2.3 Research on Models of Learning Strategy Instruction

Learning strategy instruction can be divided into separate instruction and integrated instruction (O'Malley & Chamot, 1990). Separate strategy instruction is one type of strategy training in which all the training content is given to learning strategies. Rubin and Thompson (1982) is an example of separate strategy instruction. Integrated strategy instruction is another type of strategy training in which strategy training is combined with in such a way that it becomes fully part of language classroom teaching or content subject instruction. Jones et al. (1987), O'Malley and Chamot (1988) and Ellis and Sinclair (1989) play an exemplary role in how to perform integrated strategy instruction. Although the three models for integrated strategy instruction were applied in different language contexts, they followed a similar sequence of strategy training. Learners were first measured in terms of strategy use, then provided with strategy instruction and practice, and finally the support to employ the learning strategies was reduced so that they could grow into autonomous strategy users.

The difference between separate strategy instruction and integrated strategy instruction lies in the fact that whether strategy training is integrated into classroom teaching. The separate strategy instruction has the feature of abstracting learner training from classroom instruction. This way of training benefits learners to put all their energy to the training and gain a clear, deep and systematic understanding of learning strategies. But it does not provide learners with the opportunities to practise using learning strategies in authentic learning tasks. After all, the purpose of strategy training is to enhance learners' language proficiency through the use of learning strategies. For integrated strategy instruction, it is a different case because this way of instruction offers contextual support for learners. Through the combination of strategy instruction and language teaching, learners not only acquire the learning strategies they need but also learn when to use what strategy to deal with a particular task. In doing so, the

operationalization and effectiveness of learning strategies is improved. Thus this study adopts integrated strategy instruction.

3. Method

3.1 Research Questions

The study was designed to address the following questions:

1. How does instruction in vocabulary learning strategies affect learners' vocabulary learning beliefs?
2. Are there any differences in learners' strategy use after a 12-week instruction in vocabulary learning strategies?
3. Is instruction in vocabulary learning strategies conducive to the improvement of learners' vocabulary proficiency?

In this study, the working definition of vocabulary is active vocabulary, i.e. words commonly used in speech and writing.

3.2 Subjects

The subjects consisted of one intact class of 33 English majors enrolled in a first-year intensive English course at a university in China. They were newly admitted university students with an average age of 18. They have received 6-year instruction in English in middle schools before participating in the study. After the elimination of invalid data, 30 of these learners have been formally involved in this study.

To compare the effectiveness of strategy instruction, subjects are usually divided into an experimental group and a control group. But this was not the case in the current study. The reasons why there was a lack of an experimental group and a control group in this study are as follows: first, the instructional program did not permit the breaking up of the subjects; second, the researcher was the instructor of only one class enrolled in the first-year intensive English course; finally, it was difficult to find volunteers who were willing to act as a control group in parallel classes.

3.3 Instruments

The study employed three instruments for data collection by making reference to Fan *et al.* (2008). They were a vocabulary test, a vocabulary learning questionnaire and a strategy instruction feedback questionnaire.

The vocabulary test was used to collect information on subjects' vocabulary proficiency which was made up of two parts. The first part was word levels test. It adopted the 2,000 and 3,000 word levels test of Nation (1990) in the form of a word-definition matching format. The second part was word production test consisting of two tasks. For each tested word, subjects were first required to write down as many meanings as they knew and make up a sentence with its corresponding meaning, then write down its collocations and L1 translations. Subjects' pre-test vocabulary proficiency was measured by the vocabulary test. Their post-test vocabulary proficiency was evaluated by the vocabulary part of the course final exam and the vocabulary quizzes at the end of each course unit besides the vocabulary test. The vocabulary quiz was similar to the vocabulary test and the tested items were chosen from each previously learned unit.

The vocabulary learning questionnaire was designed to gather information on how the subjects approached the task of English vocabulary learning. It contained three parts. Part one was background information about the subjects. Part two was vocabulary learning belief questionnaire. Part three was vocabulary strategy questionnaire.

According to Nation (*ibid*, p. 30-31), in order to know a word for receptive and productive use, learners need to pay attention to four aspects: form (spoken form and written form), position (grammatical patterns and collocations), function (frequency and appropriateness), and meaning (concept and associations). The completeness and scientificity of learners' word knowledge is a prerequisite of their success in vocabulary learning. The range which learners' vocabulary beliefs cover determines the quality of their word knowledge. Thus the investigation into and the instruction in aspects of word knowledge became part of this study. The study gained an understanding of learners' vocabulary learning beliefs through subjects' responses to one question, i.e. "What do you think a learner of English as a foreign language needs to know in order to know an active vocabulary item?"

The vocabulary strategy questionnaire was used to obtain information of how the subjects learned English words. It was designed within the framework of O'Malley and Chamot's theory of learning strategies (1990). Considering the fact that the subjects had passed the National College Entrance Examination which is an authoritative exam in China selecting students for higher education, this study thought that the subjects had a good self-management ability. Thus it fixed its attention on cognitive strategies. The design of cognitive strategy items consulted the studies reviewed in the part of theoretical background. It consisted of 11 groups of strategies. They were strategies of word lists, repetition, doing exercises, reviewing, dictionaries (looking up for comprehension and for learning), note-taking, derivation, activation, guessing, grouping and reading. The subjects rated each strategy item on a 5-point Likert scale. After the completion of the questionnaire, a pilot study was conducted among a small group of learners to check whether there was inappropriateness. The internal reliability of the questionnaire was .713.

Before the description of the vocabulary learning questionnaire is finished, one point should be made clear that only those strategies taught in the learner training were emphasized in the post-training investigation of vocabulary learning strategies.

The strategy instruction feedback questionnaire was employed to elicit subjects' responses to the strategy instruction. It was compiled with consultation of the instruments of Fan et al. (2008). It was made up of three parts. Part one was general comment on the learner training, taking the form of multiple choice questions. Part two was concrete comment on the strategy instruction where the subjects answered each statement by writing down yes or no. Part three was an open question where the subjects stated their opinions of the strategy instruction.

3.4 Procedures

The study consisted of three phases. The first phase was a pre-test in which the subjects' vocabulary proficiency, vocabulary learning beliefs and vocabulary learning strategies were measured through the vocabulary test and the vocabulary learning questionnaire. It was administered in normal class time at the beginning of the strategy instruction by the researcher. The vocabulary learning questionnaire was first filled in. After its collection, the vocabulary test was written. The second phase was instruction in vocabulary learning strategies based on the results of the pretest, which will be explained in detail in the following part. The third phase was a post-test in which the subjects were not only reexamined on their vocabulary proficiency, vocabulary learning beliefs and vocabulary learning strategies with the same instruments as those in the pre-test but also their feedback on the strategy instruction was obtained. It was carried out in the last class of the course where subjects' vocabulary learning beliefs and vocabulary learning strategies were first measured and then their comment on the strategy instruction was obtained and finally their vocabulary proficiency was assessed.

3.5 Pre-test Measurement of Vocabulary Strategies

Before the instruction in vocabulary learning strategies started, the study measured the subjects' use of vocabulary strategies through the vocabulary learning questionnaire for the

purpose of selecting target strategies to be taught in the learner training. The results of the investigation are presented in Table 1.

Table 1: Descriptive statistics on each set of vocabulary strategies in the pre-test

Categories of strategies	Mean	S.D.	Categories of strategies	Mean	S.D.
Dictionary comprehension	3.30	0.69	Grouping	2.18	1.17
learning	3.02	1.06	Derivation	2.52	1.08
Note-taking	3.02	1.03	Repetition	3.31	0.73
Word lists	3.24	0.76	Reviewing	3.37	0.81
Guessing	2.74	1.02	Reading	2.67	1.09
Doing exercises	3.53	0.75	Activation	2.85	1.07

Table 1 displays the means on the use of each category of vocabulary strategies in the pre-test. The strategies stood in the first five places were doing exercises, reviewing, repetition, using dictionaries (for comprehension) and word lists. The strategies stood in the last five places were activation, guessing, reading, derivation and grouping. The results indicated that the subjects learned English words mainly through doing exercises, reviewing, repetition, using dictionaries for comprehension and word lists in their middle schools. They sometimes consulted dictionaries for learning and took notes. They seldom practised using newly-learned words, used their background knowledge to make inference, read a variety of English materials, applied morphological knowledge in their vocabulary learning and classified words into groups.

It is clear that the frequency of strategy use by the subjects was not high and their repertoire of vocabulary strategies was limited. Among the five frequently-used strategies, four of them are surface processing strategies. Since the subjects have shouldered a new role of being English majors, they would face more challenging learning tasks and higher learning objectives. Their current state of strategy use would not meet the demands of learning as English majors. Thus they badly needed the instruction in vocabulary learning strategies.

3.6 Implementation of Instruction in Vocabulary Learning Strategies

The instruction in vocabulary learning strategies was conducted in a context of a first-year intensive English course in the first semester of school year 2012-2013. The intensive English course is a comprehensive course for developing English majors' skills of listening, speaking, reading and writing. Vocabulary teaching occupies a large proportion of the course which emphasizes learners' ability to use English words for production. It is mainly through this course that English majors' vocabulary proficiency is developed.

In accordance with the strategy use by the subjects and the features of vocabulary learning specified by the intensive English program, this study selected dictionary strategies (for learning), note-taking strategies, derivation strategies and activation strategies as target strategies for learner training to supplement the subjects' repertoire of vocabulary learning strategies. The decisions were made out of the following considerations.

First, the development of learners' strategy use is a dynamic process (Schmitt, 1997; Zhang *et al.*, 2003). The instruction in dictionary strategies (for learning), note-taking strategies, derivation strategies and activation strategies could satisfy the learners' needs in the first-year learning as English majors. And these four strategies are core strategies penetrating the process of vocabulary learning for production at different stages.

Second, the studies reviewed in the part of research on vocabulary learning strategies discovered that these four strategies are frequently used by good vocabulary learners and correlated with vocabulary proficiency.

Third, findings in the domain of cognitive psychology revealed that activities calling for a deeper, more elaborate processing of information enhance the effect of learning (Craik & Tulving, 1975). The package of these four strategies involves the subjects in processing English words in a deeper and more elaborate way.

Finally, the features of English as a language require the subjects to be skilled in the use of these four strategies. This perspective has been little discussed in the previous studies concerning vocabulary learning strategies. From the viewpoint of linguistics, English as a language has following features. First, English is a communication tool. On one hand, without knowing English words, it is difficult for communication to occur. On the other hand, knowing English words is only half way to the success of being competent in communicating in English. Learners need to practise using English words for communication in order to have a good command of English. Second, derivation is a primary method of English word-formation and one of the biggest differences between English and Chinese. Being aware of this feature allows the subjects to have a bird's eye view of English words and promotes more effective learning. Third, contextualism holds that the meaning of a linguistic expression can be derived from observable contexts. For example, what is the meaning of *open*? In the context of *The door is open*, it means *not closed*. In the context of *an open mind*, it means *willing to listen*. Thus words should be learned and used in context.

For dictionary strategies, the subjects were taught to look up a word in dictionaries and pay attention to its form (spoken form and written form), position (grammatical patterns and collocations), function (frequency and appropriateness), and meaning (concept and associations). For words with multiple meanings, the subjects need to learn other meanings which they think important or show an interest in besides the context meaning.

For note-taking strategies, the subjects were taught to take notes about the information of an unknown word including its pronunciation, part of speech, English and Chinese definitions, usage, collocations, example sentences, derived forms, synonyms and antonyms. Also, they need to note down the information concerning its frequency and appropriateness. If the new word has more than one meaning, the subjects need to select another meaning to learn according to their needs.

For derivation strategies, the subjects were trained to accumulate knowledge about affixes and English word-formation through listening to instructors' explanation, consulting dictionaries, taking notes, reading reference materials. In addition, they should familiarize themselves with derivation by doing exercises and learn to analyze English words by identifying their prefixes, stems and suffixes.

For activation strategies, the subjects were instructed to create their own sentences with a new word, practise using the new word in the learning tasks or assignments either in the intensive English course or other courses, and practise using the new word in daily life.

This study adopted a model of integrated strategy instruction. That is, the instruction in vocabulary learning strategies was implemented within the regular classroom teaching in a first-year intensive English course. Because the subjects were newly-admitted university students, they started academic learning later than students in other grades. The course lasted 12 weeks and so did the strategy instruction. The researcher and the subjects met thrice each week and 2 hours each time.

The learner training was made up of four phases. In the first phase, the researcher explained the name of the strategy and the rationale behind the strategy use. In the second phase, the researcher demonstrated the strategy. In the third phase, the subjects practised using the strategy in classroom activities either in class or out of class with the support from the

researcher. In the last phase, the strategy use by the subjects was assessed either by the instructor's observation or the talk between the researcher and the subjects. One thing must be pointed out is that the four phases were recursive. When the subjects were found to have difficulty with the strategy use, the researcher repeated the process of learner training.

4. Results and Discussion

4.1 How does Instruction in Vocabulary Learning Strategies affect Learners' Vocabulary Learning Beliefs?

The study compared the subjects' answers to the question "What do you think an EFL learner needs to know in order to know an active vocabulary item" in the pre-test and the post-test to search for the answer to question 1. According to Nation's view on word knowledge (1990), this study divided the system of word knowledge into 11 elements. The number of the elements listed in the subjects' answer was their score representing their vocabulary learning beliefs. The study first analyzed the subjects' answers by percentage. The results are exhibited in Table 2.

Table 2: Analysis of subjects' vocabulary learning beliefs

Pre-test	Number of elements of word knowledge	Number of subjects	Percentage
	3 (P+S+CM)	16	53.33%
	4 (P+S+CM+GP)	8	26.67%
	5 (P+S+CM+GP+C)	6	20%
Post-test	7 (P+S+CM+GP+C+DF+MUS)	9	30%
	8 (P+S+CM+GP+C+DF+MUS+OM)	7	23.33%
	9 (P+S+CM+GP+C+DF+MUS+OM+SA)	6	20%
	10 (P+S+CM+GP+C+DF+MUS+OM+SA+F)	6	20%
	11 (P+S+CM+GP+C+DF+MUS+OM+SA+F+A)	2	6.67%

P=pronunciation, S=spelling, CM=context meaning, GP=grammatical patterns, C=collocations, DF=derived forms, MUS=making up a sentence with the word, OM=other meanings, SA=synonyms and antonyms, F=frequency, A=appropriateness

Table 2 shows that more than half of the subjects could identify only 3 of the 11 elements of word knowledge and the most elements of word knowledge they could identify were 5 in the pre-test. The results indicate that the subjects' pre-test word knowledge was limited and they did not have a scientific understanding of how to learn an active vocabulary item. Also, it may be inferred that they held a covert belief that vocabulary learning was tantamount to a simple one-to-one correspondence of symbol and meaning. After the strategy instruction, there is a change in the subjects' beliefs. They are able to name more elements of word knowledge. Their understanding of vocabulary learning has been deepened and enriched.

To further confirm the finding, the study used Paired Samples T Test to explore the influence of the strategy instruction on the subjects' vocabulary learning beliefs. The results of the analysis are displayed in Table 3.

Table 3: The results of Paired Samples T Test on vocabulary learning beliefs

	Mean	N	S.D.	Mean difference	S.D.	t	Sig.	
Pre-test	3.50	30	.80	Pre-test - post-test	- 5.00	1.14	- 23.07	.00
Post-test	8.50	30	1.31					

Table 3 exhibits that the pre-test mean on vocabulary learning beliefs is 3.50 and the post-test one is 8.50. The mean difference is 5.00 ($P < .01$). The results denote that there is a significant difference between the pre-test and the post-test means. That is, the subjects' vocabulary learning beliefs have been changed through the instruction.

4.2 Are There any Differences in Learners' Strategy Use After a 12-Week Instruction in Vocabulary Learning Strategies?

To search for the answer to question 2, this study used Wilcoxon Test to compare subjects' strategy use between the pre-test and the post-test by grouping them with two criteria. One criterion was the degree of progress measured by the difference in a subject's vocabulary scores between the pre-test and the post-test. According to the criterion, the subjects were divided into three groups. Group1 (G1) consisted of the subjects whose post-test scores were much lower than their pre-test ones. Group2 (G2) contained those whose post-test scores were slightly higher than or close to their pre-test ones. Group3 (G3) comprised those whose post-test scores were much higher than their pre-test ones. The division was verified by one-way ANOVA ($F[2,27]=66.11$, $P < .05$). The other criterion was the post-test vocabulary proficiency. According to the criterion, the subjects were classified into three groups. Group A (GA) was a low-proficiency group, Group B (GB) a middle-proficiency one, and Group C (GC) a high-proficiency one. The division was verified by one-way ANOVA ($F[2,27]=61.54$, $P < .05$). The results of Wilcoxon Test with the subjects grouped by the two criteria are exhibited in Table 4 and Table 5.

Table 4: The results of Wilcoxon Test with the subjects grouped by the degree of progress

	G1 (N=9)			G2 (N=11)			G3 (N=10)		
	Pre-test	Post-test	MD	Pre-test	Post-test	MD	Pre-test	Post-test	MD
Dictionary	3.04 (.79)	3.31 (0.84)	0.27*	3.04 (0.73)	3.47 (0.85)	0.43*	2.99 (0.72)	3.74 (0.70)	0.75*
Note-taking	3.14 (0.82)	3.25 (0.87)	0.11	3.04 (0.87)	3.47 (0.91)	0.43*	2.99 (0.82)	3.66 (0.79)	0.67*
Derivation	2.55 (0.92)	3.18 (0.96)	0.63*	2.51 (0.89)	3.33 (0.92)	0.82*	2.54 (0.84)	3.22 (0.91)	0.68*
activation	2.94 (0.95)	3.10 (1.03)	0.16	2.85 (0.91)	3.12 (0.95)	0.27*	2.78 (0.90)	3.24 (0.86)	0.46*

* $p < .05$, MD= mean difference (post-test - pre-test), Standard Deviation is shown in the brackets.

Table 5: The results of Wilcoxon Test with the subjects grouped by the post-test vocabulary proficiency

	GA (N=12)			GB (N=7)			GC (N=11)		
	Pre-test	Post-test	MD	Pre-test	Post-test	MD	Pre-test	Post-test	MD
Dictionary	2.98 (0.86)	3.23 (0.91)	0.25*	3.04 (0.81)	3.48 (0.79)	0.44*	3.05 (0.82)	3.81 (0.76)	0.76*
Note-taking	2.97 (0.96)	3.21 (1.02)	0.24*	3.05 (0.90)	3.43 (0.92)	0.38*	3.06 (0.78)	3.75 (0.75)	0.69*
Derivation	2.39 (0.89)	3.11 (0.91)	0.72*	2.70 (0.86)	3.47 (0.83)	0.77*	2.55 (0.75)	3.26 (0.73)	0.71*
activation	2.69 (0.95)	2.90 (0.93)	0.21*	2.96 (0.83)	3.23 (0.85)	0.27*	2.97 (0.79)	3.41 (0.77)	0.44*

* $p < .05$, MD= mean difference (post-test - pre-test), Standard Deviation is shown in the brackets.

Table 4 reveals that except the mean differences in note-taking strategies and activation strategies of G1 all the other mean differences are statistically significant. It indicates that G2 and G3 have used dictionary strategies, note-taking strategies, derivation strategies and activation strategies more frequently in the post-test than in the pre-test. For G2, only dictionary strategies and derivation strategies have been used more often.

Table 5 displays that all the mean differences are statistically significant. It implies that GA, GB and GC have used dictionary strategies, note-taking strategies, derivation strategies and activation strategies more frequently after the strategy instruction.

Based on the above analysis, this study thinks that the subjects have employed dictionary strategies, note-taking strategies, derivation strategies and activation strategies more often after the learner training and the instruction in vocabulary learning strategies is effective.

In addition, in order to discover what type of learners makes the biggest progress in strategy use, this study utilized one-way ANOVA to judge whether the mean differences in each set of strategies among the groups are significant. The results of one-way ANOVA with the subjects grouped by the above mentioned criteria are displayed in Table 6 and Table 7.

Table 6: The results of one-way ANOVA with the subjects grouped by the degree of progress

	G1	G2	G3	F[2,27]	Post Hoc (Scheffe)	MD
Dictionary	0.27 (0.73)	0.43 (0.82)	0.75 (0.79)	21.41	G3>G2 G3>G1	0.32* 0.48*
Note-taking	0.11 (0.68)	0.43 (0.75)	0.67 (0.70)	30.67	G3>G2 G3>G1	0.24* 0.56*
Derivation	0.63 (0.93)	0.82 (0.87)	0.68 (0.88)	0.48	G3<G2 G3>G1	-0.14 0.05
Activation	0.16 (0.72)	0.27 (0.75)	0.46 (0.70)	11.89	G3>G2 G3>G1	0.19* 0.30*

MD= mean difference, Gain=the difference in strategy use between the pre-test and post-test

Table 7: The results of one-way ANOVA with the subjects grouped by the post-test vocabulary proficiency

	GA	GB	GC	F[2,27]	Post Hoc (Scheffe)	MD
Dictionary	0.25 (0.72)	0.44 (0.78)	0.76 (0.74)	36.29	GC>GB GC>GA	0.32* 0.51*
Note-taking	0.24 (0.73)	0.38 (0.78)	0.69 (0.66)	38.13	GC>GB GC>GA	0.31* 0.45*
Derivation	0.72 (0.87)	0.77 (0.91)	0.71 (0.84)	0.04	GC<GB GC<GA	-0.06 -0.01
Activation	0.21 (0.78)	0.27 (0.75)	0.44 (0.74)	5.92	GC>GB GC>GA	0.17* 0.23*

MD=mean difference, Gain=the difference in strategy use between the pre-test and post-test

Table 6 shows that the gains in dictionary strategies, note-taking strategies and activation strategies among G1, G2 and G3 are significantly different and the gains of G3 are bigger than those of G2 and G1. Although the gains in derivation strategies are not significantly different among the three groups, it should be noted that the subjects have improved in the use of this strategy (gains >0.6).

Table 7 exhibits that there is a significant difference in the gains of dictionary strategies, note-taking strategies and activation strategies among GA, GB and GC and the gains of GC are the biggest. Although the gains in derivation strategies of three groups do not differ significantly, all the subjects have improved a lot in its use (gains >0.7).

On the basis of the above analysis, this study finds out that the subjects whose post-test vocabulary test scores are much higher than their pre-test ones and those with high vocabulary test scores in the post-test improve most on strategy use. It may be concluded that G3 and GC benefit most from the strategy instruction.

4.3 Is Instruction in Vocabulary Learning Strategies Conducive to the Improvement of Learners' Vocabulary Proficiency?

The study used Pearson Correlation Analysis to discuss the relation between the mean differences in vocabulary learning strategies and those in vocabulary test scores. The results of the analysis are presented in Table 8.

Table 8: The results of Pearson Correlation Analysis

	All the strategies	Dictionary	Note-taking	Derivation	Activation
Vocabulary proficiency	r=0.65*	r=0.69*	r=0.68*	r=0.63*	r=0.66*

* p<.05

Table 8 displays that the mean differences in vocabulary learning strategies are positively correlated with those in vocabulary scores. This result suggests that the strategy instruction is one important factor contributing to the development of learners' vocabulary proficiency and is helpful in enhancing learners' vocabulary proficiency. Thus the strategy instruction should be attached great importance.

Besides the quantitative analysis, the study also collected the subjects' responses to the training through the strategy instruction feedback questionnaire. The analysis of the questionnaire reveals that 30% of the subjects think that the instruction is very helpful to their vocabulary learning and 66.67% think that it is helpful and 3.3% is unsure about its effect. In addition, 26.67% view that the training is very useful to their English learning and 60% view that it is useful and 13.33% are uncertain.

To be specific, all the subjects think that the instruction is helpful in increasing their awareness about the complexity of knowing a word, enlarging their vocabulary and improving their ability to use words communicatively. 96.67% think that they have learned the vocabulary learning methods that they did not know and have more strategies in their hands through the instruction. 93.33% think that they like vocabulary learning better. 90% think that they have increased their confidence in vocabulary learning. 86.67% think that they can learn a word with a more effective method.

Based on the above analysis, the study obtains the same conclusion as that of the quantitative analysis that the strategy instruction is useful in developing learners' awareness of vocabulary learning process and promoting learning efficacy.

However, the subjects' answers to the questionnaire mentioned their problems with the strategy instruction. One is that some students reported that they have a poor ability of self-management and they hope the researcher to help them monitor their out-of-class vocabulary learning. The other is that some students stated that their learning style differs from that of the strategies taught in the instruction and they favor their way of vocabulary learning although they hold a positive attitude towards the instruction.

In contrast with the researcher's idea prior to the instruction that the subjects were good at self-managing, the result indicates that subjects' ability of self-management needs improvement and the development of their metacognitive awareness should be part of the strategy instruction. To some extent, this finding explains why some subjects benefit less from the instruction than others. Besides, learners' learning style is an important factor in learners' acceptance of new learning strategies. Being aware of the learners' learning style and making suitable programs for strategy instruction in agreement with their learning style may increase the effectiveness of strategy instruction.

5. Conclusions

Vocabulary is an indispensable factor of linguistic competence. This study has endeavored to help EFL learners to learn how to learn English words in a more effective way through integrated instruction in vocabulary learning strategies. The instruction was conducted in a context of a first-year intensive English course which lasted 12 weeks. The change in strategy use and vocabulary proficiency was measured by comparing the pre-test and the post-test data collected through a vocabulary test and a vocabulary learning questionnaire. On the basis of data analysis, the study draws the following conclusions.

First, the instruction in vocabulary learning strategies is effective for the first-year English majors who are not adept at using vocabulary learning strategies. Through the instruction the subjects no longer think that vocabulary learning is equal to the retention of form-meaning associations and have an awareness of what to do for using a word communicatively. In addition, their strategy use and vocabulary proficiency have been improved. Finally, their feedback on the instruction shows that they support the learner training.

Second, different types of subjects benefit differently from the instruction. The subjects whose vocabulary proficiency is high and those whose vocabulary test scores have increased a lot in the post-test make the most progress in strategy use.

Third, the process of absorbing vocabulary learning strategies into part of subjects' own learning ability is a long process. Although there is a significant change in the subjects' use of vocabulary learning strategies through the instruction, the results reveal that the post-test frequency of derivation strategies and activation strategies has not reached 3.5 which stands for frequent use of learning strategies. Thus strategy instruction should be continual and integrated into regular classroom teaching.

Finally, the development of learners' metacognitive awareness and learning style should be important factors to take into account for the design of instruction in learning strategies.

The above is the findings of the study. It is hoped that English majors in an EFL context at the initial period of their university education may gain something useful on how to learn English words for production. Also, it is the intention of the study that EFL instructors may obtain something helpful to improve their vocabulary teaching. Of course, the study has limitations. How to cater to learners' learning style and develop their metacognitive awareness should be added into the design of future research into instruction in learning strategies.

Acknowledgement

The research is financed by National Elementary Education Foreign Language Teaching Research Fund (Grant No. JJWYYB2009110), Qufu Normal University Teaching Reform

Project (Grant No. JG-ZZ12049) and Shandong Province Higher Education Science and Technology Plan (Grant No. J11LG09).

References

- [1] R.C. Atkinson, Mnemotechnics in second-language learning, *American Psychologist*, 30(8) (1975), 821-828.
- [2] R.C. Atkinson and M.R. Raugh, An application of the mnemonic keyword method to the acquisition of a Russian vocabulary, *Journal of Experimental Psychology*, 1(2) (1975), 126-133.
- [3] E. Avila and M. Sadoski, Exploring new application of the keyword method to acquire English vocabulary, *Language Learning*, 46(3) (1996), 379-395.
- [4] T.S. Brown and F.L. Perry, A comparison of three learning strategies for ESL vocabulary acquisition, *TESOL Quarterly*, 25(4) (1991), 655-670.
- [5] H. Chen, Vocabulary learning strategies used by Chinese non-English majors, *Foreign Language Education*, 22(6) (2001), 46-51.
- [6] A.D. Cohen, *Strategies in Learning and Using a Second Language*, (1998), London: Longman.
- [7] F.I.M. Craik and E. Tulving, Depth of processing and the retention of words in episodic memory, *Journal of Experimental Psychology*, 104(3) (1975), 268-284.
- [8] Y. Ding, A comparison of vocabulary learning strategies used by successful and unsuccessful English learners, *Foreign Language Research*, 100(6) (2006), 47-50.
- [9] G. Ellis and B. Sinclair, *Learning to Learn English*, (1989), Cambridge: Cambridge University Press.
- [10] L. Fan and Q.H. Wang, An experimental study of grouping strategies in English vocabulary learning, *Foreign Language Teaching and Research*, 34(3) (2002), 209-212.
- [11] L. Fan, Z.Q. Liu and X.K. Li, A study of mnemonic strategies training on Chinese EFL learners' vocabulary learning, *Foreign Language Education*, 29(1) (2008), 33-40.
- [12] M.Y. Fan, Frequency of use, perceived usefulness and actual usefulness of second language vocabulary strategies: A study of Hong Kong learners, *The Modern Language Journal*, 87(2) (2003), 222-241.
- [13] Y.F. Feng, A comparison of vocabulary learning strategies employed by the first-year and third-year English majors, *Foreign Language World*, 94(2) (2003), 66-72.
- [14] S. Graham, K.R. Harris and R. Sawyer, Composition instruction with learning disabled students: Self-instructional strategy training, *Focus on Exceptional Children*, 20(4) (1987), 1-11.
- [15] Y.Q. Gu and R.K. Johnson, Vocabulary learning strategies and language learning outcomes, *Language Learning*, 46(4) (1996), 643-679.
- [16] Y.Q. Gu, Gender, academic major and vocabulary learning strategies of Chinese EFL learners, *RELC Journal*, 33(1) (2002), 35-54.
- [17] B.F. Jones, A.S. Palincsar, D.S. Ogle and E.G. Carr, *Strategic Teaching and Learning: Cognitive Instruction in the Content Areas*, (1987), Alexandria: Association for Supervision and Curriculum Development.
- [18] M.J. Lawson and D. Hogben, The vocabulary learning strategies of foreign-language students, *Language Learning*, 46(1) (1996), 101-135.
- [19] J.R. Levin, M.E. Levin, L.D. Glasman and M.B. Nordwall, Mnemonic vocabulary instruction: Additional effectiveness evidence, *Contemporary Education Psychology*, 17(2) (1992), 156-174.
- [20] E. Macaro, *Learning Strategies in Foreign and Second Language Classrooms*, (2001), London: Continuum.
- [21] A. Mizumoto and O. Takeuchi, Examining the effectiveness of explicit instruction of vocabulary learning strategies with Japanese EFL university students, *Language Teaching Research*, 13(4) (2009), 425-449.
- [22] J. Moir and I.S.P. Nation, An investigation of learners' success in personalizing vocabulary learning, *Prospect*, 17(1) (2002), 15-35.

- [23] I.S.P. Nation, *Teaching and Learning Vocabulary*, (1990), New York: Newbury House.
- [24] J.M. O'Malley and A.U. Chamot, How to teach learning strategies, in A.U. Chamot, J.M. O'Malley and L. Kupper (Eds), *The Cognitive Academic Language Learning Approach Training Manual*, (1988), Arlington: Second Language Learning.
- [25] J.M. O'Malley and A.U. Chamot, *Learning Strategies in Second Language Acquisition*, (1990), Cambridge: Cambridge University Press.
- [26] R.L. Oxford, *Language Learning Strategies: What Every Teacher Should Know*, (1990), Boston: Heinle and Heinle.
- [27] M. Pressley, J.R. Levin and H.D. Delaney, The mnemonic keyword method, *Review of Educational Research*, 52(1) (1982), 61-91.
- [28] M. Pressley, J.R. Levin and G.E. Miller, The keyword method compared to alternative vocabulary learning strategies, *Contemporary Educational Psychology*, 7(1) (1982), 50-60.
- [29] M. Pressley, J.R. Levin, G.V. Nakamura, D.J. Hope, J.G. Bispo and A.R. Toye, The keyword method of foreign vocabulary learning: An investigation of its generalizability, *Journal of Applied Psychology*, 65(6) (1980), 635-642.
- [30] M. Pressley, J. Samuel, M.M. Hershey, S.L. Bishop and D. Dickinson, Use of a mnemonic technique to teach young children foreign language vocabulary, *Contemporary Educational Psychology*, 6(2) (1981), 110-116.
- [31] J. Rees-Miller, A critical appraisal of learner training: Theoretical bases and teaching implications, *TESOL Quarterly*, 27(4) (1993), 679-689.
- [32] J. Rubin and I. Thompson, *How to be a More Successful Language Learner*, (1982), Boston: Heinle and Heinle.
- [33] R. Sanaoui, Adult learners' approaches to learning vocabulary in second languages, *The Modern Language Journal*, 79(1) (1995), 15-28.
- [34] N. Schmitt, Vocabulary learning strategies, in N. Schmitt and M. McCarthy (Eds), *Vocabulary: Description, Acquisition and Pedagogy*, (1997), Cambridge: Cambridge University Press.
- [35] C.E. Weinstein, Elaboration skills as a learning strategy, in H.F. O'Neill, Jr. (Ed), *Learning Strategies*, (1978), New York: Academic Press.
- [36] X. Wu and Q. Wang, Vocabulary learning strategies employed by undergraduates majoring in English, *Foreign Language Teaching and Research*, 30(1) (1998), 53-57.
- [37] P. Zhang, A study of learning strategies for basic English vocabulary and academic English vocabulary by postgraduates, *Foreign Language Teaching and Research*, 33(6) (2001), 442-449.
- [38] P. Zhang, Z.X. Gao and J.Z. Liu, Gender differences in EFL vocabulary learning beliefs and strategies, *Foreign Languages and their Teaching*, 160(7) (2002), 35-37.
- [39] Q.Z. Zhang and X.Y. Wu, Depths of processing and L2 vocabulary learning, *Modern Foreign Languages*, 25(2) (2002), 176-186.
- [40] Y. Zhang, M. Xing and D.J. Zhou, An investigation of vocabulary learning strategies used by non-English majors, *Journal of PLA University of Foreign Languages*, 26(4) (2003), 44-48.