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Learning and Retaining Technical Vocabulary with Enhancement Activities in an ESP Course

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Abstract

The purpose of this paper is to explore the effectiveness of vocabulary enhancement activities on vocabulary learning in an ESP course. In designing the activities, technical terms on journal entries were chosen for the acquisition of language necessary for the successful implementation of accounting major's professional tasks. The desirable difficulty approach and the four strands principle，focused input, meaning-focused output, language-focused learning and fluency development, were guidelines in combining subject matter and English language learning. To test the result of the activities, the Vocabulary Knowledge Scale was employed to measure students' knowledge of 50 vocabulary items. Subjects of the ESP course in discussion comprised 200 accounting juniors in Guangdong University of Foreign Studies in China. Half of them in Group A read the texts and did matching exercises and translation exercises. The other half in Group B read the texts and practiced journal entry activity, targeting at accounting concepts and terminologies. The results revealed that Group B gained better results than Group A at a post-test. After the test a reflection on the vocabulary activities was gathered among the participants of Group B. The feedback further proved that the students did benefit from the enhancement activities on selected technical terms.

Keywords: desirable difficulty, ESP, four strands principle, journal entry practice, vocabulary enhancement activity, vocabulary knowledge scale

1. Introduction

Technical vocabulary is a fundamental component in the ESP course. It is a major issue that learners encounter in the classroom when they use technical words in solving exercises related to reading passage or any other activities. To deal with the challenge, the lesson plan concerning vocabulary should be accurately prepared before delivering the list of the target words. It is necessary to specify the appropriate technical vocabulary that should be introduced and practiced, using appropriate methods and activities to meet the needs of that particular group of learners. The ESP course focuses more on vocabulary in context as the students are learning the language integrated into a subject matter area in order to communicate a set of professional skills and to perform particular job-related functions (Liuolienė & Metiūnienė, 2013).

When designing the course, English for Financial Accounting, the writer of this study focused on technical vocabulary on journal entries required in accountancy and designed vocabulary enhancement activities to promote acquisition and retention. This study therefore set out to explore the learners' attitude to the advantages and disadvantages of the vocabulary program and to determine what learning outcomes were finally achieved.

2. Literature Review

2.1 Vocabulary Enhancement Activities

Many researchers call for vocabulary enhancement activities because most of the students ignore unknown words in reading texts unless reading comprehension questions specifically require that they be understood (Coady & Huckin, 1997). Vocabulary exercises ensure learners' attention to specific vocabulary items and require learners to analyze and understand the meanings and functions of target words through different tasks (Amiryousefi & Kassaian, 2010).

Vocabulary learning requires repetition. The outcome is better when two or more exposures to the new words are

separated in time than when the same number of exposures occurs back-to-back in immediate succession. Spaced repetitions typically yield better learning than massed repetitions for long-term retention (Carpenter, 2014). Another approach is interleaving --mixing problems of different types and practicing all problems in an order that is more random and less predictable. (Carpenter, 2014). Interleaved practice actually results in superior long-term retention and transfer of skills (Shea & Morgan, 1979). In designing vocabulary activities, the desirable difficulty framework, spacing study and interleaving instruction, has been brought to the classroom to help learning new words (Bjork, 1994).

To examine if the vocabulary program provides an appropriate balance of opportunities for learning, Nation (2007) puts forward a framework of four strands—meaning-focused input, meaning-focused output, language-focused learning and fluency development. Firstly, the vocabulary program involves using language receptively. The learners' main focus and interest should be on understanding and gaining knowledge. Only a small proportion of the language features are unknown to the learners so that they can gain some knowledge of the unknown language items through context clues and background knowledge. In terms of vocabulary, 95-98% of the running words should be within the learners' previous knowledge, and so only 5 or preferably only 1 or 2 words per hundred should be unknown to them (Hu & Nation, 2000). Secondly, in the strand of meaning-focused output, the vocabulary program provides the learners opportunities to use language productively. Thirdly, the vocabulary program directs the deliberate learning of language features such as pronunciation, spelling, vocabulary, grammar and discourse. The successful vocabulary activities should guide the learners to pay attention to language features, and help them process the language features in deep and thoughtful ways. Finally, the vocabulary program should involve the development of all the four skills of listening, speaking, reading and writing. In the last strand, the learners' aim is to receive and convey messages (Nation, 2007).

2.2 ESP Vocabulary

Dudley-Evans and St John (1998) suggested two distinct categories of ESP vocabulary. The first is semi-technical vocabulary, which is used in general language but has a higher frequency of occurrence in specific and technical descriptions and discussions. The second is technical vocabulary, which has specialized and restricted meanings in certain disciplines and which may vary in meaning across disciplines.

Technical terminologies are reasonably common within a specialized field (Newton & Nation, 1997). Due to their high frequency and wide occurrence in a specialist domain, they deserve classroom time, which can involve deliberate activities to teach and practice them.

Zahran (2017) summarized the main features of ESP vocabulary as follows. Firstly, as less frequently used in everyday situations, ESP vocabulary is learnt for specific uses related to technical or academic needs in a particular topic, field or discipline. Secondly, ESP vocabulary involves a great many of abstract words. Thirdly, ESP vocabulary is designed around students' needs based on their field of study.

Most students feel frustrated facing a major linguistic obstacle of ESP vocabulary. It is challenging for them to correctly spell and accurately pronounce ESP vocabulary. As a result, effective ESP vocabulary teaching plays a crucial role in successfully implementing ESP programs. Vocabulary selection and vocabulary learning strategies are substantial for ESP vocabulary acquisitions (Wu, 2014).

2.3 Application of Principles

The theoretical considerations and practical suggestions in general English can be applied in the field of teaching specialized vocabulary in the ESP course. Nation (2006) in his research explained what vocabulary will be selected for teaching, how it will be sequenced and how it will be presented when an ESP teacher is designing the vocabulary program. Azad and Kuhi (2016) illustrated the strategies on examining ESP material and instruction, indicating that a significant tendency in classroom activities emphasized both receptive and productive skills.

A number of studies revealed that ESP terms must be used in contextualized sentences. However, few studies, if any, have been carried out to evaluate the effectiveness of class activities on vocabulary learning in an ESP domain of financial accounting. Thus, the present paper attempts to address the following research question:

Is the designated vocabulary enhancement activity on journal entries an effective technique for accounting majors to learn and produce technical terms?

3. Research Design

3.1 Participants

The participants of this study were 200 juniors in Guangdong University of Foreign Studies (GDUFS) majoring

in accounting. In the previous first two years they took EGP (English for general purpose) courses and studied accounting courses in Chinese. To account for group homogeneity, a Comprehensive English Language Test was administered before the experiment to 282 students. 200 students who had the same level of proficiency were chosen. They were randomly assigned into two groups of 100 (A and B), receiving two different types of instructions, namely reading comprehension plus general vocabulary exercises vs. reading comprehension plus vocabulary enhancement activities.

3.2 Instruments

To initiate the study, Comprehensive English Language Test was conducted to ensure the homogeneity of the two groups. A teacher-made vocabulary test was given to groups both as a pre-test and post-test. In each vocabulary test, the students' knowledge of 50 items on accounting vocabularies was assessed. The textbook employed in this study was entitled English for Financial Accounting by Sun Jiancheng and Wang Xuecheng published by Beijing Higher Education Press in 2011. This book contained 13 chapters, the first 6 of which were taught in this study of one semester, focusing mainly on reading comprehension and vocabulary learning. Each chapter consisted of a reading passage, followed with exercises and oral practices.

3.3 Procedure

This study was carried on from September 2016 to December 2016, once a week for 14 sessions. The two groups studied the same content with two different methods.

In Group A (the control group) the students read the texts and answered the accompanying comprehension questions. They were required to memorize a vocabulary list and then to complete a series of vocabulary exercises used in any English textbook for general purposes on the target words in texts, including matching the term with the appropriate explanation, filling the blanks with one of the given terms, and translation exercises.

In contrast, the students in Group B (the experimental group) likewise read the texts and answered the accompanying comprehension questions. Instead of the traditional vocabulary exercises, however, a vocabulary enhancement activity--journal entry practice was designed to reinforce the learning of accounting concepts and terminologies. Journal entries are essential when accounting language is concerned. To write a journal entry correctly, the students were required to understand the description of a business event, and to analyze it with appropriate accounting concepts and principles. In Group B, the practice of specialized terms was always emphasized. In designing the practice, the instructor must consider how to introduce a new journal entry, how many journal entries to introduce and how often to review them, basing on the characteristics of the ESP course and the desirable difficulty framework for vocabulary program. The aim was to further expose the students to the target technical words through enhancement activity and to compensate for the class time which was spent on vocabulary exercises in Group A.

The classroom activity was conducted every week in class. The students worked in group of three to study one set of business transactions with the number varying from 10 to 15. Usually the group study was given 15 to 20 minutes depending on the difficulty level. The students were prompted to work out the accounting terminologies, explain the accounting treatment and principle in order to understand the analysis in accounting language more deeply. After the group study, an oral report was presented. The practice was challenging as it required the students to deliver their thought in English accurately and fluently.

The pre-test and post-test were given to the two groups to compare their vocabulary learning. The researcher modified the Vocabulary Knowledge Scale (VKS) developed by Paribakht and Wesche (1997) to measure vocabulary knowledge and retention. This instrument used a score of 1 to 4 points for each subject's self-analysis of each target word. The scoring criteria were explained as follows:

1 point = I've never seen this term before.

2 points = I've seen this term before, but I don't know what it means.

3 points = I know what this term means, but I cannot use it correctly in describing a business activity

4 points = I know what this term means and I can use it in describing a business activity correctly.

3.4 Data Analysis

In order to assess the efficiency of the vocabulary enhancement activity on technical vocabulary learning, the data of pre-test and post-test of two groups (A and B) were compared in Table 1. The results were reported based on the mean score of both tests.

Table 1. Statistics of pre-tests and post-test for both groups

Groups (N）	Mean	SD	Std. Error
A pre-test (100)	80.98	15.6723	1.5672
A post-test (100)	139.5	21.021	2.1021
B pre-test (100)	80.51	16.1217	1.6122
B post-test (100)	153.1	12.81	1.2810

Results of the vocabulary pre-test showed that there was no significant difference between the two groups. The mean score of the control group A was 80.98 with a standard deviation of 15.6723, whereas the experimental group B scored 80.51 with a standard deviation of 16.1217. Both the mean and the standard deviation scores for two groups were close.

The statistics of the results also indicated that the mean scores of both groups increased significantly from pre-test to post-test. However, the experimental group B (with mean score 153.1) outperformed the control group A (with mean score 139.5). Moreover, the standard deviation scores of post-tests for both groups were different (12.81 vs. 21.021). The higher standard deviation score of the control group A (21.021) indicated that there was a significant differences among the students' performance in group A. The figure implied that vocabulary exercises in the book were quite helpful for some students, but not for many others. On the contrary, the lower standard deviation score of the experimental group B (12.81) stated that more students in general made a progress. In short, a conclusion can be drawn that vocabulary activities put forward by the researcher is an effective technique for increasing students' knowledge of technical terms.

3.5 Students' Evaluation

To measure the effect of vocabulary study, feedback was collected with another form of qualitative assessment. After 14 sessions of learning English for Financial Accounting, the students in Group B were assigned a composition to reflect on the ESP classroom activities. The following points were required in their writings.

1). The challenges you met and beat when you were practicing journal entries in an all English class

2). Comment on the group activities of journal entry practice

The information related to the study from 100 compositions was gathered and classified. 73.56% students offered positive comments on the journal entry practice. The challenges written by more than 10 students were listed in Table 2 with percentage calculated.

Table 2. Challenges met and beat and their percentage

Challenges	%
1. differences between Chinese and western accounting	75.53
2. terms on accounting, including terms on journal entries	67.73
3. reading the textbook fluently	61.08
4. finishing the vocabulary activities on time	53.21
5. all English class	38.30
6. discussing accounting issues in English	30.14
7. accounting knowledge on cash flow statement	28.71
8. sentence and structure	11.34
9. thinking in English	7.80

4. Discussion

4.1 ESP Knowledge

By providing a basic, core technical vocabulary, the enhancement activity strengthened the accounting majors' ESP knowledge. It allowed them to dig into the field of western accounting and to comprehend in a context full

of knowledge of three financial statements: income statement, balance sheet and cash flow statement. According to the students' feedback in Table 2, 75.53% of the participants grew from puzzled to aware of the differences between Chinese and western accounting with the help of journal entry practice. 28.71% of the students improved their understanding about accounting knowledge on the cash flow statement.

It is obvious in Table 2 that 53.21% of the students admitted their satisfaction in finishing the vocabulary activities on time. Even though more than 30.14% of them discussed with confidence, only 7.8% of the students declared that they could think about accounting issues in English. Many students acknowledged that the knowledge on accounting in Chinese on one hand generally benefited the learning in an ESP class. On the other hand, the habitual thinking in Chinese was a huge obstacle, especially when the traditional learning method of translation did not work due to the absence of a one-to-one relationship between the terms in western and Chinese accounting.

Based on Bjork's (L. Bjork & R. Bjork, 2011) theory, desirable difficulties are desirable because they trigger encoding and retrieval processes that support learning, comprehension, and remembering. The vocabulary enhancement activity designed with spacing and interleaving was a way of making learning more difficult and desirable, promoting the students to generate an answer or solution. To succeed at the generation, the students did need to possess the background knowledge. To render appropriate level of difficulty, the instructor need to decide the technical words worth catering on; offer timely help if a technical word is not used in the same manner as in the student's native language; guide learners' attention on the material more and not merely the vocabulary.

4.2 Language Skills

With the results of post-test in Table 1, it can be claimed that the superiority of the experimental group B (with mean score of 153.1) over the control group A (with mean score of 139.5) might result from the difficulty level and frequency of the enhancement activity, which directly influenced students' engagement in the learning process. It challenged students enough to become less frustrated from too difficult material or bored from too easy one. The vocabulary enhancement activity was used as both practice tools and test reviews. When used as the former, the students tended to find it more difficult because they were still in the process of learning the material. They generally responded more readily when it was used as the latter, which reflected one of the characteristics of desirable difficulties --slowing the rate of improvement during the learning process but may lead to long-term benefits (Adams, McLaren, Mayer, Goguadze, & Isotani, 2013).

Applying Nation's four strands of meaning-focused input, meaning-focused output, language-focused learning and fluency development, both advantages and disadvantages of the vocabulary activities can be identified in the students' evaluation of Table 2. 67.73% of the writings described the success with accounting terminologies. 38.30% of the students commented positively on the all English teaching and learning while more students favored bilingual class. However, 11.34% of the students acknowledged that the activities upgraded their ability in dealing with complex sentences and structures in the accounting context.

The findings of this study were consistent with Rhodes and Smith's (2004) statement that students learn best by doing because active learning situations provided opportunities for students to test out what they learned and how thoroughly they understood it. The journal entry practice increased students' involvement in the learning process. It required them to think about the material and derive the answer on their own. The more frequently they actively applied key concepts and principles, the better they would be able to remember them. The oral work also facilitated a gradual establishment of a connection between spelling and pronunciation of some technical terms. With rising awareness of syllables in words, the students enhanced the recognition of accounting terminologies as 61.08% of them reported that they can read the textbook fluently in Enlgish.

5. Conclusion

This paper has discussed the features of ESP vocabulary, addressed the relationship between the design of vocabulary enhancement activity and ESP, and explored journal entry practice and its influence on the learners. Next, the test results under Vocabulary Knowledge Scale proved the effectiveness of vocabulary enhancement activities on acquisition and retention of ESP vocabulary. The content of the paper was based on authors' professional experience as an ESP instructor designing and delivering content-based language programs in accounting English for accounting majors in GDUFS. The discussion in this paper is hoped to provide some insights into the challenges on learning and retaining ESP vocabulary.

The main part of the research involved the application of the desirable difficulty approach and the four strands principle, which served as a key for helping the learners. The study suggested that the deliberate learning of the

technical terms and the design of the activities should stem from the aim of the ESP course, to provide conditions for the acquisition of language necessary for the successful implementation of the students' professional tasks. By participating in the vocabulary activities, the students were able to focus on special terms, understand the meanings and functions of them, and learn more vocabularies (Nejad et al., 2014).

The general idea that lies behind the four strands principle is that learning from input alone is not enough (Nation & Yamamoto, 2012). There needs to be a balance of well proven learning activities across the four strands of meaning-focused input, meaning-focused output, language-focused learning and fluency development. In order to help the students to use words with appropriateness and precision for an effective communication in the ESP domain, the instructors need to evaluate the learning technique, characteristics of the ESP course, and the learner's level of subject matter knowledge. More importantly, they need to be aware of the specialized usage of words related to a specific discipline before they decide what words to be dealt with during the class time.

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