The Effect of Specialized Vocabulary Presentation Technique on Non-native Speakers’ Vocabulary Retention

by

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Abstract

Foreign language teachers who are involved in teaching language for specific purposes are increasingly aware of the need to expand students’ inventory of specialized vocabulary. The purpose of this project was to determine whether two techniques of presenting specialized vocabulary to non-native speakers of the language would have differential effect on learners’ vocabulary retention. The participants in the study were fourteen non-native speakers of English from seven different countries. At the beginning of the study the participants were divided into two groups—one control and one experimental group—each having an equal number of participants. In order to balance the groups in terms of their familiarity with vocabulary, the participants were asked to rank their familiarity with the key terms on a 3-point scale. Additionally, participants were balanced across the two groups based on their preferred learning styles. Both groups received a text which included specialized vocabulary and one of the two ways of presenting key terms. While the control group received concept maps of the specialized terms, the experimental group members received definitions of the terms and a concept map with blanks, and were asked to either fill in the blanks in the concept map or construct concept maps of the terms and discuss them with a partner. The participants in the two groups were given an equal amount of time to review the text and the key vocabulary. Subsequently, they were asked to take an interval scale vocabulary test that measured their vocabulary retention. A Mann-Whitney U Test was applied to determine whether there was a statistically significant difference between the two groups. Although the comparison of the test score results did not show any significant difference in the retention of the specialized vocabulary, the findings of this pilot
study may give foreign language teachers an impetus to use variation in presenting key specialized vocabulary, as well as serve as a basis for further research.

**Introduction**

The geopolitical processes that have been taking place in the world over the last several decades have undoubtedly shaped a new world reality and changed the perspective of professionals in their fields. Having transitioned into a market economy, the Russian economy has created a demand for a new type of a professional, who not only needs extensive knowledge in the content area but also must be able to communicate with professionals from various countries. Because English is often chosen as a *lingua franca* for professional symposia and conferences, many universities in Russia have introduced language for specific purposes courses that help students increase their English proficiency in content-specific areas. This trend can be seen in a Business English course that was launched six years ago at the Moscow Institute of Physics and Technology. Along with developing students’ communicative competence (one of the goals of English for Specific Purposes program), the course also introduces students to new content areas. The scope of the areas covered in the course ranges from macro- and microeconomics and finance to employment and the sustainable development of communities. The participants in the course are primarily non-business majors, who are not familiar with the content-specific vocabulary and who are forced to learn long lists of specialized terms. Laufer (2005) notes that “progress in learners’ communicative competence is reflected, among other things, in a gradual increase in the variety and sophistication of the vocabulary they use in their speech and writing”
The instructors in the program believe that choosing the most effective way to present vocabulary is key to facilitating students’ overall language proficiency.

This pilot study is an expansion of an earlier research study that examined native English speakers’ acquisition of specialized vocabulary. In that research study, vocabulary items were presented either through definition of specialized terms or through concept maps of the key terms (Borkovska, 2007). That previous study did not find a significant difference in retention of key vocabulary between the two groups of native English speakers. Nevertheless, the comments and feedback received from peers and instructors served as a basis for the expansion and elaboration of the previous study into this revised project, which explores the specialized vocabulary retention of non-native speakers of English by means of graphic organizers.

The literature review section of the current research study will address vocabulary acquisition in light of recent research findings in the field of first and second language acquisition. It will also introduce the research studies that shaped the author’s understanding of the construct of vocabulary and of the acquisition of vocabulary, and influenced the choice of vocabulary presentation techniques used in the research study.

**Literature Review**

Vocabulary knowledge is often viewed as a critical tool for second language learners because limited vocabulary in a second language impedes successful communication. Underscoring the importance of vocabulary acquisition, Schmitt (2000) emphasizes that “lexical knowledge is central to communicative competence and to the acquisition of a second language” (p. xi).
Nation (2001) further describes the relationship between vocabulary knowledge and language use as complementary: knowledge of vocabulary enables language use and, conversely, language use leads to an increase in vocabulary knowledge.

Faced with the complex lexical system of a language, a second language learner must attempt to not only learn the word itself but categorize and relate it to other words stored in the memory. Read (2000) notes that “words are the basic building blocks of the language, the units of meaning from which larger structures such as sentences, paragraphs and whole texts are formed” (p.1). Unlike the first language (L1) learner, who gradually acquires the vocabulary of the mother tongue beginning in childhood and continuing through adult life, the second language (L2) learner confronts a more challenging task. As Ellis, Tanaka, and Yamazaki. (1995) state, vocabulary acquisition encompasses the situational and functional uses of the word, along with its syntactic behavior, semantic features, and the associations built between a key word and other words.

Many researchers (Laufer, 1997; McCarthy, 1990; Nation, 2001) concur that the construct of vocabulary is not easily definable. Scholars debate about what constitutes a word in a stretch of written or spoken discourse, and about what knowledge of a word actually entails. Describing the complexity of learning tasks involved in acquiring vocabulary, Richards (1976) puts forward eight broad assumptions related to the components of lexical competence:

1. The native speaker of a language continues to expand his vocabulary in adulthood, whereas there is comparatively little development of syntax in adult life.
2. Knowing a word means knowing the degree of probability of encountering that word in speech or print and the sorts of words most likely to be found associated with it.

3. Knowing a word implies knowing the limitations imposed on the use of the word according to variations of function and situation.

4. Knowing a word means knowing the syntactic behavior associated with the word.

5. Knowing a word entails knowledge of the underlying form of a word and the derivations that can be made from it.

6. Knowing a word entails knowledge of the network of associations between that word and other words in the language.

7. Knowing a word means knowing the semantic value or minimal semantic features of a word.

8. Knowing a word means knowing many of the different meanings associated with a word. (p. 83)

In a recent TESOL virtual seminar dedicated to vocabulary acquisition, Nation (2007) pointed out that knowing a word entails knowing its meaning, form, and use. The form of the word includes its spoken and written form as well as its component affixes and stem. By the meaning of the word, Nation referred to the underlying concept behind the word, as well as particular instantiations and associations of the word. Finally, the use of the word includes the collocations, grammatical patterns, and constraints on the word’s use.
What is entailed in knowing a word is related to what constitutes a working vocabulary in a foreign language. Carter and McCarthy (1988) note that the argument about the number of words required for a working vocabulary in a foreign language has been one of the most controversial in vocabulary research. Using the findings of native speaker vocabulary acquisition studies (Goulden, Nation, & Read, 1990; Zechmeister, Chronis, Cull, D’Anna, & Healy, 1995), Nation (2001) hypothesizes that an educated native speaker of English knows approximately 20,000 word families. Each word family comprises the head word, its inflected forms, and the derived forms that are closely related to the head word. Nation (2001) notes that in early life native speakers acquire roughly 1,000 word families a year, a number which he believes to be a manageable learning goal for non-native learners of English in English as a Second Language (ESL) context.

The development of corpus linguistics has opened new vistas for research related to the frequency of words in large text corpora. West (1953) developed the classic list of high-frequency words, known as *A General Service List of English*, which contains the 2,000 most frequent word families, drawn from a corpus of five million words. Carter and McCarthy (1988) suggest that “knowing these words gives access to about 80 percent of the words in the written text, and thus stimulates motivation, since the words acquired can be seen by learners to have a demonstrably quick return” (p. 7). From a pedagogical perspective, Nation (2001) notes that the time spent teaching these words is “well justified by their frequency, coverage and range” (p. 16).
In addition to singling out the words that are most frequent in the language, Nation (2001) distinguishes specialized vocabulary, which provides coverage for texts representing specific content areas and low-frequency vocabulary. One example of specialized vocabulary lists for second language learners is the Academic Word List (Coxhead, 2000), which consists of 570 word families not included in A General Service List (West, 1953). Because much specialized vocabulary is embedded in the subject matter, Nation (2001) suggests that teachers need to treat these words as high-frequency vocabulary and help learners specializing in a particular subject matter develop strategies for recognizing and remembering these words in the context of the subject area texts.

In recent years, a number of research studies that focus on vocabulary acquisition and instructional techniques that facilitate vocabulary learning have been published (Folse, 2004; Lessard-Clouston, 2005; Pigada & Schmitt, 2006; Read, 2004). Nevertheless, there is little consensus among language teachers and researchers as to what constitutes an effective vocabulary teaching strategy. The literature on vocabulary acquisition describes multiple ways to introduce new vocabulary. Many authors (Laufer, 1997; Lewis, 1993; Moras, 2001; Nation, 2001) agree that presentation of vocabulary through meaning-based tasks yields the best result because such strategies for vocabulary presentation rely on students’ prior knowledge and experiences and requires a deeper level of information processing, which eventually leads to more efficient retention in long-term memory. The Depth-of-processing theory (Craik & Lockhart, 1972) posits that the retention of vocabulary is contingent upon the level of cognitive processing. The depth-of-processing theory proposes that a connection of word meaning with cognitive structures (known as semantic processing) already exists in learners’ minds, and it is
this connection, which leads to better retention. Sagarra and Alba (2006) note that “vocabulary memorization strategies requiring deeper processing have been found to result in better retention of words than strategies involving shallower processing” (p. 229). Moreover, the researchers emphasize that L2 learners often employ strategies that require only a minimum depth of processing, and advise language instructors to utilize vocabulary teaching strategies that will facilitate deeper cognitive processing.

Reflecting changes in language teaching methodologies, the role of vocabulary instruction in the language classroom has ranged from prominence to complete neglect (Kitajima, 2001; Sagarra & Alba, 2006). Richards (1976) concludes that “the teaching and learning of vocabulary have never aroused the same degree of interest within language teaching as have such issues as grammatical competence, contrastive analysis, reading or writing” (p. 77). Atay and Ozbulgan (2006) further claim that even though lexical knowledge has always been regarded as central in predicting students’ proficiency levels, the instructional techniques that facilitate vocabulary learning have not received enough attention.

Arguing for the importance of vocabulary teaching, McCarthy (1990) suggests that “no matter how well the student learns grammar, no matter how successful the sounds of L2 are mastered, without words to express a wider range of meanings, communication in an L2 just cannot happen in any meaningful way” (p. viii). Lewis (1993) asserts that vocabulary teaching should be at the core of language teaching since “language consists of grammaticalised lexis, not lexicalized grammar” (p. vi). Further in the discussion of the proposed lexical approach, the Lewis denies a
dichotomy between grammar and lexis, and suggests that “much of the language consists of multi-word ‘chunks’” or prefabricated language units (p. vi).

While hypothesizing about the way words are stored in memory, Pawley and Syder (1983) propose that the reason for native-like fluency in speech is that units of language are not stored as individual words but rather as “chunks” in the memory. These chunks help to minimize the required time for retrieval and processing of the information by a language user. Lewis (1993) concurs that “fluency is achieved largely by combining chunks, reducing processing difficulty” (p. 121). Nation (2001) describes the advantages of “chunking” as the basis for a vocabulary presentation strategy and believes that learners should be encouraged to chunk known language components as this will allow them to work with larger units than words and in turn develop their fluency. Additionally, Moras (2001) emphasizes the importance of implementing awareness-raising activities that will help learners identify multi-word chunks.

The findings of the vocabulary retention studies carried out by Crow and Quigley (1985) as well as Brown and Perry (1991), suggest that semantic processing is an effective vocabulary learning strategy. In the latter study, the researchers were particularly interested in whether the degree of vocabulary retention varies over time depending on the strategy that was used to introduce common ESL vocabulary to students of two proficiency levels. The three vocabulary strategies used in the study were keyword, semantic, and keyword-semantic. The keyword method involved forming associations between a new word in the L2 and a word in the student’s L1 that was acoustically or orthographically similar to the new word. The semantic mapping method entailed the creation of diagrams or charts that graphically represented the semantic features of
the new word. The researchers hypothesized that a combination of the two methods, which they termed the keyword-semantic method, would produce better results than either of them separately, since the keyword method would provide a link between a word in the L2 and its meaning in the L1, whereas the semantic component would enhance semantic associations with existing knowledge structures. Results of vocabulary tests taken by groups that received different vocabulary instruction showed that the keyword-semantic method was much more effective than the keyword method and a little more effective than the semantic method. The keyword method worked mostly at the sensory level and is thought not to lead to considerable vocabulary retention. In line with the findings of this research study, Moras (2001) suggests that vocabulary should not be introduced to learners in a linear, alphabetical order, but rather by means of graphic organizers, such as collocation tables, mind-maps, and word trees to help the learners retrieve vocabulary items more easily from their mental lexicon. Oxford (1990) proposes several memory strategies that can be used for vocabulary teaching:

- Creating mental linkages: grouping, associating, placing new words into a context;
- Reviewing well, in a structured way;
- Employing action: physical response or sensation, using mechanical techniques;
- Applying images and sounds: using imagery or semantic mapping and using keywords and representative sounds in memory. (p. 58)

Oxford (1990) defines semantic mapping as a memory strategy that involves organizing concepts and their relationships into a diagram in which key concepts are highlighted and connected to related concepts through arrows or lines. Hubbard, Jones, Thornton, and Wheeler (1983) points out that “if teachers want students to remember new vocabulary, it needs to be learnt in context,
practiced, and then revised to prevent students from forgetting. Teachers must make sure students have understood the new words, which will be remembered better if introduced in a ‘memorable way’” (p. 50). In an article that identifies several foci in vocabulary teaching, Nation (1990) proposes the “learning burden” principle, which states that “the more a word represents patterns and knowledge that learners are already familiar with, the lighter is the learning burden” (p. 24). The teachers’ task lies in drawing students’ attention to salient patterns and analogies between the second language and the first, lightening the learning burden.

What constitutes a “memorable way” for teaching vocabulary? Research studies related to vocabulary acquisition both in L1 and L2 yield a variety of results. In his work supporting the Input Hypothesis (IH), Krashen (1989) suggests that vocabulary can best be acquired through reading, and hypothesizes that “reading is not simply a way to develop vocabulary, spelling and other important aspects of competence, it is the only way” (p. 453). On the other hand, the findings of Zimmerman’s (1997) L2 vocabulary acquisition study suggest that interactive vocabulary instruction accompanied by moderate amounts of reading assignments may yield the best results in vocabulary acquisition. Bahr and Dansereau (2005), in their research into graphic organizers (in the context of their research, these were English-German bilingual knowledge maps) as a presentational format for foreign language vocabulary, found an increase in both immediate vocabulary recall and vocabulary retention over time. The findings of the published research studies related to the use of graphic organizers in L1 and L2 inspired the author’s interest in the use of a graphic component for vocabulary presentation. Moreover, the feedback from the native speaking participants in the original research project (Borkovska, 2007) suggested that the interaction and collaborative construction of concept maps might increase
vocabulary retention. The synthesis of the ideas from the published research and feedback received from the native-speaking participants resulted in the current study.

The Current Study

The current study was prompted by the review of literature related to vocabulary acquisition and retention that was presented in the preceding section as well as by the author’s own experiences presenting vocabulary in ESL and EFL classrooms. This study examined whether or not interaction between learners in constructing concept maps would influence their retention of vocabulary. The following research question was formulated:

1. Does constructing concept maps based on the definition of key vocabulary items versus reviewing concept maps of the key vocabulary increase participants’ vocabulary retention?

The research is quantitative in nature and the statistic used for the analysis of the data is a Mann-Whitney U test. Following the rules of statistical reasoning described in Turner and Jourdenais (2006), the researcher first set the hypotheses of the study.

Null hypothesis: There is no statistically significant difference between learners who receive vocabulary input primarily by reviewing a concept map of a specialized term and learners who receive vocabulary input by using definitions and constructing their own concept maps.

Alternative Hypothesis: There is a statistically significant difference between learners who receive vocabulary input primarily by reviewing a concept map of a specialized term and learners who receive vocabulary input by using definitions and constructing their own concept maps.

Method
Participants

The fourteen non-native speakers of English (n=14), three males and eleven females, who participated in the pilot study were from seven countries: Japan (6), Russia (2), Afghanistan (2), Tajikistan (1), Saudi Arabia (1), Italy/Canada (Quebec) (1), and Uganda (1). The participants in the project were either current graduate students at MIIS or future graduate students who had been conditionally accepted to the Institute and who were taking English for Academic and Professional Purposes course at MIIS to increase their language proficiency and prepare for future graduate studies. The age of the participants ranged from 24 to 32 years old and their length of stay in an English-speaking country varied from three years to two months. As the participants’ answers to the background questionnaire attest, only one of them had prior experience in a business-related area. The reading text and key specialized vocabulary to be tested were chosen from an area of business that that was unfamiliar to the participants—stock exchanges.

Materials

In order to ensure the unfamiliarity of the target vocabulary, the researcher distributed a 25-word list of technical specialized vocabulary appearing in the text used in the study (Appendix A). The researcher asked the participants to rate their familiarity with the terms on a 3-point, Likert-type scale: 1) I am familiar with the technical meaning of the term and can use it in context; 2) I think I can explain the meaning of the term to my classmates; and 3) I do not know the technical meaning of the term. The researcher eliminated words that were familiar to a majority of the
participants and, by compiling the response distribution for each vocabulary item, singled out the ten key vocabulary items that were least familiar to the participants. Additionally, the participants were asked to complete a perceptual learning styles preference survey created by Reid (1998) (Appendix B) to determine their major and minor learning style preferences.

The researcher divided the participants into two groups (n=7), each receiving one of the two ways of presenting vocabulary. To create comparable groups, the researcher included an equal number of people who indicated that they either knew the technical meaning of the target vocabulary item or could explain it to their peers. Since vocabulary input received by the participants was mostly visual (concept maps) or visual and auditory (definitions, peer discussion), the researcher balanced the number of participants with auditory, visual, and kinesthetic major learning style preferences (as determined by perceptual learning style preferences survey).

The reading text chosen for use in the study was an adapted version of a text introducing stock exchanges that was authored by Harper (2004) and was retrieved from a web site titled Investopedia (see Appendix C). The ten key vocabulary items that were chosen to be tested were highlighted in the text. The definitions of the key terms were retrieved from an on-line dictionary of financial terms (see Appendix D). The concept maps representing the meaning of the key vocabulary items were constructed by the author using CMap software and were later reviewed by a content expert (see Appendix E). Using the feedback of the native-speaking participants in the previous research study (Borkovska, 2007) the author made changes to the layout of certain
concept maps. These modified maps were later reviewed by two students enrolled in a graduate program in business administration.

The vocabulary test that was administered to check participants’ retention of the key terms consisted of ten multiple-choice items and ten fill-in-the-blank items (see Appendix F). Each answer on the test was weighted and yielded a score of one for each correct answer (total score on the test = 20). Although many researchers in the language assessment field (Bailey, 1998, Hughes, 1989; Oller, 1979) caution against the use of multiple-choice format, this format was selected as the best means of testing immediate retention of the vocabulary; additionally, a multiple-choice test is time-efficient, can be scored objectively, and yields interval-scale data. Both the correct answer and the distractors shared semantic features, thus requiring the participants to have a rather precise understanding of the meaning of the target word in order to answer the question correctly. Analysis of the vocabulary test results received after administering it to native speakers of English suggested that some of the multiple-choice questions on the test proved to be easy for the participants. Those items did not serve their initial purpose of checking whether the participants were able to retain words introduced to them through one of the vocabulary presentation techniques. The results of the native-speakers’ vocabulary test were used for calculation of item facility and item discrimination (see Appendix G). The multiple-choice items that proved to be easy to most native speakers and discriminated poorly were modified to improve the usefulness of the test.

**Procedure**
As described above, the first stage of the research study involved pre-testing key vocabulary items and establishing participants’ preferred learning styles. For the second stage of the research project, the participants were asked to read the text and review highlighted vocabulary items using one of the two ways of presenting vocabulary. Upon completion of the consent form (see Appendix H), the participants in the control group received the concept maps of the highlighted terms, while the participants in the experimental group received the definitions of the terms and concept maps with blanks (see Appendix I), and were asked to either fill in the blanks in the concept map of the term or construct their own concept maps of the key vocabulary items and discuss them with a partner. The participants were given 30 minutes to read the text and review the key vocabulary by using either the concept maps or constructing their own concept maps of the key terms individually or with a partner. The participants in the control group were not allowed to take notes during the experiment. Once the allotted time for the review of the key terms elapsed, the text, the original concept maps, and the concepts constructed or filled in by the participants in the experimental group were collected and the vocabulary test (see Appendix F) was distributed. The participants were allotted 15 minutes to complete the vocabulary test. As an addendum to the vocabulary test, the researcher asked the participants to comment on their impressions of the technique for presenting vocabulary; specifically, its clarity and value in relation to their vocabulary learning. Participants could respond in writing and by choosing one of the following statements: 1) I find this vocabulary presentation technique beneficial to the learner; or 2) I find this vocabulary presentation technique confusing. Once the test was scored, the descriptive statistics for each group were calculated and the comments were tabulated.

**Results and Discussion**
Analysis and Results

This research study has a quasi-experimental design. A vocabulary pre-test was used to ensure that participants were not familiar with the target vocabulary, thereby establishing the groups’ comparability at the outset. The study treatment was conducted during the second stage of the experiment and consisted of the type of specialized vocabulary input. The control group was presented with the vocabulary through concept maps of the key terms, while the experimental group received definitions of the target terms and was asked to construct a concept map in pairs using the definition and the text.

The descriptive statistics calculated for each group are presented in Table 1:

<table>
<thead>
<tr>
<th></th>
<th>Points possible</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Range</th>
<th>Standard Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept Map Group</td>
<td>20</td>
<td>14.5</td>
<td>7</td>
<td>15</td>
<td>16</td>
<td>3.64</td>
<td>13.28</td>
</tr>
<tr>
<td>(n=7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definitions/Constructing Concept Maps Group</td>
<td>20</td>
<td>14.4</td>
<td>3</td>
<td>14</td>
<td>0</td>
<td>3.2</td>
<td>10.28</td>
</tr>
<tr>
<td>(n=7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Participants (n=7)*
The researcher plotted the scores that the participants received on the test and found that their results did not yield a normal distribution. Hence, the non-parametric statistical procedure Mann-Whitney U Test\(^1\) was performed to compare the two groups rather than the parametric \(t\)-test formula. Since this was exploratory research, alpha was set at .05 \((\alpha=.05)\). The obtained value of \(z\) for the comparison of two groups is presented in Table 2:

<table>
<thead>
<tr>
<th>Source Table</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>21.500</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>49.500</td>
</tr>
<tr>
<td>(Z)</td>
<td>-0.385</td>
</tr>
<tr>
<td>Asymp.Sig (2-tailed)</td>
<td>0.700</td>
</tr>
<tr>
<td>Exact Sig.[2*(1-tailed Sig.)]</td>
<td>0.710</td>
</tr>
</tbody>
</table>

The critical \(z\) value for alpha set at .05 is 1.96. After the researcher obtained the observed value of \(z = -.385\), and compared it with the critical value of \(z = 1.96\), the outcome of the comparison was \(z\) (critical) > \(z\) (observed) \((1.96 > -.385)\), which indicates the null hypothesis: there is no statistically significant difference between the group of learners who received vocabulary input primarily be reviewing the concept maps of specialized terms and a group of learners who received definitions of key terms and were asked to construct concept maps or fill in the blanks on the pre-constructed maps.

**Discussion and Implications**

\(^1\) The assumptions for the use of the statistic are:

1. Independent variable is nominal (type of vocabulary presentation—two levels)
2. Dependent variable is interval or ordinal (results of the test—interval scale)
3. Groups are equal in size \((n= 7)\)
4. The results may not yield normal distribution (Hatch & Lazarton, 1991, p. 274)
Even though the statistical analysis of the results obtained from participants’ vocabulary tests suggested that there was no difference in retention of specialized vocabulary between the two groups of non-native speakers of English who received vocabulary input through either pre-constructed concept maps or definitions and self-constructed concept maps, the current study provides a basis for further research related to vocabulary acquisition. The participants were asked to comment on their impression of the vocabulary presentation technique and whether it facilitates vocabulary retention. A majority of both groups reported that presentation of key vocabulary items by using concept maps was beneficial, though two participants in the control group and one in the experimental group reported that they found either the concept maps or this vocabulary presentation technique to be confusing (see Table 3).

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Participants’ impression of vocabulary presentation techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beneficial to the learner</td>
</tr>
<tr>
<td>Concept Map Group</td>
<td>4</td>
</tr>
<tr>
<td>Definition/Constructing Concept Maps Group</td>
<td>6</td>
</tr>
</tbody>
</table>

Due to numerous limitations the results of the current study provide only tentative answers to the research question. The research study has a number of threats to internal and external validity. The researcher tried to overcome some of the threats to internal validity by ensuring that both the experimental and control groups met in the same place at the same time of the day, and that the participants in the study had little or no background in business-related areas. The participants all shared a common L2 (English), and the groups were balanced at the outset of the study with regard to their familiarity with key vocabulary terms and preferred learning styles.
However, several possible threats to the validity of the study remain:

- The small sample size (only fourteen participants) does not permit any definitive conclusions to be made regarding the efficiency of either vocabulary presentation technique.

- The participants in the study are all successful language learners who are highly proficient in one or more foreign languages. As such, they might have already developed mnemonic techniques for remembering new vocabulary items.

- The reliability of the pretest and the posttest are not yet established. Since the researcher used an exam which was specifically developed for this study rather than using a large-scale exam, this fact may pose a threat to the overall validity of the study.

Despite these limitations, the researcher believes that this pilot study will help language instructors increase their inventory of specialized vocabulary presentation techniques and might serve as a basis for further vocabulary acquisition research. The results of this study provide multiple venues for further research related to specialized vocabulary acquisition and retention. Further research could examine differences between native and non-native speakers’ retention of specialized vocabulary after receiving similar vocabulary input. Additionally, the researcher is planning to replicate the study in English as a Foreign Language (EFL) context at the Moscow Institute of Physics and Technology, using a larger number of participants and administering a delayed post-test to measure the retention of key vocabulary items over time. The tentative findings of the study as well as the comments received from the participants indicate that contextualizing key specialized terms and presenting the terms using graphic organizers tend to be conducive to vocabulary retention.
References


Appendix A

Assume that you are reading a business news section of the *Wall Street Journal*. You come across one of these terms. Please mark your familiarity with the technical meaning of the term (by highlighting the appropriate number) in the business news genre.

1. Supply
2. Broker
3. Secondary Market
4. Demand
5. Share holding
6. Securities dealer
7. Options
8. Market capitalization
9. Over-the-counter market
10. Trading floor
11. Intermediary
12. Bid-ask spread
13. Investor
14. Auction
15. Credibility
16. Listing requirement
17. Liquidity
18. Initial Public Offering

<table>
<thead>
<tr>
<th>Term</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Broker</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Secondary Market</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Demand</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Share holding</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Securities dealer</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Options</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Market capitalization</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Over-the-counter market</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Trading floor</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Intermediary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Bid-ask spread</td>
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<tr>
<td>Initial Public Offering</td>
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<td>2</td>
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19. Ask price | 1 | 2 | 3
20. Brokerage Account | 1 | 2 | 3
21. Market Specialist | 1 | 2 | 3
22. NASDAQ | 1 | 2 | 3
23. Company flotation | 1 | 2 | 3
24. Option trading | 1 | 2 | 3
25. Market maker | 1 | 2 | 3

**Additional Comments**

I have prior experience in business-related areas  Yes No

If you choose yes, in what areas of business do you have experience  _______________ and how long __________?
Appendix B

Perceptual Learning-Style Preference Questionnaire


Directions

People learn in many different ways. For example, some people learn primarily with their eyes (visual learners) or with the ears (auditory learners); some people prefer to learn by experience and/or by "hands-on" tasks (kinesthetic or tactile learners); some people learn better when they work alone while others prefer to learn in groups.

This questionnaire has been designed to help you identify the way(s) you learn best—the way(s) you prefer to learn.

Read each statement on the following pages. Please respond to the statements AS THEY APPLY TO YOUR STUDY OF ENGLISH.

Please respond to each statement quickly, without too much thought. Try not to change your responses after you choose them. Please answer all the questions. Please use a pen to mark your choices.

Perceptual Learning-Style Preference Questionnaire
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<tr>
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<th>A</th>
<th>U</th>
<th>D</th>
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<tbody>
<tr>
<td>1. When the teacher tells me the instructions I understand better.</td>
<td></td>
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<tr>
<td>2. I prefer to learn by doing something in class.</td>
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<tr>
<td>3. I get more work done when I work with others.</td>
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<tr>
<td>4. I learn more when I study with a group.</td>
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<tr>
<td>5. In class, I learn best when I work with others.</td>
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<tr>
<td>6. I learn better by reading what the teacher writes on the chalkboard.</td>
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<tr>
<td>7. When someone tells me how to do something in class, I learn it better.</td>
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<tr>
<td>8. When I do things in class, I learn better.</td>
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<tr>
<td>9. I remember things I have heard in class better than things I have read.</td>
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<tr>
<td>10. When I read instructions, I remember them better.</td>
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<tr>
<td>11. I learn more when I can make a model of something.</td>
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<tr>
<td>12. I understand better when I read instructions.</td>
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<tr>
<td>13. When I study alone, I remember things better.</td>
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<tr>
<td>14. I learn more when I make something for a class project.</td>
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<tr>
<td>15. I enjoy learning in class by doing experiments.</td>
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<tr>
<td>16. I learn better when I make drawings as I study.</td>
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<tr>
<td>17. I learn better in class when the teacher gives a lecture.</td>
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<tr>
<td>18. When I work alone, I learn better.</td>
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<tr>
<td>19. I understand things better in class when I participate in role-playing.</td>
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<tr>
<td>20. I learn better in class when I listen to someone.</td>
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</tbody>
</table>
21. I enjoy working on an assignment with two or three classmates.

22. When I build something, I remember what I have learned better.

23. I prefer to study with others.

24. I learn better by reading than by listening to someone.

25. I enjoy making something for a class project.

26. I learn best in class when I can participate in related activities.

27. In class, I work better when I work alone.

28. I prefer working on projects by myself.

29. I learn more by reading textbooks than by listening to lectures.

30. I prefer to work by myself
Getting to Know Stock Exchanges

September 24, 2004 | By David Harper

A stock exchange does not own shares. Instead, it acts as a sort of high-tech flea market where buyers connect with sellers. Every public stock trades on one of several possible exchanges such as the New York Stock Exchange (NYSE) or American Stock Exchange (AMEX). Although you will most likely trade stocks through a broker, it is important to understand the relationship between exchanges and companies and the ways in which the requirements of different exchanges provide protection to investors.

The primary function of an exchange is to provide liquidity; in other words, to give sellers a place to "liquidate" their share holdings. Stocks first become available on an exchange after a company conducts its initial public offering (IPO). In an IPO, a company sells shares to an initial set of public shareholders (a.k.a. the primary market). After the IPO "floats" shares into the hands of public shareholders, these shares can be sold and purchased on an exchange (a.k.a. the secondary market).

The exchange tracks the flow of orders for each stock, and this flow of supply and demand sets the price of the stock. Depending on the type of brokerage account you have, you may be able to view this flow of price action. For example, if you see that the "bid price" on a stock is $40, this means somebody is telling the exchange that he or she is willing to buy the stock for $40. At the same time you might see that the "ask price" is $41, which means somebody else is willing to sell the stock for $41. The difference between the two is the bid-ask spread.

The NYSE and AMEX are both primarily auction based, which means specialists are physically present on the exchanges’ trading floors. Each specialist "specializes" in a particular stock, buying and selling the stock in a verbal auction. These specialists are under competitive threat by electronic-only exchanges that claim to be more efficient (that is, execute faster trades and exhibit smaller bid-ask
spreads) by eliminating human intermediaries.

The NYSE is the largest and most prestigious exchange. Collectively, its listed companies represent about $18 trillion in market capitalization. Listing on the NYSE affords companies great credibility because they must meet initial listing requirements and also comply annually with maintenance requirements. For example, to remain listed, NYSE companies must keep their price above $1 and their market capitalization (number of shares x price) above $50 million.

AMEX is a smaller but quite prestigious exchange. AMEX also has a history of innovating: it pioneered the concept of exchange traded funds (ETFs) and it has the second largest options trading market. The NASDAQ, an electronic exchange, is sometimes called “screen-based” because buyers and sellers are connected only by computers over a telecommunications network. Market makers, also known as dealers, carry their own inventory of stock. They stand ready to buy and sell Nasdaq stocks, and they are required to post their bid and ask prices. Among several high-technology sections, Nasdaq lists the most companies. Although the NYSE has a far greater total market capitalization, Nasdaq has surpassed the NYSE in the number of both listed companies and shares traded.

Over-the-Counter (OTC) refers to markets other than the organized exchanges described above. OTC markets generally list small companies, and often (but not always) these companies have “fallen off” to the OTC market because they were de-listed from Nasdaq.

Some individual investors will not even consider buying OTC stocks due to the extra risks involved. On the other hand, some strong companies trade on the OTC. In fact, several strong companies have deliberately switched to OTC markets to avoid the administrative burden and costly fees that accompany regulatory oversight laws such as the Sarbanes-Oxley Act.

### Appendix D

**Directions**: Review the dictionary definitions of the words from the text. Individually or working with your classmate construct the graphic representation of the semantic meaning of the term (concept map).

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broker</strong></td>
<td>An individual or a firm that charges a fee or commission for executing buy and sell orders submitted by an investor.</td>
</tr>
<tr>
<td><strong>Initial Public Offering (IPO)</strong></td>
<td>The initial sale of securities by a private company to the public. IPOs are often issued by smaller, younger companies seeking capital to expand, but can also be done by large privately-owned companies looking to become publicly traded.</td>
</tr>
<tr>
<td><strong>Company Flotation</strong></td>
<td>The process of changing a private company into a public company by issuing shares and soliciting the public to purchase them.</td>
</tr>
<tr>
<td><strong>Secondary Market</strong></td>
<td>A market where investors purchase existing securities from other investors rather than an issuing corporation.</td>
</tr>
</tbody>
</table>
### Bid-ask spread

The difference in price between the highest price that a buyer is willing to pay for an asset (bid) and the lowest price for which a seller is willing to sell it (ask).

### Market Specialist

A member of an exchange who acts as the market maker to facilitate the trading of a given stock. The specialist holds an inventory of the stock, posts the bid and ask prices, manages limit orders and executes trades.

### Market Capitalization

A measure of a company's total value. It is estimated by determining the cost of buying an entire business in its current state. Often referred to as "market cap," it is the total dollar value of all outstanding shares. It is calculated by multiplying the number of shares outstanding by the current market price of one share.

### Options trading

The trade of contracts (options) that provide the right, but not the obligation, to buy or sell specific amount of a specific security within a predetermined time period.
**Dealer**

An individual or a firm trades securities for their personal accounts. Dealers attempt to profit from the spread between the selling price and the purchase price in a given transaction.

**Over the Counter Market**

A decentralized market of securities not listed on an exchange where market participants trade over the telephone, facsimile or electronic network instead of a physical trading floor. There is no central exchange or meeting place for this market.
Appendix E
Stage 2. Vocabulary Presentation

**Directions:** Review the concept maps of the terms from the text. After the revision of terms, return the handout with the text and concept maps to Nataliya. You will be asked to take a vocabulary test after you review the terms.

**Broker**

![Broker Concept Map]

**Company Flotation**
Company Flotation

function

to solicit public to buy shares

change of company status

issues shares

Private Company

Public Company
Bid-ask spread

The highest price willing to pay (bid) → Difference → The lowest price willing to sell (ask)

Bid-Ask Spread
Market Capitalization

Market Capitalization
"Market Cap"

Company outstanding shares

multiplied by

Price
Dealer

Dealer (an individual/firm)

- keeps securities on his personal account
- trades securities to receive profit

Organized Exchange/Over-the-Counter market

participant of
Initial Public Offering (IPO)

Private Company $\xrightarrow{\text{change of ownership status}}$ Public Company

Initial Public Offering (IPO)
Initial Sale of Securities

purpose

- sharing of the ownership
- raise capital
- expansion
- adjustment of capital structure
Secondary Market

Primary Market

Issuing Corporation — sells securities — Investor

Secondary Market

buy/sell securities among

Investor 1 — Investor 2 — Investor N
Market Specialist

facilitates the continuity and liquidity of the trade of securities

executes trades
damps excessive market volatility
decreases drastic price fluctuations
keeps order books
Options trading

Options Trading

trade of contracts

that give the right (not obligation)

to buy/sell security

at specific date

at agreed upon price

during some time period

according to specified formula
**Over-the-Counter Market**

**Markets of Securities**

- **Over-the-Counter Market**
  - securities traded
    - over the phone, e-network
    - exotic derivative securities
    - both listed and non-listed securities
    - smaller volume
  - doesn't have physical meeting place

**Stock Exchange**

- securities traded
  - standardized types of securities
    - listed securities
    - big trading volume
    - securities registered by SEC (Stock Exchange Commission)
Appendix F

Vocabulary Test

Task 1. Choose the best answer, from the four choices given:

1. The initial sale of a corporation’s common shares to investors on a public stock exchange is________. Its main purpose is to raise capital for the corporation.

   a. market capitalization
   b. Initial Public Offer
   c. bid-spread ask
   d. acquisition

2. The financial institution for trading of securities that have already been issued in an initial private or public offering is commonly known as________.

   a. over the Counter market
   b. secondary market
   c. ledger
   d. company flotation

3. The difference between the buying and selling price of the same transaction is known as ____________.
a. option
b. brokerage
c. market value
d. bid-ask spread

4. In return for providing a required amount of stock inventory from the personal account to the security's market, __________ is granted various informational and trade execution advantages.

a. dealer
b. stock exchange participant
c. market specialist
d. broker

5. The participant of the Stock Exchange who sells or buys stock on behalf of a customer and works as an agent matching up stock buyers and sellers is often called ________.

a. dealer
b. company director
c. broker
d. option trader
6. When oil corporation “X” decided to go public in 1998, they _______their shares on NYSE.

a. sold out
b. floated
c. wrote out
d. petitioned

7. A broker facilitates a transaction on behalf of a client, while ________takes ownership of the assets and is exposed to inventory risk.

a. specialist
b. solicitor
c. dealer
d. market participant

8. A measurement of corporate size that refers to the current stock price multiplied by all the securities the company has ever issued is often referred to as ____________.

a. market price
b. market option
c. market stock price
d. market capitalization
9. One of the most common financial activities that is conducted through online trading brokers is trading of “privileges” to buy certain security during some period of time at an agreed price, also known as __________.

a. option  
b. share  
c. futures  
d. bond

10. Securities that are usually very risky and not considered stable enough to trade on major Stock Exchange are usually traded on____________.

a. NASDAQ  
b. AMEX  
c. Over the Counter Market  
d. Options market
Task 2. Choose the term from a word bank, which best fits the description:

IPO, a dealer, a company flotation, a specialist, secondary market, market capitalization, an option, bid-and-ask spread, a broker, over-the-counter market

11. A measurement of corporate or economic size equal to the stock price times the number of shares outstanding of a public company

12. The amount by which the seller’s price exceeds the buyer’s price is

13. This organization is often called the “off-board market,” and sometimes the “unlisted market”

14. The participant of the Stock Exchange who sells or buys stock on behalf of a customer

15. The first sale of a corporation's shares to investors on a public stock exchange

16. AMEX (American Stock Exchange) participant who acts as the official market maker for a given security.
17. The financial market for trading of securities that have already been issued in an initial private or public offering ________________.

18. The process of changing company ownership from private to public, which is often referred to as “going public” is known as ________________.

19. The participant of the Stock Exchange who acts as a principal in buying/selling of stock is ________________.

20. The right to buy/sell security at an agreed-upon price during a certain period of time or on a specific date is the characteristics of ________________.

Additional Information

Circle the answers that relate to your experience. Your feedback will be greatly appreciated.

1. My Vocabulary Presentation Technique was:

Definition of terms/Constructing Concept Maps   Concept Maps
2. I find this Vocabulary Presentation Technique:

Beneficial to the learner  Confusing

3. I find the Vocabulary Test:

1 – easy
2 – average
3 – difficult

4. In the project overall and the test I would improve ______________________

Additional Comments:

Thank you so much for your time and effort
Appendix G

Item facility of multiple-choice vocabulary test

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Mean ID: 0.33
Appendix H

Disclaimer:

I authorize Nataliya Borkovska to use the results of the test for the purposes of her research on vocabulary acquisition/retention. I understand that my name will be kept anonymous in the research report.

Signature ___________________                                    Date _____________________
Appendix I

Directions:
By using the supplied definitions of key terms and the text about stock exchanges, collaboratively construct the graphic representations of key terms. You may use a pre-constructed concept map of the specialized terms to fill in the missing information.
Buyer \rightarrow Asset \rightarrow The lowest price willing to sell (ask) \rightarrow Difference \rightarrow Bid-Ask Spread
Market Capitalization ("Market Cap")

Multiplied by
Market Specialist

role

----- Maker

function

holds the inventory of stock

executes trades
Options Trading

trade of

to buy/sell security

at specific date
Over the Counter Market (not part of the Stock Exchange) → Market of unlisted securities

securities are traded