THE EFFECT OF EXPOSURE TO MEANINGS OF UNKNOWN VOCABULARY ON READING COMPREHENSION IN THE TARGET LANGUAGE OF SECOND YEAR CHINESE COLLEGE STUDENTS

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Abstract

This paper presents a study of the effect of exposure to meanings of unknown vocabulary on reading comprehension in the target language in this case English. The subjects are 30 second year Chinese college students. The results illustrate that the subjects being exposed to the meanings of unknown words in a passage does exert a significant effect on their reading comprehension in the target language.

Key words
exposure to unknown vocabulary, pretest, posttest, reading comprehension, significant difference

1 Introduction

Every day we process a lot of reading materials to get information to learn new things and to communicate. So good comprehension of the reading materials is an important ability we have to acquire. Since most of the important and up-to-date scientific research results are published in English more and more non-native speakers of English need to get useful information from original publications which are often in English.

But it is not easy to become a skilled and efficient reader especially when one is reading in a foreign language. Reading comprehension is a complex process. It involves not only the reader’s knowledge of the language code and his knowledge of discourse structure or his discourse processing strategies but also his prior experience or his background knowledge. Coady 1979. In the second language comprehension process these three types of knowledge also need to be activated for successful comprehension to take place. All three variables have an effect on the reader’s comprehension of the discourse.

It is a common practice in foreign language teaching in China that new words and expressions are presented before the material is introduced. At the college level the foreign language teacher still spends much of the precious class time explaining unfamiliar vocabulary. College students also believe that inadequate knowledge of the lexicon contributes mainly to their reading comprehension deficits.

Let’s first see how many English words the average Chinese college student knows. Chinese college students have studied English as their first foreign language for at least six years before they come to college and by the end of their second year of college they are required to have a command of 4000 English words. Of course they still have vocabulary difficulty in understanding the target language but does the introduction of unknown lexical items make significant difference to their reading?
comprehension\[Do teachers and students have the theoretical basis and experimental support to view vocabulary difficulty as the main factor affecting college students' reading achievement in the target language?\]

1. Statement of the Problem

The purpose of this study was to investigate the effect of exposure to meanings of difficult vocabulary on the reading comprehension in the target language in this case English of second-year Chinese college students. Exposure to meanings of difficult vocabulary was defined as meaning the subjects were given an opportunity to study the Chinese equivalents of unfamiliar vocabulary words before reading the passage.

1. Related Literature Review

During the past three decades, there has been increased research interest in the effects of three types of knowledge in the comprehension process. Researchers have investigated the effects of various factors like context advance organizers — devices that activate relevant background knowledge — schemas knowledge of discourse structure and vocabulary on reading achievement. As to the relationship between knowledge of difficult vocabulary and better comprehension, most studies have found no significant positive correlation between them, but have discovered that relevant background knowledge advance organizers schemas and discourse processing strategies affected reading comprehension significantly.

For example, in a study done with ESL readers, Johnson (1982) presented his subjects with two test passages. One passage was about things that the subjects were familiar with, such as college life, which is familiar to college students, but the other passage was unfamiliar to the subjects, such as the life of Eskimos. He also divided his subjects into four groups and gave the four groups different amounts and types of help with the unfamiliar vocabulary in the passages. Subjects were given (1) no vocabulary list, (2) an opportunity to study the definitions of unfamiliar vocabulary words before reading the passage, (3) the passage with the target words glossed in the passage and (4) an opportunity to study the vocabulary before reading the passage and definitions of the words glossed in the text.

Johnson found that students’ familiarity with the test passage or their prior cultural background knowledge had a significant effect on reading comprehension scores because all four groups did significantly better with familiar passage than they did with unfamiliar passages. He also found that exposure to meanings of the difficult vocabulary items did not make a significant difference in comprehension of the passages since students in 2, 3, and 4 groups did not perform significantly better than students in the first group when answering true/false questions on the information given. Johnson drew the conclusion that background knowledge helped enhance comprehension more significantly than did knowledge of vocabulary.

Jenkins et al. (1978) found that vocabulary training was helpful at the sentence level but of no use when comprehension was tested at the discourse level. They reported that students exposed to meanings of difficult vocabulary were at an advantage when dealing with single sentences containing target words yet they did not perform significantly better on tests revealing whether they had understood the main ideas of the whole passage or not.

Tomlinson Louise M. (1995) studied the relationship between flag words, signal words, and efficient thinking active reading, comprehension and test taking and he found that mature and efficient learners pay attention to the signals provided by flag words, which are cues to important details in the text when reading. Flag words express enumerations, superlatives or transitions in the text. That is to say, the reader’s knowledge of the discourse structure had an effect on reading efficiency.

However, no studies have been done with Chinese college students to find out whether difficult vocabulary is a significant factor affecting their reading comprehension in English. This may have important implications as to what to teach and what the student should do to improve their reading comprehension in the target language.
IV. Statement of the Hypothesis

Research strongly suggests that exposure to the meanings of difficult vocabulary does not have a significant effect on the reading comprehension of learners. Furthermore, there is evidence that cultural backgrounds, advance organizers, and discourse processing strategies can make a significant difference. Therefore, it was hypothesized that second-year Chinese college students who are exposed to meanings of unfamiliar vocabulary words would not exhibit greater reading comprehension at discourse level than second-year college students who are not exposed to meanings of unfamiliar vocabulary words.

V. Method

Subjects: Subjects for this study were second-year students in a key Chinese university in Beijing. A natural class of thirty students were randomly selected to be in the study and randomly assigned to two groups.

Instrument: The effectiveness of exposure to the meanings of difficult vocabulary was determined by comparing the reading achievement of the two groups on a comprehension test of two passages of relative difficulty. In this study, the testing passages contained six new words in every one hundred words.

Design: There were two randomly formed groups of 15 students each. Students in both groups were pretested using an established valid test of reading achievement with no vocabulary list given to either of the two groups and posttested using a reading comprehension test with one group given the Chinese equivalents of difficult vocabulary and for the other group no vocabulary list given.

Procedure: A natural second-year class of 30 students were randomly selected from the 19 second-year classes that were at the same level in terms of their English capacity. Subjects in the selected class were randomly assigned to two groups and one group was randomly chosen to have the vocabulary list. Subjects in both groups were pretested using a well-established reading achievement test. One week later, with no language practice work done by either group of the selected class during the interval, both groups were posttested with another reading achievement test under the same conditions and at the same time. This time one group were given the opportunity to study the meanings of difficult vocabulary in the testing passages, while the other group were not provided with the vocabulary list.

V. Data Analysis

The reading achievement test of the two groups were compared using a t test. The t test was used to compare the means of two groups. It helped determine how confident the researcher can be that the differences found between two groups (experimental and control) as a result of a treatment are not due to chance. The results of applying the t test provided the researcher with a t value. That t value is then entered in a special table of t values included in most statistics books and which indicates whether, given the size of the sample in the research, the t value is statistically significant. Two t tests were performed: one to compare pretest scores and one to compare posttest scores.

The null hypothesis states that there is no true difference between the two sets of scores. To determine whether the two sets of scores are significantly different, we apply the following formula:

\[ t = \frac{X_1 - X_2}{\text{standard error of difference}} \]

Then:

For the pretest:

\[ t = 5257 \]

For the posttest:

\[ t = 266 \]

Now we want to know whether there is a significant difference between the two means. The probability level below which we are willing to treat our observed differences as significant is called the significant
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level of a test. For instance, if we are willing to reject the null hypothesis if the probability of obtaining our observed difference is smaller than or equal to 5 per cent, then we choose a significance level of 0.05, usually written as $p \leq 0.05$, and often referred to as "the 5 per cent level." In linguistics and other socially oriented sciences, where measurement is often less exact, a level of $p \leq 0.05$ is quite common.

Looking up the critical value for $t$ with $N = 20$ degrees of freedom for a $t$ test, we find $t = 2.048$ for the 5 per cent level. That is, the value 2.048 is the $t$ value required for rejection of the null hypothesis. For the pretest scores, our value $t = 2.048$, therefore we accept the null hypothesis. The means are not significantly different at the 0.05 level of significance. There was no significant difference between the performance of the two groups on the reading achievement test.

For the posttest scores, at the 0.05 level of significance, our value $t = 2.266$, so we reject the null hypothesis. The means are significantly different at the 0.05 level of significance. We can conclude that at the 0.05 level of significance, exposure to meanings of difficult vocabulary does make a significant difference to reading comprehension in English of second-year Chinese college students. Provided that the passage contains six new items in every 100 words, this suggests that students who were given the vocabulary list did perform significantly better than students who were not given the vocabulary list in the passage reading comprehension test.

VI Discuss

Why did exposure to the meaning of unknown words have a significant effect on the comprehension of Chinese second-year college students in the target language? As we have mentioned, three types of knowledge are activated in the process of comprehension: namely, the language code, grammar, and vocabulary. Discourse processing strategies and background knowledge. The lexicon falls into the first type of knowledge, namely the language code. Now let us consider how the three types of knowledge might have affected the reading comprehension of the subjects.

In the case of the two testing passages used in the posttest, one is about tests of creativity and the other is about databases. We can assume safely that the subjects who were among the best students in China and familiar with computers were equipped with the necessary background knowledge to comprehend these two topics. Neither of the passages dealt with topics that are alien or unfamiliar to the subject. Hence both groups of subjects should have had the necessary background knowledge to comprehend the topics.

In terms of discourse processing strategies, our assumption is that the subjects had enough skills in processing this kind of essay text, considering that they had studied English for many years and received adequate training in comprehending short passages in English. If they had been tested on a complicated literary work like James Joyce's Ulysses, they probably would have had difficulty in this respect. That is to say, the lack of knowledge in processing complicated literary works may have prevented them from understanding the text properly. The texts we gave them were structurally familiar to the students and so they had no trouble with the discourse structure of the testing texts.

Now, we come to their first type of knowledge. Both passages contained mostly simple sentences and straightforward compound sentences. Very few long and complicated sentences were involved. So we also assumed that the students would have no big trouble in understanding the sentence structure of the passages.

Provided that the background knowledge discourse processing strategies and sentence structures are no problem, the knowledge of the lexicon will play a significant part in the comprehension of reading materials. It has been argued that if one has an extensive vocabulary, it is possible to obtain meaning from spoken or written texts even if he is inadequate in grammar. Vocabulary adequacy is of great importance to reading comprehension. As we all know, a word is an idea and ideas are vital to cognition. Furthermore, learners of a foreign language have never questioned the importance of vocabulary. They feel from experience that inadequate lexicon knowledge poses great problems in their understanding of a passage. When subjects were exposed to the meanings of unfamiliar words in the
testing passages they acquired those items at the moment and these newly acquired vocabulary was helpful in their reading comprehension though that vocabulary is what is called passive vocabulary which can be recognized.

Another thing that needs to be taken into consideration is that the testing passages contained six new words in every 100 words. Perhaps the density of unfamiliar words is another reason why these new items caused trouble for the group with no given vocabulary list. This suggests that materials of this difficulty cannot be properly understood if no vocabulary instruction is provided.

In summary we would argue that lexical inadequacy does affect the reading comprehension of second-year Chinese college students in the target language when the material contains six unfamiliar words in every 100 words. Of course lexical knowledge is a complicated issue. To study the Chinese equivalents of the unknown words is just one type of lexicography. Many types of lexicography have been distinguished by linguists. Some distinguish between potential and real vocabulary. Others distinguish between active vocabulary and passive vocabulary. Potential or passive vocabulary consists of words learners can recognize but cannot produce. Real or active vocabulary consists of words that learners are familiar with and can produce in their own language. Gass and Selinker 1994. When one group of our subjects were given the vocabulary list to study while reading the new words they acquired were passive vocabulary. According to our research passive vocabulary can also exert a significant influence on reading comprehension. Further studies should be done to demonstrate the difference made by active vocabulary and passive vocabulary in reading comprehension.

VII Teaching Applications

Our results may have important implications for college English teaching and learning. For materials of relative difficulty roughly six unknown lexical items in every 100 words the teacher needs to spend some time explaining the unfamiliar terms since these items do significantly affect the students’ comprehension of the passage significantly. On the part of the students they are justified in thinking that they need to enlarge their vocabulary in order to have a better understanding of materials in English.

IX Problems with This Study

There were two problems with this study. Firstly the validity and reliability of the posttest was not determined. There were 12 test questions in the posttest including true false questions and short answer questions. The test was designed and marked by the researcher herself. Secondly the posttest contained only two passages one about creativity tests the other about how to use databases. So the extent or size of the sample materials in the posttest was not large enough.

Problems mainly concerned the posttest. For the study to be valid and reliable another valid established reading achievement test needs to be used in the posttest.

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Appendix 1

The passages used in the posttest and the vocabulary lists as given to the first group

Passage 1  Plugging into Electronic Databases

If you are looking for information library shelves are a good place to start. But if you need up-to-the-minute data or have specialized needs you may find a computerized database more useful. A database is a file of information on one subject or family of subjects. It can be stored and maintained in a computer’s memory. The speed of the computer then enables you to recall any item in this file almost instantly.

The three main types of databases are statistical bibliographic and full text. Statistical databases store vast amounts of numerical data such as wage and price indexes, census information, foreign exchange rates, and bond prices. Bibliographic databases store references to and summaries of articles in periodicals and newspapers. Full text databases offer the complete texts of such materials as newpaper, magazine, and journal articles.

Thousands of databases exist today and their numbers are growing. Many companies have their in-house database which is accessible to employees through computer terminals or microcomputers. In addition, several hundred commercial databases are now available to the public with literally millions of items of information readily retrievable. These databases cover specific fields such as law and financial forecasting or general information such as sports and weather data.

You can obtain access to commercial databases in three ways in the US. The first is to subscribe to a database yourself. To do so you need a computer, a modem, and special communications software. If you are interested in reading an article you can read it on the screen or have it printed out on your printer. The second way is to go through an information retrieval service which subscribes to many databases. You ask a question and the service selects the appropriate database plans and conducts the search and delivers the results to you. The third way to gain access to a commercial database is to go to a library. Many offer computer bibliographies free or for a reasonable fee. The librarian can help you select the appropriate database.

There are drawbacks to using electronic databases. One is the difficulty of use, especially if you are not really sure what you are looking for. Several databases are so complicated that you must go through a training session or tutorial before you can use them. Once you have learned the basic principles of logging on to a particular database system and of conducting a search, you may still not find what you want. Another drawback is the cost. Databases typically charge $15 to $200 per hour in the US depending on the time of day and the particular database. Charges can add up very quickly.

New words list:
up-to-the-minute accessible terminal
specialized microcomputer
database retrievable
time consuming subscribe
statistical drawback
bibliographic tutorial
full text log on

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Passage 2  Tests of Creativity in Job Hunting

Imagine a scene. It is 1850 and Charles Dickens is seeking work. He is not yet a world-famous writer. His employer sits him down and gives him a test to complete. Dickens answers the questions:

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informs him [will reveal whether he is really creative]. The scene sounds absurd but in fact is entirely so. Psychologists have been using tests to see how creative people are for nearly fifty years.

Creativity tests are popular but paradoxical. Popular because companies increasingly want to know that they are hiring creative people who can come up with new ideas in a fast-changing business environment. Paradoxical because to be creative is to throw up new original and often challenging ideas whereas tests usually ask fairly mundane questions.

Being creative in terms of psychological testing is not quite like being creative in real life. It does not mean being able to write or paint masterpieces. Here you need to know the difference between convergent thinking and divergent thinking. Convergers are good at answering questions which have precise answers; diversers may score much less well on those but are good at producing a flow of ideas.

Convergers are not better or smarter than diversers. And diversers are not smarter than convergers. It is a question of cognitive style. By and large, in psychological testing, creativity means being a divergent thinker.

Many people don’t think of themselves as creative and some psychologists also ask themselves whether or not it is possible to teach people to be creative. They don’t think it is possible to teach someone to be a great writer or artist but they have also pointed out that there is considerable evidence which suggests that it is possible to teach some of the creative and lateral skills these tests are after.

New words list
paradoxical □ □ □ □
mundane □ □ □ □
convergent □ □ □ □ □ □ □
divergent □ □ □ □ □

Appendix 2
The following are the scores for group 1 as X1 and the scores for group 2 as X2.

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ΣX1 = 195  ΣX2 = 202  ΣX1 = 138  ΣX2 = 132
ΣX1 = 13  ΣX2 = 1467  ΣX1 = 132  ΣX2 = 132

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