



## Contribution of Technical Vocabulary & General Vocabulary to ESP Reading Comprehension

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### ABSTRACT

**Background:** The purpose of this study was to investigate the contribution of technical vocabulary & general vocabulary to ESP reading comprehension. **Objective:** In this study 2 groups of BA students were selected majoring English translation and Nursing fields of study. **Results:** These students were divided into two equal groups. Both groups received a first test including 60 multiple choice items, 30 general vocabulary items from a TOEFL test and 30 technical vocabulary items in nursing sciences to make sure that the students in English translation had better general vocabulary & students in nursing sciences had better technical vocabulary, and a second test including 30 ESP reading comprehension items from MA entrance examination of universities to capture the probable differences between the effect of technical vocabulary & general vocabulary to ESP reading comprehension. **Conclusion:** Then, with the help of T-Test the data were computed. The result rejected the null hypothesis and indicated that the difficulties which ESP students encounter in their reading comprehension arise not so much from lack of technical vocabulary knowledge but from lack of general vocabulary knowledge. The findings of the present study can have theoretical as well as pedagogical implications for teachers, students, and syllabus designers.

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## INTRODUCTION

Reading is a central means for the students for learning new information and accessing to a variety of interpretations and descriptions, it helps the students learn independently and improve their language abilities. Fluent readers need to develop essential reading processes and abilities such as rapid word recognition, vocabulary development text structure awareness and strategic reading (Celce-murcia, 2001).

Vocabulary refers to the words we must know to communicate effectively. Word knowledge is essential to reading comprehension, and determines how well students will be able to comprehend the texts they read in the upper elementary grades, in middle and high school, and in college. Most theorists and researchers in education have assumed that vocabulary knowledge and reading comprehension are closely related, and numerous studies have shown the strong correlation between the two. (Hirsch Jr, 2003)

The importance of vocabulary in the ESL/EFL learning process has been widely realized and many researchers tried to identify a number of specific strategies for learning vocabulary(Nakamura, 2000).

Finding ways to increase students' vocabulary growth throughout the school years must become a major educational priority. In academic setting students encounter different kinds of vocabularies, they need to know how to cope with them.

The problem here was to see in ESP reading comprehension which kind of word plays a more significant role: general vocabulary or technical vocabulary.

Investigating the issue was assumed to have implications for teachers who teaches technical texts and for students who needs to read and comprehend them.

It is known to most second language learners that the acquisition of vocabulary is a fundamental and important component in the course of their learning. A good mastery of vocabulary is essential for ESL/EFL learners, especially for those who learn for specific purposes or expect to operate at an advanced level in English.

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Vocabulary is part of every language learning and improving vocabulary learning increases communicative competence. Those who wish to learn English at a high level must learn many thousands of word families and consider Breadth of vocabulary knowledge and its development, as a main principle(Qian, 2002)

Nation (2001) also declared that the comprehension of a passage depends on the knowledge of second language vocabulary, but the problem is that how the students can cope with it. They should memorize, and learn too many vocabulary items in English.

Vocabulary and lexis refers to individual words, collocations, and fixed and semi-fixed expressions and in vocabulary learning it is better to learn "chunks" that is longer than individual words. In teaching and learning vocabulary, it is necessary to distinguish between different types of vocabulary because different types of vocabulary need different focuses during the instruction(Hunt & Beglar, 2005).

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The importance of vocabulary in the ESL/EFL learning process has been widely realized and many researchers tried to identify a number of specific strategies for learning vocabulary(Nakamura, 2000).

Vocabulary instruction is essential for all students to improvement of comprehension and written expression. Research indicated that vocabulary knowledge is highly associated with overall reading comprehension. Vocabulary instruction is beneficial for all the students who consider their individual strengths and needs. Ideal vocabulary instruction vocabulary is directly related to knowledge acquisition such instruction includes words that students encounter frequently in language usage(Matsuoka & Hirsh, 2010) .

We can classify vocabulary into 2 groups' technical vocabulary & general vocabulary. Technical vocabulary helps the students, technicians and engineers to overcome the difficulties of translating from English into their language. Research on technical vocabulary has shown a significant underestimation of the role played by technical vocabulary in specialized texts and a lack of information about how technical vocabulary relates to other types of vocabulary (Chung, 2003) .

Lexical researchers have concluded that there is significantly strong and positive relationship between vocabulary knowledge and reading comprehension, because, knowing a word associates with possessing a certain degree of phonological, morphological, syntactical, semantic, and collocation knowledge of a word. However, the relation between them may stop or decline at a certain word level. Recently, several researchers, and teachers want to know more about the extent to which reading comprehension depends upon vocabulary knowledge (Huang, 2003) .

Nation stated that, in intensive reading the nature of vocabulary and vocabulary learning should be guided by principles. A teacher should not pay attention to each word equally, he should be able choose a particular option and follow principles to indicate the goal of her attention to words(Coxhead, 2010).

In the context of message focused activities such as listening, speaking, reading and writing, vocabulary teaching has positive effects. A teacher should decide whether the word is worth spending time on or not. If the word is a low frequency it should be dealt with as quickly as possible. And if the word is high frequency and effective on comprehending the text spend time on the word, it is useful to consider the learning burden of the word. Effective teaching words involves working out what needs to be taught about a word. and differs from word to word according to the ways in which the word relates to first language knowledge and already existing knowledge of the second language and or other known languages(Nation, 2008).

Vocabulary and L2 reading have a reciprocal relationship so researchers believe that vocabulary development is a prerequisite for successful L2 reading comprehension, and a predictor of L2 reading ability. Some researchers believe that encountering more than one unknown word in every twenty running words, may interrupt gaining adequate comprehension(Jung, 2009).

For basic L2 reading, 2,000 most frequent vocabulary items are essential, and they cover approximately 80% of the words in a general text (Cobb, 2007).

Vocabulary learning through reading needs some processes of (1) noticing an unfamiliar word, (2) recognizing the need to finding the meaning of the word, (3) inferring the meaning from context with the aid of linguistic and non-linguistic cues, and (4) integrating the new lexical item into one's developing vocabulary knowledge, which all necessitate a certain level of surplus attentional resource (Pulido, 2007).

Vocabulary can be divided into four levels: high frequency vocabulary which includes function words and content words cover around 80% of running words in the text and they are used in all kinds of language use. There is nearly 2000 high frequency word. Academic vocabulary which is usually used in academic texts contains 9% of running words in the text. Technical vocabulary which is related to the topic of the specific text makes up around 5% of the running words in the text and low frequency vocabulary which covers over 5% of the words, contains the rest of the words and it is rarely used in our language(I. S. P. Nation, 2001).

In order to find general academic words for every study field, included about 1,400,000 running words and composed an Academic Word List (AWL) that consisted of 570 word families. AWL presented nearly 10% of the all the words in general academic texts (Coxhead, 2000).

There are several approaches for identification of technical vocabulary. One approach is to use the intuition of a subject expert. This can be done in three ways, by using a rating scale, by using a technical dictionary compiled by a subject specialist or group of specialists and by making use of clues that the most relevant specialist, the actual writer of the text, used to mark the words considered to be important for the message of the text, since when new terms are introduced in a text, the writers deliberately provide contextual clues to help readers manage new terminology. Another way is to use a corpus-comparison approach by comparing word frequencies in a technical text with those in a different corpus. Technical words should be much more frequent in the technical corpus (Chung & Nation, 2003).

There is a strong link between vocabulary knowledge and reading comprehension in second language (L2) contexts. (Anderson & Freebody, 1981)

Vocabulary learning can be viewed in two dimensions, breadth and depth. Breadth of vocabulary knowledge refers to the number of words one has at least superficial knowledge of (i.e., one's vocabulary size) and can be calculated in terms of recognition, recall or production of vocabulary items. Depth of vocabulary knowledge, on the other hand, refers to how well one knows a word (Qian, 2002).

Reading is a central means for the students for learning new information and accessing to a variety of interpretations and descriptions, it helps the students learn independently and improve their language abilities. Fluent readers need to develop essential reading processes and abilities such as rapid word recognition, vocabulary development, text structure awareness and strategic reading (Celce-murcia, 2001).

Extensive reading is reading large amounts for understanding an overall meaning of the material. Meaning of the text is more important than the meaning of individual words or sentences. Intensive reading is a careful reading for getting full and detailed understanding of a text (Bamford & Day, 2004).

ESP is a part of English Language Teaching (ELT), Hutchinson and Waters (1987) made some classification, English as a Mother Language Teaching (EMT), English as a Second Language (ESL), English as a Foreign Language (EFL), General English (GE) and English for Specific Purposes (ESP). They also declared that 'ESP must be seen as an approach not as a product'. According to our needs analysis reading comprehension required special attention and priority in our lesson planning. Our students needed English for reading technical or scientific texts, then the general and partial aims of the course should reflect this fact and it should also specify the reading strategies required to acquire this skill.

Pedersen (1995) stated that in the areas of English for Specific Purposes (ESP) and corpus-based lexical studies the focus is on the study of terminology. The purpose of terminology studies is to create specialized dictionaries that reflect knowledge fields and concepts where these are related to the property of lexical use restriction. He added that in special languages word combination works as building blocks and plays an essential role in the description of this specific language usage.

## 2. Methodology:

The research question that guided this study could be stated as follows: "Is there a significant difference between the effect of technical vocabulary & general vocabulary on ESP reading comprehension." The research hypothesis was: "There is no significant difference between the effect of technical vocabulary & general vocabulary on ESP reading comprehension".

The participants of this study were 50 students majoring in English translation & 50 students majoring in nursing sciences. They were randomly selected from Azad University Rasht Branch. In general, their ages ranged from 19 to 25 and they had all received English instruction for six years before entering the university. None of them had lived in English speaking countries prior to entering the university. Their native language background was Persian. All the students had already passed their general English courses.

The materials used in this study included a first test which consisted of 60 multiple choice items, 30 general vocabulary items from a TOEFL test adopted from "Essential words for TOEFL book, pages 192 -196, & 30 technical vocabulary (in nursing sciences), which were adopted from "English for the students of nursing written by Keyhani, *et al.* (2004). The purpose of the first test was to make certain that the students in English translation had better general vocabulary & students in nursing sciences had better technical vocabulary. There was also a second test, which was an ESP reading comprehension test in nursing sciences, and consisted of five passages & 30 multiple choice items which were adopted from the MA entrance examination of universities.

First test and second test were needed for this study. At first, first test was administered to make sure that the students in English translation had better general vocabulary & students in nursing sciences had better technical vocabulary. The first test contained 2 series of multiple choice questions, 30 general vocabulary items and 30 technical words.

After 2 weeks, the second test, which consisted of 30 ESP reading comprehension items, was administered under similar circumstances. 90 minutes were allocated to each of the first test and the second test. In order not

to generate anxiety in the participants, no time limit was set. They were not allowed to use any source of information. They were expected to choose a correct answer from among four choices. The administration took place in autumn. Both the first test and the second test were administered in several classes until 50 students from each group completed the tests. Although the material of testes were adopted from TOEFL tests, university entrance exams, and the university course book, the reliability and validity of which are apparent, the reliability of the tests was assessed again.

### 3.Results:

The present research was conducted according to the research question and the null hypothesis which was "There is no significant difference between the effect of technical vocabulary & general vocabulary on ESP reading comprehension ". The reliability of the test was computed by KR-21 formula was 0.7. It needs to be explained that since the second test was taken from an M.A entrance examination, its validity was taken for granted. The Independent samples t.test procedure was used in the first test to make certain that the students in English translation had better general vocabulary & students in nursing sciences had better technical vocabulary, in this way General vocabulary & technical vocabulary of 2 groups were compared with each other. The second test was analyzed to capture the probable differences between the effect of technical vocabulary & general vocabulary on ESP reading comprehension, and to confirm or reject the hypothesized relationship. Data analysis includes T-test, and the hypothesis was tested at  $\alpha = 0.05$  level of significance.

**Table 1:** Description of the scores of the students majoring in English Translation and Nursing.

		Technical vocabulary	General vocabulary	Reading comprehension
TRANSLATION	Mean	5.98	10.90	11.30
	Std. Deviation	3.149	4.652	3.436
NURSING	Mean	10.25	7.88	9.76
	Std. Deviation	3.865	2.918	4.736

The comparison of the T critical value of this study, which was 1.990, with each of the observed t values revealed that in the first test the students in English translation had better general vocabulary & students in nursing sciences had better technical vocabulary and in the second test the Null hypothesis was rejected. This shows that there was a significant difference between the effect of general vocabulary and that of technical vocabulary on ESP reading comprehension.

**Table 2:** Summary of the result of the t-tests.

Nursing & translation	T observe	T critical
Technical vocabulary	6.27	1.990
General vocabulary	5.74	1.990
Reading comprehension	2.12	1.990

### 4.Discussion

A closer look also revealed that the contribution of general vocabulary is more than technical vocabulary. So we can conclude that students with better general vocabulary are more successful in ESP reading comprehension. This is to say that words are the very fundamental in learning; especially it is necessary to know about the general vocabulary, rather than technical vocabulary for a more successful comprehension. The present study can have theoretical as well as pedagogical implications.

Theoretical point of view of this study signifies the importance and crucial role of general vocabulary in ESP reading comprehension. Traditionally, syllabus designers of ESP courses have been predominantly concerned with the selection and gradation of some highly technical vocabulary and some skewed grammar (a limited number of structures most commonly used in a given subject area). The findings of the pretest study might call for a redefinition of the objectives of a syllabus design. It might necessitate a change of attitudes towards what it is that makes up a syllabus. In spite of its obvious importance to ESP reading comprehension academic success, finding ways to increase students' general vocabulary growth throughout the school years must become a major educational priority.

An effective, vocabulary instruction program should provide students with opportunities for word learning by encouraging wide reading, promoting word consciousness and, providing explicit instruction of specific words. Teachers can encourage wide reading in a number of ways. They might, for example, recommend or provide lists of books for students to read outside of class, and make time in class for students to discuss what they have read. They can set aside a time each day for independent reading.

### Conclusion:

This study has pedagogical implications for those who teach ESP courses and the material they focus on during the teaching. Teachers in their pedagogical schedule should consider this factor that without enough

knowledge of general vocabulary, their attempt will not be beneficial. In addition to this, the students themselves could benefit from this conclusion in their study. ESP teachers should teach students the vocabulary strategies and help them to develop a plan that best suits their vocabulary learning. The result of this study is useful for ESP syllables designers who write ESP books for students to study at universities. They should consider this important factor, and general vocabulary development should receive more instructional attention than technical vocabulary in their books.

There are two major problems for teachers in helping learners deal with technical vocabulary. Firstly, the English teacher does not usually have specialist knowledge of the learners' technical areas. Secondly, technical vocabulary needs to be worked on while getting on top of the specialized field. However, in spite of these limitations, teachers can play a small but useful role in preparing learners for coping with technical vocabulary. This can be done by helping learners gain the more general skills of recognizing technical words, interpreting definitions, relating senses to a core meaning, and learning word parts. Teachers can provide learners with the tools for dealing with technical words. In this way teachers need not get involved in trying to teach in a technical area, but can direct their attention to vocabulary strategies (Chung & Nation, 2003).

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