

THE IMPACT(S) OF TEACHING WORD-FORMATION KNOWLEDGE IN INCREASING THE NURSING STUDENTS' READING COMPREHENSION SKILL

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ABSTRACT

Nowadays there is an increasing attention to the teaching and learning of vocabulary in order to facilitate the learners' reading comprehension ability. For many years the programs that prepared the learners for their future reading tasks offered little or no attention to the effective teaching of the relevant lexicon by the instructors and the one hand and the learning and acquiring a sufficient bank of lexicon by the learners on the other hand. The ability to learn new words easily and effectively appears to have vanished. Word-formation knowledge which is one of the most systematic ways of enhancing word power will increase the learner's ability to read difficult texts without continual reference to unabridged sources. It will also offer the pure pleasure of adding to their store of useful knowledge. During the present research, the researcher has tried. To investigate, whether teaching word-formation knowledge would have any impact(s) on increasing the nursing students' reading comprehension skill or not. So, 50 nursing students in the form of two groups (each 25 students) were chosen from among many other students. Both groups (experimental and control) received a pre-test and a post-test. But the experimental group received a treatment on word-formation knowledge and the other did not. The results obtained through various statistical methods such as T-test and matched T-test confirmed high rate of progress in experimental group and the rejection of the null hypothesis. This study shows the effective role that word-formation knowledge played in increasing the nursing students' reading comprehension ability at Islamic Azad Toyserkan branch.

Keywords: English Language, word-formation, reading comprehension skill

INTRODUCTION

The attitude that foreign language teachers have had toward teaching vocabulary and the classroom techniques they employed have varied enormously during the past five six decades. Most of the experts and the teachers in the field believe that knowledge of morphological rules facilitate the process of guessing, recognizing, understanding, and remembering the meanings of words. Over time the guesses are refined and the meaning comes to be specific. According to Riverse and Temperley (1978), the teachers may develop certain skills to help students increase their power in English through focusing on form, meaning, expounding by association, and recalculating the vocabulary they have learned. Celce Murcia (1973) calls one such process "Incorporation" Varzegar et al (1994) says : knowing how to use the dictionary and knowledge of word analysis (sometimes called Derivational Morphology) is a key to success in reading and comprehending the text .

Pulston and Bruder (1976) stated that word formation is traditionally the heart of a word study. It is the study of roots, stems, prefixes, and suffixes and their combination into words, as in the relationship between amaze, amazing, and amazement.

According to Bowen , Madsen and Hiferty (1985) lexical study should include the pieces that make up word: PREFIXES, SUFFIXES, INFLECTIONAL PATTERNS, DERIVATIONAL PATTERNS, enough MORPHOPHONEMICS for the students to be able to associate the im- of impossible or the ir- of "irregular" and WORD FAMILIES (sign, design, signature, assign, designate , etc) to help identify common elements. Regarding the importance of word-formation knowledge, Shahbazy (1992) do believe that learning the ESP students is more significant that learning it without using the word – formation rules. But some believe that it is true that we teach decoding of words for effective reading; students should not necessarily be asked to produce words through the processes of word formation they are studying (Paulston and Bruder, 1976). In word formation, there are two separate teaching points: (1) the lexical meaning of roots and prefixes and (2) the syntactic signals for parts of speech, the teaching point is the lexical meaning of the forms (Pulston and Bruder, 1976). It should also be stated that word formation is not able to account for all ways of forming everything that can be called a "WORD. "

Teaching Word Formation

Teaching Word Formation, which is a necessary part of the ESP, is an ideal chance for students to acquire vocabulary knowledge necessary for effective reading of their own texts. It is intended to give learners an opportunity to gain first the fundamentals of words and to build from there in whatever design their needs call for (Birmingham, 1981). Since most of the language of ESP texts is based on Latin and Greek roots. The instructor of the course must know the needs of the students. The class time may be used to more fully develop the subject matter in a way that meets the needs of the students. Word power can also be thought as a complementary course along with ESP. The instructor should also use class time to explain the terms explicitly and encourage the use of the Nursing dictionary and other references needed to increase knowledge of nursing terms. Another important point according to Birmingham (1981) is that the students should be encouraged to use a combination of this course and other reference books to reinforce knowledge.

Teaching Reading Comprehension

It is out of question that reading is a basic and complementary skill in language learning. During college study, the students require to do some reading that they have never down before. They need this skill for their present and future use or career (Saif, 1995). In the past, language teacher have typically given students very little assistance with reading other than to teach them grammar and vocabulary. (Toosi, 1995) As Saif (1995) states: "... for university students knowing haw to read critically is a must. " However, it has been observed that too often, students instead of reviewing – having a critical approach towards –a book or an article. Safarzadeh (1985), addressing the university instructors emphasizes the importance of teaching word formation knowledge as an integral part of ESP/ESM course.

Regarding teaching reading, Rivers and Temperley propose the skills which are: 1) Complete control in recognition of points of grammar which impede comprehension of the written language, 2) Knowledge of word formation which will help them to recognize the functions and nuances of meaning of words derived from the same radical, 3) Practice in recognizing English words which they already know, sometimes in a disguised form, 4) Recognition of knowledge of the most frequent "false friends. "

Statement of the Problem

Many university students find vocabulary particularly technical vocabulary technical vocabulary, a key element toward an effective reading comprehension of their own texts. But, unfortunately, it seems that teaching and learning the vocabulary in general and technical lexicon in particular is confined only to long lists of words with their native language equivalents to be memorized by the learners. Students usually tend to make lists of new words so that one day they could look them up

and learn them. The ability to learn new words easily and effectively appears to have vanished. As the students progress in their academic education they typically find that vocabulary building demands sustained efforts. According to methodologists having word formation knowledge, student can increase the ability to read difficult texts without continue reference to unabridged sources.

RESEARCH QUESTIONS

The aim behind the present study is to investigate whether the process of vocabulary learning (for the purpose of successful reading comprehension skill of nursing students) would be facilitated by familiarizing them with Word - formation Rules or not . Regarding the above mentioned points, the following research questions would arise:

1. Is there any significant relationship between teaching word – formation knowledge to nursing students and their lexical knowledge?
2. Does this approach facilitate the students' reading comprehension ability or not?

Significance of the Study

Due to the lack of sufficient time the students for acquiring and learning the new words on the part of the students (nursing students is no exception) , word – formation knowledge will relatively facilitate the process of right or nearly right guesses , recognizing , and finally remembering the meaning of words for a longer period of time .

Vocabulary learned through word-formation would be not only interesting but also more effective and motivating for less-motivated students. In this regard, Finocchiaro and Bonomo (19730) maintain that successful performance and a sense of achievement are powerful motivating forces in learning. It is helpful to use a systematic approach to learning new words. The time it takes to guess and recognize new words will be significant when measured against the bother of looking up the same words repeatedly.

Teaching Word Formation

The purpose of teaching Word Formation, which is a necessary part of the English for Specific Purposes (ESP), is to give the students the opportunity to acquire vocabulary knowledge necessary for effective reading of their own technical and semi-technical texts. It is intended to give learners an opportunity to gain first the fundamentals of words and to build from there in whatever design their needs call for (Birmingham, 1981). Since most of the language of ESP texts is based on Latin and Greek roots, the instructor of the course must know the needs of the students. The class time may be used to more fully develop the subject matter in a way that meets the needs of the students. Word power can also be thought as a complementary course along with ESP. The instructor should also use class time to explain the terms explicitly and encourage the use of the Computer dictionary and other references needed to increase knowledge of computer terms. Another important point according to Birmingham (1981) is that the students should be encouraged to use a combination of this course and other reference books to reinforce knowledge.

METHODOLOGY

Subjects of this study were 50 female, sophomore, nursing students of Toyserkan school of Nursing, Hamedan Province. First of all, they were divided into two groups (each 25 members) ; one as the control group and the other as experimental group .Both groups received a pre-test and a post-test . Then the experimental group was given a treatment on Word – Formation Rules (extracted from the book English for the students of Nursing , SAMT Press , 1988) during the interval period between the

pre-test and the post-test . The other group did not receive any treatment. They had their usual reading comprehension class.

In this study, the researcher has employed a quasi- experimental design. Two classes were selected and a pre-test was given in order to gain a measurement for matching the two groups. The internal validity was gained through controlling variables include students' sex, age, native language, and amount of materials taught.

The students were placed in two separate classes. Both (exp. group) and (cont. group) received a Pre-test. Furthermore, 15 treatment sessions were given to the experimental group. During the sessions a list of major Prefixes and Roots which were widely used in Technical texts was introduced and worked on. Later on, for both groups a post-test was given and necessary calculations and analytical procedures were followed and provided.

The reading material of both groups was the same during the normal class time. But an extra material containing some parts of (English for the students of Nursing, SAMT press, 1988) was administered and practiced on through some specific exercises given in the book. The major emphasis was placed on Prefixes and Roots. The students were encouraged to do, check, and recheck the given exercises and also some Paper and Pen and teacher – made tests and guessing games were introduced in order to enhance their learning of new prefixes and roots. The main criteria for selection of Prefixes and Roots were their productivity and frequency in their related textbooks. Taking Reliability and Validity of the test into consideration, both pre- and post-tests were chosen from ESP (English For The Students Of Computer Students, SAMT, 1995).

The selection of reading materials and words was done based on the following criteria:

- a) The book ‘ English For The Students of Nursing ‘ (SAMT , 1988)
- b) The words which could be analyzed to prefixes and roots based on the Word – Formation Knowledge.

DATA COLLECTION AND DATA ANALYSIS

In present research , based on the type of data , many techniques including t-test , Matched t – test , Correlation Coefficient , etc , were used .

Two groups of nursing students participated in the present research. Both groups (Exp. & Cont.) received a pre-test and a post-test. One group (Experimental) received a treatment while the other one had the normal class reading procedures. The results of subjects' scores in Pre-and Post-tests, were compared through different statistical methods.

The main statistical procedure used to compare the output of the two tests (Pre-and Post-tests) was t-Test. First of all, the two means of the two groups were compared. The mean, Standard Deviation and Variance of the two groups in pre- and post-tests are shown in Table 1.

Table 1. Mean, Variance, Standard Deviation

	No.of Subjects	Mean	Variance	SD
Pre-test Exp. G	25	12.0600	16.902	4.111
Post-test Exp. G	25	14.9200	9.764	3.125
Pre-test Cont. G	25	12.4200	14.139	3.760
Post-test Cont. G	25	11.7800	16.023	4.003

As we can see from the above table, both groups have gained an almost near score during the pre-test (12.0600 exp. & 12.4200 cont.) But the highest score in post-test belongs to experimental group. Therefore, the difference between the means of experimental group in pre-and post-tests is 2.8600 and that of control group is .6400. It shows that the experimental group. Therefore, the difference between the means of experimental group in pre-and post-tests is 2.8600 and that of control group is .6400. It shows that the experimental group has had more progress, as well as the effect of treatment. Comparing the means of pre-test in both groups , it clearly shows that control group has performed better in pre-test but not in post-test .

In summary, although the experimental group had a relatively lower mean in pre-test (12.0600) than that of control group (12.4200), the results in post-tests are the opposite (14.9200 for experimental group and 11.7800 for control group). This is a good proof for the positive effect of treatment.

During the present study, in order to calculate the mean, variance and standard deviation for both experimental and control groups , the ratio between post-and pre-test was calculated .It was due to the fact that the means obtained through raw scores cannot be applied in t-test (Table 2).

Table 2. Normalized Mean, Variance, Standard Deviation

	No. of subjects	Mean	Variance	SD
Exp. G	25	13.49	4.089	2.022
Cont. G	25	12.1	.204	.425

Using the above data, the value of observed t was calculated and C compared with value of t –critical at the level of .05. The critical t- with the degrees of freedom of 24 was 3.357 in t – distribution table. As the calculated t is 1.711 (table 3), it is large enough to reject the null hypothesis.

The rejection of the hypothesis clearly shows the effective role of teaching and learning word _ formation knowledge in increasing the reading comprehension skill of the students. Furthermore, since the difference between these two figures is large, it shows that the effect is very considerable. So we can conclude that teaching word- formation knowledge can be quite helpful in enhancing the nursing students' reading comprehension skill .

Table 3. T-test between Exp. Group and Cont. Groups

$$t\text{-Critical} < t \text{ – Observed} \quad 1.711 < 3.357$$

Matched t-Test

As mentioned before, Matched t-test is used when the scores on two variables are obtained from one group. For example, every person has taken two tests. The hypothesis to be tested is stated about the difference between the performances of the subjects on the two measures (Farhadi, 1995). The researcher used this type of test to compare each subjects' performance on the two tests (Pre-test and Post-test). Two Matched t-tests were done, one for Experimental group, and one or Control group. You can see the results of both groups in Tables 4 and 5 shown below.

Table 4. Pre & Post – test Data, Exp. Group

No.of subjects	Mean	Variance	SD
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Pre-test / Exp. G	25	12.060	16.902	4.111
Post-test/Exp . G	25	14.9200	9.764	3.125

Table 5. Pre & Post-test Data, Cont. G

	No. of subjects	Mean	Variance	SD
Pre-test/Cont.G	25	12.4200	14.139	3.760
Post-test/Cont. G	25	11.7800	16.023	4.003

Table 6 shows the t-value calculated for each group and t-critical with 24 d.f. Once again the calculated t value of experimental group is large enough to reject the null hypothesis and the significant effect of the treatment.

Table 6. Matched t-test for Experimental and Control Groups

<i>Exp .G</i>	<i>Critical-t < Observed -t</i>	<i>1.711 < 3.055</i>
<i>Cont . G</i>	<i>Critical - t < Observed-t</i>	<i>1.711 < 0.507</i>

Correlation Coefficient

One of the most important statistical measurements in rejecting the null hypothesis is Correlation Coefficient. According to Hatch & Farhadi (1982) "it means the degree of relations between pairs of two or more variables. To calculate the Correlation Coefficient of two sets of scores, we usually use various methods and procedures. Here, the researcher has used the Pearson Product Moment Correlation formula to determine the correlation coefficient of the scores. The results are presented in Table 7.

Table 7. Correlation Coefficient between Tests

	pre-test/Exp.G	Post-test/Cont. G
Pre-test/ Cont.G	0.137	0.324
Post-test/Exp.G	0.194	0.034

The Coefficient Correlation demonstrates the strength of a relationship between two variables. Calculating the Coefficient Correlation, we will always have a value between -1 and +1. A value of +1 means perfect positive correlation. A value of -1 means perfect negative correlation. A correlation is considered high when it is close to +1 and low when it is close to 0 (Farhadi , Jafarpoof , and Birjandi , 1995). Regarding the above Table, there is little correlation between pre-test and post-test in control group and the degree of relationship between pre- and post-test in experimental group is high and positive. As the figures show, the relationship between the two tests in experimental group is quite high.

As the results of Toosi (1995), Shahbazy (1992), the present research and the relevant researches is this regard show. Learning and teaching the word- formation knowledge play a major role in learning the vocabulary of ESP and EMS texts and this procedure clearly facilitate the process of reading comprehension of the students.

Shahbazy in his MA these under the title of “ The role of word- formation in learning the vocabulary of ESP textbooks “ while providing a starting point for discussion of some of the theoretical and pedagogical implications , strongly recommends that the students of ESP courses take into account the basic concerning word –formation in teaching vocabulary seriously . So, as Safarzade (1995) believes, the teaching of word- formation knowledge should be an integral part of any ESP & ESM class. University instructors are strongly urged to be familiar and familiarize their students with word–formation rules and basic concepts .This is due to the fact that , this knowledge will ultimately lead to better vocabulary acquisition techniques and a more effective reading comprehension habit.

CONCLUSION

As the results of Toosi (1995), Shahbazy (1992), the present research and the relevant researches is this regard show , Learning and teaching the word- formation knowledge play a major role in learning the vocabulary of ESP and EMS texts and this procedure clearly facilitate the process of reading comprehension of the students .

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Pedagogical Implications

For decades, the study of vocabulary has been the most neglected area of all in language teaching and learning. But, nowadays there is an increasing attention to systematic teaching and learning vocabulary in order to facilitate the learners' ability in reading comprehension of their own texts.

Today, the time of long lists of words with their native language equivalents to be memorized by the poor students is over. Teachers as well as the students are looking for more effective, more interesting, and in one word, better ways of enhancing the vocabulary they need for their task. Anderson and Freebody (1981) claim that the correlation between knowledge of word meanings and ability to comprehend passages containing those words are all high and well established in first language reading students. Bond et al (1984) believe: “Without satisfactory word meanings, comprehension of either spoken or printed language is impossible. “ Therefore, the students should be familiar with sufficient vocabulary to read difficult texts without continual references to unabridged dictionaries.

Paulston (1976) emphasis that the one thing that most interferes with our students ‘ reading is poor vocabulary and that our students have been right all these years when they complained about not knowing and not being taught enough words . Twaddell sees the expansion of vocabulary as indispensable at advanced levels of teaching (1973). The teachers of English may use various techniques and strategies in order to increase the students' word power. Learning the lexicon systematically helps the language learner their knowledge of vocabulary and retain that amount of words for a longer period of time. It is true that the systematic way of increasing one’s vocabulary is to assign some reading materials for him/her so that s/he learns and retains some words little by little and during a longer period of time. But it should also be remembered that university students (specially non- English students) generally lack the sufficient time for acquiring and learning the new words.

Word Formation Knowledge which is the most encouraging. Effective and systematic way of enhancing vocabulary is key element here. According to Toosi (1995) for advanced level a very helpful way of teaching vocabulary would be the teaching of Word Formation Rules As Varzegar et al (1994) states : knowing how to use the dictionary and knowledge of word analysis (sometimes called Derivational Morphology) is a key to success in reading and comprehending the text . Safarzadeh (1994) truly suggests the ESP/ESM instructors to teach word formation rules as a complementary part of the course.

Very many methodologists and teachers do believe that knowledge of morphological rules facilitates the guessing recognizing , understanding , and remembering the meanings of words and that this approach is the very heart of word study . Furthermore, the knowledge of word formation helps the learner to expand his/her vocabulary span, when s/he learns to associate noun, verb, adjective, and adverb of the same root together (Toosi, 1995). Mirhassani (1993) rightly stresses that words would be simple, if the learner knew what their parts meant. By learning word parts, English or borrowed parts, and recognizing these parts in unfamiliar words, the learner would be able to guess the meaning of the strange words.

Grellet (1981) discusses one of the useful reading practice techniques as to have students work their way through comprehension problems the meaning through word formation and context. Another important point is the, as Mirhassani (1993) mentions, since the learners learn most of their new words from reading and less from hearing them and since the main stress in Iranian Universities is on reading comprehension, the systematic teaching and learning of vocabulary in special less time-consuming “Word Formation Roles “would quite effective in making general language competency of the students.

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