

The Effects of Learning Prefixes and Roots to Improve the Ability to Derive the Meaning of Unfamiliar Words

Satita Watanapokakul
satita_mint@yahoo.com

Abstract

This study examines the consequences of improving Thai learners' vocabulary skill in deriving the meaning of unfamiliar English words by means of prefixes and roots. A quasi-experimental research (the pre-test-post-test control group design) was conducted with a sample group of one hundred and twenty M.6 students at Rajini Bon school in the second semester of the academic year 2001. They were categorized by a simple random technique into two equal groups. The experimental group received the 15-lesson teaching in prefixes and roots, and the control group did not receive the teaching in prefixes and roots. Results obtained from a comparison made between the pre-test and post-test scores of the experimental group, and that between the control and experimental groups' post-test scores indicate that the experimental group performed significantly better than the control group. This reveals that the teaching of prefixes and roots improves the learners' vocabulary identification skill.

Background and Statement of the Problems

In the present era of globalization, there are no boundaries to communication. English serves as a lingua franca in communication

and is, accordingly, regarded as an international language (Crystal, 1997). The role of English is so dramatically important that the Ministry of Education has required English as one of the compulsory subjects in the primary and secondary levels from 1996 onwards. Therefore, Thai students have to study English from grade one to grade twelve. Moreover, English is one of the main subjects tested in the annual Nationwide Entrance Examination of grade 12 students. It turns out that the average score in English is rather low. For instance, in the second annual Nationwide Entrance Examination of the academic year 2004, the average score in English was 37.92, the minimum score was 3, and the maximum score was 92 (ศศิธร อหิงส์โก, 2547, น.15).

Besides grammar, reading comprehension is one of the significant problems for most students who study English, especially for M.6 students who are going to take the nationwide entrance examination. One of the reasons that they cannot do reading comprehension tests well is related to vocabulary. They have no rules to memorize vocabulary, so they learn vocabulary by recitation, often tending to forget the vocabulary in a week as those words are kept simply in the short-term memory (Sinchai Pongpattarakul, 2001, p.1).

In addition to reading ability evaluated in reading comprehension tests, another important ability is deriving the meaning of unknown words. As stated by Pratin Pimsarn (1993), there are three possible ways to learn the meaning of an unfamiliar word. The safest way is to interrupt the reading suddenly and find out the meaning of the unfamiliar word in a dictionary. Although this is the easiest way, it should only be employed if the following two methods are impossible. One is by carefully applying the context as clues-words contain meaning in relation to other words and the situation in which they are employed. The other is using word formation, including affixes and roots, to make an intelligent and skillful guess at the meaning of the unfamiliar word.

Panida Uer-apaikul and Parichart Chuchotkaew (n.p.) claim that some words seem to be unfamiliar. However, if the readers separate the unfamiliar words into small units, with the aid of the word parts, they are more likely to correctly guess the meaning of the words.

Obviously, wordbuilding or wordforming acts as a crucial tool to create new meaningful English words and, in turn, to derive the meaning of the words formed by affixes and bases (or roots). For

instance, *revive*, *vital*, *vitamin*, *vivacious*, *viviparous* and *vivid*, although having different meanings, all share one thing in common—that is the word root ‘*viv*’ or ‘*vit*’, which mean ‘*life*’. These words, therefore, tend to contain a meaning concerned with “*life*” (รีดเดอร์สไคเจสท์, (ประเทศไทย) 2541).

Pratin Pimsarn (1993) also makes the conclusion that “by learning only a few prefixes and suffixes, you will be able to recognize or guess the meaning of hundreds of English words. Word roots also can enable you to analyze the meaning of many words without having to look them up in a dictionary.”

Having realized the significance of exploiting a knowledge of affixes and roots to derive the meaning of words, the researcher developed a book entitled “English Wordbuilding from Prefixes and Roots.” The main purpose of the book was to help readers derive the meaning of unfamiliar words via various prefixes and roots. After the book was used for a few years, the researcher endeavored to pursue a formal investigation to ascertain whether or not the strategy of employing prefixes and roots to derive the meaning of unfamiliar words would be effective by using this book as the main research tool.

Research Question

This study attempts to answer the following research question: Is knowledge of prefixes and roots able to help students develop their ability to derive the meanings of unfamiliar words?

Objectives of the Study

The study aims to find out the possible consequence of improving the learners’ vocabulary identification skill by means of prefixes and roots.

Statement of Hypotheses

It was hypothesized that the students' ability to derive the meaning of unfamiliar words via prefixes and roots in the experimental group who obtained the teaching in prefixes and roots would be significantly different from that of the students in the control group who did not obtain teaching in prefixes and roots.

Scope of the Study

1. With a reliability of 95% and a sampling error of not more than $\pm 5\%$, the subjects were selected from a total of 120 M.6 students at Rajini Bon School in the second semester of academic year 2001. Then they were selected and categorized by a simple random technique into two equal groups, these being the experimental group receiving the teaching in affixes and roots and the control group not receiving the teaching in affixes and roots. A t-test was used to analyze the scores of the pre-test to ensure that the two groups were comparable.

2. In this study, the independent variable was the teaching in affixes and roots, while the dependent variable was the students' ability in deriving the meaning of unfamiliar words.

Limitation

1. The study covered only prefixes and roots, consistent with the content in the book "English Wordbuilding from Prefixes and Roots", used as the main instrument for the experiment. There is no section on suffixes and infixes since, according to Sloat and Taylor (1978), infixing is somewhat rare in English.

2. The findings can only be true for M.6 students at Rajini Bon School in the second semester of the academic year 2001 and can only be applied to some other very similar cases.

Research Procedure

In this research, the methodology was based on developmental and quasi-experimental research (the pre-test-post-test control group design). There were three main phases of the research: preparation of the experiment, experimentation of the teaching in prefixes and roots, and evaluating the effectiveness of the teaching.

Population and Samples

The population of the study were M.6 students at Rajini Bon School. One hundred and twenty M.6 students at Rajini Bon School in the second semester of academic year 2001 were randomly selected as research subjects and divided into two equal groups—the experimental group and the control group. A t-test was used to analyze the scores of the pre-test to ensure that the two groups were comparable.

Research Instruments

There were two types of instruments in this study: the instruments for the experiment and the instruments for collecting the data. The instruments for the experiment were lesson plans and materials developed based on the coursebook entitled “English Wordbuilding from Prefixes and Roots” (Satita Watanapokakul, 2001). The instruments for collecting the data were a pre-test and a post-test.

1. The instrument for the experiment

The book “English Wordbuilding from Prefixes and Roots” was the principal material employed in this course. There were two main parts in this book. The first one is about prefixes, including the meaning and examples of words consisting of each prefix. Here is an example of one prefix.

9. อุปสรรค *contra-*, *contro-*, *counter-*
 มีความหมายว่า "ต้าน, ตรงกันข้าม, ขัดแย้ง" (*against, opposite, contrary, opposing*)
 ตัวอย่างคำศัพท์
 contradict < contra + dict (คำพูด) = (v.) พูดโต้แย้ง
 controvert < contro + vert (หมุน) = (v.) โต้แย้ง
 counterclockwise < counter + clockwise (หมุนตามเข็มนาฬิกา) = (adj.) หมุนทวนเข็มนาฬิกา

Figure 1 Example of Prefixes

The second is the wordbuilding part. Each wordbuilding consists of 3 main sections: *Heading*, *Table*, and *Additional Words*.

รากศัพท์ **~FIRM = มั่นคง, แข็งแรง**

~firm } **Heading**

af [ad] (ไปยัง, ไปสู่)	firm (v.)	affirm = ทำให้ไปสู่ความ มั่นคง = รับรอง, ยืนยัน	S. confirm, verify, ratify A. deny, refute
con [com] (โดยตลอด)	firm (v.)	confirm = ทำให้แข็งแกร่งเต็มที่ = ยืนยัน, พิสูจน์ว่าจริง	S. affirm, verify, ratify, substantiate
in (ไม่)	firm (adj.)	infirm = ไม่แข็งแรง = อ่อนแอ, เจ็บป่วย; 2เปราะ	S. ¹ weak, ill, sick; ² frail, unstable

} **Table**

Additional words

affirmative = (adj.) ยืนยัน
 confirmation = (n.) ¹ข้อพิสูจน์, ข้อยืนยัน; ²การยืนยันอย่างเป็นทางการ;
³พิธีศีลมหาสนิท
 firm = (adj.) มั่นคง, แน่นนอน / (n.) บริษัท
 infirmary = (n.) สถานพยาบาล, ห้องพยาบาล
 infirmity = (n.) ความบกพร่องหรือเจ็บป่วยทางร่างกายหรือจิตใจ

} **Additional words**

Figure 2 Example of the Wordbuilding Part

Fifteen units of lesson plans were developed based on the book "English Wordbuilding from Prefixes and Roots". Forty-two roots were divided into 15 units and were presented to the students alphabetically.

Within each lesson, words composed of the same root with different prefixes were taught to the students. Segmentation of a word into its smallest units served as the main technique employed in the teaching. Three main stages in each lesson plan were designed based on the PPP method of teaching: presentation, practice and production (Harmer, 2001: 80). First, the teacher introduced the meaning of each root and then the teacher presented various words composed of the roots with varied prefixes on the board. After that, pair and group discussions were assigned to the students to find out the meanings of the listed words. Another stage was the practice session. Initially, the students received a worksheet about the additional words consisting of the roots that they had studied. Later, they had a chance to individually do the exercise by matching up the words with their meanings provided. Then a group discussion activity was conducted to finalize the correct answers. Finally, the teacher summarized the lesson.

After the lesson plans and materials had been developed, they were validated by three experts in the fields of ESL/EFL, and were piloted with a group of M.6 students with similar characteristics as the sample. Then a revision was made according to the experts' suggestions and the trial.

2. The instruments for collecting the data

Sixty multiple-choice items were constructed and by the "split half method", two parallel forms of the test (30 items for each form) were designed and served as the pre-test and post-test of the study. Each test item in the pre-test and the post-test was a very short sentence containing an unfamiliar word composed of affixes and roots. No context clues were provided for the learners to help them derive the meaning of the unfamiliar words. They had to use their vocabulary identification skill only to complete the test items. Here is an example of the test:

Anyone wishing to dissent should raise your hands now.			
a. oppose	b. apply	c. attack	d. join

After the tests had been constructed, three experts were asked to validate them, and after that, a revision was made according to the experts' suggestions. Then the revised tests were piloted with a group

of M.6 students with similar characteristics as the sample. The results from the pilot were calculated to obtain the reliability of the test, which was 0.87.

Data Collection

First of all, the pre-test was administered to both groups of students and the scores were collected. After the pre-test, a treatment of 15 units of a thirty-period English vocabulary course based on the mentioned course book was provided to the students in the experimental group. The students in the control group were not exposed to the treatment. At the end of the course, the post-test (a parallel form of the pre-test) was administered to the students in both groups. Then the scores were collected.

Data Analysis

The students' scores of both groups were systematically analyzed with the SPSS/PC (Statistical Package for the Social Sciences on Personal Computer) Version 9.10 Program.

Descriptive statistics were used to obtain maximum scores, minimum scores, means and standard deviations of the data.

The paired samples test acted as a means to obtain (1) the average pre-test and post-test scores of the control group and (2) the average pre-test and post-test scores of the experimental group.

The independent-samples t-test was used to make (1) a comparison between the average pre-test score of the control group and that of the experimental group and (2) a comparison between the average post-test score of the control group and that of the experimental group.

Results

The results are presented in Tables 1 to 5 below based on the test paradigms shown in the data analysis section.

Table 1 Descriptive Statistics of the Pre-test and Post-test

	N	Minimum	Maximum	Mean	Std. Deviation
PRE-TEST (Control Group)	60	2.00	14.00	7.8167	2.8611
POST-TEST (Control Group)	60	1.00	16.00	8.1333	3.0724
PRE-TEST (Experimental Group)	60	2.00	15.00	7.5667	3.0162
POST-TEST (Experimental Group)	60	3.00	26.00	14.7333	5.8364
Valid N (listwise)	60				

From Table 1, there were 60 students in the control group. On average, the pre-test score was 7.8 (S.D. = 2.9). The highest score was 14 and the lowest was 2. As for the post-test, the average score was 8.1 (S.D. = 3.1) with the highest score of 16 and the lowest score of 1.

On the other hand, the experimental group consisted of 60 students whose average score on the pre-test was 7.6 (S.D. = 3). The highest score of the pre-test was 15, whereas the lowest score on the pre-test was 2. As for the post-test, the average score was 14.7 (S.D. = 5.8) with the highest score of 26 and the lowest of 3.

Table 2 Comparison between the Pre-test and Post-test Scores of the Control Group

Group	n	\bar{X}	S.D.	t
Pre-test	60	7.81	2.86	0.269
Post-test	60	8.13	3.07	

*p < .05

For the control group, the average score of the pre-test was 7.8 with a S.D. of 2.9, while the average score of the post-test was 8 with a S.D. of 3.1. The results of the t-test from Table 2 show that the average score on the pre-test and that on the post-test are not significantly different at the level of .05. This means that, on average, the scores on the pre-test and the post-test were more or less the same.

Table 3 Comparison between the Pre-test and Post-test Scores of the Experimental Group

Group	n	\bar{X}	S.D.	t
Pre-test	60	7.57	3.02	0.000*
Post-test	60	14.73	5.84	

*p < .05

For the experimental group, the average score on the pre-test was 7.6 with a S.D. of 3, while the average score on the post-test was 14.7 with a S.D. of 5.8. The results of the t-test from Table 3 show that the average score on the pre-test and that on the post-test were significantly different at the level of .05. This means that, on average, the scores on the pre-test were lower than the scores on the post-test.

Table 4 Comparison of the Pre-test Scores between the Control and Experimental Groups

Group	n	\bar{X}	S.D.	t
Control Group	60	7.81	2.86	0.642
Experimental Group	60	7.57	3.02	

*p < .05

From Table 4, as for the pre-test, the results of the t-test show that, the average score on the pre-test of the control group and that of the experimental group were not significantly different at the level of .05. This means that, on average, the scores on the pre-test of both groups were more or less the same.

Table 5 Comparison of the Post-test scores between the Control and Experimental Groups

Group	n	\bar{X}	S.D.	t
Control Group	60	8.13	3.07	0.000*
Experimental Group	60	14.73	5.84	

*p < .05

From Table 5, as for the post-test, the results of the t-test show that, on average, the post-test scores of the control and experimental groups were significantly different at the level of .05. In other words, on average, the scores of the control group were lower than the scores of the experimental group.

Conclusion and Discussions

Given the overall results and the comparisons between (1) the pre-test and post-test scores of the experimental group (shown in Table 3) and (2) the control and experimental groups' post-test scores (shown in Table 5), it can be concluded that the experimental group performed better than the control group in deriving the meaning of unfamiliar words via prefixes and roots. These findings confirm that the teaching of prefixes and roots is an important means to the improvement of the learners' vocabulary identification skill. As a consequence, this research may be helpful and beneficial to both teachers and students. To illustrate, teachers should teach vocabulary consisting of the same roots in series. For example, when teachers would like to teach the word "*consist*", teachers should not simply give the definition of this word. Instead, teachers should list as many words ending with the root *sist* as possible on the board and let students derive the meaning of each word through the meaning of affixes and roots. Based on the researcher's teaching experience, students are frequently confused by words that end with the same roots as shown in the examples below:

assist < *ad* (toward) + *sist* (stand) = help
consist < *con* (together) + *sist* (stand) = form, be made up of
desist < *de* (not) + *sist* (stand) = stop
exist < *ex* (out) + *sist* (stand) = live, sustain
insist < *in* (inside) + *sist* (stand) = declare firmly
persist < *per* (through) + *sist* (stand) = continue, keep on
resist < *re* (back, again) + *sist* (stand) = withstand, endure
subsist < *sub* (under) + *sist* (stand) = ¹support; ²exist, sustain

By using this strategy, students themselves can derive the meaning of the words and differentiate the confusing words systematically. Furthermore, certain words such as *assistance*, *assistant*, *consistent*, and *resistor* that are composed of this prefix-root combination should be provided and taught to students as well.

As for students, affixes and roots are beneficial and helpful aids to derive the meaning of unfamiliar words, besides consulting a dictionary and employing context clues. Research in first language acquisition has shown that derivational affixes have an influence on learners in learning a second language on account of their helping learners to learn more words. Therefore, the purpose of derivational affixes of the current study is to enrich L2 learners to be able to master derivational morphology as an effective tool for building vocabulary (Morin, 2003). Moreover, learning and analyzing vocabulary with affixes and roots can help L2 students memorize the vocabulary systematically and effectively. According to Pica cited in Morin (2003), the learning of derivational affixes of a second language is enhanced when the learners study many words of L2, go through them, and, as a result, are capable of recognizing them and analyzing their lexical components.

Recommendations for further research

The findings from this research reveal that a knowledge of prefixes and roots provides valuable assistance in helping students to derive the meaning of unfamiliar words. Hence, further research should be conducted on the effects of teaching various roots and affixes.

Given that there are a large number of roots in the English language, a study of certain roots with an aim to compile roots frequently occurring in the National English Entrance Examinations should be conducted to help high school students master English vocabulary building. This type of study may help students limit their learning and memorizing to commonly occurring roots instead of all of the roots in the English language.

Other research may focus on compiling the prefixes and suffixes most and least frequently appearing in the nationwide English Entrance Examinations to help high school students master English word forming.

References

- Cornog, M. W. (2000). *Webster's new explorer vocabulary skill builder*. Springfield, MA: Federal Street Press.
- Crystal, D. (1997). *English as a global language*. Cambridge: Cambridge University Press.
- Gleason, H. A. (1961). *An introduction to descriptive linguistics* (Rev. ed.). New York: Holt, Rinehart and Winston.
- Gramley, S., & Patzold, M. K. (1992). *A survey of modern English*. London: Routledge.
- Harmer, J. 2001. *The practice of English language teaching*. 3rd ed. Essex: Pearson Education.
- Harris, D. P. (1969). *Testing English as a second language*. New York: McGraw-Hill.
- Katamba F. (1993). *Morphology*. London: The Macmillan Press.
- Katamba F. (1994). *English words*. London: Routledge.
- Paromrat Jotikasathira. (1999). *Introduction to the English language: System and structure* (Rev. ed.). Bangkok: Chulalongkorn University, Faculty of Arts' Publications Project.
- Matthews, P. H. (1991). *Morphology* (2nd ed.). Cambridge: Cambridge University Press.
- Morin, R. (2003). *Derivational Morphological Analysis as a Strategy for Vocabulary Acquisition in Spanish*. *The Modern Language Journal*, 87, 200-221.

- Neufeldt, V., & Guralnik, D. B., (Eds). (1996). *Webster's new world college dictionary* (3rd ed.). New York: Simon & Schuster.
- Phillips, D. (1996). *Longman preparation course for the TOEFL test: Volume A Skills and strategies* (2nd ed.). New York: Longman.
- Pratin Pimsarn. (1993). *English for advanced studies*. Bangkok: Thammasat University, Language Institute.
- Sinchai Pongpattarakul. (2001). *A study of affixes found in English entrance examination papers during 1985-2000*. Unpublished master's independent study, Thammasat University, Language Institute.
- Procter, P. (1988). *Cambridge international dictionary of English*. Cambridge: Cambridge University Press.
- Rivers, M. W., & Temperley, S. M. (1978). *A practical guide to the teaching of English as a second or foreign language*. New York: Oxford University Press.
- Parichart Sanghira. (1979). *A study of the affixes found in a scientific text*. Unpublished master's thesis, Mahidol University, Applied Linguistics.
- Sloat, C., & Taylor, S. (1978). *The structure of English words*. Eugene, OR: Pacific Language Associates.
- Kanda Thammongkol. (1998). *Learning to read and reading to learn for better reading skills*. Bangkok: Amarin Book Center.
- Panida Uer-apaikul. & Parichart Chuchotkaew. (n.p.). *Modern English in action*. Bangkok: HI-ED.
- Satita Watanapokakul. (2001). *English Wordbuilding from prefixes and roots* (4th ed.). Bangkok: Offset Press.
- Yuangsri, N., Pimsarn, P., & Pothongsunun, S. (1996). *Practical reading: A handbook for improving reading skills* (2nd ed.). Bangkok: Thammasat University, Language Institute.
- ศศิธร อหิงสโก. (24 พฤศจิกายน 2547). สกอ. เปิดผลคะแนนวัดความรู้ครั้งที่ 2547/2- "พีลิกส์" ได้เต็มร้อยเพียบ. *ไทยรัฐ*, น.15.
- ทณู เตียรรัตน์กุล. (2540). *คู่มือภาษาอังกฤษ ม. 4-5-6 Entrance*. กรุงเทพฯ: พัฒนาศึกษา.
- ปารีชาติ นาคะตะ. (2539). *คำและส่วนประกอบของคำภาษาอังกฤษที่มีรูปซ้ำหรือคล้ายคลึงกัน*. พิมพ์ครั้งที่ 2. กรุงเทพฯ: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.
- รีดเดอร์ส ไดเจสท์. (ประเทศไทย). (2541). *ศาสตร์แห่งศัพท์ภาษาอังกฤษ*. กรุงเทพฯ