บทความวิจัย (Research Article)

ประสิทธิภาพของบทเรียนเรื่องหน่วยคำร่วมกับการใช้ผังสัมพันธ์ทางความหมาย
ในการพัฒนาการเรียนคำศัพท์ภาษาอังกฤษของผู้เรียนชาวไทย
ที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ
The Effectiveness of Morphological Instruction Integrated
with Semantic Mapping on English Vocabulary Learning
of Thai Adult EFL Students

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อเปรียบเทียบประสิทธิภาพของการใช้บทเรียนเรื่องหน่วยคำร่วมกับการใช้ผังสัมพันธ์ทางความหมายกับการสอบแบบธรรมดา ที่มีผลต่อการตระหนักรู้เรื่องหน่วยคำในด้านความสัมพันธ์ ด้านการสร้าง และด้านการกระจาย กลุ่มตัวอย่างในการวิจัยชิ้นนี้คือผู้เรียนภาษาอังกฤษชาวไทยจำนวน 60 คน ที่กำลังศึกษาอยู่ในมหาวิทยาลัยราชภัฏเทพสตรี โดยที่กลุ่มตัวอย่างถูกจัดแบ่งออกเป็นสองกลุ่มคือ กลุ่มทดลอง และกลุ่มควบคุม ผลวิจัยพบว่า กลุ่มตัวอย่างในกลุ่มทดลองสามารถทำคะแนนได้ดีกว่ากลุ่มควบคุมที่เกี่ยวกับการตระหนักรู้เรื่องหน่วยคำทั้งสามด้าน นอกจากนี้ผู้วิจัยสามารถสรุปได้ว่า การใช้บทเรียนเรื่องหน่วยคำกับการใช้ผังสัมพันธ์ทางความหมายส่งผลดีต่อการพัฒนาคำศัพท์ภาษาอังกฤษและการตระหนักรู้เรื่องหน่วยคำได้ดีกว่าการสอนแบบธรรมดา

คำสำคัญ: บทเรียนเรื่องหน่วยคำ ผังสัมพันธ์ทางความหมาย คำศัพท์ภาษาอังกฤษ ประสิทธิภาพ

Abstract

The present study aimed at investigating the effectiveness of the morphological instruction integrated with semantic mapping on students' relational, syntactic, and distributional awareness comparing to the no-strategy based instruction. The participants were sixty Thai adult EFL students at Thepsatri Rajabhat University. They were randomly put into control and experimental groups. The results revealed that the experimental group

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outperformed the control group in all aspects of derivational morphology. The results indicated that using morphological instruction integrated with semantic mapping had greater effect and contribution on students' morphological awareness and English vocabulary development than the traditional one.

Keywords: Morphological Instruction, Semantic Mapping, English Vocabulary, Effectiveness

Introduction

Learning new vocabulary is crucial for both EFL and ESL contexts on developing target vocabulary capacity and comprehension. In language classroom, teaching vocabulary provides students "the core or heart of language" in which they can acquire new vocabulary (Lewis, 1993: 30). Also, there is a reflective relationship between learners' vocabulary size and their language proficiency (Zimmerman, 2005). The more they acquire productive vocabulary knowledge, the greater at English fluency and expression they will be. Besides, vocabulary is considered to be more influential than other components of language, as Wikins (1972) asserted that '…while without grammar very little can be conveyed, without vocabulary nothing can be conveyed'.

Thus, the EFL learners especially from university should have an ample vocabulary size at their hands because they always found themselves in the obstructive language learning environment when they come across with the unknown words in the textbooks. The most effective way of finding a meaning is to look up in a dictionary, but there must be some vocabulary acquisition strategy that can facilitate them within a short of time, as Schmitt (2000) points out that the learners tend to employ learning strategies which relate to less effort and time.

One of the effective strategies of teaching new vocabulary is using morphological instruction recommended by numerous studies explored previously (Ahmadi & Kokabi, 2017; Hayashi & Murphy, 2011; Tabatabaei & Yakhabi, 2011; Ziarani & Mowlaie, 2014) because it can be used to foster the new vocabulary acquisition and literacy-related skills of the learners by decoding word into meaningful parts (morphemes, roots and affixes). Other than that, the learners' reading for comprehension and writing skills are improved at the supra-lexical level (Brimo, 2016). In learners' vocabulary development, morphological instruction positively contributes as a predictor of successful language learning skills such as vocabulary growth, spelling and reading, and writing (Carlisle, 2000; Mochizuki & Aizawa, 2000). Carlisle (2003)

expands its contribution that morphological instruction requires learners' multiple skills in order to understand a word including phonological, orthographic, semantic and syntactic skills.

In language classroom, most of the students fail to recognize morphological components both inflectional and derivational forms, when they encounter the unknown words which can be an empirical obstruction from trying to comprehend a sentence and text (Morin, 2003). In order to solve the problem, the morphological awareness needs to be heavily considered and brought forward in the classroom. The morphological awareness is the ability to employ and comprehend the smallest units in a word (Carlisle, 2003; Carlisle & Nomanbhoy, 1993; Nagy et al., 2003). Because words in English are usually formed up with 'morphemes' which are the smallest identifiable units (e.g. the word 'players' can be broken down into 3 morphemes which are play + -er + -s) so, the EFL learners need to familiarize themselves with the rules of morphological knowledge consciously since the English teaching texts used at the present contain many complex word formation morphologically impeded the learners to understand and if they have an effective morphological awareness, they are able to realize that the affixes can be added or taken away from founding the meaning of a target word (Ebbers, 2017; Nation, 2001). The above claim is in line with Nagy & Anderson, (1984) who reported that English language readers employed the morphological knowledge to guess the noticeable meaning in a text. McBride–Chang et al., (2005) also asserted that new morphologically complex vocabulary will be easier to understand, if the leaners have more insightful knowledge on how words in English are formed.

Apart from the morphological instruction, the semantic mapping could be integrated into vocabulary learning and brought many benefits to the learners (Shostak, 2003). Semantic mapping (or graphic organizer) is a process of creating a visual display focused on conveying the meaning-based relationship between a set of word, phrase, or concept (Dilek & Yürük, 2013). The map is suitable for learning vocabulary where the learners build up diagrammatic map using selected vocabulary within the related topic in classroom or their interest in order to make more understanding and recall the learned meaning. Moreover, the map is used when the teachers are trying to give a direction of how words and concepts are related (Heimlich & Pittelman, 1986).

Studies conducted in Thailand revealed that vocabulary is still problematic to English learners combined with the linguistic aspects, morphological, lexical and syntactic level (Chawwang, 2008). In addition, Noom-ura (2013) reported that the teachers do not facilitate the students enough in terms of reading strategies including the use of context clue, synonym,

keyword and the knowledge of affixes. Apparently, if we closely consider the claim above, the knowledge of affixes could be used as a starter toolkit to overcome vocabulary barriers in the morphological level. Without the understanding of words, they cannot morphologically proceed to the lager syntactic level in a text.

With regard to the afore-mentioned statements, the purpose of the study is to examine how morphological instruction with semantic mapping could foster learners' English vocabulary learning. Also, it is questioning whether or not the instruction could successfully improve learners' morphological awareness. There is evidence from the previous research on vocabulary development that there is no consensus on the best practical method on teaching and learning vocabulary with different learners' situation and environment, so there is still a room to fill a body of the literature and to extend the developmental scope on teaching and learning vocabulary.

Objectives of the Study

The present study aimed at investigating the teaching effect of morphological instruction with semantic mapping whether or not the instruction facilitates the learners' vocabulary skill. Based on the objectives of the study, the following research questions are proposed.

1. Does the morphological instruction with semantic mapping and no-strategy based instruction have any statistically significant impact on Thai Adult EFL students' vocabulary learning before and after the instruction?

2. Does the morphological instruction with semantic mapping and no-strategy based instruction have any statistically different impact on Thai Adult EFL students' morphological awareness in three aspects of derivational morphology (relational, syntactic and distributional aspects)?

3. Do the students have a positive satisfaction towards morphological instruction with semantic mapping?

Research Methodology

Participants

The main population was 124 students whose majors were Public Administration and Laws from Thepsatri Rajabhat University. Their age was between 20–40. They were enrolled in the English for Communication course of the second semester, 2018 academic year. Before selecting the participants, the English proficiency placement test of English Discoveries Online

(EDO) with the equivalent scale of the Common European Framework (CEFR) were administered to the population to select only 60 subjects to participate in the study in order to ensure the homogeneity. Every student at Thepsatri Rajabhat University had to enroll in English courses required by the national curriculum at least 12 credits and they had to use the EDO which was a technology-based English learning tools suitable for home use. The selected subjects were recruited based on their score on the EDO which was equivalent to Basic 2 level (aligned to A2 of the CEFR). Then, each of them was randomly put into the control group, who received the general teaching based on the curriculum and the experimental group, who received the explicit morphological instruction integrated with the use of semantic mapping.

Research Instruments

Morphological Awareness Test

The researcher created morphological awareness tests which were compatible with the three aspects of derivational morphology knowledge which were relational, syntactical and distributional awareness adapted from (Amirjalili & Jabbari, 2018). The vocabulary and affixes used in the test were selected from six units in Cambridge Empower B1 which was used as the supplementary book. The test consisted of 60 items divided into 3 parts (20 items for each) based on the three mentioned aspects and it was distributed to the subjects for both pre-test and post-test. For the relational awareness, there were 20 items. Half of them were transparent and the others were opaque. The students were required to dissect the given morphologically complex words in the isolation forms, for example:

Instruction: In each item, dissect the root and suffix of the given words.

1. Moralize (Transparent)   Correct answer: Moral + -ize

2. Deniable (Opaque)   Correct answer: Deny + -able

For the syntactical awareness, there were 20 items. Half of them were transparent and the others were opaque. The students were required to identify the part of speech of the given choices (A-C) and chose the best answer that was the most suitable for the correct function of the sentence as in the examples below:

Instruction: Choose the best answer.

1. (Transparent) I need his advice, so that I can use it to _____ my final paper.

   A. Improve   B. Improvement   C. Improver

2. (Opaque) Sarah picked up the _____ and pressed John's number.

   A. Receiver   B. Receive   C. Receivable

In the first item, the students need to recognize that 'improve' is the correct answer since the sentence requires a verb to fulfill the sentence. For the second item, the students need to recognize that 'receiver' is the correct answer since the gap is preceded by an article 'the' which requires a noun to fulfil the sentence.

For the distributional awareness, there were 20 items. Half of them were transparent and the others were opaque. The students were required to make judgement based on the root and suffix whether or not the given words do exist in English.

Instruction: In each set of words, which word does not exist in English?

1.   A. Talkative   B. Blindness   C. Appearance   D. Organable

In the above item, 'organable' is incorrect, since the suffix -able can be attached with verbs to make adjectives describing something that can be done or some nouns to make adjectives describing a quality that someone or something has. In this item, the word 'organ' is not the type of noun that should be used to describe a quality (-able, n.d.) and it doesn't exist in English word (Organable, n.d.)

In order to make sure that the test was valid, the researcher sent a full version of the test to the three experts to complete the index of Item Objective Congruence (Rovinelli & Hambleton, 1977) to find for its feasibilities. The first and second experts were American English native speakers who have taught English in Thailand and the third expert was Thai lecturer who was holding a doctoral degree in Applied Linguistics. After the IOC process, the researcher fine-tuned the malfunctioning and imperfect stem from the test based on the comments from the experts. After that, the test was pilot-tested with 20 students from the same population as an exercise during the class to find time of completion and unexpected problems during the test.

Treatments

The students from the control group received a regular teaching based on the curriculum using Cambridge Empower B1 as the supplementary book, and were exposed to the same vocabulary as the experimental group, regardless of morphological components. On the other hand, the experimental group received the explicit morphological instruction integrated with the use of semantic mapping. The two groups received twelve weeks of instruction, three hours per week. The teaching step was adapted from Amirjalili & Jabbari, (2018) as follows:

1. Selecting the three roots found in the textbook and its meanings after learning with the regular lesson on a textbook.

2. Introducing possible suffixes to be attached to the selected roots and explaining the meaning based on the attached suffixes.

3. Demonstrating the changes in spelling in the case of the opaque words.

4. Explaining the part of speech of the new formed words.

5. Providing the examples of the appropriate use of the words in the sentence based on the part of speech.

6. Elaborating the disallowance suffixes that cannot be attached to the selected root.

7. Demonstrating on how to gain more morphological awareness through semantic mapping.

8. Assigning the students to draw diagrammatical maps as a homework using Mindomo (five root words for each unit, the total of six units)

9. Exchanging and presenting their own maps to their friends after the class, observed by the researcher.

Data Collection

The data collection was done through a quasi-experimental pretest-treatment-posttest design. The data were collected in three phases. In the first phase, the researcher explained about the rationale, objectives, benefits and procedures of the present study to the students from both groups. The consent forms were administered to the students before the pre-test. Then, the pre-test (morphological awareness test) was distributed to the two groups of students in order to initially determine their performance on morphological awareness. The time of test completion was 90 minutes, and the students were not allowed to use any electronic devices or look up in a dictionary. In the second phase, both groups received the instructions as mentioned in the treatment section. In the last phase, both groups performed the post-test.

Data Analysis

In the study, the results were analyzed using SPSS software. To answer the first and second research questions, the paired t-test and independent sample t-test were used to analyze and compare the mean scores from the groups. The descriptive statistics were also used. For the third research question, the satisfaction of the students towards the morphological instruction integrated with semantic mapping was done by using the Likert (1967) scale.

Results

The results and data were presented below to address the three research questions.

1. Does the morphological instruction with semantic mapping and no-strategy based instruction have any statistically significant impact on Thai Adult EFL students' vocabulary learning before and after the instruction?

Table 1 Descriptive statistics for the scores of control and experimental groups.

Treatments		N	Mean	S.D.	Min	Max
Control	Pre-test	30	25.10	3.56	19	31
	Post-test		25.66	3.47	20	32
Experimental	Pre-test	30	23.86	3.44	16	30
	Post-test		32.86	4.17	26	42

Based on the descriptive statistics on the Table 1, the average mean scores from the pre-test and post-test of the control group were slightly different (25.10 and 25.66), while the post-test from the experimental group significantly outperformed the pre-test after the implementation of the treatment (23.86 and 32.86). In order to examine the effectiveness of the instruction within the experimental group, the pre-test and post-test were calculated using paired sample t-test as shown in the Table 2 below:

Table 2 Paired sample t-test for the comparison of pre-test and post-test of the experimental group.

Treatment		N	Mean	Mean Difference	t	df	Sig. (2-tailed)
Experimental	Pre-test	30	23.86	-9	-12.43	29	.000
	Post-test	30	32.86				

*p<0.05

As seen in the Table 2, the paired sample t-tests indicated that the scores from the post-test outperformed the pre-test. This difference is considered to be statistically significant at the level of .05.

Table 3 Independent sample t-test for the comparison of post-test between the control and experimental groups.

Treatments		N	Mean	Mean Difference	t	df	Sig. (2-tailed)
Control	Post-test	30	25.66	-7.20	-7.25	58	.000
Experimental	Post-test	30	32.86				

*p<0.05

According to the Table 3, the results demonstrated that the mean score from the experimental group significantly outperformed the control group. There was a statistically significant difference at the level of .05. The results from Tables 1-3 could be used to answer the first research question that the morphological instruction with semantic mapping is more effective and benefited a greater degree comparing to no-strategy based instruction.

2. Does the morphological instruction with semantic mapping and no-strategy based instruction have any statistically different impact on Thai Adult EFL students' morphological awareness in three aspects of derivational morphology (relational, syntactic and distributional)?

Table 4 Independent sample t-test for the comparison from the post-test of the three aspects of derivational morphology (relational, syntactic and distributional) between the control and experimental groups.

Treatments		N	Mean	t	df	Sig. (2-tailed)
Relational	Control	Post-test	30	10.50		
					-3.42	58	.001
	Experimental	Post-test	30	12.96		
Syntactic	Control	Post-test	30	8.00		
					-5.94	58	.000
	Experimental	Post-test	30	11.53		
Distributional	Control	Post-test	30	7.10		
					-2.95	58	.004
	Experimental	Post-test	30	8.36		

*p<0.05

According to the Table 4, the post-test scores of the three aspects of derivational morphology from the control and experimental groups were compared using independent sample t-test. From the results of the three aspects, the experimental group had a greater improvement compared to the control group. There were statistically significant differences at the level of .05 of from the three aspects. In addition, the students from the two groups scored well in the relational aspect followed by syntactic and distributional aspects respectively.

3. Do the students have a positive satisfaction towards morphological instruction with semantic mapping?

Table 5 Students' satisfaction towards the morphological instruction integrated with semantic mapping.

No.	Items	$\bar{x}$	S.D.	Interpretation
1.	The morphological instruction with semantic mapping is very useful when learning new vocabulary.	4.43	.50	High
2.	The morphological instruction with semantic mapping helps contribute to my English word-formation skills.	4.27	.63	High
3.	Drawing a semantic mapping systematically helps me understand and memorize the English affixes.	4.60	.55	Very High
4.	The teaching encourages me to develop my creative thinking skills while learning English.	4.37	.55	High
5.	The teaching makes learning easy and applicable.	4.33	.60	High
6.	After each class, the teaching encourages me to learn new words outside the classroom.	4.03	.80	High

No.	Items	$\overline{x}$	S.D.	Interpretation
7.	The morphological instruction with semantic mapping reduces the feeling of boredom and tension.	3.50	.76	Moderate
8.	I am happy and more motivated to learn English.	4.00	.73	High
9.	I feel that the teaching has improved my English vocabulary.	4.10	.70	High
10.	I enjoy presenting and discussing about the affixes created in the semantic mapping with my classmates.	4.27	.77	High
	Overall	4.19	.66	High

As presented in the Table 5, the overall students' satisfaction toward the morphological instruction integrated with semantic mapping was at a high level ($\overline{x}$ = 4.19 S.D. = .66). The highest mean score was held on item no. 3 ($\overline{x}$ = 4.60 S.D. = .55). This indicated that students agreed that using semantic mapping systematically helped them understand and memorize affixes in English and they also agreed that the instruction was very useful when learning new vocabulary ($\overline{x}$ = 4.43 S.D. = .50). With the use of the morphological instruction integrated with semantic mapping, this encouraged the students to develop their creative thinking skills while learning English ($\overline{x}$ = 4.37 S.D. = .55). Besides, the rest of the items was ranked at a high level except item no. 7 ($\overline{x}$ = 3.50 S.D. = .76).

Discussion

The present study mainly attempted to investigate the effectiveness of morphological instruction integrated with semantic mapping compared to the no-strategy based instruction. The mean scores from the three aspects of derivational morphology were also compared in order to find a positive impact after the implementation. In addition, the satisfaction questionnaire was distributed to the students to find their opinions toward the instruction.

According to the first research question, the researcher was eager to know whether or not the morphological instruction integrated with semantic mapping and no-strategy based instruction had any statistically significant impact on Thai adult students' vocabulary learning before and after the instruction. The results revealed that the post-test from the experimental group significantly outperformed the control group. There was a statistically significant difference between the control and experimental groups. It was consistent with the findings of Amirjalili & Jabbari (2018) who stated that the rule-based instruction is crucial for gaining the understanding of the English language system, and the students' morphological awareness was increased when the rules were taught explicitly. The present study also agreed with Ziarani & Mowlaie, (2014) who examined the effectiveness of morphological instruction with the use of semantic mapping of Iranian intermediate EFL learners. They found a positive impact of the instruction towards

the students' vocabulary achievement. However, the results were not in-line with Sritulanon (2013). She reported that the morphological instruction did not explicitly foster the vocabulary development of low-proficient Thai adult EFL students. She claimed that the students' morphological understanding dependeds on their morphological awareness and vocabulary size. In addition, the morphological structures of English and Thai are different in many ways, so the transfer of morphological structure and awareness could be considerably difficult between the two languages (Chen & Schwartz, 2018). The semantic mapping facilitated the students as a graphic organizer which helps them connect the concept or key words into a systematic way and expand their vocabulary development through hierarchical relationship (Antonacci, 1991). Moreover, Zahedi & Abdi (2012) further asserted that if the learners are more exposed to the cognitive process by the use of semantic mapping, they are likely to recall what they have learned easily. Concerning the use of semantic mapping with the instruction, the students were required to use a cognitive processing to seek for the relationship of the internal morphological structures and components. They also were required to present and discuss what they had learned so far with the classroom. This could build up the establishment of long-term memory and lead to the knowledge retrieval.

The second research question of this study was whether or not the morphological instruction with semantic mapping and no-strategy based instruction have any statistically different impact on Thai Adult EFL students' morphological awareness in three aspects of derivational morphology (relational, syntactic and distributional aspects). The results from the post-test demonstrated that the experimental group outperformed the control group in all aspects. There were statistically significant differences at the level of .05 from the three aspects. In addition, the students from the two groups remarkably scored well in the relational aspect followed by syntactic and distributional aspects respectively. According to the results, the distributional aspect was the hardest and the most complex aspect for the students compared from the other two. With the reference to the existing evidence, the previous studies recapitulated that the EFL or ESL often faced a difficulty on doing the distributional aspect. They also asserted that the students who have a higher level of English proficiency received more productive learning situation than the lower ones on distributional aspect, since the distributional awareness involves the ability of linguistic constraints between the base and suffix. (Varatharajoo et al., 2015). Kieffer & Lesaux (2012) also asserted that the EFL students need to have an ample and adequate knowledge of relational and syntactic aspects before acquiring the distributional aspect. Consistent with Schmitt & Zimmerman, (2002) they investigated the

morphological awareness on English native university students and advanced ESL students. They added that the difficulty on producing derivational affixes did not only appear for the EFL or ESL students. The English native speakers also performed the imperfect production. In addition, the semantic mapping was integrated into the instruction, but the development sequence of the derivational morphology acquired by this study's students was not significantly different from the previous studies.

With regard to the third research question, the researcher wanted to know about the students' satisfaction towards the instruction. The overall students' satisfaction towards the morphological instruction integrated with semantic mapping was at a high level. The highest score was ranked at item 3. The students agreed that drawing a semantic mapping systematically helps them on understanding and memorizing the English affixes. The results also indicated that the instruction with semantic mapping was useful, applicable and easy for lexical access. Besides, the students felt happy and more motivated to learn new complex and unknown words. This might be because the students who had a restricted morphological vocabulary knowledge could expand their understanding via the use of semantic mapping rather than memorizing. Also, the students had a chance to draw the diagrammatic maps by using web-based mind mapping application suitable for students' tablets and mobile phones and present their works with their friends and teacher.

Conclusion

The effect of the morphological instruction with semantic mapping was investigated among Thai adult EFL students. The three research questions were proposed and answered. The results indicated positive effects of the instruction as follows:

First, the scores from the control group who received general teaching based on the curriculum were compared to the experimental group who received the morphological instruction integrated with semantic mapping. The results revealed that the experimental group outperformed the control group. There was a statistically significant difference at the level of .05. This indicated that the instruction is more effective and benefited a greater degree compared to no-strategy based instruction. For pedagogical implication, the morphological awareness is crucial and should be explicitly taught in class since the instruction involves the form-focused approach which helps build students' metalinguistic awareness for language learning.

Second, with regard to the three aspects of derivational morphology, the post-test from the experimental group outperformed the control group in all aspects. The students from the two groups scored well in the relational aspect followed by syntactic and distributional aspects respectively. This result was in-line with many previous research stated that most of EFL students acquire relational and syntactic aspects first, but the distributional aspect will be acquired later. Lastly, the students had positive opinions and satisfactions toward the instruction. They have now become more aware when they encounter with morphologically complex words. Also, the students may feel happy when technology was integrated in the classroom because they drew the semantic mapping by using a web-based mind mapping application called Mindomo.

Based on the findings and discussions, the present study only investigated the derivational morphology, so further research can be conducted to find the impact and effect of the instruction towards inflectional morphology. The future research can be conducted with a longer period of study and a delay post-test should be included to find the retention of the knowledge. Also, the different English proficiency and field of study should be further investigated.

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