Application of Morphological Typology and English Affixation Instruction

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Abstract

This study aims at investigating the effectiveness of application of morphological typology into the instruction of English Affixation for English major students. The study focuses on student performances in the analytic sense indicating their knowledge for merits of English inflectional morphemes, namely: the meaning of affixes, numbers of affixes in the made-up words, syntactic categories of affix and its base; and of English derivational morphemes namely; the meaning of affixes in the made-up words, numbers of morphemes, syntactic categories of affix and its base, and pronunciation of stress pattern in the made-up words. The findings of the study revealed that there is a significant and varied difference in the test scores of the control group and the experimental group. The results will be discussed in two perspectives. The first is the effectiveness of how application morphological typology could foster in the instruction of English affixation. The second is the importance of deficiency in the instruction required for secondary applications to be used in the instruction of English affixation.

Keywords: morphological typology, morphological instruction, ESL

Introduction

It is unarguable that learning grammar is one of the biggest concerns in learning a second language. Morphological knowledge is definitely one of those. On the linguistic grounds, English morphological instruction will gain the L2 learners of the internal structures of words in a particular language. This paper presents an experimental and applicative study on the acquisition of English Affixation from a typological perspective and implication from pedagogy that facilitate the development of learnability of English major students in Uttaradit Rajabhat University. It illustrates the use of applying cross-linguistic morphological characteristics to morphological acquisition of Thai adult ESL learners.

Problems in morphological knowledge gained a vast attention from researchers. To begin with, morphological knowledge about English affixation is proved to be a big account for English as a second language learning. A study was presented by Saengchan and Norbert (2006) in order to investigate how morphological knowledge was synthesized and reflected in writing skill by Thai university students. In the research, the statistics of lexical errors in the English compositions of third year Thai English learners in university level revealed that morphological knowledge as reflected in their writing errors was the second most numerous errors. They found that misselection of word, that is formation of wrong selection of roots and affixes, was found highest at 60% of word structural errors. It consisted of two suffix type errors; (a) the same word class with similar form (for example, There is a lot of competition, instead of competitiveness) and (b) the wrong use of particular word class (for example, It is said that today our world is globalization, instead of globalized). The errors in the wrong use of particular word class were significantly higher than that in the same word class with similar form. This evident supports the notion of lexical development by Jiang (2000) who explained that at the stage three of morphological knowledge a word will be achieved by a learner of L2 when the learner can integrate and form the semantic, syntactic, morphological and formal specification of L2 word as lexical entry.

Moreover, as the 'language transfer' affects the learning of L2 English, it is generally assumed that certain linguistic aspects of a second language learner's native language will transfer to the L2 acquisition of him or her (Bliss, 2006) Within the domain of word formations by affixation, the difficulties in supply the morphosyntactic and phonological constraints are resulted from the fact that the L1 Thai may not represent them. In teaching English to Thai native speakers as a second language, morphological features become daunting road as the notion of the term 'affixation' in English to Thai students of English seems most likely to be what they only call 'prefixes' and 'suffixes'. They also tend to guess the meaning of a word by translating it word-to-word, and did not apply the correct analysis on how words are formed from smaller elements with meaning. That makes sense by the influence of their L1 Thai which does not apply a lot of affixation process in word formations as much as an isolating language. Besides, the L2 English requires the principles governing the pronunciation of words in affixation as well.

According to the problem mentioned above, there is a desirable instruction that should be designed to cover all perspectives which can fix the problem of how students can learn and perform better in English knowledge of affixation.

Literature Review

Morphological Instruction in L2 Thai Learners of English

There are two opposing views of the effectiveness of studies on morphological instruction in Thai L2 learners of English. According to Timyam (2008), a needs analysis was conducted to investigate the needs of various aspects of knowledge in linguistics for English major students. The subjects in the study were 123 English major students at the undergraduate and graduate level. The results showed that the students considered morphology as highly needed. They also suggested that morphology should be taught in order to help the students know the meaning of unfamiliar English vocabulary.

Yet, there are some striking findings that suggested that morphological instruction did not change the learning achievement of Thai L2 learners of English. First, in a study by Chuenjundaeng (2006), an investigation of Suranaree University of Technology (SUT) students's the effectiveness of word composition strategies in the receptive knowledge of English noun suffixes: -iton, -er,-ment, -ity. The participants were 167 undergraduate students who were studying fundamental English courses at Suranaree University of Technology in Thailand. The results showed that the participants' receptive knowledge on the four noun suffixes was only 13.5% accurate, and suggested that the possible factor was the frequency of word which the participants encountered in their daily life. This research pointed out that word-composition strategies could not benefit the students to remember words in the same domain. Second, there was a master degree thesis in morphological awareness and its relationship between vocabulary knowledge and morphological complexity among EFL students in Omani University by Farsi (2008). The study examined the L2 learners' knowledge of morphemes and morphemic structure which would allow them to reflect and manipulate morphological structure of words and would be shown as a predictor of L1 vocabulary. It applied an adapted test to assed both analytic and synthetic aspects of morphological knowledge. The analytic test referred to breaking down complex words into smaller meanings, while synthetic referred to reassembling smaller meaning to make up new words. Farsi applied Nation's Vocabulary Test (Nation, 2001 cited in Farsi, 2008) as a means to assess the effect the morphological knowledge on vocabulary development. The results indicated that the students' overall morphological awareness and vocabulary size were limited, but they performed better in the Morpheme Identification Test (analytic) than they did in the Morphological Structure (synthesis), and there was no statistic relationship between the two constructs. Besides, the students' performance on morphological analysis did not play a role in their performance on simple words vs. complex words. In addition, in a research paper by Sritulanon (2013), a study was conducted to examine the effects of morphological instruction on reading abilities of low proficiency adult EFL learners at a university in Thailand. In the study, the researcher presented an experiment on two groups of the low proficiency adult EFL learners by giving morphological instruction; namely narrow sense of analytic aspect by Farsi (2008), to the participants to the experimental group, and testing both groups on their reading ability in terms of vocabulary and reading comprehension or the narrow sense of synthetic aspect by Farsi (2008). The results revealed that teaching morphological awareness did not foster the vocabulary development and reading comprehension

skills of the L2 learners whose limitation vocabulary size was of 2,000-3,000 common words.

Therefore, these studies confirm an assumption that morphological knowledge is a major problem in learning English towards other additional linguistic skills. Yet, all of them did not mention the real and overall aspects that are required in morphological knowledge of English which will be discussed in the following section.

English Morphological Complexity and Its Acquisition

While many of studies pointed how morphological instruction contributes to the development and acquisition of second language in reading, spelling, comprehension, or vocabulary achievement (e.g. Deighton,1959; Laufer,1997, Farsi, 2008; Carlisle, 2010), one can say English morphology is complex to learn. This section will describe linguistic and psychological aspects involving with morphological knowledge of English affixation and difficulties in acquiring it. First, difficulties in inflectional morpheme awareness revealed knowledge of L2 learners. According to Universal Grammar, Jiang (2004; 604-605) cited two approaches that account for knowledge about inflectional morphemes, as a grammatical rule, of L2 learners namely competence deficit approach (CDA) and performance deficit approach (PDA). Jiang stated that CDA considers that ESL learners' morphological difficulties are a sign of incomplete acquisition of morphological knowledge on the learner's part. Learners may know all the rules about inflectional morphemes, but such conscious intellectual understanding is not part of their integrated linguistic competence.

In other word, when L2 learners perform errors and variability of inflectional morphemes in spontaneous communication because the performer has learned a rule but has not acquired it (Karshen, 1982, p.86 cited in Jiang 2004). Therefore, such difficulties reflect that the knowledge of inflectional morphemes is learned but not represented in their internalized knowledge. On the other hand, PDA considers such difficulties in accessing, retrieving, or controlling what has been internalized. Jiang cited researches by Sharwood (1986, p12-13 cited in Jiang 2004) and Sorace (1985, p240 cited in Jiang 2004) to explain that such difficulties are resulted from the process where L2 learners may suffer a long delay to attempt to have control over and that L2 knowledge is procedural that is necessary for accessing internalized knowledge. Thus, according to Jiang, the inflectional morphemes in English behave like a grammatical rule that L2 learners are taught to learn and be represented in their internalized knowledge.

Second, in Tyler and Nagy's (1989) study, they explained three aspects of knowledge in acquiring the derivational morphemes in English. The first is knowledge of semantic relationships. L2 learners are able to recognize the semantic relationship between how two words share a morpheme in common as a basic level of knowledge of morphology such as 'argue' and 'argument'. The researchers also additionally noticed in their experimental study that unfamiliar or infrequent morphemes might cause difficulties to unitize the knowledge. Thus, to acquire this, producing definitions is more demanding than recognizing correct definitions. The second is knowledge of syntactic properties. As a primary function of derivational suffixes in English is to change the part of speech of a base, so if someone does not know the base of word, the suffixes will become ambiguous information about their syntactic

categories. For example, one should be able to gather from the endings as in 'aggression' is a noun, 'aggressive' is an adjective, without knowing that 'aggress' is the base. And the third is knowledge of distribution which is considered to be the most complicating. This is because all derivational suffixes are constrained by the syntactic category of the base they attach to, e.g., -ness to adjectives, or -ize to nouns. The researchers suggested that this aspect of knowledge should be the last to be acquired. This is because learners are required to have knowledge about the syntactic contribution, before they could figure out the restriction of distribution, and avoid overgeneralization of words that violates the constraints on the distribution of that suffix such as '*badity' or '*repeatize'.

Besides those concerns mentioned in previous section, there are some more interesting aspects that should account for morphological instruction. The first is the awareness of phonological and morphological properties of affixes. Neutral and non-neutral affixes are two terms referring to the classification of English affix where the non-neutral ones can cause stress shift ('satan' -'satanic', 'employ' – 'employee') (Katamba and and Stonham, 1993, p.89-90) ,while the neutral ones are said to be stress neutral ('serious'-'seriousness', 'power'-'powerless').   Shemshadsara (2011, p.145) stated:

> "Affixes are of two kinds that play an important role in place of stress. They are called prefixes and suffixes. The former comes before the stem and the latter comes after stems. They have one of the following effects on words stress.
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> i)   The affix itself receives the primary stress (e.g. 'semi' + 'circle'),
> ii) The word is stressed just as if the affix was not there ('pleasant', 'unpleasant')
> iii) The stress remains on the stem; not the affix, but is shifted to a different syllable (e.g. magnet, 'magnetic'). "

According to Peter Roach (2004, p.96) who explained that there are different kinds of suffixes which are stress-moving, stress-carrying, and neutral. He stated:

> "If the stem consists of more than one syllable, there will be a secondary stress on one of the syllables of the stem. This cannot fall on the last syllable of the stem, rather it moves to an earlier syllable. For example, in the word 'Japan' the primary stress is on the last syllable, but when we add the stress-carrying suffixes, the primary stress is on the suffix and the secondary stress is placed the first; 'Japanese'."

However, suffixes like -able, -age, -al, -ful, -ing, and -ish do not change the place of stress if they attach to words. For examples wonder has primary stress in the first syllable. If we add the suffix -ful to it, the place of stress does not change like 'wonderful'."

In a study carried out by Zahar Ghobani (2011), thirty Persian English major freshmen at Roodbar Azad University were given test to read and pronounce two types of words including ones with stress moving suffixes, and those with neutral

suffixes. The result showed that stress-moving suffixes are more difficult to learn than neutral suffixes.

The last morphological complexity is the affix combination. According to level-ordering hypothesis, the difference behavior of neutral and non-neutral affixes is explained in terms of strength of boundaries. That is, a weak boundary (indicated by #) separates the base from a neutral suffix. In contrast, a strong boundary (indicated by +) separates the base from a non-neutral suffix. Plag (2001,p. 2) demonstrated the notion as the following classes or strata:

> Class I suffixes : +ion, +ity, +y, +al, +ic, +ate, +ous, +ive
> Class I prefixes : re+, con+, de+, sub+, pre+, in+, en+, be+
> Class II suffixes : #ness, #less, #hood, #ful, #ly, #y, #like
> Class II prefixes : re#, sub#, un#, non#, de#, semi#, anti#

Based on the hypothesis, Fadhil (2007, p. 113-119) proposed that each stratum can be distinguished by the phonological, morphological, and semantic characteristics in terms of restrictions. Even so, the hypothesis is still problematic when certain affixes are combined. 'Dual Class' affixes are raised to point out because the group of affixes is in the both stratum I and stratum II at the same time. For example, '-ize' is in the stratum I in the word 'Catholicize' because there is a shift of stress from the first to the second syllable, while in the word 'Bermudaize' is in the stratum II because the place of stress does not change. The Dual Class affixes are show as following;

> Dual Class Prefixes : hyper-, circum-, neo-, mono-
> Dual Class Suffixes : -ize, -ment, -ism, -ist, -ive, -y (Szpra, 1982, p. 42 cited in Fadhil 2007, p.16)

Besides, some possible combinations violate the restriction. For example, in the words 'readability' and 'organization', suffixes '-ity' and '-ation' from the stratum I occur outside stratum II suffixes '-able' and '-ize'. Finally, violation of distribution constrains can also be seen in terms of overgeneralization.

In short, to acquire the complex morphological knowledge of English affixation, it takes both linguistic and psychological attempts. As for the English inflectional affixes, learners should be aware of them as grammatical rules and acquire them to apply the affixes with the different syntactic categories of bases. Moreover, it requires more for derivational morphemes. Learners should, first, be able to recognize the semantic relationship of any possible words that might share a common morpheme. By this, it means that they can produce the definition of a morpheme and then recognize to apply when they encounter any possible words. The second is the knowledge syntactic properties of affixes when they are attached to a base. The third is the knowledge of distribution which is the information that tells about the syntactic categories of a base. The last is phonological knowledge which can affect the possible pronunciation of words in terms of stress pattern.

Typological Perspectives

Even though it has been widely observed that English as a second language learning is negatively affected by the difficulty or insufficient knowledge of English

morphological knowledge, the literature concerning the morphological differences among languages and its implication for English as second language learning is very limited. Recent research by Schepens et al. (2013) presented an investigation in the notion referred as morphological complexity and L2 learnability. Morphological complexity here can be defined as the extent to which a language makes use of modifications of words as it reflects how much investment is needed for an adult L2 learner to acquire another language. The study revealed that L2 learnability and L2 proficiency would co-vary in terms of the morphological formation of the L1 mother tongue and the L2 to be learned.

According to this point of view, the more different and complex in morphological structure represents in the mother tongue, the more decisive property in establishing L2 learnability it would be. To depict how different and complex in morphological structure could be, Comrie (1981) proposed a continuum of morphological variation in the world's languages. He divided languages into two morphological dimensions, the first one concerns the number of morphemes in a word, and the second concerns the segmentability of words. Therefore, languages can be categorized into either isolating (e.g. Chinese), fusional (e.g. Spanish), polysynthetic (e.g. Tuscarara), or agglutinating (e.g. Turkish). Besides, because of how much different languages it could bring into an English L2 environment, the awareness of typological phonological and morphological knowledge proved it motivated learning of English.

El-Saghir (2009) conducted a simple daily experiment of cross-linguistic differences in her classroom. She asked students to say the translation of simple nouns and their corresponding plurals in their native languages. Then they were instructed to identify the inflectional suffixes, prefixes, or markers for plural in their L1 and to provide a short list of vocabulary to explain to the classroom in English. It was interestingly found out that without any formal morphological processing instruction in their native languages before; they were surprised to discover the similarities and difference between English and L1 in terms of grammatical function. The students could explain the distributions of affixes cross-linguistically, and became more aware of word formation in terms of analyzing words into morphemes, as well as predicting their spellings.

According to Schephen et al. (2013), it might conform his idea that in the previous studies showing Thai L1 learners have problems in morphological knowledge is because the fact that L1 Thai morphology is not more complex than English. Even so, it is interesting if numbers of cross-linguistic morphological lessons are brought for the learners to experience the morphological complexity and become aware towards the complexity in English affixation phenomenon.

The Experiment and Methods

This study essentially made an attempt to verify the major hypothesis that was what contribution by applying morphological typology into English affixation instruction, and it had an objective to investigate the morphological awareness of L2 learners of English affixation in terms of analytic sense, namely; the bases, various affixes, the syntactic categories, and phonological conditions.

Participants

The participants in this study were third-year English major students from Education Faculty; who enrolled in Morphology and Syntax 1 offered by the present researcher during semester 1/2012, and had passed Introduction to Linguistics Course in Uttaradit Rajabhat University. They were native Thai speakers who had spent more than six years learning English as a second language, and divided into two groups in the experiment according to the registration provided by the institution namely section 01 consisting of 51 and section 02 of 58 students, respectively. Their proficiency in English was overall mixed according to the GPA variability in each section. According to the interviewing before the experiments, all participations from the two classes were willing to be involved in the experiment. The section 01 was randomly selected as the controlled group, and the section 02 was randomly as well as the experimetal group.

Procedures

To make the comparative experiment on English affixation valid, the participants were divided into two groups according to their enrolled sections. At the stage 1, both groups were given the instruction for analytic lessons for English morphological make-ups including the meaning, syntactic properties, and phonological conditions of bases and affixes; both inflectional and derivational morphemes. At stage 2, only the Section 02 as experimental group was given instruction for supplementary analytic lessons for morphological typology. Finally, the controlled and experimental groups were given two tests to evaluate the accuracy on morphological identification.

Data Collection

The data used in this study were mainly collected from two tests of the accuracy in analyzing morpheme identification; namely, inflectional test, and derivational and pronunciation of stress patterns. The morphological awareness on inflectional test was required to evaluate the ability to identify the meaning of words, number of morphemes in the words, and the syntactic properties of the made-up words, and of the base. The morphological awareness of derivational test was required to evaluate the ability to identify the meaning of words, the number of morphemes in the words, and the syntactic properties of made-up words, the distributions of affixes, and the stress patterns in the made-up words.

Materials and Development

The morpheme identification task on morphological typology, given to the Section 02 as experimental group, consisted of data from languages including Turkish, Latin, Swahili, Hmong, Hungary, Spanish, Hebrew, Persian, Arabic, and Kwakwa'ala from Frommer and Finegan (2004), Finegan (2004), Katamba and Stonham (1993), Savetamalya (1998), and Shopen (1985). They were presented in IPA transcriptions alongside with translations. These languages were selected to represent cross-linguistic affixation with inflectional and derivational morphemes. The objective of the task is to widen the participants' experience on morphological complexity in analyzing words into smaller elements with respect to their phonological condition, morphological structure, meanings, syntactic properties and distribution.

The tests

The tests in the study were developed by the researcher, and were divided into two parts. The first was the inflectional test where included eight English inflectional morphemes; plural, possessive, comparative, superlative, present tense, past tense, present participle, and past participle. The 20 words were selected to represent the eight inflectional morphemes. They were provided and underlined in sentences in order to, first, avoid wrong analysis from the possible similar forms, and to include null morpheme and irregular form cases which are not simply morphologically marked in English (e.g. eat/ate or hit/hit). Moreover, in a sentence like I like chocolate, although the agreement feature is not overtly realized, the verb 'like' still carries features for person (first), number (singular), and tense (present).

These abstract features are covertly present (Li, 2012). The objective of the test was to evaluate the ability of the participants to identify the meaning, number of morphemes, part of speech of made-up words, and part of speech of the bases. Moreover, derivational morphemes were not involved in this test. The answers to each aspect were directed to be in English except for meanings of the made-up words that could be either Thai or English. Analysis of each word would count for four points for each aspect would count for one.

The second was derivational test. Because English has a vast number of derivational morphemes, words were selected to represent with the following respects. To prevent the participants from producing definitions more than recognizing correct definitions of morphemes, the present researcher selected affixes based on the most 20 common affix list by Fry and Kress (2006) to match the participants level of knowledge of morphology. They all were both non-neutral and neutral affixes. Then, they were combined with the most 20 common Greek and Latin roots according to Fry and Kress (2006). The affix combination is also concerned in the test because when certain affixes are combined, there is a shift of stress. (e.g. 'read'/ 'readable'/ 'readability') (Fadhil, 2007). The objective was to evaluate the ability of the participants to identify the meaning, number of morphemes, part of speech of made-up words, distribution of the affixes, and pronunciation of stress pattern in the provided words. Moreover, the inflectional morphemes were not involved in this test. The answers to each aspect were directed to be in English except for meanings of the made-up words that could be either Thai or English. Analysis of each word would count for five points for each aspect would count for one.

Results and Discussions

The results of this study came from two tests. The first was the analysis of the mean scores from the English inflectional test and the second was from the derivational test. The statistical analysis of the independent samples t-test was used to compare the mean scores of the two tests between the controlled group and experimental group.

Table 1. Independent Samples t-test for the comparison of inflectional tests results between the controlled group and experimental group.

		N	*Mean*	*t*	*Sig.*	*Sig. (2-tailed)*
Meaning of the made-up words	Controlled Group	51	50.20	-7.812	0.587	0.000
	Experimental Group	58	62.55			
Numbers of Morphemes	Controlled Group	51	51.29	-6.009	0.251	0.000
	Experimental Group	58	63.31			
Part-of-speech of the made-up words	Controlled Group	51	58.75	-3.171	0.503	0.002
	Experimental Group	58	63.79			
Part-of-speech of the bases	Controlled Group	51	61.18	-2.429	0.970	0.017
	Experimental Group	58	64.83			

According to Table 1, the independent samples t-test was performed to compare the mean scores of the controlled group and experimental group in the inflectional test with four different aspects. The findings revealed that there were statistically significant differences in the mean scores of the test in the aspects of meaning of the made-up words, number of morphemes, and part-of-speech of the words between the two groups at the significant level 0.05. In contrast, as for the aspect of part-of-speech of the bases, there were no statistically significant differences between the two groups.

Even though the experimental group performed higher mean scores in all four aspects, with total scores of 80 points, which is in accordance with a study by Farsi (2008) that morphological instruction can foster students better in analytic performance, showing no statistically significant difference in identifying part-of-speech of the bases between the two group is probably resulted from that the morphological awareness of the participants was evoked by the syntactic information by the adjacent parts in the sentences. Additionally, as the concept of CDA claims that the learners of inflectional morphemes learn all about the grammatical rules but did not acquire those, the results suggested clearly that the participants in the experimental group mastered the knowledge of grammatical patterns better than those in the controlled group.

Table 2. Independent Samples t-test for the comparison of derivational tests results between the controlled group and experimental group.

		N	Mean	t	Sig.	Sig. (2-tailed)
Meaning of the made-up words	Controlled Group	51	64.12	-6.009	0.251	0.000
	Experimental Group	58	79.14			
Numbers of Morphemes	Controlled Group	51	59.22	-9.185	0.226	0.000
	Experimental Group	58	80.09			
Part-of-speech of the made-up words	Controlled Group	51	60.49	-7.723	0.123	0.000
	Experimental Group	58	78.88			
Part-of-speech of the bases	Controlled Group	51	63.24	-8.198	0.086	0.000
	Experimental Group	58	81.72			
Stress placement	Controlled Group	51	53.82	-9.183	0.147	0.000
	Experimental Group	58	72.33			

According to Table 2, the independent samples t-test was performed to compare the mean scores of the controlled group and experimental group in the inflectional test with four different aspects. The findings revealed that there were statistically significant differences in the mean scores of the test in the aspects of meaning of the made-up words, number of morphemes, part-of-speech of the words, and stress placement between the two groups at the significant level 0.05.

According to a Tyler and Nagy's (1989) study, there are three aspects of knowledge in acquiring the derivational morphemes in English. They are knowledge of semantic relationship, the syntactic properties, and the knowledge of distribution. With total score of 100 points, the findings suggested that experimental group also significantly performed higher mean score than the controlled group in all five aspects. At the same time, the experimental group had the highest mean scores in identifying number of morphemes in accordance with their results in the inflectional test. However, it is obvious that stress placement aspect revealed the lowest mean scores of both groups among the aspects they performed.

Discussions

The results from the experimental group demonstrated the success of application of morphological typology into morphological instruction of English affixation. It depicted the morphological awareness of the learners towards the morphological complexity in English affixation. As we can see in the tests where students were given to identify the number of morphemes in both tests, it showed that the mean scores of the controlled group were lower, while those of the experimental group were higher. This suggests that the morphological typology lesson can foster the learners' awareness in breaking down the complex structures in the given words. That is, the learners were introduced to the nature of typological word formation which allowed them to have a clearer view of how English words are structured and what content of linguistic complexity might come with them. Besides, the results, where the experimental group also had high mean scores the test where they were asked to

identify the part-of-speech of the base, revealed they gained more insightful knowledge of syntactic distribution when an affix is applied to a base.

Still, there is deficiency from the study. It is obvious that the stress placement test had given the participants hard times. It was the only aspect the both group had as the lowest. Besides, both groups performed better scores in neutral affixes than those in non-neutral ones. This suggests that the application of morphological typology might not fully cover the spectrum of phonological information for the L2 target to learn. Besides, as a tonal language, Thai does not supply the intonation into itself like English does. Therefore, phonological aspect is still a challenge that this application could not get over because of the content itself and the language transfer.

Conclusion

This research was conducted to examine the effectiveness of applying morphological complexity from various languages into the instruction of English affixation. The major hypothesis was what contribution by applying morphological typology instruction could make to the development of L2 learners of English affixation. The results showed that application of morphological typology proved it could foster the morphological awareness of Thai L2 learners in the experimental group in their analytic performance in terms of analytic sense, that was the awareness of word formations, namely: the bases, various affixes, the syntactic categories, and phonological conditions. The participants performed best in identifying the number of morphemes both inflectional and derivational, while it is observed that there is a transfer effect from Thai L1 which keeps them from fully acquiring knowledge in suprasegmental level. Therefore, there is a need to try different and effective strategies for promoting the English L2 learners in pronunciation.

Note

At the end of the experiment, students from the controlled group were given the same cross-linguistic morphological analytic lesson as those from the experimental group had.

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Appendix A

The following are examples from cross-linguistic inflectional morphemes in the experiment

Identify the morphemes in the following languages. State the meaning of each morpheme and if they are free or bound. State which morpheme is inflectional and explain with definition of it.

1. Swahili

nilipata	'I got'	niliwapiga	'I hit them'
walipata	'they got'	walitupiga	'they hit us'
nilipiga	'I hit'	walikipiga	'they hit it'
nilikipata	'I got it'	utatupiga	'you will hit us'
ulikipata	'you got it'	ulipata	'you got'
nitakipata	'I will get it'	watakupiga	'they will hit you'
ulipiga	'you hit'	ulitupiga	'you hit us'
watakipiga	'they will hit it'	nitakupata	'I will get you'

(from Katamba 1993: 65)

2. Spanish

amigo	'male friend'	mutʃutʃo	'boy'
amiga	'female friend'	mutʃutʃa	'girl'
amigos	'male friends'	mutʃutʃos	'boys'
amigas	'female friends'	mutʃutʃas	'girls'

(from Frommer and Finegan 2004: 23)

3. Hmong

nws mus tsev	'he goes home'
nws tau mus tsev	'he went home'
nws mus tsev lawn	'he has gone home'
nws yuav mus tsev	'he will go home'
nws yuav mus tsev lawn	'he will have gone home'

(from Savetamalya 1998 : 92)

4. Swahili

anasoma	'he is reading'
asoma	'he reads'
alisoma	'he read'
amesoma	'he has read'
atasoma	'he will read'
akisoma	'if he reads, if he read, if he will read'

(from Savetamalya 1998 : 92)

Appendix B

The following are examples from cross-linguistic derivational morphemes in the experiment

Identify the morphemes in the following languages. State the meaning of each morpheme. State if it is free or bound. Indicate the definition of bases and affixes.

1. **Persian**

dærd 'pain'		dærdnak	'painful'
næm 'dampness'		næmnak	'damp'
xætær 'danger'		xætærnak	'dangerous'
gærm 'warm'		gærma	'heat'
pæhn 'wide'		pæhna	'width'

(from Finegan,2004: 48)

2. **Arabic**

kitaaba	'writing'	kataba	'he wrote'
kaatib	'writer'	kaataba	'he corresponded with'
maktab	'office'	ʔaktaba	'he dictated'
maktaba	'library'	ʔiktataba	'he was registered'
maktuub	'letter'	takaataba	'he exchanged letters with'
miktaab	'typewriter'	inkataba	'he subscribed'
kutubii	'bookseller'	iktataba	'he had a copy made'

(from Finegan, 2004: 50)

3. **English**
   nation
   national
   nationalize
   denationalize
   denationalization
   anti-denationalization
   pre-antidenationalizatin

(from Katamba 1993 : 55)

Appendix C

The following is the inflectional morpheme test in the experiment.

Identify the meaning, number of morphemes, part of speech, and part of speech of the base in the underlined words.

1. Mary <u>went</u> to the hospital this morning.
2. He always <u>wanted</u> to marry an Asian girl.
3. He <u>studied </u>for exam last night.
4. I <u>changed</u> my mind before I did that.
5. I <u>ate</u> all the pizza and pasta.
6. He <u>loves</u> chocolate cakes.
7. My son usually <u>cries</u> at night.
8. Jaime <u>goes</u> to school every day.
9. Parker <u>does</u> all of housework himself.
10. Michael <u>read</u> the book over and over before he lost it.
11. Elizabeth's car was <u>stolen</u> last night.
12. The man crashed his motorcycle into <u>Hilary's</u> gate.
13. Children are <u>waiting</u> for Christmas.
14. The man was <u>swimming</u> in the pool before it rained.
15. Your legs are obviously <u>longer</u> than mine.
16. Christmas is the <u>happiest</u> time of year.
17. The <u>fish</u> are swimming up to the river.
18. It is too hard for a housewife to take care of many <u>children</u> when she has to work at the same time.
19. How many <u>days</u> have you spent on your report?
20. I had just <u>sent</u> the email before you called.

Appendix D

The following is the derivational morpheme test in the experiment.

Identify the meaning, number of morphemes, part of speech, part of speech of the base, and the primary stress of the words.

Group A derivational suffixes

<u>Non-neutral</u>	<u>Neutral</u>
biological	slowly
international	comparable
photographer	happiness
mobility	sorrowful
education	enjoyment

Group B derivational prefixes

<u>Non-neutral</u>	<u>Neutral</u>
discover	unhappy
reapply	misbelief
submarine	antibody
supermarket	semifinal
impolite	deforest