

A Comparative Study of Effectiveness of Explicit and Communicative Instruction on Taiwanese EFL Secondary School Students' Morphophonological Awareness of Derived Words

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Abstract

This study compared effectiveness of two types of instruction on Taiwanese EFL senior high school students' oral production of derived words: communicative versus explicit. Participants included three intact classes of twelfth graders in a private senior high school. One class received explicit instruction, another communicative instruction. The third class received conventional instruction and served as the control group. Three groups received one 25-minute lesson on oral production of English derived words per week for a total of six weeks. Instruments included oral derived words tasks in isolation and in sentential context, and two versions of the treatment questionnaire. Results show that both Explicit and Communicative Groups significantly outperformed Control Group in the posttest of oral production of derived words in isolation, with neutral suffixes, with nominals, and at levels 5-6. Communicative Group also significantly surpassed Control Group in the derived words with non-neutral suffixes and beyond level 6. However, there was no significant difference among three groups in oral production of English derived words in sentential context, with adjectives, and at levels 3-4. Based on the results of this study, language instructors are suggested to first explicitly teach learners how to orally produce English derived words and then use communicative activities to enhance learners' interest and motivation. Future studies are recommended to compare effects of explicit and communicative instruction on learners with varying proficiency levels and/or with longer periods of practice or exposure.

Keywords

morphophonological awareness, communicative instruction, explicit instruction, derived words

1. Introduction

Vocabulary knowledge plays a fundamental role in literacy development and therefore scholastic success (National Reading Panel, 2000). As for the amount of English vocabulary, Taiwan's Ministry of Education (MOE) has clarified levels of vocabulary which learners need to achieve: junior high school students must know 2000 words, for example. However, the study of Jeng's (2000) English Reference Words List (ERWL) indicated that knowing 6480 lexical entries was required for senior high school graduates. The total number of derivations was 1349 (21.2%) of the 6480 words within Jeng's (2000) ERWL. The gap between 2,000 and 6,480 words is huge, and difficult for many Taiwanese senior high school students to bridge within three years. In order to relieve learners' burden in acquiring complex derived words, fostering efficiency of their vocabulary acquisition has become necessary.

According to Chomsky and Halle (1991), derived words fall into two groups: words with non-neutral suffixes or words with neutral suffixes. Non-neutral suffixes affect assignment of stress from the base word to the derived form, or vowel quality shifts, or consonant alternations; in contrast, neutral suffixes do not have effects on either segmental makeup or stress assignment of the base in the derived form. Stress change with non-neutral suffixes is systematic and predictable. For example, with *-ic*, *-ity*, or *-tion*, stress falls on the pre-suffixal syllable in the derived word, regardless of where it falls in the stem (Jarmulowicz, 2006). Jarmulowicz (2006) furthermore mentioned that the accuracy of primary stress production in derived English words is a sensitive measure of the acquisition of morphophonologically complex words, and it is easy to elicit.

Thus, if learners know how to accurately produce the primary stress, it will be easier to acquire new morphophonologically complex vocabulary. Jarmulowicz (2006) also stated that if the stem but not the derived word is known, it is more likely that stress will not change in the derived form. Regarding ways to teach learners morphophonologically complex words, the most common form of vocabulary instruction is rote memorization of weekly target lists that are based on the most frequently read or written words by grade level (Apel, Masterson, & Hart, 2004). These lists often have a thematic basis containing words related to a topic studied within the classroom. However, it is rare for the linguistic properties of words to be taken into consideration when compiling these lists. As a result, a body of research has investigated the relationship between children's stress judgments and the acquisition of morphophonologically complex words (Carlisle, 2000; Clin, Wade-Wooley, & Heggie, 2009; Jarmulowicz, 2006; Jarmulowicz, Hay, Taran, & Ethington, 2008; Jarmulowicz, Taran, & Hay, 2007; Mahony, Singson, & Mann, 2000; Marinellie & Kneile, 2012; Nippold & Sun, 2008). Carlisle (2000) proposed that direct, explicit instruction on morphophonological relations might be necessary to enhance English-speaking children's understanding of language structure and decoding processes. Brown (2007) provided guidelines for the communicative treatment of vocabulary instruction, and he

proposed that the best acquisition of vocabulary comes from encounters with words within the context of surrounding discourse.

Nonetheless, few studies have been conducted in the Taiwanese EFL context regarding effects of systematic instruction on cultivating learners' performance with morphophonologically derived words. Therefore, this study aims to compare the effectiveness among explicit, communicative, and conventional instruction in improving Taiwanese EFL senior high school students' oral production of English derived words. The research questions are as follows:

- (1) Can each of three types of instruction (explicit, communicative, and conventional) significantly enhance Taiwanese EFL senior high school learners' oral production of English derived words?
- (2) Among three types of instruction (explicit, communicative, and conventional), which one is the most effective in enhancing Taiwanese EFL senior high schoolers' oral production of English derived words?
- (3) Within the learners, do different types of instruction affect their oral production of derived words in different contexts, suffix types, parts of speech, and word levels?
- (4) Among three types of instruction, which one is the most effective in improving learners' oral production of derived words in different contexts, suffix types, parts of speech, and word levels?
- (5) What are the major factors influencing Taiwanese EFL senior high school learners' oral production of English derived words before and after receiving the respective instruction?

2. Literature Review

2.1 Morphophonological Awareness (MPA)

Treiman and Zukowski (1991) defined Phonological Awareness (PA) as the awareness of, and ability to manipulate, the phonological segments in words at the syllable, rime, and phoneme level. Jarmulowicz (2006) stated that PA is explicit knowledge of sound structure of words, and children who have PA are capable of segmenting sounds in a word and blending isolated sounds into a recognizable word form. Berninger, Abbott, Nagy and Carlisle (2010) stated that in their phonological awareness task, words were presented orally and the task was to repeat the heard word and then repeat it again after deleting a syllable, rime, or phoneme.

As for Morphological Awareness (MA), there are three major aspects of awareness of derivational morphology: relational, syntactic, and distributional knowledge (Tyler & Nagy, 1989). Relational knowledge is the ability to recognize the stem of morphologically complex words and understand the relationship between the stem and the suffix. Syntactic knowledge is about the insights into the alteration of parts-of-speech produced by derivational suffixes. Distributional knowledge is the understanding of how affixes are constrained by the syntactic category of the stems to which they attach. Kuo and Anderson (2006) referred to MA as the ability to reflect upon and manipulate morphemes and utilize word formation rules in one's language. In order to gauge MA, words are presented orally and visually, and the task is to make judgments about semantic or semantic-syntactic

relationships that depend upon the form of the word or its parts (Berninger et al., 2010). Kuo and Anderson (2006) stated that the unique MA contribution to word decoding has been found to increase with age. In the study of Jarmulowicz et al. (2008), they pointed out the implication of Morphophonological Awareness (MPA). Hence, MPA is utilized in the present study to raise learners' oral production of English derived words.

2.2 Studies of Raising MPA on Derived Words

Among studies related to MPA on derived words, lack of instruction (C. Huang, 2010; Carlisle, 2000; Clin et al., 2009; Hu, 2010; Jarmulowicz, 2006; Ke, 2004; Mahony et al., 2000; Marinellie & Kneile, 2012; Nippold & Sun, 2008; Su, 2014), unbalanced frequency distribution (Carlisle, 2000; Marinellie & Kneile, 2012), and written form of the task (Huang, 2007; Marinellie & Kneile, 2012; Nippold & Sun, 2008) are three major problems. As a result, this study aims to compare effectiveness of explicit, communicative, and conventional instruction on Taiwanese senior high school students' oral production of English derived words.

2.3 MPA Measurements

Concerning the measurements used to assess learners' vocabulary knowledge of MPA, contextualized and decontextualized measurements were both included. As for the decontextualized measurement, a stem and a suffix were combined to investigate language learners' Morphophonological (MP) knowledge (Clin et al., 2009; Jarmulowicz, 2006; Jarmulowicz et al., 2007; Mahony et al., 2000; Marinellie & Kneile, 2012). Snow's (1991) study found that decontextualized oral language skills showed a significant correlation with literacy while contextualized oral language skills did not (cited from Nagy, Berninger, Abbott, Vaughan, & Vermeulen, 2003). Moreover, if participants read the sentential context incorrectly, it would be impossible for the researcher to know whether they were unable to decode the derived words, or whether their sentential comprehension was deficient. However, the study of Jarmulowicz, Taran and Hay (2007) reported that primary stress was produced more accurately in high frequency words than in low frequency words. High frequency words produced in a sentence context were more accurate than all low frequency words and high frequency words produced in isolation. This indicated that accurate MP production involves semantic and frequency factors, and that using a sentence to prime semantic and syntactic knowledge of a derived word is a good bridge to connect the phonological and semantic aspects of the lexicon.

Accordingly, researchers of this study developed two oral derived word tasks (one in isolation, and the other in a sentence context) by selecting four types of high-frequency derived words with the suffixes *-ful*, *-ic*, *-ment*, and *-tion* from Jeng's EWRL (2000) in order to control four factors: transparency between stem and derived form, type of phonological change in derived form, suffix types, and addition of context (Jarmulowicz et al., 2007).

2.4 Types of Instruction for Facilitating Learners' MPA

2.4.1 Explicit Instruction

In terms of MPA instruction, theoretical studies (e.g., Carlisle, 2000; Jarmulowicz & Taran, 2007)

proposed employing explicit instruction to teach MPA, but few empirical studies have been conducted in this area. The study of Schmitt (2008) implied that different teaching approaches may be appropriate at the different stages of acquisition of derived words. For example, beginners can learn words well when receiving explicit instruction, which focuses directly on establishing the form-meaning link.

The common features of explicit instruction included presentation of the rules or explanation of the formation of derived words to learners. Therefore, this study employed explicit instruction to teach participants of Explicit Group how to produce derived words orally. The rules of suffix types in this study were explained one by one respectively, and each rule was followed by a set of examples and sentences. In addition to examples and sentences, the word work proposed by Stygles (2011) was used to incorporate a number of activities designed to address phonics, vocabulary, morphology, and spelling.

2.4.2 Communicative Instruction

Schmitt (2008) indicated that incidental learning seems to be better at enhancing knowledge of words which have already been encountered by learners. The goal of communicative instruction is to get students to use the language, at first by comprehending, and then by producing it (Cook, 2008). Cook further suggested that typical teaching techniques of communicative instruction involve information gap, role plays, and tasks.

Regarding the communicative instruction for MPA, theoretical studies (e.g., Cook, 2008; Schmitt, 2008) claimed that many benefits can result from the employment of communicative instruction; however, few empirical studies have been conducted on this subject. Therefore, researchers of this study employed communicative instruction to teach a group of participants how to produce derived words orally. The communicative instruction emphasized the importance of words, including pronunciation, meaning, and spelling that students need in order to effectively communicate in English. The activities suggested by Cook (2008) were utilized for Communicative Group.

3. Methodology

3.1 Participants

Three intact classes of twelfth graders in a private senior high school in central Taiwan took part in this study ($N = 141$, 31 boys, 110 girls). Two classes were randomly assigned to two experimental groups as Explicit Group ($n_1 = 47$) receiving explicit instruction and Communicative Group ($n_2 = 45$) receiving communicative instruction. The third class served as Control Group ($n_3 = 49$) receiving conventional instruction.

3.2 Instruments

Two instruments, oral derived word tasks in isolation vs. in sentential context, were used in this study to (a) identify participants' problems with oral production of English derived words in isolation vs. in sentential context, and (b) determine the effectiveness of the three types of instruction: explicit vs. communicative vs. conventional.

3.2.1 Oral Derived Word Tasks

The oral derived word tasks were developed based on the vocabulary corpus of ERWL of Jeng (2000). The tasks consisted of four suffix types (Chomsky & Halle, 1991), including (1) one neutral nominal suffix (-ment), (2) one neutral adjectival suffix (-ful), (3) one non-neutral nominal suffix (-tion), and (4) one non-neutral adjectival suffix (-ic). Jarmulowicz (2006) and Jarmulowicz et al. (2008) mentioned that children's awareness of different types of suffixes has significant effects on their reading development. Accordingly, these four categories were utilized in the oral derived word tasks. Each category had 12 test words after conducting item elimination according to the criteria of item discrimination indices.

3.2.2 Development of Oral Derived Word Tasks in Isolation and in Sentential Context

There were two stages in designing the oral derived word tasks in isolation and in sentential context. In the first stage, the researchers listed all the words with derivational suffixes appearing in Jeng's (2000) ERWL. Catering to not only the categories proposed by Chomsky and Halle (1991) but also participants' knowledge of English derived words, the researchers arranged the words according to the three levels (ERWL Levels III to IV, ERWL Levels V to VI, and Beyond Level VI). Selected high-frequency suffixes occurred at least twice in the three levels, whereas the low-frequency suffixes were eliminated. The frequency of the suffix types had to be taken into account when selecting materials. The initial oral derived word tasks included a total of 60 words. In the pilot study, all the tested items were randomized and the accuracy and automaticity of the vocalized derived words were recorded in a master record file.

In the second stage, the 60 derived words were first arranged randomly with 8 distractors. The 68 test items were pseudo-randomized when printed so that no suffix was immediately repeated, and the third researcher asked the subjects in one of the groups to record the 68 words. The correct response rate for each word was calculated separately. The correct response rate of the top 27% students minus that of the bottom 27% students formed the item discrimination indices. To achieve an even distribution, questions in the four categories with item discrimination indices below 0.31 were eliminated. After the pilot test, only 48 test words were retained, with 12 items for each of four categories (i.e., non-neutral nominal suffix, neutral nominal suffix, non-neutral adjectival suffix, and neutral adjectival suffix).

3.3 Treatment

3.3.1 Teaching Material for Three Groups

The unified teaching material used in this study for three groups was "*Classroom Reading Champion 7000*", which contained many reading passages. The publisher is Classrooms Publications Ltd. Six reading passages were chosen based on the schedule arranged in the semester, and the derived words with any of the four suffixes from each reading passage were also listed. A six-week teaching procedure was planned. It took 25 minutes to teach each reading passage.

3.3.2 Treatment for Explicit Group

The suffix types used in the explicit instruction were grouped into four categories. The worksheets used

in this study were based on the activities of Stygles (2011), who designed many helpful activities to tackle phonics, vocabulary, morphology, and spelling. Each category was given one 25-minute lesson for instruction. The rules were explained one by one, and each was followed by a set of sentences with a variety of examples. After two categories of derived words were taught, one 25-minute review lesson was implemented. The instruction lasted six weeks, including four weeks of instruction and two weeks of review lessons.

3.3.3 Treatment for Communicative Group

Bamford and Day (2006) indicated that reading plays an important role in incidental vocabulary learning. The activities proposed in the worksheets could enhance learning by encouraging students to pay closer attention to words, especially unfamiliar ones. Based on the ideas proposed by Nunan (1991), Brown (2007), and Cook (2008), the communicative instruction included a weekly activity for a total of four weeks, supplemented with two weeks of review lessons. The class receiving communicative instruction spent the same amount of time as the class receiving explicit instruction. Participants in Communicative Group were divided into 15 small groups and did the activities amongst their group members.

3.3.4 Treatment for Conventional Group

The Conventional Group, receiving conventional instruction, spent 25 minutes learning the reading passage shown in the textbook. The students were taught the scheduled units. However, they were taught derived words if there were derived words shown in the textbook.

3.4 Procedure

A week prior to and after the treatment, the oral derived word tasks in isolation and in sentential context were administered to all participants as a pretest and a posttest in the laboratory, where each participant's oral production of derived words was recorded. It took each participant 15 minutes to finish two oral derived word tasks. After the pretest, two experimental groups respectively received explicit instruction or communicative instruction on oral production of English derived words, depending on their grouping. Control Group received conventional instruction on oral production of English derived words non-systematically.

3.5 Data Analysis

Seven statistical analyses were run to analyze scores on the pretest and the posttest, including descriptive statistics, paired-samples *t* test, independent-samples *t* test, one-way ANOVA, a mixed design repeated measures ANOVA, MANOVA, and multiple regression.

4. Results and Discussion

4.1 Effects of Instruction Modes on Oral Production of Derived Words

This section focuses on answering the first two research questions: (1) Can each of three types of instruction (explicit, communicative, and conventional) significantly enhance Taiwanese EFL senior high school learners' oral production of English derived words? (2) Among three types of instruction

(explicit, communicative, and conventional), which one is the most effective in enhancing Taiwanese EFL senior high school learners' oral production of English derived words?

To answer these two questions, firstly, paired-samples *t* tests were administered to analyze participants' scores on the oral derived words tasks in isolation and in sentential context in terms of pretest, posttest, and improvement (i.e., posttest score minus pretest score). Secondly, one-way ANOVAs were conducted to compare pretest, posttest and gain scores among three groups. Results of paired-samples *t* tests and ANOVAs on three groups' pretest, posttest, and gain scores are shown in Table 1.

Table 1. Results of Paired-Samples T Tests and ANOVAs on Three Groups' Pretest, Posttest, and Gain Scores by Instruction Mode

Instruction Mode							
Group	Explicit		Communicative		Control		
	M	SD	M	SD	M	SD	<i>p</i> ₂
Pretest	12.81	7.68	14.04	9.08	12.04	9.95	.554
Posttest	19.51	8.87	19.98	8.08	14.69	9.89	.008 *
Gain	6.70	4.40	5.93	4.52	2.65	3.52	.000 *
<i>p</i> ₁	.000 *		.000 *		.000 *		

Note. *p*₁ = *p* values of paired-samples *t* tests; *p*₂ = *p* values of one-way ANOVAs; Oral Derived Words Maximum Scores = 48.

Table 1 shows means, standard deviations and *p* values of participants' correct oral production of English derived words. The maximum score in the oral derived word tasks was 48. The correct answering rate of the pretest was 27% for Explicit Group, 29% for Communicative Group, and 25% for Control Group. According to the correct answering rate of the pretest for each group, the level of the participants was determined to be low-intermediate. The posttest mean score of oral production of English derived words either for Explicit Group (*M* = 19.51) or for Communicative Group (*M* = 19.98) was higher than that for Control Group (*M* = 14.69). Results of paired-samples *t* test for each group were significant (*p* < .001), indicating that each group performed significantly better on the posttest after receiving its respective instruction. Results of one-way ANOVAs were non-significant for pretest scores among three groups while significant for posttest and gain scores (*p* < .001), suggesting instruction modes produced significantly different effects on participants' oral production of English derived words.

Follow-up tests were carried out to evaluate pairwise differences among the posttest scores for different instruction modes. In Table 2, results of Scheffé post hoc analyses showed that both Explicit and Communicative Groups significantly outperformed Control Group and a non-significant difference existed between them. The findings suggest that either the explicit or the communicative instruction yielded significantly better effects on oral production of English derived words than the conventional instruction and two types of experimental treatments were equally effective.

Table 2. Scheffé Post Hoc Analyses of Posttest Scores Based on Instruction Mode

Group	Explicit MD (p)	Communicative MD (p)	Control MD (p)
Explicit			
Communicative	-.467 (.970)		
Control	4.817 (.035) *	5.284 (.020) *	

The findings of post hoc analyses echo results of previous studies by Jarmulowicz and Taran (2007), Jarmulowicz et al. (2008) and Carlisle (2010). These studies suggest that explicit teaching of meaning and phonological pattern of a derived word is important for accurate and complete lexical representation. The findings of the post hoc analyses are also consistent with the suggestion respectively made by Nunan (1991), Brown (2007) and Cook (2008) that the best acquisition of vocabulary comes from encounters with words within the context of surrounding discourse.

4.2 Effects of Different Variables on Oral Production of Derived Words within Learners

This section centers on answering the third research question: Within the learners, do different types of instruction affect their oral production of derived words in different contexts, suffix types, parts of speech, and word levels?

With an eye to answering this research question, a mixed design repeated measures ANOVA was utilized to investigate the effects of three teaching modes on learners' oral production of English derived word tasks in different contexts, with different suffix types, parts of speech, and at different word levels. Descriptive statistics of participants' posttest performance with the oral derived words under different variables are respectively shown in Tables 3-6.

Table 3. Means and Standard Deviations of Context on the Three Groups

Context	Isolation (24)		Sentential (24)	
	M _{c1}	SD	M _{c2}	SD
Explicit	10.83	4.02	8.68	5.91
Communicative	10.71	4.14	9.27	5.29
Control	8.22	4.68	6.47	4.68

Note. M_{c1} = mean score on oral production of derived words in isolation; M_{c2} = mean score on oral production of derived words in sentential context.

Table 4. Means and Standard Deviations of Suffix Types on the Three Groups

Suffix Type	Neutral (24)		Non-neutral (24)	
	M _{s1}	SD	M _{s2}	SD
Explicit	10.96	5.27	8.55	3.96
Communicative	10.71	5.25	9.27	3.67
Control	7.65	5.86	7.04	4.29

Note. M_{s1} = Mean score on oral production of derived words with neutral suffixes; M_{s2} = Mean score on oral production of derived words with non-neutral suffixes.

Table 5. Means and Standard Deviations of Parts of Speech on the Three Groups

Part of Speech	Noun (24)		Adjective (24)	
	M _{p1}	SD	M _{p2}	SD
Explicit	13.74	5.47	5.77	4.02
Communicative	14.22	4.79	5.76	4.16
Control	10.37	6.10	4.33	4.33

Note. M_{p1} = Mean score on oral production of derived words with nominal suffixes; M_{p2} = Mean score on oral production of derived words with adjectival suffixes.

Table 6. Means and Standard Deviations of Word Levels on the Three Groups

Word level	EWRL 3-4 (16)		EWRL 5-6 (16)		Beyond level 6 (16)	
	M _{L3-4}	SD	M _{L5-6}	SD	M _{L>6}	SD
Explicit	8.15	3.71	7.06	3.18	4.30	2.69
Communicative	8.18	3.05	7.16	3.23	4.64	2.99
Control	6.49	3.87	5.08	3.70	3.12	2.84

Note. M_{L3-4}, M_{L5-6}, and M_{L>6} stand for Mean score on oral production of derived words at levels 3-4, 5-6, and > 6 respectively.

As for the mixed design repeated measures ANOVA, as shown in Table 7, it did not reveal a significant interaction between types of instruction and contexts ($F = .225, p > .001$). However, in Table 3, the mean scores of Explicit Group ($M_{cl} = 10.83, M_{c2} = 8.68$) and Communicative Group ($M_{cl} = 10.71, M_{c2} = 9.27$) were higher than those of Control Group ($M_{cl} = 8.22, M_{c2} = 6.47$) both in isolation and in the sentential context. All three groups were found to perform significantly better in isolation than in sentential context. The findings show Explicit and Communicative Groups demonstrated improvement on their oral production of English derived words both in isolation and sentential contexts. It is suggested that teachers could teach learners to orally produce English derived words first in isolation and then in sentential context.

Table 7. Repeated Measures ANOVAs Summary for Different Variables

Source	SS	DF	MS	F	P
Between-Subjects					
Intercept	11484.351	1	11484.351	566.261	.000
Instruction	204.710	2	102.355	5.047	.008
Error	2798.783	138	20.281		
Within-Subjects					
Context	111.906	1	111.906	17.548	.000*
Context * Instruction	2.872	2	1.436	.225	.799

Error (context)	880.032	138	6.377		
Within-Subjects					
Suffix type	155.695	1	155.695	28.917	.000*
Suffix type * Instruction	38.550	2	19.275	3.580	.030*
Error (suffix type)	743.031	138	5.384		
Within-Subjects					
Part of Speech	1977.990	1	1977.990	548.091	.000*
Part of speech * Instruction	39.235	2	19.617	5.436	.005*
Error (Part of speech)	498.024	138	3.609		
Within-Subjects					
Word level	940.544	2	470.272	176.144	.000*
Word level * Instruction	8.743	4	2.186	.819	.514
Error (Word level)	736.869	276	2.670		

Regarding the mixed design repeated measures ANOVA on the suffix types, the results displayed a significant interactive effect between instruction types and suffix types ($F = 3.580$, $p < .05$). All participants performed significantly better in neutral words than in non-neutral words. To further examine participants' performance differences between neutral words and non-neutral words, post hoc analyses on neutral words were conducted and the results disclosed that both Explicit and Communicative Groups significantly outperformed Control Group but no significant difference existed between them. Nevertheless, post hoc analyses on non-neutral words revealed that only Communicative Group markedly outnumbered Control Group. There was a marginally significant difference between Explicit Group and Control Group ($p = .076$). Accordingly, it is suggested that teachers should first teach learners to orally produce English derived words with neutral words and then proceed to non-neutral words.

With respect to the mixed design repeated measures ANOVA on parts of speech, results showed a significant interactive effect between instruction types and parts of speech ($F = 5.436$, $p < .005$). All participants were found to perform significantly better in nouns than in adjectives. To further examine the differences between nominals and adjectives, post hoc analyses on nominals were conducted and the results revealed that both Explicit and Communicative Groups significantly surpassed Control Group and no significant difference arose between them. Nevertheless, post hoc analyses on adjectives indicated that three groups performed equally poorly in adjectives. Scheffé post hoc analyses showed that derived words with nominal suffixes were easier than those with adjectival suffixes for learners to acquire. This finding corresponds to those of previous studies (Alt, Plante, & Creusere, 2004; Nippold & Sun, 2008), reporting that derived words with nominal suffixes were significantly easier than those with adjective or verb suffixes. It appears that nouns may be easier to acquire, because, unlike adjectives and verbs, their referents tend to be concrete and do not have a transient nature, and nouns

themselves do not have a high degree of morphosyntactic variation and complexity. Accordingly, it is suggested that teachers first teach learners to orally produce English derived words with nominals and then proceed to adjectives and spend more time teaching oral production of English derived words with adjectival suffixes.

Concerning the mixed design repeated measures ANOVA on word levels, as also shown in Table 7, results failed to reveal any significant interaction between instruction types and word levels ($F = .819$, $p > .05$). All participants were found to perform best in word levels 3-4, then levels 5-6, and then beyond level 6. However, in Table 6, the mean scores of Explicit Group ($M_{L3-4} = 8.15$, $M_{L5-6} = 7.06$, $M_{L>6} = 4.30$) and Communicative Group ($M_{L3-4} = 8.18$, $M_{L5-6} = 7.16$, $M_{L>6} = 4.64$) were respectively higher than those of Control Group ($M_{L3-4} = 6.49$, $M_{L5-6} = 5.08$, $M_{L>6} = 3.12$) at word levels 3-4, 5-6, and beyond 6, as shown in Table 6. The findings show that both Explicit and Communicative Groups demonstrated more improvement on their oral production of English derived words at levels 3-4, levels 5-6, and beyond level 6 than Control Group. It is suggested that teachers should teach learners to orally produce English derived words from levels 3-4, then levels 5-6, and finally to beyond level 6.

4.3 Effects of Different Variables on Oral Production of Derived Words among Three Types of Instruction

This section aims to answer the fourth research question as follows: Among three types of instruction, which one is more effective in improving the learners' oral production of derived words in different contexts, suffix types, parts of speech, and word levels? To answer this research question, MANOVA was employed to investigate the effectiveness of different types of instruction on learners' oral production of English derived words in different contexts, with different suffix types, with different parts of speech, and at different word levels.

Table 8 lists MANOVA results for oral production of derived words in isolation and in sentential context. The isolation results indicate a significant difference among groups on the posttest scores ($F = 5.6128$, $p < .01$). Results of Scheffé post hoc analyses pinpoint that both Explicit and Communicative Groups significantly outperformed Control Group on oral production of English derived words in isolation but no significant difference appeared between them. These findings suggest that both explicit instruction and communicative instruction were significantly more effective than conventional instruction and had a non-significant difference between them in enhancing oral production of English derived words in isolation. However, MANOVA results for English derived words produced in sentential context in Table 8 show no significant difference among three groups in posttest scores, which in turn suggests that no significant difference emerged among three teaching modes in augmenting oral production of English derived words in sentential context. Taking consideration of context variable, it is suggested that language teachers adopt either explicit or communicative instructional mode to teach learners to orally produce English words in isolation preceding those in sentential context.

Table 8. MANOVA Results and Scheffé Post Hoc Analyses of Posttest Scores in Isolation and in Sentential Context

Source	Dependent Variable	<i>SS</i>	<i>DF</i>	<i>MS</i>	<i>F</i>	<i>Post hoc</i>
Between Subjects	Isolation	207.771	2	103.886	5.6128*	1 > 3; 2 > 3
	Sentential	207.393	2	103.697	2.979	1 = 2
Error	Isolation	2554.413	138	18.510		
	Sentential	4803.217	138	34.806		

Note: 1 = Explicit Group; 2 = Communicative Group; 3 = Control Group.

Table 9 shows MANOVA results of derived words with neutral suffixes, indicating that there was a significant difference among three groups on the posttest scores ($F = 5.425, p < .01$). Results of Scheffé post hoc analyses show that both Explicit and Communicative Groups significantly surpassed Control Group but no significant difference appeared between them on oral production of English derived words with neutral suffixes. These findings suggest that both explicit and communicative instruction modes were equally and significantly effective in enhancing participants' oral production of English derived words with neutral suffixes in six weeks while the conventional instruction mode was not.

Table 9. Summary of MANOVA Results and Scheffé Post Hoc Analyses of Posttest Scores with Neutral and Non-Neutral Suffixes

Source	Dependent Variable	<i>SS</i>	<i>DF</i>	<i>MS</i>	<i>F</i>	<i>Post hoc</i>
Between Subjects	Neutral	325.497	2	162.749	5.425*	1 > 3; 2 > 3; 1 = 2
	Non-neutral	122.473	2	61.237	3.841*	2 > 3
Error	Neutral	4140.261	138	30.002		
	Non-neutral	2200.335	138	15.944		

Note. 1 = Explicit Group; 2 = Communicative Group; 3 = Control Group.

As for the derived words with non-neutral suffixes, as shown in Table 9, there was a significant difference among groups in posttest scores ($F = 3.841, p < .01$), suggesting instruction mode had significant effects on participants' oral production of English derived words with non-neutral suffixes. Results of Scheffé post hoc analyses show that only Communicative Group significantly outperformed Control Group on oral production of derived words with non-neutral words but there was no significant difference between Explicit Group and Control Group. The findings of this study are compatible with those of Carlisle's (2000) and Leong's (2000) studies, suggesting that non-neutral derived words are more challenging and difficult for participants to produce. However, results of this study differ from those of C. Huang's (2010) and Su's (2014) studies. It is likely that the vocabulary levels of participants in this study were lower than those of Huang's and Su's. Taking neutrality into consideration, future research needs to address the frequency or difficulty level of the English derived words.

Table 10, reporting MANOVA results on derived words with nominal suffixes, shows that a significant

difference existed among groups on the posttest scores ($F = 6.964, p < .01$). Results of Scheffé post hoc analyses signify that both Explicit and Communicative Groups significantly outnumbered Control Group on oral production of English derived words with nominal suffixes but a non-significant difference existed between them. These findings suggest both explicit instruction and communicative instruction modes could yield significantly and similarly positive effects on participants' oral production of English derived words with nominal suffixes in six weeks.

Table 10. Summary of MANOVA Results and Scheffé Post Hoc Analyses of Posttest Scores for Nominals and Adjectives

Source	Dependent Variable	SS	DF	MS	F	Post hoc
Between Subjects	Noun	422.111	2	211.056	6.964*	1 > 3; 2 > 3; 1 = 2
	Adjective	65.779	2	32.889	1.882	
Error	Noun	4182.102	138	30.305		
	Adjective	2411.512	138	17.475		

Note. 1 = Explicit Group; 2 = Communicative Group; 3 = Control Group.

As for adjectives, as shown in Table 10, there was no significant difference among groups. Corresponding to previous studies (Alt et al., 2004; Nippold & Sun, 2008), results of this study suggest that derived words with nominal suffixes were easier than those with adjectival suffixes for learners to acquire. It appears that nouns may be easier to acquire, because, unlike verbs and adjectives, their referents do not have a transient nature and tend to be concrete, and the words themselves do not have a high degree of morphosyntactic variation and complexity. Accordingly, it is suggested that teachers should spend more time teaching learners regarding their oral production of adjectives.

Table 11 displays MANOVA results on the derived words at levels 3-4, levels 5-6, and beyond level 6. Results of derived words at levels 3-4 indicate that there was a marginally significant difference among groups on posttest scores ($F = 3.493, p < .01$). However, results of Scheffé post hoc analyses show that no significant difference existed in any pair comparison. It is likely that all three groups were more familiar with words at levels 3-4 after receiving the respective instruction.

Table 11. Summary of MANOVA Results and Scheffé Post Hoc Analyses of Posttest Scores with Derived Words of Different Levels

Source	Dependent Variable	SS	DF	MS	F	Post hoc
Between Subjects	EWRL 3-4	89.532	2	44.766	3.493*	1 = 3; 2 = 3; 1 = 2
	EWRL 5-6	131.564	2	65.782	5.730*	1 > 3; 2 > 3; 1 = 2
	Beyond Level 6	60.594	2	30.297	3.748*	2 > 3
Error	EWRL 3-4	1768.780	138	12.817		

EWRL 5-6	1584.393	138	11.481
Beyond Level 6	1115.406	138	8.083

Note. 1 = Explicit Group; 2 = Communicative Group; 3 = Control Group.

With respect to the derived words at levels 5-6, as shown in Table 11, there was a significant difference among groups on posttest scores ($F = 5.730, p < .01$). Results of Scheffé post hoc analyses demonstrate that both Explicit Group and Communicative Group markedly surpassed Control Group but there was no significant difference between them. These findings suggest both explicit instruction and communicative instruction modes produced significantly and similarly positive effects on participants' oral production of English derived words at levels 5-6 in six weeks.

Concerning words beyond level 6, MANOVA results show a significant difference among groups on posttest scores ($F = 3.748, p < .01$). Results of Scheffé post hoc analyses exhibit that only Communicative Group significantly outnumbered Control Group and there was no significant difference between Explicit Group and Control Group. It is likely that participants in Communicative Group benefited from the communicative activities and could apply what they had learned to unknown words. Accordingly, taking word level into consideration, it is suggested that both explicit and communicative instruction be utilized when teaching learners oral production of English derived words in the future.

4.4 Factors Affecting Oral Production of Derived Words before and after Receiving Treatment

The fifth research question aimed to examine factors affecting participants' oral production of English derived words before and after receiving the instruction. To answer this research question, stepwise regression analysis was used to identify the influential roles among the variables before and after receiving the respective instruction. The examined variables included: (1) context (isolation vs. sentential), (2) suffix type (neutral vs. non-neutral), (3) part of speech (nouns vs. adjectives), and (4) word level (EWRL levels 3-4, EWRL levels 5-6, and beyond level 6).

In Table 12, regression analyses on pretest scores show that the variable "neutral" accounted for 94.9% of the variance of participants' oral production of derived words, $F(1, 139) = 2568.908, p < .001$. When entered into the second step, the variable "non-neutral" accounted for an additional 4.8% of the variance of participants' oral production of derived words, $F(1, 138) = 2099.830, p < .001$. Results displayed in Table 12 did not correspond to past findings (Huang, 2010; Su, 2014). In the studies of Huang (2010) and Su (2014), the major factor affecting their participants' oral production of derived words was the variable "non-neutral". It is likely that the participants' English proficiency levels in this study differed from those in theirs. The participants' proficiency levels in Huang (2010) and Su (2014) studies were high intermediate or even advanced while those in this study were low intermediate or even low, which might have led to different effects on participants' oral production of derived words before receiving their respective instruction.

Table 12. Stepwise Multiple Regression of Pretest Scores on Factors Affecting Participants' Oral Production of Derived Words

Variable	R	R Square	R Square Change	β	<i>t</i>	<i>p</i>
Neutral	.974	.949	.948	.604	64.451	.000***
Non-neutral	.998	.997	.997	.430	45.824	.000***

Note. *** $p < .001$.

In Table 13, the regression analyses show that the variable “noun” accounted for 90.1% of the variance of participants' oral production of derived words, $F(1, 139) = 1263.378$, $p < .001$. When entered into the second step, adjectival derived words accounted for an additional 8.6% of the variance, $F(1, 138) = 946.526$, $p < .001$. Results displayed in Table 13 correspond to past findings. After receiving the respective instruction, participants knew how to systematically tell nominals from adjectives when orally producing derived words. Such results

concur with those of earlier research about stress production, stating better performance in terms of nominals rather than adjectives (Jarmulowicz et al., 2007; Jarmulowicz et al., 2008). Similarly, findings of this study imply that students in Taiwan benefit from instruction integrating derivational morphology when learning English derived words.

Table 13. Stepwise Multiple Regression of Gain Scores on Factors Affecting Participants' Oral Production of Derived Words

Variable	R	R Square	R Square Change	β	<i>t</i>	<i>p</i>
Noun	.949	.901	.900	.817	78.036	.000***
Adjective	.994	.987	.987	.322	30.766	.000***

Note. *** $p < .001$.

5. Conclusion

Results of this study indicated that after receiving the respective instruction on oral production of English derived words, participants in Explicit and Communicative Groups experienced significant improvement when compared with those in Control Group. Both Explicit and Communicative Groups demonstrated significant improvement in their oral production of English derived words. The post hoc comparisons revealed that the explicit and the communicative instruction modes significantly enhanced participants' oral production of English derived words in isolation, with neutral suffixes, with nominal suffixes, and at levels 5-6. There was no significant difference among three groups in oral production of English derived words in sentential context, with adjective suffixes, and at levels 3-4. Communicative Group markedly outperformed Control Group in the derived words with non-neutral suffixes and beyond level 6.

The regression analyses on the pretest scores showed that the variable “neutral” played a key role in participants’ oral production of English derived words. Nonetheless, after six weeks of respective instruction on oral production of English derived words, results of regression analyses on gain scores indicated that the variable “noun” played a key role in oral production of English derived words. It is likely that participants did not know how to orally produce English derived words in the beginning; nevertheless, it was the respective systematic instruction that enabled them to more accurately produce them. Compared with the pretest scores, results of the respective instruction modes on gain scores were salient particularly with “nouns”. Similarly, findings of the treatment questionnaires corresponded to those of the respective instruction on gain scores. Participants in both experimental groups held positive attitudes toward their respective instruction for enhancing their oral production of English derived words, especially for the nominals.

Two implications for vocabulary learning and teaching are derived from results of this study. First, teachers are strongly recommended to adopt either explicit or communicative instruction to enhance learners’ oral production of English derived words. Alternatively, teachers can try to create a combination of these two types of instruction. Second, insufficient teaching material on hand or available in the market may be a concern for English teachers who want to enhance learners’ oral production of English derived words. This study provided English teachers with an example of worksheet for each teaching mode (e.g., explicit vs. communicative) in terms of oral production of English derived words. For instance, Appendixes A and B are worksheet examples for explicit instruction and communicative instruction respectively. English teachers can tap into the worksheets and endeavor to modify them or even develop their own worksheets while it is still hard to find textbooks specifically designed to improve learners’ oral production of English derived words.

References

- Alt, M., Plante, E., & Creusere, M. (2004). Semantic features in fast-mapping: Performance of preschoolers with specific language impairment versus preschoolers with normal language. *Journal of Speech, Language, and Hearing Research*, 47, 407-420. [https://doi.org/10.1044/1092-4388\(2004/033\)](https://doi.org/10.1044/1092-4388(2004/033))
- Apel, K., Masterson, J., & Hart, P. (2004). Integration of language components in spelling: Instruction that maximizes student’s learning. In E. R. Silliman, & L. C. Wilkinson (Eds.), *Language-literacy learning: Collaboration between speech-language pathologists and classroom teachers* (pp. 292-315). New York: Guilford Press.
- Bamford, J., & Day, R. R. (2006). *Extensive reading activities for teaching language* (3rd ed.). New York, Cambridge University Press.
- Berninger, W. V., Abbott, D. R., Nagy, W., & Carlisle, J. (2010). Growth in phonological, orthographic, and morphological awareness in grades 1 to 6. *J Psychologist Research*, 39, 141-163. <https://doi.org/10.1007/s10936-009-9130-6>

- Brown, H. D. (2007). *Teaching by principle: An interactive approach to language pedagogy* (3rd ed.). White Plains, NY: Pearson Education.
- Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and Writing: An Interdisciplinary Journal*, 12, 169-190. <https://doi.org/10.1023/A:1008131926604>
- Carlisle, J. F. (2010). Effects of instruction in morphological awareness on literacy achievement: An integrative review. *Reading Research Quarterly*, 45(4), 464-487. <https://doi.org/10.1598/RRQ.45.4.5>
- Chomsky, N., & Halle, M. (1991). *The sound pattern of English*. Cambridge, MA: MIT Press.
- Clin, E., Wade-Woolley, L., & Heggie, L. (2009). Prosodic sensitivity and morphological awareness in children's reading, *Journal of Experimental Child Psychology*, 104, 197-213. <https://doi.org/10.1016/j.jecp.2009.05.005>
- Cook, V. (2008). *Second language learning and language teaching* (4th ed.). London, Hodder Education.
- Hu, C. F. (2010). Phonological bases for L2 morphological learning. *J Psycholinguist Research*, 39, 305-322. <https://doi.org/10.1007/s10936-009-9143-1>
- Huang, M. Y. (2007). *Acquisition of English derivational patterns: Integrating word sorting with phonological awareness training* (Unpublished master's thesis). National Changhua University of Education, Changhua, Taiwan.
- Huang, C. C. (2010). *A study of the factors affecting Chinese senior high school EFL students' stress performances on derived words* (Unpublished master's thesis). National Changhua University of Education, Changhua, Taiwan.
- Jarmulowicz, L. (2006). School-aged children's phonological production of derived English words. *Journal of Speech, Language, and Hearing Research*, 49, 294-308. [https://doi.org/10.1044/1092-4388\(2006/024\)](https://doi.org/10.1044/1092-4388(2006/024))
- Jarmulowicz, L., & Taran, L. V. (2007). Exploration of lexical-semantic factors affecting stress production in derived words. *Language, Speech, and Hearing Services in Schools*, 38, 378-389. [https://doi.org/10.1044/0161-1461\(2007/039\)](https://doi.org/10.1044/0161-1461(2007/039))
- Jarmulowicz, L., Taran, L. V., & Hay, E. S. (2007). Third graders' metalinguistic skills, reading skills, and stress production in derived English words. *Journal of Speech, Language, and Hearing Research*, 50, 1593-1605. [https://doi.org/10.1044/1092-4388\(2007/107\)](https://doi.org/10.1044/1092-4388(2007/107))
- Jarmulowicz, L., Hay, E. S., Taran, L. V., & Ethington, A. C. (2008). Fitting derivational morphology into a developmental model of reading. *Reading and Writing*, 21, 275-297. <https://doi.org/10.1007/s11145-007-9073-y>
- Jeng, H. S. (2000). *English reference words list for English Test of National Joint College Entrance Exam*. Taipei, College Entrance Examination Center.
- Ke, H. C. (2004). *Effects of derivational suffix learning on senior high school students* (Unpublished

- master's thesis). National Kaohsiung Normal University, Kaohsiung, Taiwan.
- Kuo, L. J., & Anderson, R. C. (2006). Morphological awareness and learning to read: A cross-language perspective. *Educational Psychologist*, 41, 161-180. https://doi.org/10.1207/s15326985ep4103_3
- Leong, C. K. (2000). Rapid processing of base and derived forms of words and grades 4, 5, and 6 children's spelling. *Reading and Writing: An Interdisciplinary Journal*, 12, 277-302. <https://doi.org/10.1023/A:1008168902922>
- Mahony, D., Singson, M., & Mann, V. (2000). Reading ability and sensitivity to morphological relations. *Reading and Writing: An Interdisciplinary Journal*, 12, 191-218. <https://doi.org/10.1023/A:1008136012492>
- Marinellie, A. S., & Kneile, A. L. (2012). Acquiring knowledge of derived nominal and derived adjectives in context. *Language, Speech, and Hearing Services in Schools*, 43, 53-65. [https://doi.org/10.1044/0161-1461\(2011/10-0053\)](https://doi.org/10.1044/0161-1461(2011/10-0053))
- Nagy, W., Berninger, V., Abbott, R., Vaughan, K., & Vermeulen, K. (2003). Relationship of morphology and other language skills to literacy skills in at-risk second-grade readers and at-risk fourth-grade writers. *Journal of Educational Psychology*, 95, 730-742. <https://doi.org/10.1037/0022-0663.95.4.730>
- National Reading Panel. (2000). *Report of the National Reading Panel*. Washington, DC: National Institute of Child Health and Development.
- Nippold, M., & Sun, L. (2008). Knowledge of morphologically complex words: A developmental study of older children and young adolescents. *Language, Speech, and Hearing Services in Schools*, 39, 365-373. [https://doi.org/10.1044/0161-1461\(2008/034\)](https://doi.org/10.1044/0161-1461(2008/034))
- Nunan, D. (1991). Communicative tasks and the language curriculum. *TESOL Quarterly*, 25(2), 279-295. <https://doi.org/10.2307/3587464>
- Schmitt, N. (2008). Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329-363. <https://doi.org/10.1177/1362168808089921>
- Stygles, J. (2011). Implementing morphological word study in the intermediate classroom. *The NERA Journal*, 46(2), 60-103.
- Su, H. Y. (2014). *The Role of Morphological Awareness in Relation to EFL Learners' Vocabulary Size and Reading Comprehension* (Unpublished doctoral dissertation). National Changhua University of Education, Changhua, Taiwan.
- Treiman, R., & Zukowski, A. (1991). Levels of phonological awareness. In S. Brady, & D. Shankweiler (Eds.), *Phonological processes in literacy. A tribute to Isabelle Liberman* (pp. 67-84). NY: Erlbaum.
- Tyler, A., & Nagy, W. (1989). The acquisition of English derivational morphology. *Journal of Memory and Language*, 28, 649-667. [https://doi.org/10.1016/0749-596X\(89\)90002-8](https://doi.org/10.1016/0749-596X(89)90002-8)

Appendix A

Handout and Worksheet for Explicit Instruction

I. Handout

The suffix “**-ment**” is put at the end of a verb to form a **noun**. It means “**an action, a process, a feeling, or a result**”.

assignment	arrangement	requirement	argument
management	disagreement	encouragement	development

Practice Sentences

1. Besides the oral presentation, you will need to complete three written **assignments** per semester.
2. Peter and Mary were divorced and they had an **arrangement** that the children would spend two weeks with each parent.
3. We have received lots of orders, and our immediate **requirement** is extra staff.
4. After some heated **argument**, they finally made a decision to give in to each other.
5. The CEO is very conservative; therefore, the company's top-down **management** style made decision-making slow and inflexible.
6. **Disagreement** arose about exactly how to plan the show; however, we made the decision eventually.
7. With the **encouragement** from his parents, he has achieved his goal eventually.
8. Peter was skilled in inventing new stuff, and the piece of gear is an exciting new **development**.

II. Worksheet

Please write down the derived words with suffix “-ment” from Book I to Book V, and read them aloud.

-ment

Appendix B

Worksheet for the Communicative Instruction

- I. There are many things that worry you in your high school life. Please complete the following sentences with expressions containing the keywords given below. The first sentence has been done for you as an example.

assignment	arrangement	requirement	argument
management	disagreement	encouragement	development

1. The thing that worries me in my high school life is time management
2. The thing that worries me in my high school life is _____

3. The thing that worries me in my high school life is _____
4. The thing that worries me in my high school life is _____
5. The thing that worries me in my high school life is _____
6. The thing that worries me in my high school life is _____
7. The thing that worries me in my high school life is _____
8. The thing that worries me in my high school life is _____

II. After checking the things that worry you, please talk to your partners and use the above keywords to find out the solutions to help you.