THE EFFECTIVENESS OF MORPHEMIC ANALYSIS INSTRUCTION TOWARDS ESL STUDENTS' VOCABULARY DEVELOPMENT

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ABSTRACT

The aim of the current study was to observe the effect of compounding, inflectional and derivational morphemic awareness on vocabulary development among ESL low proficiency secondary school learners in Malaysia. The study was a quasi-experimental research and data were collected through statistical analysis SPSS version 22, ANCOVA. The findings of the current study can be mentioned in two main discussions. The first, second and third research question results revealed that individual instruction of three types of morphemic analysis awareness had contributed significant results on the participants' inflectional, derivational and compounding knowledge, at various degrees. Inflectional morpheme instruction had the most significant effect on their morphological awareness, followed by compounding, and the least effective instruction was on derivatives. In the second discussion, fourth, fifth and the sixth research question results revealed that inflectional, derivational and compounding morphemic knowledge contributed different levels of vocabulary development among the participants. The compounding morphemic knowledge was found to have the least effect while inflectional morphemic knowledge had the most significant effect on participants' vocabulary development. Thus, the results of the current study demonstrate that inflectional morphemic instruction emerged as the most significant factor for morphemic analysis awareness that helped ESL low proficiency secondary school learners to develop their vocabulary effectively. The study implies that ESL learners' vocabulary development can be improved through morphemic analysis instruction. The study also highlights that a vocabulary lesson should be accompanied by morphemic analysis instructional strategy for better language teaching and learning. Morphemic analysis should be considered as an alternative instruction to facilitate low proficiency learners' vocabulary development throughout secondary schools in the ESL context.

KEBERKESANAN PENGAJARAN ANALISIS MORFEM KOMPAUN, INFLEKSI DAN DERIVATIF UNTUK PEMBANGUNAN PERBENDAHARAAN KATA PELAJAR ESL

ABSTRAK

Tujuan kajian semasa adalah untuk melihat kesan penguasaan morfem infleksi, derivatif dan kompaun kepada pembangunan perbendaharaan kata di kalangan pelajar-pelajar kurang fasih di sekolah menengah di Malaysia. Kajian ini merupakan satu kajian kuasi-eksperimen dan data dikumpul melalui analisis statistik SPSS versi 22, ANCOVA. Hasil kajian semasa boleh disebut dalam dua perbincangan utama. Keputusan persoalan kajian pertama, kedua dan ketiga mendedahkan bahawa pengajaran individu daripada tiga jenis analisis kesedaran morfem telah menyumbang keputusan yang besar ke atas pengetahuan infleksi, derivatif dan kompaun peserta kajian dalam pelbagai darjah/peringkat. Pengajaran morfem infleksi mempunyai kesan paling ketara ke atas kesedaran morfologi peserta kajian, diikuti dengan kompaun, dan pengajaran yang paling kurang berkesan adalah pada derivatif. Dalam perbincangan kedua, keputusan persoalan kajian keempat, kelima dan keenam mendedahkan bahawa pengetahuan morfem infleksi, derivatif dan kompaun menyumbang pembangunan perbendaharaan kata dalam pelbagai peringkat di kalangan peserta. Pengetahuan morfem kompaun didapati mempunyai kesan paling kurang sementara pengetahuan morfem infleksi mempunyai kesan paling ketara ke atas pembangunan perbendaharaan kata para peserta kajian. Oleh itu, keputusan kajian semasa menunjukkan bahawa pengajaran morfem infleksi muncul sebagai faktor yang paling penting untuk kesedaran analisis morfologi yang membantu pelajar sekolah menengah yang kurang fasih untuk membangunkan perbendaharaan kata mereka dengan berkesan. Kajian ini menunjukkan bahawa pembangunan perbendaharaan kata pelajar ESL (bahasa Inggeris sebagai bahasa kedua) boleh diperbaiki melalui pengajaran analisis morfologi. Kajian ini juga menunjukkan bahawa pengajaran perbendaharaan kata perlu disertakan dengan pengajaran strategi analisis morfem untuk kesan yang lebih baik dalam pengajaran dan pembelajaran bahasa. Analisis morfologi boleh dianggap sebagai pengajaran alternatif untuk memudahkan pembangunan perbendaharaan kata pelajar yang kurang fasih di seluruh sekolah menengah dalam konteks ESL.

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LIST OF ABBREVIATIONS

Analysis of Covariance	ANCOVA
Cognitive Academic Language Learning Approach	CALLA
Discrimination Index	D.I.
English as Foreign Language	EFL
English as Second Language	ESL
Facility Index	F.I
Lower Certificate of Examination	PMR
Malaysian Certificate of Examination	SPM
Malaysian Higher school Certificate	STPM
Morphemic Analysis	MI
Morphemic Analysis Instruction	MAI
Second Language	L2
Statistical Package for Social Sciences	SPSS
Vocabulary Learning Strategies	VLS

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CHAPTER 1: INTRODUCTION

1.1 Outline of the Study

This study is a five chapter composition. Chapter one of this study provides insights about three types of morphemic analysis strategy and their effect on low proficiency secondary school learners' vocabulary development in the ESL context. Chapter Two elaborates on the theoretical framework and a review of previous research. The chapter ends with limitations and gaps from the previous research and provides the argument for the necessity of the present study. Chapter Three explains the methodology of the research, data collection and data analysis framework. Chapter Four reveals the assumptions testing and the findings of each research question. Finally, Chapter Five summarizes the result, examines the significance of the results, and presents its implications, limitations, delimitations and proposals for future studies.

1.2 Introduction

This section discusses about the importance of vocabulary acquisition in the ESL context; and the role of morphemic analysis as an explicit vocabulary teaching and learning strategy to improve learners' vocabulary. The study intended to investigate the problems, difficulties, and needs of the Malaysian secondary school learners in acquiring vocabulary; and emphasized on the importance of morphemic analysis instruction in the ESL context. Further, the chapter discusses the research questions, objectives, rationale, its significance and the scope and limitations of the present study.

1.3 Background of the study

It is becoming increasingly challenging to ignore the significance of vocabulary in order to learn or acquire any language. According to Asgari and Mustapha (2011),

good knowledge of vocabulary is vital in the current development of language learning; and when vocabulary acquisition is delayed it impedes language growth (Letchumanan & Tan, 2011) and effective communication among learners (Kitchakarn & Choocheepwattana, 2012).

Recent evidence suggests that language learning has a strong association with vocabulary. For instance, Kitchakarn and Choocheepwattana (2012) affirm that a link is strongly established between vocabulary (words) and learners' ability to make meaning. This is because learners are not able to form sentences without adequate vocabulary. Furthermore, they state that a learner needs to know how to use words correctly and understand them when they are applied in various contexts. Similarly, Cunningham (2009) claim that "the size of a person's vocabulary is one of the best predictors of how well he or she will comprehend while listening or reading" (p. 60). In other words, by having a larger repertoire of vocabulary a learner becomes a better language learner.

Most importantly, Folse (2004) argues that with the long held assumption that grammar is more important than vocabulary when comes to learning a second language made second language instruction to hammer learners with grammatical knowledge. Linguistic research, however, showed that this is far from true, and confirmed that vocabulary acquisition is definitely more essential than grammar acquisition (Wilkins, 1972; Nation, 2001; Lewis, 2002; Barcroft, 2004). As Wilkins (1972) claims "Without grammar little can be conveyed, without vocabulary nothing can be conveyed" (p. 111) that suggests that meaning is primarily conveyed through vocabulary.

However, vocabulary learning is a classic problem in an ESL setting. This is because teachers are generally challenged in the process of teaching and learning vocabulary as there has been minimum vocabulary instruction in the second language classrooms (Mukoroli, 2011). Second language teachers are persistently considering

various decisions and ways to improve learners' vocabulary. This is because Birch (2003) argues that vocabulary acquisition varies among individuals (language users) who come from different educational backgrounds which affect their cognitive abilities and language learning.

As a result, many researchers in the past has attempted to address key issues that were highlighted in the language studies such as ways to teach vocabulary, methods or strategies that can be utilized to teach vocabulary, and also which vocabulary aspects need to be given emphasis in the context of vocabulary teaching and learning (Gairns & Redman, 1986; Nation, 1990; Ellis, 1994; Schmitt, 2000; Morin, 2003; Schiff & Calif, 2007; Goodwin, 2010; Ibanez, 2013; Roth, 2014). To date, a large number of experimental studies on vocabulary learning strategies in the ESL context have focused on various frameworks such as on learning task (reading, writing, etc), person (age, sex, ability, motivation, learning style, etc), learning context (teachers/peers/family support, curriculum, etc) and learning strategy (implicit or explicit) (Gu, 2003). Although extensive research has been carried out on vocabulary learning, there are not many studies exist which adequately cover on linguistic notions (the rules of language). As Jalaluddin, Mat Awal & Abu Bakar (2008) and Naeeini and Maarof (2010) argue, apart from learners' ability, attitude towards the language, and lack of exposure and opportunity to use the language, linguistic obstacles have worsened learners' effort to develop their vocabulary and language. The issue is linguistic obstacles are merely noted in the discussions.

An analysis of literature shows that vocabulary learning and teaching research basically talks about two methods: vocabulary is either learned implicitly and incidentally, or taught explicitly and intentionally. In fact, there has been a long-running debate about which of these approaches of learning vocabulary is more important.

Several studies have revealed that a combined instruction of implicit and explicit is found to be effective to acquire vocabulary. For example Sokmen (1997) as well as Marzban and Kamalian (2013) demonstrate that vocabulary teaching in a communicative approach emphasizes vocabulary learning implicitly and incidentally. Others such as the National Reading Panel (2000) have highlighted that a distinct method to teach vocabulary is yet to be identified and thus recommended using a variety of direct and indirect methods of vocabulary instruction. However, Kile (2013) maintain that teaching learners vocabulary acquisition strategies "provides them with a lifelong skill that can be used to increase their vocabulary repertoire" even after they leave school (p. 5). Similarly, Baumann, Edwards and Kame'enui (2004), Blachowicz and Fisher (2000) advocate that when vocabulary strategies taught directly and learnt explicitly, they add to learners' vocabulary and help learners become independent vocabulary learners. However, Sedita (2005) questions the usefulness of such approach because of two major reasons. Sedita reports that schools cannot be expected to explicitly teach individually all the words children need to learn; and secondly teachers should give attention to words that useful in the text, functional in numerous situations; even though they are not common in daily usage but are repeated regularly in the books. Thus, Baumann, Kame'enui and Ash (2003) suggest that instructions for vocabulary should be included with implicit learning strategies like encouraging them to read extensively and giving them exposure to new words. Baumann et al. also stress that learning implicitly in a way helps learners to appreciate vocabulary and enjoy using words in their daily lives.

Drawing upon these two stands of research into vocabulary teaching, this study provided an opportunity to advance the knowledge in the explicit instruction for two chief arguments. Firstly, as mentioned by Ellis (1994), vocabulary and its meaning should be taught or learnt through explicit instruction meanwhile phonetic system and

its phonetic features as well as pronunciation of new words should be conducted implicitly. National Reading Panel (2000) strongly recommends that vocabulary and its learning strategy to be taught explicitly. This is important because learners can develop vocabulary effectively and the strategy can heighten learner's understanding of word meaning. Thus, Beck et al. (2002) suggest that instruction for vocabulary should be intensive and thorough. Second, Gu (2003) asserts that as ESL learners have poor command of language skills they are less effective incidental learners of English vocabulary and this applies to learners of all levels of proficiencies; especially low proficiency learners who would experience twice the trouble in learning vocabulary implicitly. Similarly, Chen and Huang (2003) hold the view that learners with high English proficiency are better language learning strategy users than the low English proficiency learners. Nevertheless, this study does not totally reject implicit learning as learners in this study also acquire vocabulary incidentally by engaging in rich contexts and multiple communicative exposures to words by means of four language skills.

The purpose of the current study is to shine new light on vocabulary development among ESL learners through one aspect of linguistic that is morphology. This is done with a systematic and comprehensive explicit instruction called morphemic analysis instruction in this current study. Anderson and Nagy (1991) pointed out that there are precise words learners need to know so that they comprehend the particular subject matter.

Morphology is classified into three main spheres: inflection, derivation, and composition (Chen, Hao, Geva, Zhu & Shu, 2008) that deal with grammatical structures and word formation (Akande, 2005). Learning a word morphologically means a learner needs to understand the unique relationship between the meaning and the grammar of the newly learnt word (Birch, 2003). Without this understanding, learners are not able to

be familiar with the words' grammatical structure and not be able to create new vocabulary which is based on root words (Akande, 2005). This will eventually lead to morphological-related errors in their vocabulary building (Akande, 2005).

According to Karakas (2012), morphological-related errors refer to the misapplication of the morphological rules in the formation of complex words. Knowledge of different types of affixes and roots (inflections, derivations and compounds); and how they are used to construct words and meanings are called morphemic analysis (Mountain, 2005). As English has the concept of word building, teaching word parts (stem and affixes) and morphemes (smallest grammatical unit of language) may help learners enhance their vocabulary (Sritulanon, 2012).

Based on the above mentioned sources that morphemic awareness is useful in developing learners' vocabulary, the researcher seeks to address the significance of morphemic analysis as an instructional strategy (i.e. morphemic analysis explicit instruction) to develop vocabulary among Malaysian ESL learners through derivational, inflectional and compounding morphology. Talerico (2007) asserts that vocabulary learning strategy such as morphemic analysis examines the grammatical parts of the morphemes that existed in the target language namely base words and affixes. As morphemes or word parts determine most of the meaning in a word, morphemic analysis strategy enables learners to recognize the word meanings from their morphemes. This helps learners to derive the meaning of the many complex words exist a text and also make them more confident when attempting larger texts. According to Chang, Wagner, Muse and Chow (2005), morphemic analysis or also known as morphological awareness offers learners with two different types of skills:

a. analytic skill (it is the skill to deduce long and complex words into smaller morphemes to decode meaning)

b. synthetic aspect (the ability to derive new meanings and reassemble smaller meanings to make up new words).

Similarly, Stanfa (2010) asserts that morphemic awareness is a strategy recognized to aid learners in the process of decoding complex words. However, Teflbootcamp (2011) argues that some learners especially low proficiency ones may not recognize these kinds of attributes. Thus, this paper attempts to show that it is essential to introduce morphemic analysis strategy explicitly (in instructional form) as one of numerous strategies of English vocabulary teaching and learning.

1.4 Rationale of the Study

Recent evidence suggests that English teachers in Malaysia are generally disheartened by the deteriorating standard of English among learners (Jalaluddin et al., 2008). In a recent analysis, Ibrahim and Mohamed (2011) highlighted that Malaysian young adults from different backgrounds in life have different levels of knowledge and proficiency in English. They claim that only urban learners use English as their dominant or first language and are able to master English well; but majority still find learning the language not an easy task (Ibrahim & Mohamed, 2011). Likewise, Ismail (1994) points out that despite of its status as a second language (L2), English has in reality moved towards that of a foreign language because it is genuinely an L2 only to a handful of urbanites.

In another study, Zakaria (2005) found that Malaysian ESL learners face difficulties in mastering the language skills due to their lack of vocabulary knowledge. In the same vein, Darus and Subramaniam (2009) note that albeit the teaching of English language in Malaysia is based on four language skills and language content (vocabulary, grammar and sound), the standard of English among Malaysian young

adult learners is still low despite learning the language for several years. This finding is further supported by Jalaluddin et al. (2008) that Malaysian learners lack the skill to acquire or learn the target language even though they have completed six years of study in their primary school and five years in secondary school. Unlike Jalaluddin et al. (2008), Wenden and Rubin (1987) argues that in a language classroom, the teacher teaches learners under the same condition using the same teaching method; however, some learners can acquire vocabulary successfully while some fail to do so.

Drawing on an extensive range of sources mentioned earlier, one reason that can be linked with learners' inadequate vocabulary acquisition is because linguistic obstacles (Jalaluddin et al., 2008), particularly morphological-related errors that they make while forming the words (Karakas, 2012). Akande (2005) too highlights that even though morphemic analysis instruction is important in the process of acquiring vocabulary in the ESL context the teaching of English morphology is not given the emphasis it deserves. This finding is apparently true in the Malaysian ESL context; English Form 4 textbook illustrates the use of morphology in limited grammar categories:

1. The prefix (*pre*);
2. The suffix (*ly*);
3. Hyphen (-) (Source: KBSM English Form 4, 2002)

Therefore, these limitations contribute a great amount of morphemic errors in the learners' vocabulary when they write or speak. Akande (2005) maintains that second language learners should have adequate morphemic awareness so that the amount of morphemic errors in their spoken and written English can be reduced. Akande asserts that morphological-related errors are rampant among ESL learners because English language is inconsistent in the area of morphology. Likewise, Kaweera (2013) points out that a number of morphological-related errors are reflected in learners' vocabulary

when they convey their ideas in writing or orally. Kaweera (2013) and Akande (2005) identify overgeneralization and misapplication of the rules as the major causes for their incompetence in the language. Together, they recommend that ESL learners must have an awareness of morphology, and its inconsistency, to avoid such errors and at the same time develop vocabulary.

Thus, the argument presented in this section suggests that morphemic analysis strategy can be developed as an instructional strategy to minimize the morphological-related errors. The researcher proposes that this can be done by teaching aspects of derivational, inflectional and compounding morphology explicitly to secondary school learners in the ESL context.

1.5 Statement of the Problem

Recently, a huge sum of literature was found related to the lack of vocabulary among ESL adolescents and adults. For example numerous studies that were done in Malaysian secondary schools and higher learning institutions (Abdullah, 2004; Kaur & Kabilan, 2007; Lourdunathan & Menon, 2005; Malek, 2000; Pillai, 2004; Zakaria, 2005; Ramachandran & Abdul Rahim, 2004; Syed Aziz Baftim, 2005) have attempted to explain that the lack of vocabulary is the main contribution for ESL learners' unsuccessful use of language skills.

Chen et al. (2008), Jalaludin et al. (2008) and Kaweera (2013) strongly agree that poor understanding in the aspects of linguistic contributes to the lack of vocabulary among learners in the ESL context. They collaboratively claim that morpheme (morphological level), word-order (lexical level) and sentence structure (syntactic level) are three main aspects of linguistic that must be considered when a language is concerned. This study takes the opportunity to focus on morphemes or morphological

level because the knowledge morphemes are crucial for word building. Chen et al. (2008) point out that learners' inability to acquire English language can be clearly identified from their vocabulary as they make morphological-related errors (violation of the language rules). Morphological-related errors at word level include errors in inflections, derivatives and compounds (Akande, 2005). Collectively, research by Akande (2005) as well as Jalaludin et al. (2008) showed that learners in the ESL context made errors related to morphology as they were not able to apply grammatical morphemes on affixation and compound-related words effectively. These learners created new words by incorrectly using affixes such as in inflections (e.g., past tense *-ed* and plural *-s*); derivations (e.g., prefixes: such as *un-* like in *unpopular*, and suffixes like *-ing* as in *taking*). Compounding wise, these learners made mistakes in writing words in hyphenated, open and close forms such as, *year-end, ice cream, classroom*, etc.

According to Stanfa (2010), as learners move beyond lower primary school level, they are exposed to different linguistic aspects which are crucial for their literacy advancement. This is important because the impact of phonemic awareness wanes as words in the text become longer and morphologically complex. Mohd. Noor and Amir (2009) found that learners yet to master the skills to analyze complex words. Their study showed that learners face problems not only during the identification of root words but also during the separation of prefixes, suffixes and root words from the complex words in order to decode word meaning. In other words ESL learners lack the analytic and synthetic ability. Likewise, Saif (2011) reports that affixes pose a problem for learners because they are not able to perceive and/or recognize prefixes and suffixes while learning English language. They make errors when they are not able to construct new words by adding either affixes or root words correctly and appropriately. Saif (2011) further demonstrates that, second language learners do not have the awareness of, for example, the different use of suffix *-ing* and the suffix *-ed* at the end of words;

and also that affixes can change the meaning of words. Likewise, Windsor, Scott and Street (2000) ascertain that generally ESL learners are found to be less proficient in English language. They also found to have limited knowledge of morphology especially with inflections such as suffixes *-ing*, *-s*, *-est*, *-er* and *-ed*.

Apart from research based findings, experience of the researcher has further contributed to the above finding. The researcher who has been teaching English to ESL learners especially secondary school students for about 15 years discovered that students in the secondary school, locally, tend to make morphological-related errors which are common and universal similar to other learners from other ESL countries. Learners are found to be confused with *-ed* because this particular suffix can either be a marker of past tense form or passive form. They, too, found to use *-s* suffix incorrectly and they are incapable to distinguish as 3rd singular marker and plural marker. They even generalize suffix *-s* both as 3rd singular and plural markers. In compounding, learners' glaring errors are in terms of compound word written as open than close forms (e.g. *book worm* - *bookworm*) and open compound words as hyphenated compound words (e.g. *half sister* - *half-sister*). Hamdi (2012) and Akande's (2005) research showed that ESL learners have inadequate knowledge of morphemic rules; and that morphological-related errors occur because learners do not develop a comprehensive understanding of the target language. Thus, the findings from the empirical studies mentioned above and the researcher's experience working with these poor linguistic knowledge learners that has driven this research. Kaweera (2013) strongly claims that when this problem is not rectified or dealt carefully, it will remain as an ongoing dilemma in the research where ESL learners are concerned.

It has been also demonstrated that the second most frequent linguistic errors made by ESL learners (14.91%) were on word forms (Muhamad, Ahamad Shah, Engku

Ibrahim, Sarudin, Abdul Malik & Abdul Ghani, 2013). They found that incorrect use of morphemes in adjectives, adverbs, verbs and nouns contribute to errors in word forms. Their results also illustrated that the learners face difficulties in verb forms more than other grammatical items. This finding was not only implied for rural students but also urban school going students whose verb form errors are more critical compared to other errors. This dilemma was found to be significantly related to learners' low proficiency level. One common form of verb form error is the third person singular marker which indicated that learners lack the knowledge of grammatical inflections. Rizan, Maasum, Stapa, Omar, Abdul Aziz and Darus (2012) further point out that Malaysian school going learners commonly make morphological-related errors particularly in verb (tense), noun (noun endings- possessive or plural). They too agree that low proficiency learners make more errors compared to high proficiency learners. Collectively, these studies indicated that errors made by ESL learners were related not only to their ignorance and overgeneralization of the grammatical rules of the target language but also learners' proficiency levels.

Recent emerging literature offers findings that support ESL learners' lack of linguistic awareness. Saif (2011) identifies that at the institution levels; the current syllabus for teaching morphemes did not match, meet and fulfill the needs and interest of the learners. Thus, learners were not motivated and stimulated because they were not able to study and practise morphemes effectively and productively. Unlike Saif, Ferguson (2006) and Mountain (2005) have reported that for learners to grasp and have a good command of morphology they need to learn specific morphemic elements (prefixes, suffixes, and stems/roots) and the processes by which these morphemic elements combine. Additionally, Bowers and Kirby (2009) show how morphemes link words with their morphological meanings through compounding, and affixing (inflectional and derivational) patterns; but they argue that leaving morphemic

awareness to be discovered by learners independently would be overwhelming for the low proficiency learners compared to their more capable peers. Kile (2013) argues that many learners struggle because of their vocabulary deficiencies; thus without teaching them skills and strategies to acquire vocabulary, learners will not be able to overcome the problem.

Unfortunately, there has been no convincing body of research that gives evidence of the efficiency of morphemic analysis awareness or the best ways to teach it and it is an issue that is under-researched (Ferguson, 2006). Ferguson's findings are complemented by Bowers and Kirby (2009) who further reported that morphemes remain as a resource of meaning cues that has been poorly exploited in explicit vocabulary instruction in ESL teaching and learning. Other researchers, such as Richards (2006) and Ansari (2010) emphasize that there is a need for corrective measures to treat morphological-related errors in classrooms for vocabulary development because the ultimate goal of learning a language is to reduce errors and use the language accurately and fluently.

Intending to seek remedy for learners' problems in the area of linguistic, this study examines the roles of inflectional, derivational and compounding morphemes (which are the main components of morphology) through morphemic analysis strategy instruction. This study is important as it looks the effectiveness of morphemic analysis strategy on to the development ESL learners' vocabulary in English language. This paper is attempted to show that by having the awareness of morphemic analysis ESL learners can improve their vocabulary. This is because learners will have the ability to decode words that are morphologically complex when they are given awareness on the inflectional, derivational and compounding morphemes. As such, this paper primarily is aimed to investigate the usefulness of morphemic analysis in the form of instructional

strategy to develop ESL secondary school learners' vocabulary. As noted by Chen et al. (2008) and Sritulanon (2012), teaching strategies that use clues within words (roots and affixes) are able to build vocabulary among ESL learners.

1.6 Research Objective

The aim of this research is to further establish what other earlier researchers had not been conclusive about morphemic analysis awareness and its explicit teaching to improve ESL learners' vocabulary. This paper would therefore describe and analyze how through explicit instruction on three aspects of word parts namely roots, suffixes, and prefixes in the forms of compounding, inflectional, and derivational morphemes can be an alternative strategy to develop ESL low proficiency learners' vocabulary. In order to achieve the purpose of the purpose of this study, these objectives are dealt with:

1. To identify whether there is a significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge.
2. To identify whether there is a significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge.
3. To identify whether there is a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge.
4. To identify whether learners' vocabulary development differ by Morphemic Instruction approach.
    a. To identify whether there is a significant effect of compounding morpheme instruction on learners' vocabulary development.
    b. To identify whether there is a significant effect of inflectional morpheme instruction on learners' vocabulary development.

    c. To identify whether there is a significant effect of derivational morpheme instruction on learners' vocabulary development

d. To identify whether there is a significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development.

e. To identify whether there is a significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development.

f. To identify whether there is a significant difference of derivational morpheme instruction and compounding morpheme instruction on learners' vocabulary development.

1.7 Research Question

The following research questions were proposed aligned with the objectives of the study:

1. Is there a significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge?
2. Is there a significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge?
3. Is there a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge?
4. Does the level of learner's vocabulary development differ by Morphemic Analysis Instruction approach?
    a. Is there a significant effect of compounding morpheme instruction on learners' vocabulary development?
    b. Is there a significant effect of inflectional morpheme instruction on learners' vocabulary development?

c. Is there a significant effect of derivational morpheme instruction on learners' vocabulary development?

d. Is there a significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development?

e. Is there a significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development?

f. Is there a significant difference of derivational morphemes morpheme instruction and compounding morpheme instruction on learners' vocabulary development?

1.8 Research Hypothesis

These null hypotheses are proposed in accordance to the above mentioned research questions:

1. There is no significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge.

2. There is no significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge.

3. There is no significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge.

4. Does the level of learner's vocabulary development differ by Morphemic Instruction approach?

   a. There is no significant effect of compounding morpheme instruction on learners' vocabulary development.

   b. There is no significant effect of inflectional morpheme instruction on learners' vocabulary development.

c. There is no significant effect of derivational morpheme instruction on learners' vocabulary development.

d. There is no significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development.

e. There is no significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development.

f. There is no significant difference of derivational morpheme instruction and compounding morpheme instruction on learners' vocabulary development.

1.9 Significance of the Study

This study attempts to investigate the effectiveness of compounding, inflectional, and derivational morphemes through morphemic analysis strategy instruction to develop vocabulary among low proficiency learners in the Malaysian ESL context. The present study provides an opportunity to advance the knowledge of not only educators, but also researchers, scholars and syllabus designers to improve, develop and select relevant teaching aids, materials as well as teaching strategies to develop the knowledge of morphemes.

Firstly, feedback from the study would facilitate ESL teachers as it identifies problem areas in the teaching of morphemes and suggests an alternative instructional strategy which might overcome such problems. As illustrated in the Form 4 English Curriculum Specifications English (2003) teachers are strongly encouraged to include affixes to vocabulary and to give instruction to different parts of speech if the context necessitates it. The teachers therefore, are able to come up with new sets of exercises to help learners discover the relevant rules. Thus, it would create awareness among the teachers of the different techniques and methods that could be used in classroom to implement the syllabus efficiently (Hamdi, 2012). As morphology is stated explicitly as

one of the national curriculum specifications for upper secondary English education (Curriculum Specifications Form 4, 2003), it heightened the importance and the significance of this study. Through the results of this study, it is hoped that ESL teachers could employ morphemic analysis strategy for instructional purposes compatible to learners so that they could benefit from the awareness. As Aronoff and Fudeman (2011) believe, morphology should be considered as a subject of research rather than giving it a secondary status when comes to linguistic study in the target language.

Secondly, the feedback would also help learners to learn morphemes, as it recommended corrective procedures for improving their ability, competence and proficiency in morphemes. Morphemic analysis strategy awareness able to help learners to figure out what a word means morphologically. The roots and affixes would be useful signals and clues to derive at the meaning of the words whether they are more than one -*s* or happened in the past -*ed*. Whenever learners form a word; they could use a prefix, a suffix or a root in combination effectively; thus this awareness provides an excellent means of extending one's vocabulary. Most of complex words in English are formed through affixes and root words (morphemic elements); and when learners understand the process of combining and detaching these elements they possess one powerful skill that would help them to acquire vocabulary effectively (Sturza, 2009).

Next, the study is expected to be beneficial to syllabus designers, publishers of language materials, curriculum developers for learning and teaching morphemes in ESL context especially for Malaysian learners. According to Erdogan (2005), designing an English course syllabus is crucial for teaching and learning process and supplementary materials should be constructed to find out learners' linguistic problems but also their needs at different stages of their language learning (Hamdi, 2012).

Finally, findings of the study should make an important contribution to the field of language research as they could provide valuable information for researchers to further investigate the phenomenon of teaching and learning morphemes in ESL classrooms.

1.10 Operational Definitions

ANCOVA. Analysis of Covariance (ANCOVA) explores outcomes after accounting for other variables that may be related to that outcome. ANCOVA is used as the statistical technique to eliminate irrelevant variance in the study (Cheng, 2006). ANCOVA is used in non-experimental research, in quasi-experiments (Pearson, 1998). It is employed in this study because of two major reasons:

a. the participants of this study are not assigned randomly to control and experiment groups;

b. to eliminate extraneous variables that might affect the results of the study.

Assumptions. Several key assumptions must be addressed before employing ANCOVA. One is that there must be a reasonable correlation between the covariate (a variable that can be controlled) and the dependent variable. Without the correlation ANCOVA cannot be conducted. Also, there is a need to check whether the covariate is dependent on the independent variable. Covariates that are not dependent on the independent can be used to reduce error variance in the main outcome.

Compound. A compound word is made of two morphemes or specifically, two root words, for example *washroom*. English orthography (spelling) does not represent compounds systematically: they may be spelled with:

-space (e.g., *fruit juice*)

-devoid of space (e.g., *greenhouse*)

-with a hyphen (e.g., daughter-in-law)

At times, compound words may contain a derivative or inflection suffix or prefix (e.g., *housekeeping*) (Wang et al., 2009).

Derivatives. Derivatives are formed when prefixes and suffixes are added to root words (Wang et al., 2009). Prefix in a derivative does not change the word class (noun, verb, adjective and adverb) of its root word. For example: *use-reuse* (a prefix is attached to a noun to form another noun which carries a new meaning. However, suffix in a derivative changes not only the word class but also the meaning. For example: *state-statement* (a suffix is added to a verb to form a noun which gives a new meaning) (Saif, 2011).

Form. Some words undergo a partial but systematic change in their form which corresponds to a change in their grammatical function, e.g., *walk*, *walks*, *walking* (Wang et al., 2009).

Inflection. Inflections are formed when suffixes are added to them. When suffixes are added, they change the words grammatical functions in sentences. For instance: *tiger* and tigers have different grammatical functions; they are the singular as well as plural forms of the word *tiger* (Wang et al., 2009). In English there are eight inflectional morphemes, they are all suffixes. -*s* as 3rd person singular (present) or signifies plurality; -*ed* as past tense; -*ing* as progressive; -*en* as past participle; - *'s* as possessive; -*er* as comparative and -*est* as superlative).

Instruction. Instruction is referred to detailed information on how to maximize learning. It is a process of teaching through media-presented environment where

teachers decide on best educational practices to come up with specific desired outcomes (Gagné & Driscoll, 1988).

Lack of vocabulary. Lack of vocabulary in this study refers to learners having difficulties not only understanding the meaning but also in creating long and complicated morphological words. This occurs due to learners' weakness in word-analysis skills (Sedita, 2005). Stahl (2005) also asserts that vocabulary can never be fully mastered because it expands as well as deepens over a person's lifespan.

Meaning of a Word. Knowing what its root form is, what prefixes and suffixes it can take and what derivations and inflections can be made from the root (Saif, 2011).

Morpheme. Morpheme is the smallest unit found in any languages which associate with meaning and grammatical functions (Wang, Ko & Choi, 2009). Words are divided into simple words (monomorphemic word) which are unmarked by affixes such as *room* and also complex words (multimorphemic word) which are marked by affixes such as *unlikely*. There are two types of morpheme (Wang et al., 2009):

a. free - stands alone as a root word, for example *reason* in *reasonable*

b. bound - cannot stand alone as a root word, for example *-able* in *reasonable*

Morphemic analysis Awareness. Morphemic analysis awareness refers to how learners use their knowledge of word parts (roots, prefixes and suffixes) to make inferences about unfamilaiar and complex words that can foster their vocabulary growth (Baumann & Kame'enui, 2004).

Morphological-related errors. These errors are a resultant of misapplication of morphemic rules in the formation of words. Morphological-related errors signify learner's inability to understand not only the morpheme's meaning but also its function due to misapplication of the morphological rules (Akande, 2005). Morphological-

related errors occur due to overgeneralization of language rules such as *-s* (third person singular), *-en* (past participle), *-ed* (past tense), -er (comparative), *-est* (superlative) and *-'s* (possessive). Meanwhile derivational word errors result from learners' lack of knowledge in suffixes such as *-ance* in *inheritance*, *-ed* in *succeeded*, *-dom* in *boredom*.

Morphology. Morph is a Greek word where it means form or shape. Morphology, therefore, means the study of forms (Aronoff & Fudeman, 2011). According to Aronoff and Fudeman (2011) morphology is "the mental system involved in word formation or the branch of linguistics that deals with words, their internal structure, and how they are formed" (p. 2). Akande (2005) asserts that morphology is a branch in a language that examines the internal components or parts of a word and how a word is created through different types of processes such as affixation and compounding. In short, it is a study of word formation.

Prefix. Prefix is inserted in front of a root in order to form a complex word which carries a new meaning; however they do not change part of speech. Prefixes are by and large derivational in English, e.g. *re-* in *rethink*, *dis-* in *dislike* (Talerico, 2007).

Root/base/stem. The root/base/stem brings out the main meaning of a word and it cannot be further analyzed (Talerico, 2007).

Suffix. Suffix is added at the end of a root word. It controls grammatical functions (such as eat/eats) and changes parts of speech (such as *beauty* (noun) to *beautiful* – adjective) (Talerico, 2007). Stahl and Nagy (2006) note that a suffix can be both derivational and inflectional in English, e.g. *-ly* in *manly* (derivational) and *-ed* in *walked* (inflectional); and that suffix does not change much of the meaning.

Vocabulary. Vocabulary refers to knowing and understanding word meanings (Almasi, Garas-York & Hildreth, 2007). Stahl (2005) mentions that vocabulary is a

word that gives a meaning and how it fits into the world. Richard (1985) claims that vocabulary includes not only single and complex words but also the idioms existed in the language.

Word Formation. Word Formation is referred to the different processes in creating a word which include derivatives, inflections and compounding (Saif, 2011). Word forms are classified as simple, complex and compound for purposes of analysis. The occurrence of a particular form independently constitutes a simple word. A simple word-form may be a base (*cat*) or base + an inflectional suffix (*cats*). A complex word contains a base and a derivational suffix and/or an inflectional suffix (*player/players*). Compound is made of two or more elements - simple (*football*), complex (*tax collector*) or both (*evaluator operator*) expressing a single idea (Saif, 2011).

1.11 Summary of the Chapter

This chapter has discussed the problems of Malaysian ESL learners in acquiring vocabulary in their classrooms and emphasized the importance of morphemic analysis strategy instruction in the ESL context. It has shed light on the research questions, objectives, rationale, its significance and key definitions of the study. Following is Chapter Two, the analysis of literature review.

CHAPTER 2: REVIEW OF LITERATURE

2.1 Introduction

In this chapter, first the overview of vocabulary teaching and learning with its historical background of vocabulary instruction is laid out. Then, morphemic analysis elements are scrutinized; and the link between morphemic analysis and vocabulary learning is addressed. Finally, the conceptual framework related to the instructional design in the present study is discussed.

2.2 The History of Vocabulary Teaching and Learning

Nunan (1991) highlights that for many years vocabulary was ignored in the teaching and learning of language, even though its importance in building and maintaining vocabulary is undeniable. Likewise, Saif (2011) provides an account of *v*ocabulary studies from 1950s to 1990s. Saif demonstrates that during the 1950s and 1960s vocabulary studies have been subordinated to grammar learning. He reports that audio-linguists emphasized grammar over vocabulary because they made assumptions that the acquisition of vocabulary will come naturally as learners learn the grammatical pattern of the target language. Saif (2011) also claims that until the 1970s, vocabulary teaching and learning received a secondary status in the ESL context where the focus was on syntax and phonology and morphology was neglected. Another researcher, Richards (2006) points out that from 1970s to 1990s a new approach was introduced-communicative language teaching, in which communicative competence was given attention to be the goal of language teaching and again not vocabulary. Together, these studies outline vocabulary was not favoured and its teaching was underrated in the ESL context throughout history.

2.3 Vocabulary Learning Strategies

Asgari (2011) claims that the steps language learners take to develop their words in English are called vocabulary learning strategies. Nation (2001) and Gu (2003) mention that different researchers have proposed different vocabulary learning strategies (VLS) according classifications of VLS. Schmitt (1997) is one of them. Schmitt (1997) made VLS in five main categories:

a. determination strategy (i.e. individual learning strategy)
b. social strategy (i.e. learning through communication)
c. memory strategy (i.e. learning by associating to own background knowledge)
d. cognitive strategies (i.e. learning through identifying unfamiliar words, examining word meanings, and relating word meanings)
e. metacognitive strategies (i.e. learning through monitoring, decision making, and assessment of learners' language progress)

According to Schmitt (2000), strategies are important because they are applicable in the EFL or ESL environment. Schmitt also asserts that learners need exposure on strategies to learn vocabulary in the ESL setting because these learners mostly have only basic strategies (Schmitt, 2000). Therefore, educators need to provide them with some organized vocabulary learning strategies. Schmitt (2000) on the other hand, mentions that proficiency (besides motivation, culture and environment) can influence a learners' vocabulary development (Asgari, 2011). Accordingly, cognitive and metacognitive learning strategies are used as the foundations for the theoretical framework applied in this study which focuses on learners with low proficiency level.

2.4 Instructional Approaches: Implicit vs. Explicit

As mentioned in Chapter one, learners will be able to learn vocabulary in two ways. One is implicitly when learners are exposed indirectly to words and second, by

direct or explicit instruction given to either specific words or vocabulary learning strategies. However, Nagy (1997) argues that only first language learners learn vocabulary best through incidental learning because they read and listen extensively in their everyday life. Second language learners (L2) on the other hand may not learn the same because L2 learners have fewer exposures to the language. Moreover, Beck, McKeown and Kucan (2002) point out that even learning vocabulary through contextual clues will not be effective as information retrieved by L2 (second language) learners is often too limited or misleading due to their language inability. Thus, researchers such as Kieffer and Lesaux (2007) hold the view that explicit instruction is crucial for vocabulary learning while Kitchakarn and Choocheepwattana (2012) maintain that teaching vocabulary directly helps L2 learners to develop their word knowledge because learners can learn the strategy to decode words and infer words meanings. Graves (2006) as well as Stahl and Nagy (2006) point out that teaching of vocabulary which includes explicit instruction, selected number of words and appropriate vocabulary learning strategies may create opportunities for learners to acquire words independently. Likewise, Kieffer and Lesaux (2007) stress that for successful vocabulary learning to take place teachers need to know which is the most efficient and effective strategy to be used to teach to learners so that in the end they can learn words independently.

Communicative teaching, which is the central approach in language classrooms now, leaves less opportunity for explicit instruction in vocabulary. Therefore, Kitchakarn and Choocheepwattana (2012) argue that a single method is not sufficient to contribute to effective language teaching; and they suggest that teachers, besides using contextual clues (implicitly) to teach words; they also should also include explicit instruction. They also advocate teaching vocabulary in sentences and not as single items. This is because it facilitates learners with contextualization.

2.5 Instructional Focus: Whole Language vs. Phonetics

According to Bowers (2012) many factors related to language learning and instruction have been discussed over the years; one of them is what unit of language should be addressed by instruction: whole word or phonetics. Whole language instruction does not emphasize on explicit instruction but exposes learners to vocabulary in the context of stories in a print-rich and supportive environment. This is because researchers argued that children comprehend reading effectively when they are exposed to rich, meaningful language experiences without explicit instruction which is similar to how children learn to speak (Bowers, 2012).

Whereas, instruction in phonics enables learners to learn the correspondence between letter and sound; and also the methods to sound out letter and blend sounds into words. Bowers (2012) states that research generally showed that phonics instructions were more effective to promote language learning as compared to whole language.

However, Ivey and Baker (2004) clearly mention that no existing evidence suggests phonics instruction helps older struggling learners in comprehending texts such as in the participants of this study. Instruction in phonics that gives a focus on the correspondence of letter and sound is found to be more apt for spelling and fluent reading. Phonics instructions also found to give a positive impact during the early stage of reading among elementary school students. Moreover, phonemic awareness is about manipulating the sounds in words and not decoding words or recognizing their meanings (Roit, 2012). National Reading Panel (2000) claims that phonics instruction benefits younger learners and with diminished results for older learners. Its report shows that phonics instruction does not either influence learners to understand reading difficulties beyond elementary stage or help better comprehension among older students.

Thus, this study is more interested in instruction in word analysis or morphemic analysis which promotes learners' skills in determining meaning of morphologically complex words as it helps them to identify not only root words but also affixes. Explicit instruction in morphemic analysis awareness supports learners' ability to recognize words effectively (Roit, 2012).

2.6 Knowing a Word in a Second Language

To know a word in the ESL context is not simple because of two main reasons: the word meaning complexity and the metalinguistic sophistication required by most vocabulary related tasks (Sanders, 2007). Metalinguistic sophistication poses a problem for the learners if they are still at initial stage of developing fundamental concepts about words as units of form and meaning (Sanders, 2007). Thus, to understand the concepts well learners need to three levels of knowing a word: association, comprehension, and generation (Stahl, 1986). Knowing of a word at the association level means that when presented with a word, learners can make accurate associations even though they might not understand the meaning of the word. Knowing of a word at comprehension level means that learners understand the commonly accepted meaning of the word. Meanwhile at generation level means learners can provide the target word in a new context (Baumann & Kame'enui, 2004). Saif (2011) mentions that, knowing a word in a second language includes "knowing what its root form is, what prefixes and suffixes it can take, and what derivations and inflections can be made from it" (p. 33). This indicates that comprehension is important in knowing a word morphologically; and that can be advocated by creating morphemic awareness among learners.

2.7 English and Morphology

To, Tighe and Binder (2014) point out that "the English language does not rely exclusively on the alphabetic principle because letter-to sound correspondences are not necessarily mapped one to one". (p. 2). This is because a single sound in the English language is represented by a few graphemes such as *k* as well as *c* generates similar sounds. English words are known as morphophonemic. This is because words in English are spelled based on their phonemes (how they sound) and also by morphemes (what they mean). To, Tighe and Binder (2014) assert that morphemes such as roots, prefixes and suffixes are the smallest phonemic units that give information on meaning. While Carlisle (1995) and Kuo and Anderson (2006) confirm that when learners have the ability to manipulate as well as apply word formation rules in the target language they have morphemic awareness. This awareness is crucial because learners can decode the meaning of morphologically complex words as well as create them, which is necessary for their vocabulary development (To, Tighe & Binder, 2014).

2.8 Morphemic Awareness

According to Zhang and Koda (2013), "Morphemic awareness pertains to the ability to reflect upon and manipulate morphemes; and the morphological structure of words". (p. 3). The morphologically structured words in the English language can generally be created by compounding, inflection as well as derivation (three main processes). Inflectional and derivational words are created when roots and affixes are combined. However, these two word formations are different:

a. inflection is created when a root is added to a suffix

b. derivative is created when a root is added to prefix, suffix or both

c. compounding is created when two roots are combined

Moreover, inflection change its grammatical functions meanwhile derivative changes both its grammatical category as well as its meaning (Zhang & Koda, 2013).

According to Kazakovskaya (2012), learners are able to acquire morphology of the target language if the language is rich in morphemic system. The frequent occurrence of inflectional and derivational morphemes in the target language provides more opportunities for learners to understand these elements effectively. However, not all languages are rich in all types of morphemes. Different languages have various degrees of productivity of morphemes and their frequency. For example English language is highly inflected meanwhile Chinese is highly compounded. Thus, it could be assumed that learners have different levels of morphemic awareness (Kazakovskaya, 2012).

2.9 Morphemic Word Formation

There are many ways or processes of morphemic word formations. The most important among them are: affixes (prefixes and suffixes), compounds, blends, reduplications, conversions, clippings, acronyms and back-formation (Saif, 2011). The present study focuses on the area of affixes and roots (inflectional, derivational and compound) to learn vocabulary through the morphemic analysis strategy instruction. Mastery of vocabulary is essential for good communication and when it is in communicative approach, the requirement of the command of language is most needed (Saif, 2011). Learners can improve their vocabulary acquisition when they are taught to mix and match affixes and root words (Saif, 2011); while morphological generalizations help learners determine the meanings of unfamiliar and complex words (Wysocki & Jenkins, 1987).

Critten, Connelly, Dockrell and Walter (2014) stress that the understanding of inflectional and derivational affixes are important for learners when comes to constructing complex words. Inflections are suffixed morphemes where they give grammatical information about the roots these inflectional morphemes are attached such as tenses or agreement. Unlike inflections, derivative morphemes can be placed at the beginning of root (prefix - e.g., *unlike*) or ending of root (suffix – e.g., *likely*) or both at the same time (e.g., unlikely). These morphemes create new meanings or semantic change when the grammatical form of a word is transformed (Critten et al., 2014). Critten et al. (2014) also claim that the difficulties learners face to recognize these morphemes will have an effect not only on the grammatical and semantic accuracy but also on the complexity of the texts being produced.

2.9.1 Compounding Morphemes

Compounding is concerned when new words are created from two roots or sometimes more, known as compound words (Saif, 2011). When a compound word is formed, root words are attached together to create it (e.g., *farmhouse* is created form the words *farm* and *house*; *teabag* of *tea* and *bag*). However, they function in different parts of speech as one can identify the grammatical form the compounding is referred to. For instance, *carry over* becomes an open compound if used as a verb; becomes a closed compound if used as an adjective or a noun.

Closed compound words are created when two roots are attached together; however they devoid of space between them (e.g., *baseball, grasshopper, sunflower*). Open compound on the other hand, is created with a space between the two roots. However, open compound words still give one new meaning when they are read together (e.g., *post office, real estate*). Hyphenated compound is attached with a hyphen. Compound words with modifiers are generally hyphenated (e.g., *high-speed chase* is a

chase that is in high speed). Moreover, comparative as well as superlative adjectives are also hyphenated when other modifiers are attached (e.g., the *lowest-priced car*).

According to Argus and Kazakovskaya (2012), learners can easily understand simple compound words if they are formed by *noun* + *noun* than compound words which are formed with affixes. This is because simplicity is highly linked with transparency (Argus & Kazakovskaya, 2012). They further confirm that morphosemantically transparent compound words are acquired earlier than opaque compound words. When both head and modifier (non-head) build the compound word, it will be the most transparent. That is when each morpheme contributes its meaning directly, learners acquire it easily (e.g., *key* + *chain* = *keychain*). However, if the compound word is opaque (meaning is not direct), for example *radio* + *transmission* = *broadcast* than learners would face difficulties to understand the word. Compound words are also more transparent in terms of meaning than derivatives because compounding are semantically more descriptive. Similarly, it is more transparent than inflectional words because compounding only involves two root words combination. Thus Argus and Kazakovskaya (2012) claim that learners could easily learn compound words due to their simple and transparent characteristics.

2.9.2 Inflectional Morphemes

Inflected words are also morphologically complex words. According to Sereno and Jongman (1997, p. 425), "Inflectional processes are fully productive - they generally can be applied to every lexical item; and a fully productive paradigm such as inflectional morphology must be examined".

There are eight inflectional affixes in the target language (English); and they are all suffixes (attached at the end of the root word). The suffixes of inflection carry many

different grammatical functions when they are attached to specific words. It is the change in the form of a word, which can express different grammatical relationships, i.e., the addition of *-s* to a noun to form plural (*book- books*) or *-ed* to a verb as past tense (*book-booked*). Inflection generally indicates the connection between words in sentences. For example *the boys play football* / *the boy plays football*. Saif (2011) affirms that inflectional suffixes are stable in terms of their meaning as well as function. Below are the inflected words with their grammatical functions:

-s (noun plural);
-'s (noun possessive);
-s (verb present tense third person singular);
-ing (verb present participle/gerund/continuous tense);
-ed (verb simple past tense);
-en (verb past perfect participle);
-er (adjective comparative);
-est (adjective superlative);
change of vowel (*goose – geese*);
zero (*sheep*)

According to Zhang and Koda (2013), learners acquire inflectional morphology at an early stage. Nevertheless, learners acquire this inflectional awareness at different rate (Windsor et al., 2000). According to Penke (2012), there are many factors influence the acquisition of inflectional morphemes. First, inflectional morphemes that appear frequently and with a number of different stems in the input are acquired before the morphemes that appear less frequently. Secondly, inflected words that appear frequently in the input of learners are among the first forms to be produced by the learners themselves. Thirdly, English is morphologically rich in inflectional words, thus it might tune the learners to acquire it earlier and faster in comparison to languages with sparse inflectional morphology. Next, inflectional morphemes that are syllabic and multisylaabic are easier to detect inflectional morphemes that consist of single obstruent

(consonant sound). Learners acquire early on inflectional suffix that exhibits a one-to-one association between the meaning and word form than inflection which conveys a variety of different grammar attributes (semantically complex). Finally, the inflectional morphemes that are morphologically transparent (affixed to stem without altering its phonological from) is less demanding compared to inflections that lead to a change of the root word.

2.9.3 Derivational Morphemes

According to Sereno and Jongman (1997), derivatives are not dynamic nor productive because they are not applicable to any lexical item. Derivational morphemes are new words which are formed when an affix (prefix and suffix) is attached to a root word. For example one root word (e.g., *nation*) can be exploited and transformed into many derivational words (*national, nationalist, nationalization*) (Saif, 2011).

Derivatives include a huge sum of prefixes and suffixes in the target language:

adjective-to-adjective: -ish (green - greenish)
adjective-to-verb: -ise (modern - modernise)
adjective-to-noun: -ness (lazy - laziness)
adjective-to-adverb: -ly (quick - quickly)
noun-to-verb: -fy (horror - horrify)
noun-to-adjective: -al (recreation - recreational)
verb-to-adjective: -able (grade – gradable)
verb-to-noun (agent): -er (play – player)
verb-to-noun (abstract): -ance (deliver – deliverance)

When an inflected word is made, the grammatical category changes from its original ones (i.e. root word). Saif (2011) reminds that derivatives are not generally transparent. This is because the root word is different in terms of phonics and orthography before new derivational words are created (root + affixes). For example, the word *clearly* is formed by attaching suffix *-ly* (*clear* + *-ly*) is transparent than *production* (*produce* + -

tion) or *submission* (*submit* + *sion*) which are opaque. Rispens, McBride-Chang and Reitsma (2007) argue that with this complexity taking place in derivational processes, learners will take time to acquire derivative awareness and this learning process will continue even after primary education. This statement is further supported by Carlisle and Fleming (2003) who stated that the awareness of derivatives materializes later and will continue to develop and it will take a longer time to fully understand the more advanced processes of derivatives; most of the time till adolescent stage. This is due to the huge sum of derivational prefixes and suffixes in the English language as well as the nature of derivative itself (Zhang & Koda, 2013). In particular, derivatives are influenced by phonological and/or orthographic transformation and also that when these transformations happen, not only the grammatical category changes but the meaning is affected (i.e. changes).

Tyler and Nagy (1997) claim that learners acquire derivational morphemes at an early stage (preschooler age); learning the relationship between stems and derived forms with common suffixes, such as *teach* and *teacher*. But even if some derivational suffixes are acquired fairly early, several studies suggest that, in general, learners do not have much knowledge of derivational morphology, nor make much use of what knowledge they may have due to its large number of affixes and complexity.

2.9.3.1 Differences between Inflectional and Derivational Processes

Inflection and derivative processes are highly dependent on affixation either at beginning of the root word (prefix), ending (suffix) or both. Prefixes in English are largely derivatives, for example: *undecided* and *illegitimate*. Meanwhile suffixes are both derivatives and inflections, for example: regular- *irregular/regularly*. Most of derivational affixes carry different meanings and they are easily added to many categories of roots, for example: *manage (verb) - manageable, knowledge (noun)-*

knowledgeable. Saif (2011) notes that affixes in inflectional derivational words have complementary functions, and are interdependent and grammatically concerned.

According to Saif (2011), derivational affixation is two-dimensional, that is, class maintaining and class changing, the former refers to a process which produces words belonging to the same form class as the base: e.g., *king* (noun), *kingdom* (noun); *legal* (adjective), *illegal* (adjective); *do* (verb), *undo* (verb). The latter refers to a process which produces words which do not belong to the same form class as the base: e.g., *king* (noun) *kingly* (adjective), *do* (verb) *doer* (noun). While, prefixes are largely class-maintaining, suffixes in derivatives are mainly class-changing. This means that new words that are produced are syntactically different from their roots.

The discrepancy between *sheep* in singular form and *sheep* in plural form is called infix. Infix is an affix that is attached in the middle of root words. Infix usually appears between the consonant and vowel of the roots, for example: *foot-feet* and *man-men*. However, infix is not the focus of this study.

2.10 Morphological Complexity and Opacity

Opacity is a feature of word parts or morphemes that hinders the understanding between the word structure and semantic correlation i.e. between the root and the affixed (derived) form (To et al., 2014). It takes either the orthographic or phonological forms. Opacity in phonological happens when derived words are created. This is because suffixes are attached to roots and changes happen with the sound and/or vowel sound. Opacity in orthography occurs in four ways when roots are changed to derived words:

i. no changes (e.g. toast- toaster)

ii. orthographical changes (e.g. special-especially)

iii. phonemic changes (e.g. courage-courageous)

iv. both phonemic and orthographical changes (e.g. deep-depth)

Opacity often results in learners' disability to create words correctly and to decode words that are morphologically complex (To et al., 2014).

Research identified that learners are able to create derived forms correctly when there are no changes either orthographically or phonologically (Carlisle, 1987; Fowler & Liberman, 1995; Jarmulowicz, 2006; Clin,Wade-Wolley & Heggie, 2009). Fowler and Liberman (1995) assert that a skilled reader is the one who is able to distinguish the roots and morphemes in words that are morphologically complex. This is one practical ability found missing amongst our ESL learners (less skilled). The task becomes more complicated for learners when derived words:

a. are longer (i.e. multisyllabic words)

b. low in frequency

c. abstract in meaning

d. orthographically and phonologically more complex

According to Carlisle (1988), most learners are more skilled in distinguishing roots from derived words rather than creating derived words from the given roots. In fact, Carlisle admits that learners face more difficulties to decode derived words which have phonological as well as both phonological and orthographic changes than just orthographic changes.

2.11 The Need for Teaching Morphological Word Formation

There are many important reasons for teaching word formation through morphology which is crucial for learners' vocabulary development (Saif, 2011):

a. ESL learners have to be exposed to English vocabulary and affixes so that they can use words in an effective and productive manner to master the language.

b. ESL learners face difficulties to recognize and produce compounding, inflectional and derivational morphemes in written and/or spoken forms; therefore they need explicit instruction so that they can not only perceive and recognize the morphemes but to create and use them accurately and precisely to develop their vocabulary.

c. ESL learners are found to be less competent and less proficient than required due to their deprived economic status and language background.

Generally, learners begin learning inflectional and compounding morphemes at earlier age and most of them can master these morphemes primary school years (Kuo & Anderson, 2006). However, learners take more time to learn derivatives; therefore secondary school students are yet to master this skill. In fact, often adults too face difficulties with derivatives (Kieffer & Lesaux, 2010). Likewise, there is also limited vocabulary among many learners in urban areas; thus providing them with strategies to acquire vocabulary enables them to be more productive in the target language (Kieffer & Lesaux, 2010). Learners, especially in the urban, with limited vocabulary are in dire need of an effective instruction for vocabulary so that they can be competent and proficient in the language (Saif, 2011).

2.12 Second Language Learning Errors

According to Touchie (1986), researchers of applied linguistics view errors as a creative process in language learning. This is because learners use hypothesis testing and different strategies in learning a second language. Touchie mentions that language learning errors are important for teachers, learners and researchers. It is significant for teachers as they because show learner's development in language learning. Errors are important for learners themselves as they involve personally in hypothesis testing. It is also important for researchers because they give insights on how language is learnt.

When learners make errors, it involves the components of phonological, morphological, lexical, and syntactic aspects in the language (Touchie, 1986). An example of a morphological error is the production of such errors as *goed, displeasant*, and *furnitures*. Touchie further explains that these errors are a resultant from two main sources in second language learning: interference from mother tongue as well as intralingual and developmental factors. Intralingual and developmental errors happen because of the difficulty of the second or target language. One example of intralingual and developmental factors is overgeneralization. According to Touchie (1986) overgeneralization is used by learners to minimize their linguistic burden.

Touchie (1986) argues that teachers are not able to correct all errors committed by their learners and frequent oral errors corrections can interrupt the language learning process and discourage apprehensive learners from using the target language. So she recommends several guidelines to correct these errors. Among them are:

a. teachers need to correct errors that affects understanding

b. high frequency errors that lead to overgeneralization should be focused

c. teachers should emphasize on correcting errors that affects majority of learners

2.13 Morphological-related Errors

According to Paradis (2005), all learners of English generally face morphological-related errors and the errors include both bound and free morphemes.

In this study, morphological-related errors are based on:

(a) Compound-related errors (free morphemes)

(b) Affixation-related errors (bound morphemes)

2.13.1 Compounding-related Errors

There are three types of compound words: open where morphemes are separated (e.g. fire engine); solid when written together (e.g. *classroom*) and hyphenated (e.g. *story-telling*) (Quirk & Greenbaum, 1973). These differences exist due to the orthographic rules of making compound words, and phonological rules of pronouncing compound words in English (Quirk & Greenbaum, 1973). Nevertheless, many learners in the ESL context do not master this particular convention (Akande, 2005). For example: most compound words with close forms are written as open (e.g. *textbook - text book*) or otherwise. Likewise, open compounding is mistakenly written as hyphenated ones (e.g., *orange juice - orange-juice*).

ESL learners also demonstrate their incompetence in the spelling rules of compounding (*brother in law - brother-in-law*) and pluralizing such compounds, when wrong insertion of *-s* (*brother-in-laws- brothers-in-law*) and thus creating ungrammatical morphological words (Akande, 2005).

2.13.2 Affixation-related errors

Most of ESL learners' errors related to affixation happen when they do not have a clear understanding of affixes (Akande, 2005). Affixation consists of prefixes and suffixes.

a) Errors due to the wrong use of prefix.

According to Akande (2005), generally, learners in the ESL context mismatch prefixes to roots while creating new words. For example words like *dishonest* becomes *inhonest*; *insignificant* as *unsignificant* and *immature* as *inmatured*. These errors are a resultant of misapplication of rules (Akande, 2005). Learners have generalized the application of the prefix *-un* (e.g., *unacceptable, unable, unnecessary*) and *-in* (e.g., *incapable, indecent*)

as *not*. These mistakes occur when learners are not aware of the morphemic rules (Akande, 2005). On the third word (*inmatured*), mistakes are clearly on unnecessary insertion of suffix *-ed* and wrong use of prefix *-in*. Therefore, practically in the word *inmatured*, two morphemic errors are evident: the incorrect use of prefix and unnecessary insertion of suffix.

b) Errors as a result of incorrect use of suffix.

Errors of this kind are common in ESL learners' scripts (Akande, 2005).

1. Morphological errors due misapplication of past tense marker:

    (i) He *broadcasted* the news to everyone (*broadcast*).

    (ii) She *cutted* her finger (*cut*).

2. Errors due to analogous use of certain suffixes:

    (i) He walked *fastly* (*fast*).

    (ii) She is a cheater (*cheat*).

    (iii) The *inhabiters* survived (*inhabitants*).

4. Errors due to making uncountable nouns countable.

    (i) There bought many new *equipments* (*equipment*).

    (ii) Linda sold all the new *furnitures* (*furniture*).

4. Errors due to omitted suffix.

    (i) Advance Oxford Dictionary (*Advanced*).

5. Errors due to confusion of *-ing* and *-en*.

    (i) The lady was *beating* well (*beaten*).

    (ii) He was *taken* some food when… (*taking*).

In short, errors (1 to 5) mentioned above are a resultant of different factors:

a. misapplication of rules
b. omission of morphemes
c. wrong insertion of affixes

d. ignorance to certain morphological conventions

Even though most nouns in English are created by attaching *-er* (suffix) to the verbs (e.g., *write- writer*; *dance- dancer*) but some verbs constitute exceptions to this rule (e.g. *inhabit* as well as *cheat* counterparts are *inhabitant* and *cheat*; not *inhabiter* and *cheater*). Similarly, *fastly* instead of *fast* in 2 (i) is a generalization of suffixes from adjectives to adverbs (e.g. *quick- quickly*, *slow- slowly* and *happy- happily*).

The errors in 3 (i and ii) occur because learners tend to generalize uncountable nouns to countable (Akande, 2005). As such *furnitures* and *equipments* are mistakes generally learners produce due to their first language (L1) influence, where these words symbolize countable.

The error in 4 (i) results from the missing *-ed* in *advance*. While the suffix *-en* should have been used in 5 (i) despite *-ing*, in 5 (ii) the correct suffix is *-ing*, not *-en*. These errors are due to misapplication of suffixes. The errors exposed above will eventually lead to syntactic errors because they appear ungrammatical when sentences are formed. However, since the focus is on "each word and the kind of errors a particular word manifests, they also can be regarded as morphological errors" (Akande, 2005, p. 15).

2.14 Morphological-related Errors in the Local ESL Context

In the local setting, Jalaludin et al. (2008) stress that there are many reasons that influences learners' inability to develop literacy in the target language. One of them is the differences between morphemic and syntactic of Malay and English languages. Their findings proved that learners are not able to understand the affixation especially plural inflections (*-s*) as these morphemes do not exist in Malay language. Darus and

Subramaniam (2009) likewise, confirm that learners have problems with their inflections and inappropriate word choice in their writings.

As this study focuses on the ESL learners in a national secondary school, the influence of Malay language is evident because the instructional medium in national schools in Malaysia is Malay language despite there are multiracial learners. The Malay language is used to learn all the other subjects such as science, mathematics, etc except for Tamil and Chinese languages (if there are any). These learners are exposed to English during the language lessons only (Solati, Sazalie & Che Lah, 2009). This greater exposure to the Malay language compared to English could be a hindrance for ESL learners to gain fluency in the target language.

Both languages have their own morphology, for an instance affixation. However, it is more in Malay than in English. Malay has prefix, suffix, infix and circumfix but prefix and suffix are more prominent in English. One main difference between these two languages is that English language produces negative morphemes: *dis-*, *im-*, and *mal-*. These prefixes transform the meaning from positive into negative meanings. For example: possible becomes impossible or function to malfunction. However, this phenomenon is non-existence in Malay language and it can be a problematic area for Malaysian learners with poor English language command (Jalaludin et al., 2008).

There are many important factors to take into account when discussing a learner's poor language command which includes spelling, grammar, and vocabulary (El-Koumy, 2004). Jalaluddin et al. (2008) found that Malaysian ESL learners face grammatical difficulties with suffixes, i.e. *-ies,-es,-s* (plural inflections), *-ly* (adverb), *-er* and *-est* (comparative and superlative). Secondly, errors in spelling occur because learners' inability to use derivational morphemes such as in *noise* or *breeze*, most

learners were not able to derive these root words to *noisy* or *breezy* (Jalaludin et al., 2008). Therefore, the absence of the awareness of morphology amongst Malaysian school going students further weakens their ability to acquire and master the target language (Jalaludin et al., 2008). As Kieffer and Lesaux (2007, p. 1) assert, "When it comes to teaching vocabulary, a little knowledge of roots, prefixes, and suffixes goes a long way."

2.15 Morpheme and its Inconsistency

According to Antonacci and O'Callaghan (2012), teachers need to provide ESL learners with morphemic analysis strategy training or explicit instruction because learners need exposure when a new learning strategy is introduced and need opportunities to practise the new learning. Antonacci and O'Callaghan (2012) emphasize that morphemic analysis strategy aids learners to analyze complex words by focusing on their word parts or morphemes such as:

1. Prefixes. Prefix is attached to a word in the beginning and meaning of the word changes (e.g. *like- dislike*) or making precise meaning (e.g. *mid- midterm*)

2. Suffixes. Suffix is added at the end of a word to spell out its intended meaning (*-s* in *lawyers*) or changing its grammatical function *(-able* in *payable*).

3. Base/root words. Base or root word is the smallest meaningful unit in a word that can stand on its own (*dance, boy, make*)

According to Wang et al. (2009), roots and affixes (morphemes) are useful for learners as they can use these morphemes to identify the meaning of complex words effectively. Xinjie (2011) adds that most of the English words can be changed or created by adding or deleting prefixes, suffixes and roots, which constitute word parts. Learners will be also aware that complex words can be deciphered into two or three or more morphemes and each of these morphemes carries an individual meaning. Ultimately, they become

familiar with the individual morphemes and able to decode what each morpheme represents to arrive at the meaning (Carlisle & Stone, 2005). Hence, when learners understand the meaning of word parts or morphemes they are able not only to infer the meaning of the complex word while reading or listening but also to create them effectively in spoken as well as in written form.

Koosha and Salimian (2010) claim that learners become disappointed when a reading text has many unfamiliar and/or complex vocabulary; however if they are able to decode the words, learners will continue with the task because their comprehension level rises. This is because learners can automatically recognize, remember and figure out the prefixes, roots and/or suffixes to arrive at the meaning of a morphologically complex word. For instance, morphologically complex word *unforgetable* can easily be divided into three meaningful parts, i.e. *un-*, *forget*, and *-able*. *Forget* is a *verb* (action), *-able* refers to *to do so* and *un-* refers to *not*; and these three parts give the word its overall meaning. Learners who cannot distinguish the morphemes will face difficulties in reading (Nagy, Osborn, Winsor & O'Flahavan, 1992). Nagy et al. (1992) further assert that a skilled reader is the one who knows a large sum of words and also the one who can deal with unfamiliar complex words effectively. Koosha and Salimian (2010) affirm that second language learners are heavily dependent on word meaning compared to the knowledge of subject or syntax; therefore a certain size of vocabulary need to be known before they can approach a text comfortably (Koosha & Salimian, 2010). Similarly, Fox (2010) claims that upper primary and secondary school books have more complex words compared to elementary ones; thus when words get more complex, learners need to have a strategy that goes beyond looking at phonics to arrive at the meaning. This is where the morphemic analysis strategy can play a major role helping learners to comprehend lengthy unfamiliar complex words.

Research also suggests that the ability to recognize inflectional and compounding morphology develops earlier than derivatives. Nagy et al. (1992) note that learners generally are less knowledgeable of how some derivatives function in sentences or vary from their roots because of their complex characteristics namely placement of prefix and suffix, changes in word class (verbs to nouns or adjectives) and semantic meaning of the affixes. For example the word *unbelievable* can be divided into three meaningful parts, i.e. *un-*, *believe*, and *-able*. Remove one of these parts, and the word either takes on a different meaning or has no meaning at all. Nunes & Bryant (2006) declare that learners do have some awareness of morphemes but this awareness seems to be unclear and imperfect. So they claim that meaning of unfamiliar words can be worked easily if learners understand the combinations of morphemes. Thus, Nagy et al. (1992) emphasize that teachers should recognize parts of words that are most important for primary school learners and as they move to secondary school more emphasis on grammatical function of affixes should be given for their better understanding.

Additionally, empirical data reveal that learners go through a developmental stage when learning inflectional morphemes; they misapply the irregular tense patterns to regular ones. Learners produce words such as *take-taked* or *sing-singed* (Fox, 2010). Learners also go through a stage when they over generalize derivational morphemes, such as producing incorrect negative prefixes include *un-*, *dis-*, *in-*. Experimental studies and longitudinal data also reveal that learners extend the regular pattern of inflection and make use of derivational rules to create new words (Erawati, 2013). Akande (2005) further stresses that morphemic inconsistency especially in compounding also possesses a problem. Compound words at times are spelled as a single word (e.g. *sawmill*), other times hyphen is used to connect two roots (e.g. *sugar-free*), and sometimes they are spelled as two words (e.g. *oil well*).

Likewise, meaning compound words relies heavily on the phrase corresponding to it. For instance, a *blackbird* is known as a bird species (despite its colour) and a black bird is an avian or bird that is black in colour (despite its type or species) (Akande, 2005). Thus, as a compound word meaning is not dependable on its each word part, learners tend make such errors and they are not able to master the system of morphemes with ease. Thus, learners are able to use the strategy of morphemic analysis to decipher the long and complex words that are found in their texts (Fox, 2010); and also to minimize their overgeneralization and misapplication of the rules (Akande, 2005). Akande (2005) further stresses that learners must have an awareness of morphemic to avoid such errors and at the same time develop vocabulary.

2.16 Morphemic Inconsistency and its Solution

As mentioned earlier, through morphemic analysis strategy, meaning of words can be determined as morphemes are examined. A morpheme can occur in two forms: free and bound. Free morphemes/base words function independently (e.g. *walk, happy*) but bound morpheme (e.g. *-s, -ness*) cannot stand alone and they must be attached to free morphemes. By combining these two morphemes, different words can be formed (e.g. *walks, happiness*). Morphemic analysis strategy is used in this study to infer the meaning of words through three components of morphology:

1. Derivatives – how the addition of various bound morphemes (prefixes and suffixes) affect word meanings
2. Inflections – how plurals, comparatives, verb tenses and possessives (suffixes) alter word meanings
3. Compound words – how the conjoining of two base words/free morphemes can result in a new word that is different in meaning (Flood, 2003).

Nagy, Osborn, Winsor and O'Flahavan (1992) opine that concepts such as prefix (in derivatives), suffix (in derivatives and inflections), and roots (in compounds) ought to taught explicitly such as direct instruction on morphemic analysis strategy. In fact, this strategy should be complemented with numerous examples so that abstract and difficult morphemic concepts can be dealt effectively by ESL learners.

According to Nagy et al. (1992), there are three elements to consider when conducting a morphemic analysis instruction. Firstly, teachers are encouraged to introduce learners with the concept of morphemic units (affix and root) with familiar words before teaching them new complex words. This is important because learners can gain an awareness of morphemic units with words they know before they embark on the process of analyzing unfamiliar complex words. Learners may understand the word *replay,* but they are not aware that it can be analyzed into the stem *play* and the prefix *re*. Hence, if learners do not recognize morphemic units in a familiar word, it is not viable that they can utilize affixes and roots as a means to decode unfamiliar complex words (Nagy et al., 1992). Therefore, Nagy et al. (1992) recommend that "initial instruction in key concepts of morphemic analysis be anchored in the known. It should deliberately focus on familiar words before any attempt is made to analyze new words" (p. 7).

Second, it concerns the utilization of clear and precise illustrations. Nagy, Osborn, Winsor and O'Flahavan (1992) advocate that to learn prefix, for example, "a learner needs to see not just examples of what a prefix is, but also, examples of what it is not" (p. 8). *Pre* is a prefix in *precook*, but not in *prepare*, therefore learners "may have serious misconceptions about the nature of English morphology and about what constitute effective strategies for utilizing word-structure information and these misconceptions are likely to be exacerbated by poorly conceived instruction" (Nagy et

al., 1992, p. 8). Thus, according to Nagy et al. (1992), for an effective instruction to happen, "means for diagnosing the existence of misconceptions and provision of examples than can explicitly discriminate between the misconceptions and the intended concept" (p. 8) are needed.

Third, the use of illustrations or examples which is central to teach the meanings of suffixes as it primarily refers to grammatical function. Nagy et al. (1992) mention, the meanings of suffix are rather abstract and it is difficult to be explained in short or simple explanations, for example "the suffix *-ed* means *past*, however *walk* plus *-ed* (*walked*) does not give the meaning of *walk past* (p. 8) but gives a connotation that the action done in the past (time). They recommend teachers to give attention on the connection between word formations and their functions in sentences during morphemic analysis instruction, particularly instruction on derivational suffixes.

Likewise, Edwards, Font, Baumann and Boland (2004) too highly recommend morphemic analysis as an instructional strategy because it involves teaching learners to:

1. disassemble words into their base and prefixes or suffixes (*unreasonable = un + reason + able)*
2. acquire the meanings of the base words and affixes (*un* = not; *reason* = rationale; *-able* = to do so)
3. reassemble the morphemes to derive word meanings (*unreasonable*= not able to rationalize)

Thus, when learners can assemble and dissemble word parts and infer the word meanings (analytic and synthetic abilities), learning new words becomes much easier for them (Deacon & Kirby, 2004). Learners who recognize many word parts have a larger vocabulary and better comprehension than the others who recognize fewer words (Nagy, Berninger, & Abbott, 2006).

2.17 Guidelines for Using Morphemic Analysis Strategy

Kieffer and Lesaux (2007) present some guidelines for using morphemic analysis strategy for effective morphology instruction. In this study, three of four principles for effective instruction are drawn from Kieffer and Lesaux's research:

1. teaching learners explicitly to employ morphology in a cognitive strategy
2. teaching morphemes explicitly in the rich context of vocabulary instruction
3. teaching the fundamental of morphemic knowledge directly or in explicit instruction and also in context

Antonacci and O'Callaghan (2012) stress that teaching word parts are designed to focus on word parts (roots and affixes). Teaching word parts is important for individual or group of words that are morphologically complex. Teaching of word parts can be done in single lessons and also in series in which they depend on learners' needs and the complexity of the concerned words. Exposure to word parts aids learners to understand unfamiliar and complex word meanings (Antonacci & O'Callaghan, 2012). This is important because learners able to grasp the morphemic knowledge of complex words that are abundant in English language. Antonacci and O'Callaghan (2012) recommend teaching morphemic analysis strategy in the following steps:

1. Introducing the vocabulary term/s and learners to repeat them
2. Modeling to deduce unfamiliar complex word meanings through morphemic analysis strategy
3. Dividing the morphologically complex words into their affixes and roots
4. Explaining each morphemic unit (in general definitions of prefixes are rather consistent; however suffixes need deeper explanations and illustrations to comprehend them)
5. Entering the word part information into the word webs

6. Using the particular words in contexts and also comparing them to words with similar morphemic units
7. Modeling learners' thinking by thinking aloud method (e.g.: "I know that *un-* means *no*, so *undecided* means not *decided*").

According to Antonacci and O'Callaghan (2012), the strategy of morphemic analysis can be utilized prior or later to a reading lesson in a vocabulary teaching programme. Antonacci and O'Callaghan (2012) further point out that teachers need to demonstrate some morphologically words that can explained in terms of morphemic analysis so that learners are prepared as they face morphologically complex words in their texts. This is important because learners can comprehend better not only difficult words in the text but also the whole text. Therefore Antonacci and O'Callaghan (2012) highly recommend this strategy which utilizes morphemic units to arrive at meanings when learners come across morphologically complex words.

Nagy et al. (1992) advocate that MAI (morphemic analysis instruction) needs to play a major role in aiding learners to arrive at meanings effectively because more often or not information in word parts can be misleading and incomplete. As such, MAI must be able to aid learners to be aware of such constraints. Morphemic analysis strategy can function at it best when real task are presented in context. This is because more opportunities can be provided for learners to decode inflected, derivative and compound words in the extended texts (Nagy et al., 1992). Nagy et al. mention that effective instruction should opt for the use of morphemic analysis strategically; and also advocate learners are given unfamiliar morphologically complex words in sentences so that they can be broken down into meaningful morphemic units. And finally learners can decide whether their scrutiny or analysis have led them to the meanings attuned to the particular context (Nagy et al., 1992).

2.18 Approach and Principles in Teaching Morphemic Awareness

According to Graves (2006), word knowledge can be developed in an integrated four-ply method which consists of explicit as well as implicit methodologies. This method:

i. provides rich as well as different language experience

ii. teaches words individually

iii. teaches strategies to learn words

iv. fosters word-consciousness

Graves (2006) stresses that there are five ways to facilitate learners to learn words autonomously. These include:

a. to use context to decode meaning of unfamiliar words

b. to use word parts to decode meaning of unfamiliar words

c. to use dictionary as well as related reference tools

d. to develop a strategy to deal with unfamiliar words

e. to adopt an individual approach to build vocabulary

This study focuses on teaching students word-learning strategy which uses morphemes (word parts) to decode unfamiliar morphological complex words. It is taught through explicit of instructional strategy with a very explicit, step-by-step approach. This includes:

i. explicit explanation of the strategy as well as how and when it should be used

ii. teacher as well as learners model the strategy

iii. a collaboration of strategy application during the learning process

iv. provision of guidance to employ the strategy with steadfast release of responsibility

iv. autonomous utilization of the particular strategy

Kieffer and Lesaux (2007) recommend three main principles to teach morphology in order to develop learners' vocabulary. First is giving morphemic training in a rich context and in an explicit vocabulary instruction. Morphology is highly correlated yet distinct when vocabulary is concerned; thus Kieffer and Lesaux (2007) insist that morphemic strategies ought to be trained in a comprehensive vocabulary teaching and learning programme. As mentioned by Stahl and Fairbanks (1986), an approach is effective when there are numerous exposures learning words; words are presented meaningfully; and learners are actively engaged in the process of decoding word meanings. Accordingly, Kieffer and Lesaux (2007) suggest that teachers should choose appropriate words from an extensive range of texts, give explanations and create instructional context to engage learners to use the words and deal with their meanings. Lesaux, Kieffer, Faller and Kelley (2009) assert that teachers must be selective with word choices when teaching learners with impoverished vocabulary. And this can be done through highlighting the links that existed between roots and affixes in the given words. In short, Graves (2006) suggests that an effective vocabulary programme should provide learners with opportunities to practise the language with well-selected individual words directly in small amounts. This can be done with word learning strategies such as morphology which can foster learners' understanding and create awareness in word and its meaning.

Secondly, teaching learners explicitly (step by step) to use morphemic awareness as a means of cognitive strategy. According to Kieffer and Lesaux (2007), morphemic awareness can be best utilized cognitively (cognitive strategy) to manipulate word parts and not as conventions that should be memorized. Thus, they recommend four steps to decode a complex word into smaller meaningful units (morphemes):

a. recognizing learners who neither know complex words nor understand the meaning of these words.

b. analyzing morphemes in a word for its root and affixes (task can be demanding when the word is not transparent, when it contains both phonemic and orthographic changes)

c. making a hypothesis of the word meaning according to its morphemes

d. checking the hypothesis in accordance to context

Kieffer and Lesaux (2007) advocate teachers to introduce these steps directly/explicitly and to model them with selected words before letting the learners to practise these strategies independently. Thus, through scaffolding teachers can gradually release the responsibility to the learners.

Third principle is teaching learners the morphemic awareness both explicitly and also in context. Even though distinguishing words into smaller meaningful units is taught as a cognitive strategy, this awareness need to be exposed within an explicit instruction. Learners need to be familiar with three types of language knowledge so that they can use morphology effectively (Kieffer & Lesaux, 2007):

i. affixes. Teachers need to teach affixes in many ways. Learners need to be exposed to high, low and medium-frequency affixes (Table 2.1) for practice and reinforcement purposes.

ii. word transformation. Learners need to be exposed clearly how sound and spelling affects derived words and how to remove a root from a derivational word.

iii. Roots. Learners' ability to remove a root from a derivational word can be a significant strategy to acquire unfamiliar vocabulary only when learners understand the meaning of the particular root. As learners do not recognize all roots, it is best for learners to be taught with well-selected root words and teach them in meaningful contexts (Kieffer & Lesaux, 2007).

These principles of effective vocabulary instruction using morphological awareness strategy have important implications for teachers and learners (Kieffer & Lesaux, 2007).

Table 2.1: Order of Frequency on Most Common Affixes (Prefix and Suffix) (Kieffer & Lesaux, 2007)

Prefix		
Highest order of frequency	High order of frequency	Medium order of frequency
dis- (not, opposite of)	sub- (under)	trans- (across)
un- (not, opposite of)	over- (too much)	anti- (against)
re- (again)	under- (too little)	mid- (middle)
non- (not)	mis- (wrongly)	semi- (half)
in-, im-, ir-, il- (not)	sub- (under)	in-, im- (in or into)
en-, em- (cause to)	inter- (between, among)	super- (above)
	pre- (before)	
Suffix		
-ing (present tense)	-ible, -able (can be done)	-en (made of)
-ed (past tense)	-ly (characteristic of)	-less (without)
-s (plurals)	-ion, -tion (act, process)	-al, -ial (having characteristics of)
	-er, -or (person)	-ic (having characteristics of)
		-y (characterized by)
		-ity, -ty (state of)
		-ness (state of, condition of)
		-ment (action or process)
		-ous, -eous, ious (possessing the qualities of)
		-ive, -ative, itive (adjective form of a noun)
		-ful (full of)

2.19 Morphemic Awareness Teaching and Learning

According to White, Power and White (1989) as well as Nagy et al. (2003), 60 percent of unfamiliar complex word meaning can be deduced based on their morphemic components. Nagy et al. (2003) suggest that learners can apply their through exposure to morphemic awareness. A study by White et al. (1989) showed that learners have more knowledge on inflections such as *-s* and *-ed* but not in derivative suffix (*-able* and *–ment*) and prefix. Hence, they raised the issue of how and when learners are able to acquire knowledge of affixes effectively and able to get the meaning of words across. Similarly, researchers Nagy, Berninger and Abbot (2006) argue that morphemic awareness can significantly contribute to vocabulary, comprehension, and spelling; and they suggest that more comprehensive study ought to be carried out so that the most useful teaching methods for morphology for learners at different levels can be identified. The current situation of morphemic studies shows that there is yet any instruction to teach morphology has gained success. This is because the existing

instructional research differs in many ways such as participants of different grades, types of morphemes taught or measured, instructional period or duration as well as types of evaluation or assessments. Table 2.2 shows the previous morphological awareness studies that used morphemic instruction in their intervention programmes.

Table 2.2: Morphological Awareness Studies Concerning MI (Morphemic Instruction)

Studies	Grade	MI	Time	Result
Bowers & Kirby (2009)	4 5	Base and affixes (*ly, ious, ing, ed, ment, ous, ance, ible*)	20 sessions (30 min. lessons)	Significant effects on words that were directly taught and new words built on bases that were taught in the context of derivations, but not with untaught words.
Baumann, Edwards, Font, Tereshinski, Kameenui, & Olejnik (2002)	5	8 Prefix Families Not = dis, un, im, in Before, After = pre, post Excess = over, super, out Number = mono, bi, semi Again, Remove = re, de Below = sub, under Against = anti, counter Bad = mis, mal	10 hr. (12/50 min. lessons)	Significant effect equally for MO and MC groups to infer meanings of unfamiliar derived words on immediate assessment.Strong immediate and delayed effect for MO and MC on morphemic lesson words.
Bowers & Kirby (2009)	4 5	Base and affixes (*ly, ious, ing, ed, ment, ous, ance, ible*)	20 sessions (30 min. lessons)	Significant effects on words that were directly taught and new words built on bases that were taught in the context of derivations, but not with untaught words.
Talerico (2007)	6	6 Prefix Family 42prefixed words	8 days	Great gain in prefix from morphemic analysis instruction than whole word meaning group
Lee (2011)	3,4 ,5	Inflections and derivational	Not stated	No difference gain in derivational and inflectional morpheme
White, Sowell, & Yanagihara (1989)	3	9 Prefixes (Not Listed) 10 Suffixes *Teacher Instruction	Not stated (14-16 lessons)	Substantially higher scores for MO group on test: root identification, prefix meanings, meanings of derived words. *No statistical tests reported.
Fargo (2008)	10	Words which included morphemes	18 weeks	High gain in vocabulary retention, morphemic decoding
Baumann, Edwards, Boland, Olejnik, & Kameenui (2003)	5	5 Prefix Families Not = dis, un, im, in Before, During, After = pre, mid, post Excess = out, over, super Number = uni, mono, bi, semi Again/Back = re 3 Suffix Families Direction = ward State/Quality of = ship, ness	6 ¼ hr. (25/15 min. lessons)	Significant effect only for MC group to infer meanings of unfamiliar derived words.

Instructional Types: Morphemic Only (MO); Morphemic and Contextual Clues (MC)

Table 2.2 indicates that studies on morphological awareness differ at a great length in (Talerico, 2007):

a. type and duration in terms of instruction

b. choice of assessments (multiple-choice/production tests)

c. test type (standardized/experimenter-constructed tests)

d. inadequate numbers of morphemes as well as multiple forms of morphological items are tested in studies alike

Thus, Baumann et al. (2002) note that these studies offer minimal insight on the type as well as intensity of instructions that can greatly enhance learners' morphological analysis ability. Also, these researchers agree that, the studies offer inadequate details in regards to not only on the experimental designs but also on the methodological and analysis information. Also, based on the variation of the morphemic features that have been exposed in the instruction (i.e. different affixes and roots), no apparent evidence was found on which morphemic elements are most effective to promote learning. Hence, Talerico (2007) claims that as the detailing of these assessments is rather limited, they are deemed not suitable for reproduction purposes.

2.20 Implications of Morphemic Awareness Instruction

Chang, Wagner, Muse and Chow (2005) assert that a strong connection is existed between vocabulary acquisition and learners' knowledge; and that learners can gain at a great length when morphology is taught explicitly. Kieffer and Lesaux (2007) assert that, a teacher's main task is to alert learners on the diverse forms of words such as inflective words where plurals, verb tenses, and comparisons are a part of them. Besides, teachers should acknowledge learners from easy to complicated complex words. Learners should be exposed to complex words where the spelling and the pronunciation of the roots are maintained (i.e. *health-unhealthy*). Then, learners can be directed to complex words that involve in the change of the spelling and the pronunciation of the roots (i.e. *satisfy-dissatisfaction*). Moreover, teachers are recommended to explicitly teach learners root words that are not base words (i.e. *jud - prejudice*). They also suggest that when teaching derivational and inflectional words, learners should be taught with words they are familiar with (preferably high frequency

words or common words compared to low frequency or uncommon words). Finally, morphological instruction should take place constantly throughout elementary and secondary education (Kieffer & Lesaux, 2007).

2.21 Morphological Awareness and Vocabulary Learning

According to Kieffer and Lesaux (2010), learners who are educationally marginalized need vocabulary support but teachers are not able to teach all the words in English language directly. Teachers therefore should provide learners with tools or strategies that can assist learners to acquire vocabulary independently. One such strategy is morphemic awareness or morphological tools.

Morphology is referred to the study of word parts, i.e. morphemes (the smallest units in a word that carry meanings). According to Kieffer and Lesaux (2007), when learners gain the concept of morphemes in word building they have actually acquired a powerful strategy to create and manipulate complex words. Learners will be able to understand unfamiliar and complex words if they can use this strategy (morphemic awareness) to break down these words into smaller meaningful units (Nagy & Anderson, 1984). According to Kieffer and Lesaux, (2007), "understanding morphology may help learners to broaden their vocabulary, and vocabulary growth may improve learners' understanding of morphology." (p. 139). In other words, they suggest that the teaching of morphology contributes to better language acquisition among learners as a whole.

Morphology awareness among learners is important because of certain complexities exist in morphological conventions (Kieffer & Lesaux, 2007). There are three main factors contribute to these difficulties:

a. requiring a change of sound from derivational words to their roots (e.g., *depth-deep*)
b. requiring changes in the spelling (e.g., *courage-courageous*)
c. frequency of the roots (the higher the frequency of a word, the more readily the word is recognized- e.g. *luck- unlucky*)

According to Kieffer and Lesaux, (2007), morphological changes in words that include both orthography and phonemic changes, for example *strong* to *strength*, are extremely difficult for ESL learners. Secondly, low frequency words such as *fury* to *furious* tend to pose difficulties among learners. Learners found it easy to understand words which do not change in spelling such as *grow* to *growth* or *dry* to *dryer*. In other words, there is a need for teachers to explicitly illustrate how some complex words are related to their roots. Even though learners may able to distinguish the relation between *grow-growth* but they still need explicit teaching so that they can see the relationship between *strong-strength*. Kieffer and Lesaux's (2007) study also illustrate that the need to teach the root meaning before they understand the relationship with the derived words.

In conclusion, when learners are aware of morphological skills, they will be successful learners with wide range of vocabulary. Hence, it provides a solid ground for educators to include explicit instruction on morphology in the target language programmes. Likewise, it raises crucial questions on how morphemic awareness should be delivered explicitly to learners in the vocabulary teaching and learning context.

2.22 Morphological Studies in Malaysian ESL Context

Hijjo's (2013) study focused on the morphosyntactic issues among Malaysian secondary schools and discovered three main issues with regards to linguistic errors. First, Malaysian students were found to commit many morphological and syntactical errors in their writing. In terms of morphology, they did not use the plural mark *-s*

properly and they were not able to distinguish *-s* as *3rd singular mark* or *plural mark.* They also added *-s* in both cases; as a plural mark and a 3rd singular mark. The second finding showed that syntactically Malaysian students were not aware of how to build correct phrases or sentences in English. They wrote more than one verb in a phrase or a sentence which does not require more than one. The third finding demonstrated that they were unfamiliar with word order in English and had difficulties in building simple sentences. Hijjo (2013) concluded that all these errors surfaced due to students' lack of English grammar knowledge and also the non-existence of the English grammar rules in the Malay language grammar system. Hijjo also explained that the linguistic knowledge of the students is yet to develop fully. The study suggested that English teachers of all educational levels should focus on these errors by providing instructions, and more exercises and practices as well as giving feedback.

Darus and Subramaniam (2009) studied errors from 72 essays written by Malay students of Form Four. They discovered that singular/plural form (the most), preposition, subject-verb agreement, word choice, verb tense, word order and article (the least) as the six most frequent errors the students made. Their second finding showed that the students' errors also include word form, spelling, capitalization, missing space, verb form, misused words and redundancy. They stated that errors of word forms were resultant of students' misunderstanding of the English morphemic rules. The results of the study showed that errors that participants committed were basically grammar, vocabulary and sentence errors. The study showed that participants' errors were generally grammatical. Darus and Subramaniam concluded that their participants had difficulties acquiring the rules of grammar in the target language and proposed that English teachers must be well-resourced so that they can assist learners to increase their grammar knowledge.

Mat Awal, Abu Bakar, Abdul Hamid and Jalaluddin's (2006) study which was conducted on over three hundred lower secondary school students demonstrated that their greatest weakness was the morphological feature of the English language. These students faced problems with affixes, adverbs, adjectives and plural forms. They found that more than 60% of the errors were mainly morphological. They claimed that these errors could be attributed to the different morphological structures between the Malay language and English. They found learners had difficulties understanding suffix *-ly* for adverbs, superlative form (*-est*) for adjectives and (*-s, -es*) for plurality and reflexive pronouns. They assert that different structural forms from both languages might be the basis for students' misunderstanding. Thus, the study implied that there should be efforts to rectify this problem and one way is to focus on pedagogy such as introducing explicit instruction on morphology. The study also suggested that English learners should be exposed to linguistic knowledge explicitly to better equip them in learning the language.

Looking back two decades ago, two other main studies conducted on the acquisition of morphology and syntax among Malaysian school children proved that morphological errors are universal and the errors made by students were very similar to now. Long (1993) conducted a cross-sectional study on the development of affixes among preschool children. The study hypothesized that children's patterns of acquisition of affixes could be influenced by the adults' use of affixes. The conversations the children had with their parents or caregivers and teachers were analyzed to find the morphological mechanisms. These students abandoned morphemes especially suffixes such *-ed* for past tense and *-s* for plurality. The study stated that preschool children were not able to master the affixes fully at this age and morphological development is considered to be an ongoing developmental process for the preschoolers and would not be completed until a certain age. Another study by

Zainal (1990) found that errors created by Malaysian students in their essays belong largely to morphological errors which exclude grammatical morphemes, for example, *-s and also -es* (in subject-verb agreement) as well as apostrophe *s* (in possessive sentence structure). These morphemes do not exist in Malay thus explained the reasons for the students not using them in their writings. Long's (1993) and Zainal's (1990) studies made a significant contribution to future researchers of morphological development of affixes among preschool children.

According to Razak (2016), from the literature review, Malaysian studies with regards to morphology developmental have been irregular or sporadic. They involved small and varied types of participants as well as diverse nature of research. These studies were found to be well-developed or focused enough to contribute to the development of the target language through morphological features. These studies also provided limited foundation and conclusion that could be used to make generalizations about the overall picture of the morphological research development in the region. Even though Razak (2016) claimed that these studies have significantly increased researchers' understanding of Malaysian learners' English linguistic development, due to limited in depth information and dearth of resources particularly about morphological features, learners and research methods. These created a stumbling block for reference and evoked a dire need to find a remedy for unsuccessful morphology acquisition among Malaysian ESL learners.

2.23 Limitation of the Previous Studies

An extensive current literature establishes the theoretical motivations for the various ways morphemic awareness can help learners (Baumann, Kame'enui, & Ash, 2003; Bowers, Kirby, & Deacon 2010; Francis & Simpson, 2009; Nagy, Carlisle, &

Goodwin, 2014; Reed 2008; Stahl & Nagy, 2006). Most of these studies were not specific to one type of population.

According to Roth (2014), there is hardly a need on more theoretical research motivating morphemic awareness; but the focus needs to shift to practical research, where the literature is less satisfactory. A large body of research, much of it very current, investigates empirically how morphemic awareness interventions affect learners at the primary and tertiary levels (Bowers et al., 2010; Bauman et al., 2003; Reed, 2008; & Nagy et al., 2014).

In studies where researchers looked to learning outcomes beyond the word-level, they saw little evidence that explicit morphemic awareness instruction improves general comprehension for learners at different levels (Baumann et al.2003; Bowers et. al, 2010; Francis & Simpson, 2009; Reed, 2008), though there is evidence that morphemic awareness correlates with reading and vocabulary achievement (Roth, 2014).

If morphemic awareness at the secondary level is explored by future research, explorations should be informed by the more current research on younger learners, but should not mirror it, since the needs or abilities of secondary learners differ from younger and older learners. In particular, even if morphemic awareness enables learners to infer the word meanings, evidence is needed that learners in secondary level can use it in a self-directed way to comprehend longer and more complex texts. Secondly, it is crucial to consider the methodology of the research. Roth (2014) assert that, 'rather than using a single assessment or one that is crafted for one experiment and focused primarily on word-level outcomes, the assessment needs to include a widely accepted test that assesses vocabulary development. Multiple measures are crucial. Third, in any quantitative research, learners need to be randomly assigned to research groups within the same group. If that is not possible, cautious methods must be practiced in the quasi-

experimental studies so that confounding factors (covariates) can be controlled when each group corresponds to a different class. Besides, morphemic awareness interventions should be paired with a learning strategy (Stahl & Nagy, 2006), and should also be compared against a control group or an alternate form of vocabulary instruction. But Roth (2014) cautiously warns that no one form of vocabulary instruction is best. No researcher should aim to prove morphemic awareness strategy is superior to all other vocabulary strategies, but simply to show that it promotes itself as an alternative effective strategy. Finally, Roth proposes another avenue would take a more discipline-specific approach to morphemic analysis strategy. He states that not every morpheme is equally useful for learners. For instance, some prefixes tend to have clearer, more predictable meanings. Second, morphemic awareness instructional strategy works well with more frequent morphemes, and also with morphemes with consistent spelling or different categories of morphemes, such as root words. Thus, Roth (2014) recommends researchers to look for specific disciplines, and perform a corpus analysis of textbooks to identify the most frequent and important vocabulary, and then analyze this vocabulary for common morphemes. 'This would prove especially useful in disciplines where morphemes are still being used fairly productive to create new words (Roth, 2014, p. 4).

With the information given above, Ferguson (2006) and Razak (2016) suggest that a systematic and comprehensive study must be considered when looking into the aspects of teaching morphology explicitly to a specific context and population so that a more valid finding can be retrieved and generalized; and also to be reproduced in the future.

2.24 The Emergence of Morphemic Analysis Instruction

This study presents morphological awareness as a strategy to develop learners' vocabulary through an explicit instructional approach which is called morphemic analysis instruction. This branding of morphemic analysis instruction has its foundation from previous studies that have used explicit instruction to teach morphology but they were not presented with a specific label by their researchers (such as The Effects of Explicit Teaching of Morphemic Analysis on Vocabulary Learning by Ferguson, 2006; Teaching morphemic and contextual analysis to fifth-grade students by Baumann et al., 2002; Guidelines for Instruction in Structural Analysis by Nagy, Osborn, Winsor, & O'Flahavan, 1992). Thus this study took the opportunity to introduce morphemic analysis instruction for educational purposes and future research use that specifically addresses morphology and its influence on learners' vocabulary development. The instruction is based on three foundations, i.e. in Malaysian ESL context, for secondary school students and especially catered but not limited for low proficiency students.

According to Ferguson (2006), an effective vocabulary programme involves students' experiment with words as well as explicit instruction on word meanings and word-learning strategies. This is because Ferguson (2006) proclaims that school students, especially secondary school students, frequently face long and complicated words not only in English subjects but also across curriculum. Therefore, these students require strategies to help them interpret and analyze word parts or morphemes for quick and better comprehension. This interpreting and analyzing word parts or morphemes strategy is called morphemic analysis (Ferguson, 2006). Similarly, Baumann et al. (2002) assert that the skill of unlocking word meanings, by analyzing their morphemes, is called morphemic analysis. Thus, when students are taught morphemic analysis explicitly they are able to analyze roots and affixes (smallest meaningful morphemes)

that exist in a long and complicated word to arrive at the meaning successfully. Research thus demonstrates that morphemic analysis explicit instruction is crucial because learners with robust morphemic abilities are more advantageous than learners who apply the whole word method or in context to decode words (Apel & Lawrence, 2011). This statement is further supported by National Reading Panel (2000) that having the knowledge of morphology provides advantage for struggling learners because they are to apply morphemic analysis skills to recognize the meaning of long complex words that have always been a stumbling block for their successful language comprehension. Thus, the introduction of explicit morphemic analysis instruction leaves learners with an opportunity to apply this skill or as an alternative strategy when they need to understand morphologically difficult words.

2.25 Theoretical Framework

The framework in this research was created based on vocabulary learning strategy for the low proficiency secondary school students in the ESL context. Chamot (1987) asserts that ESL learners are found to rely more on strategy for vocabulary learning compared to other language learning activities. The schema theory, scaffolding and metacognition used in this research were based upon the dependent variable (vocabulary development) and the independent variable (morphemic analysis instruction).

Chamot and Robbins (2005) refer vocabulary learning strategy as specific actions or approach that learners adopt to learn a target language while Oxford and Crookall (1989) describe it as techniques or actions as well as problem-solving or learning skills to enhance language learning. Schmitt (2000) reminds that strategy use can be effective or counterproductive depending on the context it being used. This means that the effectiveness of the learning strategy is highly dependable on certain

aspects including proficiency level, task, text, back ground knowledge, learning context and learners' characteristics. In fact, learners' language proficiency plays a main role to determine the effectiveness of a vocabulary strategy use (Schmitt, 2000). Klapwijk (2015) asserts that **v**ocabulary learning strategy is important for learners to unlock unknown word meanings, to learn new words and also for future recall purposes. Klapwijk (2015), Talerico (2007) and Xu (2003) argue that instruction is essential for learners because learners who undergo instruction for vocabulary acquisition outperform learners who experience implicit vocabulary learning.

Meanwhile, Nation (2001) asserts that in selecting the vocabulary learning strategies as instructions, he suggests teaching three types of strategies to help students deal with words: guessing from context, using mnemonic techniques and using morphemes/word parts. This study focuses on the last strategy that is teaching explicitly word part strategy or morphemic analysis strategy to low proficiency learners in the ESL context. Morphemic analysis strategy is given the focus as the learners in this study deal with morphologically complex word which include inflections, derivatives and compounds.

According to Levelt, Roelofs and Meyer (1999), there are different ways to generate morphologically complex words, depending on the nature of word. The degenerate case, the single-lemma-multiple-morpheme case,the single-concept-multiple-lemma case and the multiple-concept case are used to form inflections, derivatives and compounds. They further assert that the generation of complex morphology involves various levels of processing which depends on the selection based on their schemata. While Klapwijk (2015) argues that comprehension is a process where learners use cues from the words/texts in conjunction with their existing knowledge to make predictions, monitor the predictions and construct meaning, he also asserts that

learners need to be taught explicit cognitive steps to acquire, store and retrieve new information effectively which can be done through scaffolding and metacognition. This is because teaching strategies explicitly enables learners to be competent in the strategy and work towards comprehension independently.

First is the degenerate case (Levelt et al., 1999). Complex words like *replicate* or *reply* have a boundary morpheme between *re-* and *plicate* and *re-* and *ply*. These words are called monomorphemic because they contain just one morpheme the main word element. Monomorphemic words cannot be divided into smaller meaningful morphemic units but only into sound segments. This means the head morpheme of these prefixed words acts only as phonological words. Most learners do not have this knowledge therefore explicit instruction is highly recommended to introduce them to these morphemic word concepts (Xu, 2003).

Second is the single-concept-multiple-lemma case (Levelt et al., 1999). This is where two roots represent one meaning. For example, *look down* is represented by two roots (verb and particle) but the semantic interpretation is not simply the combination of both root meanings because the *look down* meaning does not come from multiple concepts. Thus learners have to have the background knowledge of these types of verb-particle combination for effective word encoding processes or meaning making.

Third is the single-lemma-multiple-morpheme case, where one root/lemma is bound with many morphemes (Levelt et al., 1999). For example the word *resting*, the word *rest* is marked with *-ing* (progressive). This is a regular inflection. For compounds, the root *sun* becomes *sunflower* and also *sunshine*. In derivational, the word *establish* can be marked with re- (*reestablish*) or *-ment* (*establishment*). Levelt et al. (1999) mention that words which are bound to derivational morphemes, form a special case. This is because derivational morpheme changes the syntactic category of

the word. Thus, making learners face difficulties understanding complex derivational words.

Lastly is the multiple-concept case. These are low-frequency words where learners seldom encounter or use them in communication purposes. The words includes unfamiliar forms of morphologically complex such as complex numbers with four digits such as *2, 008* where the *2,000* and *8* become the main lemma. The same goes to unfamiliar compound words like sitcom where learners cannot divide them into *sit* and *com* to arrive at the meaning because they are bound morphology. Therefore, learners need to be exposed to the knowledge of multiple-concept case words so that they are able to determine the word meaning during the process of generating complex words and their meanings.

Thus, Xu (2003) argues that when a new word is encountered other than phonemic and semantic representations, morphological representation is also activated. This morphological information (roots and affixes) can help to decode the meaning of unfamiliar and complicated words (Talerico, 2007). Hosseini (2009) asserts that low proficiency learners need explicit assistance and guidance to facilitate their learning especially when it comes to linguistic matters (Hosseini, 2009). Bellomo (2009) explains that the process of analyzing words into their roots and affixes is important as it ignites or evokes learners' cognitive abilities to quickly identify word families (root words and their affixed words) and their association with meanings with their metacognitive capabilities and enriched schemata.

2.25.1 Schema theory

A vocabulary theory that highly supports vocabulary development is schema theory (Willingham & Price, 2009). Glende (2013) asserts that all students benefit from vocabulary instruction but, it is the struggling learners who make the most gains. This is because they may have little experience to provide background knowledge for effective language acquisition.

According to Willingham and Price (2009), schema theory stresses that learners' background knowledge is essential to support their comprehension. This is because without comprehension, learners' ability to understand the meaning of words is affected. Background knowledge offers opportunities for learners to predict the words or text, focus on the main ideas of the text, infer the implied information as well as recognize the appropriate information needed to understand the word or text (Hwang, 2011).

Samuels (1994) argues that the importance of schema theory to comprehension lies in how the learners use schemata. Samuels (1994) emphasizes internal aspects of attention (to process information) is crucial to comprehension, and defines three characteristics of internal attention. First is alertness. It is the learners' active attempt to access relevant schemata involving not only letter-sound relationships, syntactic knowledge but also word meanings. Second is selectivity. It refers to the learners' ability to attend selectively to only that information which requires processing. Final characteristic is the limited capacity. It refers to the fact that learners' brain has limited cognitive energy for processing information purposes. This means if the learner focuses his cognitive energy on decoding, his attention cannot be directed to other processing activities such as integrating, relating or even combining the words decoded which will lead unsuccessful comprehension. According to Samuels (1994), for successful

comprehension, proficient learners process information with little attention. Samuels also explains that unsuccessful comprehension occurs when learners are not able to access the concept and knowledge which are stored in their schemata quickly and automatically.

Johnson (2006) explicates that learning English language highly concerns with the accumulated information of the language as well as its practices in context. This accumulated information or background knowledge/schemata is the knowledge that a learner has stored in the mind from the experiences that they have been exposed to (Johnson, 2006). Accordingly, Margana (2016) states that learners develop schemata through experience and schemata does not only affect the way information is interpreted but also continue to change as new information is received to facilitate further comprehension. As such Glende (2013) asserts that a proficient learner knows not only words but also their word families and in order to do that they must be able to recognize and understand different forms of the same word, whether they are inflected, derivative or compounded, for example, *kiss* - *kissable, kissed* and *kissing*. This can be accomplished by having the knowledge of morphology with the help of an infinite and accurate schema. This statement is supported by Graves (1987) that learners can easily learn new words (such as morphological words) only if they have the schemata for the concepts (such as inflection, derivative and compound). This is because knowing roots as well as prefixes and suffixes makes way for the words to be more semantically transparent for the learners (Bellomo, 2009).

According to Jolly and Plunkett (2008), young learners start learning words in their original units and then memorize them one by one, without drawing connections between them. However, as they mature, they begin to recognize morphemes and make connections, thus enriching their vocabulary and comprehension. Nevertheless, Jolly

and Plunkett (2008) note that linguistically disadvantaged students may not always be able to decode and make connections successfully, so they need explicit guidance because irregularities in morphology are quite evident in English. Oikonomou, Djurhuus, Egeslund, Pietila and Saidi (2013) mention that English has both steady rules as well as unpredictable irregularities in morphology. These irregularities are often a case of hit-and-miss for linguistically disadvantaged students; for example *pray* is *prayed* and learners assume *buy* is also *buyed* (should be *bought*). Oikonomou et al. (2013) explain that this is the main reason that learners need to be explicitly exposed to rules of morphology so that they can embed this knowledge into their mental lexicon. Oikonomou et al. (2013) further claim that these rules will exist as background knowledge or schemata and can be pulled out when necessary for successful vocabulary acquisition. As Glende (2013) stresses, without explicit instruction, learners with language deficits will further suffer as they progress into secondary and tertiary education.

Gumnior (2008) asserts that monomorphemic or simple words (such as *develop, agree*) can be easily stored in the mental lexicon and memorized. However, complex morphological words (such as *development* and dis*agree*) can be further broken down into their smaller units of morphemes (with distinct meanings) and there is still a doubt that these complex structures are stored as whole units or in a decomposed morphemic format. This is because if it is decomposed format, it will lead to unsuccessful decoding and comprehension because learners may not able to reflect on relations between the morphemic units (affixes) and roots to form meaning automatically (Gumnior, 2008).

2.25.2 Metacognition

According to Kuhn and Dean (2004), metacognition is the "awareness and management of one's own thought" (p. 270) and it includes:

a. knowledge about cognition: knowing the factors that influence personal performance; types of strategies to use for learning and knowing best strategy to use for a specific learning situation
b. regulation of cognition: monitoring one's cognition which includes planning activities and setting goals, controlling learning /have awareness of the given task or and evaluating of the strategy applied

Lai (2011) simply explains that with the knowledge of cognition learners understand about themselves and factors affecting their cognition. Second, they are aware about their knowledge on strategies and third, they have the knowledge on why and when to use the particular strategy. Lai also clarifies that learners are able to plan, monitor and evaluate their learning through regulation. This is because in planning learners identify and select the best strategy to achieve their learning goals. In monitoring, learners activate relevant background knowledge, make connections between new and previously learned knowledge to achieve comprehension. While in evaluating, learners confirm their strategy use or redirect or revisit it when their learning goals were or were not achieved.

Kuhn and Dean (2004) explain that having metacognition is a plus point for learners. This is because first it helps learners to compensate if they experience deficits in schemata during problem solving tasks. Second, metacognition enables learners who have been taught a particular strategy to retrieve and apply that strategy successfully in a similar but new context. Third, metacognition contributes to the development of instructional practices to support learners' language development (Kuhn & Dean, 2004).

On the other side, Lai (2011) mentions that metacognition supports metamemory as well as critical thinking. In metamemory, learners have the knowledge when to use a particular strategy. With critical thinking, learners are able to analyze arguments, make

inferences and judge a strategy before coming to decision to solve learning problems. Thus with metacognition learners are motivated and further strive and be persistent to face challenging tasks (Lai, 2011). This means when leaners have metacognition, they become better strategy users because they are able to activate their schemata, select the best strategy to work on the given task and motivate themselves be independent learners.

Anderson (2003) and Rasekh et al. (2003) argue that in general, proficient language learners use metacognitive abilities compared to the less ones. However, according to Oxford (1993) metacognitive abilities can also be trained to less successful language learners. Baker (2002) mentions although less successful language learners do not possess metacognitive abilities, their comprehension can be enhanced through explicit instruction. Similarly, Alhaqbani and Riazi (2012) stressed that metacognitive awareness can foster learners' reading comprehension significantly. They further mention that less proficient learners can enhance their reading skills through scaffolding and training with regard to the strategies employed by proficient learners.

Sheorey and Mokhtari (2001) assert that educators need to embrace the concept of metacognition so that they can understand better how this strategy can help learners to be a skilled learner. This is because a skilled learner uses strategies well when comes to comprehending words or texts (Anderson, 1991; Grabe, 2004). Anderson (1991) reported that successful and less successful learners use similar strategies, but it was only when learners use the strategies well and persistently they can become proficient. A proficient learner uses metacognitive strategies according to the textual demands (Alhaqbani & Riazi, 2012). Metacognitive strategies include the knowledge to process new and complex words and the skill to monitor and regulate strategies as required to comprehend the tasks (Alhaqbani & Riazi, 2012). Thus, Mokhtari and Sheorey (2001),

assert that once learners have acquired the awareness of metacognition, they will become skilled learners.

2.25.3 Scaffolding

Klapwijk (2012) argues that comprehension is increased at a great length when explicit instruction is provided to the learners. This is because when learners are taught explicitly to use strategies to understand words and texts, their comprehension increases twofold compared to implicitly introduced strategies (Pressley, 2000). Klapwijk (2012) explains that since meaning does not exist in the text, the learner has to make meaning of it and learners need to be exposed to strategies explicitly through instruction for maximum comprehension. This instructional strategy is utmost crucial for second language and low proficiency learners (Stahl, 2004). According to Klapwijk (2012), there are many benefits of strategy instruction:

i. increases comprehension
ii. regulation and self-control while learning
iii. increases metacognition
iv. increases decoding skills

Thus, Klapwijk (2012) strongly advocates teachers to introduce strategies (such as morphemic analysis strategy in this study) in the form explicit instruction so that learners are able to think about the process of meaning making when they encounter difficult words or texts. This in turn enhances their vocabulary as well as language acquisition.

Similarly, Harris (2011) argues that, ESL learners need direct instruction on strategies because there are large amounts of prefixes and suffixes to be acquired, unlimited complex words to learn and limited time to train struggling learners on the formation of morphologically complex words. Thus giving explicit instruction on

morphemic analysis can be a strategy to overcome these problems and at the same time develop learners' comprehension.

According to Carr and Wixson (1986), vocabulary instruction includes:

i. helping learners relate new vocabulary to their background knowledge
ii. helping learners develop elaborate word knowledge
iii. involving learners actively in learning new vocabulary
iv. develop learners' strategies for acquiring new vocabulary independently

According to Rastle and Davis (2003), there are many ways morphologically complex words are formed and explicit instruction on morphology helps learners to grasp the rules or conditions of word formation efficiently. First is the condition where words comprised of more morphemes are represented in a decomposed manner. They are represented in two ways:

a.semantically transparent complex word. Semantically transparent complex words consist of root and affixes. The meaning of a word can be derived from its morphemic units (e.g. meaning of *shooter* can be decoded from = *shoot* + *er*).

b. complex word which is semantically opaque. Semantically opaque complex word is words where their meanings cannot be derived from their morphemic units (for example, *witness* cannot be broken down into *wit* + *ness* to get its meaning). Thus, when learners do not have sufficient experience with opaque representations their comprehension skills are affected.

Second is word recognition system (Rastle & Davis, 2003). Morphological complex words are highly influenced by its orthography or the distribution of letter patterns. Sets of letters correspond greatly to morphemes (prefix, suffix and root) where they occur and reoccur in combination. For instance, the set of letters of the root *clear* occurs and reoccurs with its distinct affixes (e.g., *unclear*, *clearer*, *clearly*). Similarly, other groups of letters also can occur and reoccur using the same affixes (*untidy-*, *slowly*, *sharpness*,

cleaner). Thus, it is important to understand that segmentation of morphemic elements is essential in word recognition system.

Third is decoding low-frequency and long complex words where learners need to break into morphemes or word parts for quick comprehension. This can be an intimidating task for low proficiency learners because they do not possess the skill to parse and analyze morphemes to construct meaning.

For the reasons mentioned above, learners should be taught strategies explicitly which can assist them to decode long and complicated words accurately and efficiently. Exposing learners to a strategy to parse long and complicated words though morphological units is called morphemic analysis. While giving them direct instruction on how to use the strategy effectively and efficiently is morphemic analysis instruction.

In conjunction with explicit instruction on strategies teachers can lay the groundwork to reinforce the instruction through scaffolding (Walqui & van Lier, 2010). Scaffolding refers to "adults or more capable person helping and supporting children's attempts to achieve a task/goal that they would not be able to attain alone" (Christ & Wang, 2008, p. 198). Similarly, Graves, Watts and Graves (1994) illustrate scaffolding as "a temporary supportive structure that teachers create to assist a student or a group of students to accomplish a task that they could not complete alone" (p. 44).

Walqui and van Lier (2010) deem that scaffolding is a crucial element for a successful instruction and plays a major role in language acquisition especially in the second language context. Kim (2010) states that learners can successfully comprehend and acquire the target language when they have teachers who provide assistance based on their pre-existing cognitive and linguistic capabilities. This is important because learners in the second language context are in dire need of support when learning new

knowledge and skills in a meaningful learning context and this can be done through scaffolding (Kim, 2010).

Applebee and Langer (1983) describe scaffolding as crucial for formal explicit instruction. They claim that through scaffolding learners are given assistance by a more skilled person when a new strategy or task is introduced. The more skilled person such as a teacher provides scaffolding by extending or elaborating the knowledge the learners already possess. And as the learners' competence and comprehension improve, the scaffolding is progressively reduced until the learners able to work independently. According to Applebee and Langer (1983), four criteria are essential for effective scaffolding:

i. Students own the learning. The instructional task allows learners to work on their own as the activities evolve
ii. Instructional task relevance. Tasks are built upon both the knowledge and skills the learners already own and at the same time challenging enough to allow new learning to occur.
iii. Structured learning environment. Presenting learners with suitable strategies to approach the task.
iv. Transfer of control. As learners internalize new knowledge, they should take greater responsibility to control the progress to become more competent.

In the same line, Hammond (2001) notes that scaffolding offers four key features for effective instruction:

i. by building the field (teachers set activities that give focus on relevant language and curriculum knowledge)
ii. by modelling (teachers introduce a strategy and guide learners through demonstrations)

iii. by joint construction (teachers co-construct with learners through joint participation, however they withdraw their support gradually)

iv. by independent construction (teachers withdraw support and learners work on the strategy independently).

According to Hammond (2001), these four features help learners to narrow the information gap between known (schemata) and unknown. Through scaffolding teachers assist learners to master a task which they were not capable of doing it independently at the initial stage. The scaffolding is then slowly detached when the learners are seen to master the task. With the knowledge gained learners will be able to complete the task again autonomously. In short, the need to implement a scaffold occurs when students are in need of a support when they are introduced with a new task or not able to understand a particular concept; such as in this study where low proficiency learners are provided with scaffolding during morphemic analysis instruction in order to improve vocabulary.

The learning theory and mental processes discussed in this research fall into three categories as described in the conceptual model in Figure 2.1 of this study:

a. analysis instruction as independent variable

b. scaffolding and metacognition as moderators

c. vocabulary development as the dependent variable

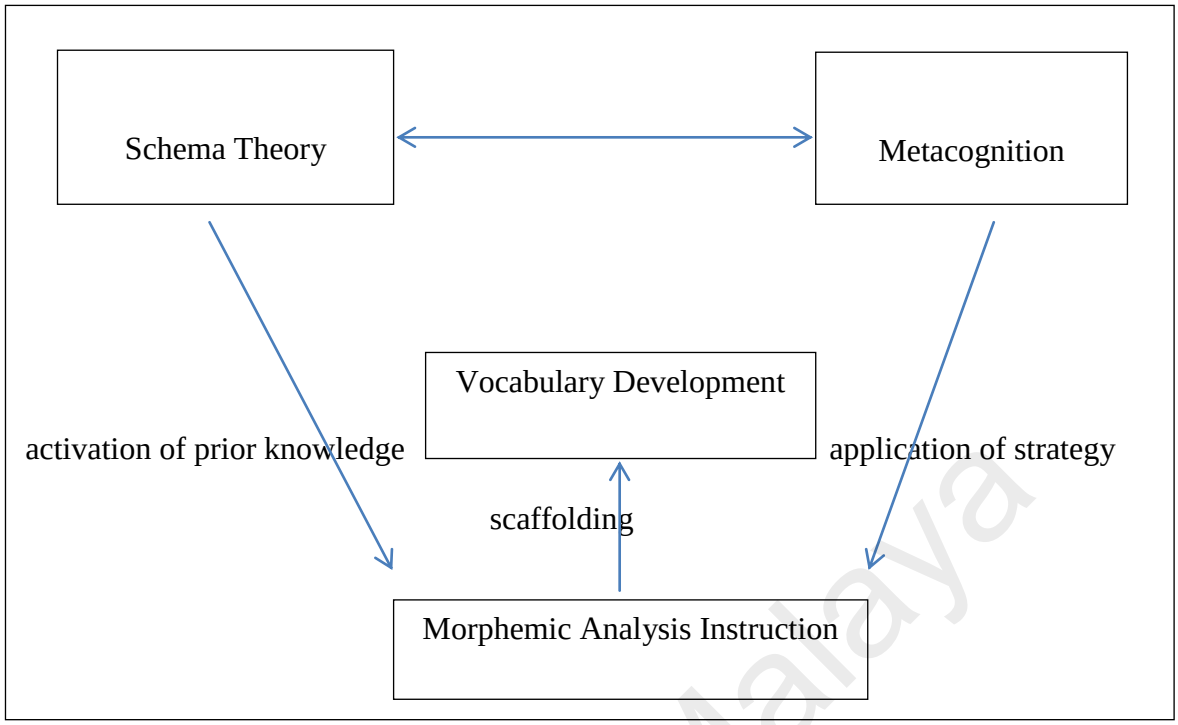

Figure 2.1: The Conceptual Framework

The proposed research model shown in Figure 2.1 shows the direction of this research. The framework and its elements are best applied as follows.

A key point before giving the morphemic analysis instruction is determining the current state of background knowledge of the students. The teacher focuses on the learners' use of schemata. During this process, teacher aims to elicit as much information about their prior knowledge on morphemes and word meanings as possible from the learners. Also the teacher encourages the students to actively construct links between the previously known information and new information about morphological patterns and word formation. This is because being active and familiar of this process results in better memory about the formation of morphologically complex words among the learners.

Scaffolding is presented during the explicit instruction on morphemic analysis strategy. Explicit instruction provides a series of instructional scaffolds through presentation of logical selection and content sequence as well as braking down the

content into manageable instructional units based on learners' schemata. When learners are supported by scaffolds they get guidance throughout the teaching and learning process. First, learners are exposed to the objective and rationale for learning the new knowledge and strategy clearly. Second, learners are exposed to clear explanations as well as demonstrations of the instructional target (acquiring the knowledge of inflections, derivatives and compounds to develop vocabulary). Finally learners are provided with practice and feedback until mastery is achieved; and when learners start to demonstrate mastery scaffolding is systematically reduced and withdrawn.

On the other hand, when learners have metacognition, they have greater awareness of how they acquire knowledge. They also learn to regulate their behaviour to optimize learning. The learners are able to see how their strengths and weaknesses affect how they perform. However, linguistically disadvantaged learners, such as the participants of this study, may not able to gain awareness on their own, thus when the teacher nurture their abilities to reflect on, monitor, and evaluate their learning strategies, they become more self-reliant, flexible, and productive. This means that if learners are made aware of their own learning strategies, they are able to monitor not only their cognitive but also their linguistic processes to improve their own learning. As Anderson (2002) states, learners who have metacognition possess the advantage of understanding their own role in learning. This is because they are aware of different ways of approaching their learning goals. This is to say that when students have difficulty understanding, they can recognize their difficulties and rectify them.

Finally, with explicit instruction word learning and comprehension can be increased significantly (Paris & Hamilton, 2009). This is because when learners are taught to use strategies explicitly (such as morphemic analysis strategy in this study) their ability to understand complex words and comprehend text increases. This is

because as Pressley (2000) mentions, meaning does not exist in text but must be constructed from the words in the text thus explicit teaching of how to use the strategies is crucial.

Therefore, in the framework of this study, it is important to note that vocabulary is vital for comprehension. Learners must be engaged in learning new words and expanding their understanding of words through explicit instruction that is based on not only on based on prior knowledge but also active processing skills where scaffolding, schemata and metacognition play major roles. Learners need a platform where they can integrate new knowledge into their existing knowledge with systematic guidance (well-planned instructional strategies) in order to develop their vocabulary and increase their ability to comprehend text.

2.26 The CALLA (Cognitive Academic Language Learning Approach) Model

Marimuthu, Muthusamy and Veeraaghu (2011) assert that Malaysian ESL learners generally perform less satisfactorily in English language because of their poor foundation in the language. They further stressed that learners do not possess learning strategies appropriate for their proficiency to learn the language, and they claimed that these learners need training in this area. Nunan (1991) argues that the teaching of learning strategies need to be explicit because the main objective of any instruction is to promote learners' awareness of strategies so that learning goals can be accomplished. Therefore, Chamot and Robbins (2005) recommend the CALLA model to be employed in EFL as well as ESL settings because it is deemed practical for language classrooms.

The CALLA model, designed by Chamot and O'Malley (1994), provides clear instructions for learners in learning the target language. CALLA incorporates explicit instruction, content area instruction and language development to learn strategies. As

mentioned by (Moughamian, et. al, 2009), CALLA is based on the premise that learners require direct training for language and ultimately educational achievement. Chamot (1995) describes CALLA as an instructional model that fosters learners' achievement in the second language setting. CALLA is a design that was constructed to develop language skills necessary for learners in accordance to their grade level and also for those who needs support to transfer concept and skills to learn the language (Chamot, 1995).

CALLA builds on cognitive learning theory where the emphasis is on the direct teaching of not only metacognitive strategies but also cognitive and social ones. CALLA aimed at producing learners who can become successful through training and then gain autonomous in learning. CALLA views learners as active recipients mentally during teaching and learning process (Chamot, 1995). Learners who are mentally active refers to learners who can apply prior knowledge to new information, use higher-order thinking skills and control own learning to acquire the target language. CALLA model recommends that teachers can exploit teaching through mental activities so that learners can learn problem solving, reflect own learning and develop strategic approaches to learning.

Vygotsky (1978) mentions that the concepts of ZPD and scaffolding are crucial for cognitive enhancement because learners are considered as active recipients in their mental development (Guterman, 2003) and they can become autonomous learners (Marimuthu et al., 2011). CALLA supports ZPD and scaffolding because according to Moughamian et.al (2009) learners can experience numerous opportunities to use language when they communicate with peers and adults. Marimuthu et al. (2011) further assert that learners employ:

1. metacognitive strategy of planing, monitoring, and evaluating so that they can reflect their own thinking as well as learning process
2. cognitive strategy like drawing inferences and activation of prior knowledge
3. social strategies such as interacting with teachers and/ or peers to interact and learn

Marimuthu et al. (2011) argue that CALLA promotes learner-centered instruction where in the initial stage only teachers provide guidance/scaffolding to learners and provide opportunities to them to enhance their language proficiency. Then, teachers gradually lessen guidance so that learners can develop autonomous learning in their own time.

CALLA method instruction involves five stages of recursive series to teach, practise, evaluate and apply learning strategies. In CALLA, learning becomes active and dynamic where learners take control of their own learning and become autonomous learners. In other words, explicit instruction is progressively diminished so that learners are able to seize responsibility to select and apply appropriate learning strategy as stipulated in the CALLA model (Table 2.3).

Table 2.3: CALLA Model (Chamot & O'Malley, 1994)

i) Preparing and planning for learning	Learners think about their goals and how to accomplish them successfully. Learners determine an achievable goal in a particular time frame. Learners' motivation to learn is increased when there is an achievable, clear, and challenging goal because learners can consciously monitor their own progress.
ii) Selecting and using learning strategies	Learners consciously think and decide on their own learning processes. Learners are given instruction on when and how to use a particular learning strategy. Learners are guided in choosing the most appropriate method or strategy relevant to the situation given.
iii) Monitoring strategy use	Learners stand more chances to achieve their goals when they are able to examine and monitor their use of learning strategies. Learners are given clear instruction that when they select and use a certain strategy they have to check continuously whether the strategy is fruitful /effective or not in the given situation.
iv) Orchestrating various strategies	A successful learner will choose a strategy that can fit and work well with the demand of the required language task. This learner is able to explain and clarify the use of the particular strategy and how it works in the given situation.
v) Evaluating strategy use.	This is the stage that the learners evaluate the entire process of their actions (to plan, select, use, monitor and orchestrate of a particular strategy) in achieving their goal.

The reason behind choosing the CALLA model relies on the statement acknowledged by Anderson (2002), that there are two methods present in teaching a learning strategy: explicit and implicit. Through explicit instruction learners explicitly are exposed to the purpose and value of the particular learning strategy while implicit learning focuses on the learning strategy which is embedded in the task or assignment materials. Furthermore, the implicit learning strategies are not directly defined to learners as a strategy instruction (Anderson, 2002). Anderson made a conclusion that explicit strategies are more effective for learners compared to implicit ones. Explicit instruction also assists learners in selecting and applying appropriate learning strategies (Anderson, 2002).

For a better illustration, the CALLA training of explicit instruction strategy includes five steps which are explained vividly below:

a. Preparation: In this phase, the teacher gives explanation on the significance of a learning strategy. The strategy is then exposed to the learners. Teacher helps and guides

learners to set a specific goal so that they can master vocabulary from the textbook within a stipulated time. Learners plan their time accordingly to complete the task.

b. Presentation: In this phase, the teacher models the strategy. The characteristics, effectiveness and the application of the strategy are explained explicitly by the teacher. The teacher provides illustrations and examples using tasks and activities related to learners' unfamiliar vocabulary. Learners are given explicit instruction on how to apply the particular strategy. Learners are also taught how to use the strategy when they encounter unfamiliar words in their reading texts. Most importantly, learners are informed that the particular strategy is not *one size fit all size concept*, where morphemic analysis strategy may not applicable in all words.

c. Practice. In this phase, learners get the opportunities to practise the strategy in the learning setting. Learners consciously use the strategy on the task assigned. They learn using the strategy of morphemic analysis strategy to decipher unfamiliar and complex words.

d. Evaluation: In this phase, learners assess their own achievement using the particular strategy. Learners can use self-evaluation insights such as self-questioning, and peer or group discussions after strategy practice.

e. Expansion: In this final phase, learners apply the strategy to new contexts. Learners are also encouraged to use the strategy on other domains of language learning besides vocabulary learning.

Cottrell (1992) mentions, "a skilled learner uses strategies, and with practice the strategies become nearly automatic" (p. 22). Sheory and Mokhtari (2001) strongly believe that when there is a combination of conscious awareness and the actual utilization of the strategy, a learner can become a skilled reader.

Kieffer and Lesaux (2007) strongly suggest that learners need training to apply morphology explicitly in a cognitive approach; and educators should introduce morphemic items in a rich and explicit word instruction context, both directly and indirectly. Accordingly, the researcher found that the CALLA model best fits such a suggestion.

2.27 Summary of the Chapter

Chapter 2 is reviewed in three sections. The first section described vocabulary with its historical background of vocabulary instruction. The second section scrutinized morphemic awareness elements in detail and addressed the link between morphemic awareness and vocabulary learning. The third section highlighted the conceptual background of the current study so that the effect of morphemic awareness strategy on the secondary school learners' vocabulary development can be determined. The subsequent chapter clarifies on the methodological parts employed in the current research.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The current study evaluates the effectiveness of three types of morphemic knowledge on vocabulary development among ESL learners. This study investigates whether learning compounding morphemic knowledge, inflectional morphemic knowledge and derivational morphemic knowledge has large effect on low proficiency secondary school learners' vocabulary development in the ESL context.

The aim of this study is to get a clear picture of how learners' vocabulary can be developed through morphemic analysis awareness instruction. In particular, this study attempts to examine whether instruction in compounding, inflectional and derivational morphemic analysis can help to maximize the acquisition of vocabulary among low proficiency learners at secondary level in ESL context. The researcher assumes that the three types of morphemic knowledge would produce a significant effect on the learners' vocabulary development. The outcome of this study is crucial because differences exist among previous researchers regarding MAI. Oz (2014) made a claim that "there appears to be little doubt that teaching morphological awareness has a highly beneficial effect on the language development of learners" (p. 105). This statement is in contrast with Singson, Mahony and Mann (2000) as well as Kuo and Anderson (2006) who argued that morphological awareness is closely correlated with vocabulary development and comprehension. As such, the findings of this study will be able to further validate or reject the school of thoughts stated above. The findings of this study would also be an added yardstick or measure to demonstrate whether the learners who are given explicit instruction on morphemic units (compounding, inflectional and derivational morphemes) can develop or improve their vocabulary; which in turn can improve their English language acquisition.

Hence, this chapter presents a restatement of certain research items namely the research questions and their hypotheses; then the research design and method are presented. The current study is carried out in three main phases. In phase 1, the research location, subjects and sampling are explicated. Phase 2 explains the intervention and data gathering that include treatment, target structures, lesson plan, design of the tasks, instruments together with the justifications, instructional procedures, a pilot study, validity and reliability, research procedures and administrations of the measures. Meanwhile, phase 3 describes data collection and analysis procedures of the study; and finally, summary of the chapter is presented.

3.2 Research Questions and Hypothesis

The current study investigated the subsequent research questions:

1. Is there a significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge?

2. Is there a significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge?

3. Is there a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge?

4. Does the level of learner's vocabulary development differ by Morphemic Analysis Instruction approach?

a. Is there a significant effect of compounding morpheme instruction on learners' vocabulary development?

b. Is there a significant effect of inflectional morpheme instruction on learners' vocabulary development?

c. Is there a significant effect of derivational morpheme instruction on learners' vocabulary development?

d. Is there a significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development?

e. Is there a significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development?

f. Is there a significant difference of derivational morphemes morpheme instruction and compounding morpheme instruction on learners' vocabulary development?

Based on the research questions mentioned above, the following null hypotheses were created:

1. There is no effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge.

2. There is no effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge.

3. There is no significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge.

4. Does the level of learner's vocabulary development differ by Morphemic Instruction approach?

a. There is no significant effect of compounding morpheme instruction on learners' vocabulary development.

b. There is no significant effect of inflectional morpheme instruction on learners' vocabulary development.

c. There is no significant effect of derivational morpheme instruction on learners' vocabulary development.

d. There is no significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development.

e. There is no significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development.

f. There is no significant difference of derivational morpheme instruction and compounding morpheme instruction on learners' vocabulary development.

3.3 Research Design and Method

The study evaluates the effectiveness of an intervention programme for different groups of participants and therefore a quantitative design best served this purpose (Creswell, 2009). The design of this current study aimed to demonstrate causality between three types of morphemic analysis instruction namely, compounding morphemic instruction, inflectional morphemic instruction and derivational morphemic instruction and an outcome (vocabulary development among ESL secondary school learners). Creswell (2009) states that a quantitative method is considered to be apt when:

i. factors that influence the impact need to be identified
ii. an intervention needs to be utilized
iii. the best predictors of the impact need to be understood

The research design was a pretest-treatment-posttest quasi-experimental design which consisted of three experimental groups and a control group. According to Higgins, Altman and Sterne (2011), quasi-experimental research is a non-randomized intervention study which attempts to control the effect of an intervention. This is done by comparing a comparison group to a treatment group without any random assignments. This quasi-experimental research is inclusive of non-equivalent groups and pretest as well as posttest. The three experimental groups and one control group are the non-equivalent group. The participants of the study were not randomly chosen (non-randomization), but assigned to the experimental or control conditions in their existing

groups (intact group). The participants represented the same level of proficiency; it was crucial as to control the threats of the confounding variables that could affect the findings of the study. On the pretest and posttest approach, Fitz-Gibbon and Morris (1987, p. 57) mention that " the power of the test represents the probability of detecting differences between the groups being compared when differences exist; and experimental designs provide the most reliable information on the effectiveness of a given intervention."

One-way analysis of covariance was employed so that the differences between the groups can be controlled based on the scores of the pretest.

> "ANCOVA runs a way of statistically controlling the (linear) effect of variables, one does not want to examine in the study. These extraneous variables are called covariates or control variables. ANCOVA allows you to remove covariates from the list of possible explanations of variance in the dependent variable by using statistical techniques rather than direct experimental methods. With one-way ANCOVA, each individual or case must have scores on three variables: independent variable, a covariate, and a dependent variable" (Pallant, 2010, p. 290).

This quasi-experimental design had three key elements: a treatment group, a control group, and they were created without random assignment. The reason for non-randomization assignment was due to the disapproval from the institution management. The principal did not allow the students to be randomly assigned to different classes.

The dependent variable was the vocabulary and the independent variables were the three types of morphemes (i.e. inflections, derivatives and compounding). Quasi-experimental research designs examine the effect of an independent variable that is manipulated by the researcher on a dependent variable. To manipulate the independent variable, participants are placed in groups: a treatment group that receives the treatment and a control group that is identical to the treatment group except that they do not receive the treatment. Then these two groups are compared on the dependent variable

Then these two groups are compared on the dependent variable. As random assignment was not applicable in this study, there was a much greater potential for having extraneous variables influence on the dependent variable. Thus, to control for extraneous factors, both pretest and posttest were used for the dependent variables in this study. The purpose of the pretest was to identify any differences between the two groups at the start of the experiment. Then, the ANCOVA statistic was used to statistically control for the pretest scores.

This quasi-experimental study had three main components; it included a control group as well as a treatment group and excluded the random assignment. The reason for non-randomization assignment was due to the disapproval from the institution management. The principal did not agree to let the students to be assigned randomly in different classes. Thus, purposive sampling was applied where the existing intact classrooms had to be used. Singleton and Straits (2010) state that quasi-experimental research uses an intact group, like a particular classroom, to indicate how the participants are chosen from a population to participate in a research and were placed in the groups. According to Singleton and Straits (2010) too, researchers through purposive samplings use their expert judgement to choose participants to represent the population. Thus, the researchers ought to think the aspects that can affect the population such as intelligence, access to education, etc. This is important so that the researcher can purposefully select a sample that adequately represents the target population on these variables. The purpose of the pretest is to find differences among two groups at the beginning of the experiment. Then, Analysis of Covariance (ANCOVA) was applied to statistically control for the pretest scores. The procedure of the current study was as shown below (Figure 3.1).

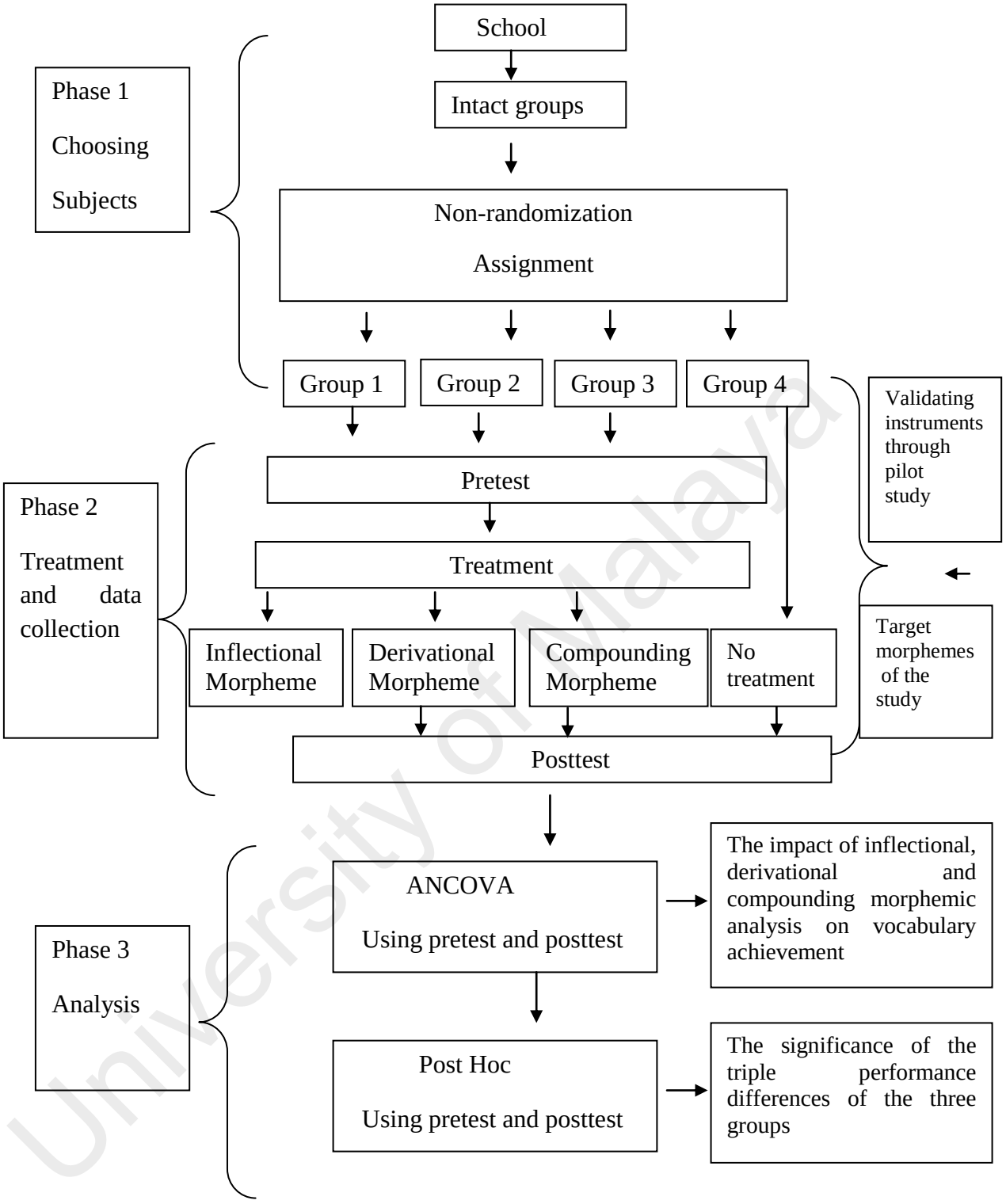

Figure 3.1: The research procedure of the study

3.3.1 Phase 1: Choosing the Sample

3.3.1.1 Research Setting

The current study was performed at an urban secondary school in the city of Kuala Lumpur, Malaysia. This institution was particularly selected based on the prior information collected by the researcher that many of its learners have limited English language proficiency. This finding was based on their school summative and formative assessments as well as public examinations namely, PMR (Lower Certificate of Examination), SPM (Malaysian Certificate of Examination) and STPM (Malaysian Higher School Certificate) results. These learners exhibit low performance in English language even though they receive a total of 200 minutes of English language instruction per week (5 times x 40 minutes per lesson). The institution also carried out ninth period specifically for English language, three days per week to support learning the language. However, according to Ismail (1994), 200-300 minutes a week for English is not sufficient for learners to be proficient in the target language.

3.3.1.2 Research Participants

Based on the aim and the research design of the current study, ESL upper secondary school learners were selected as the participants of the current study. The learners in this institution were distributed in their respective groups or classes in accordance to their proficiency level. In fact, the learners in this study were positioned in their classes based on their low achievement not only in English language but also in Malay, Mathematics and Science subjects in the previous public examination, PMR (lower secondary assessment examination).

147 Form 4 students, 16 of age, from four existing classes (intact groups) of an institution participated in the research. The intact groups were assigned following a non-

randomization procedure. Purposive sampling was applied to select the participants because they were chosen in a non-randomization technique and they possessed common characteristics (upper secondary school learners, aged 16, low proficiency but had basic comprehension skills). According Dolores and Tongco (2007), this method is appropriate as long as the needed information is obtained. This technique also ensures the perspectives of participants likely to affect the issues included in the study (Baumann et al, 2003).

The participants were also particularly chosen based on three grounds. Firstly, these learners can basically read (basic reading skills). Secondly, morphologically complex words are in abundance in their texts. According to Ebbers (2008), secondary school texts are found to have a lot of long complex words. Finally, learners of low proficiency are able to utilize morphemic knowledge to decode complex word meanings (Singson et al, 2000; Carlisle & Stone, 2005; Ferguson, 2006).

In order to control for the effect of the non-randomization design of the study, the researchers had taken precautionary steps to control for the effective outcomes of the study. First, the proficiency of the students was confirmed. The participants of the current study were found to obtain a credit at most in their English Language paper in the PMR (lower secondary public examination). To make further confirmation of the participants' proficiency, the researcher looked into their English language performance in the classroom formative tests and language exercises. Second, the participants' behaviours were also observed during the teaching and learning session; they lacked attitude, motivation and determination. In their respective classrooms, these learners needed extra personal attention, took much longer time to complete a task and they usually delayed or did not submit homework assignments. Third, the researcher also had a meeting with the participants' class teachers to discuss their (the participants) ability

in English language and attitude towards the language. Thus, after analyzing the various forms of data collection of the learners, the researcher determined that the participants assigned for the study are of a low proficiency level especially where language is concerned. According to Ismail (1994), there are only a handful of learners who are proficient in English while the less proficient ones form the majority. The latter have lesser exposure to English except during the English lessons. Their attitudes are largely determined by the language learning situation and by examination priorities. These learners were found to disregard English as it does not have any impact on their examination results; and focus more on other subjects that are necessarily important to pass for their certification purposes.

Similarly, Singleton and Straits (2010) assert that in experimental designs, when many participants involved during the treatment, the quality that the participants receive may drop, which can result in incorrect assumptions. This is because too many students in a classroom lessen the effect of the instruction; in which overpopulation in the class make the teaching not effective. Therefore, smaller treatment groups are generally preferable; for a quasi-experimental design a minimum of 15 participants is required (Singleton & Straits, 2010).

Of the whole sample, seven participants were disqualified from the research since three of them did not partake in the treatment session for at least once while four did not take part in the posttest. Finally, 140 participants involved in this research. Table 3.1 below illustrates the final breakdown of learners in each group.

Table 3.1: Sample of the Study

Subject Total N= 140	Group 1 N= 34	Group 2 N= 36	Group 3 N=35	Group 4 N= 35

The sample comprised of males and females and they were of low proficiency level. The number of participants in each group was believed to be appropriate as Fraenkel and Wallen (2009) suggest that thirty participants (in minimum) are considered suffice for experimental study purposes.

Hence, four intact classrooms, with participants ranging from 34-36 students in each class, were randomly selected as samples (one control group and three experimental groups using a non-randomization technique) (Figure 3.2). Classroom 1 as treatment Group 1, Classroom 2 as treatment Group 2, Classroom 3 as treatment Group 3 and Classroom 4 as treatment as the Control Group. Also, Monday, Tuesday and Wednesday classes were randomly assigned for the Group 1, 2, and 3 respectively whereas Thursday class was assigned to the control group. Likewise, the treatment Group 1, 2 and 3 were randomly selected to receive morphemic analysis instruction on the inflectional, derivational and compounding morphemes respectively. The control group does not receive the treatment; they received implicit instruction on morphemes.

Both the treatment and control groups received 40 minutes of instruction each day for seven weeks to control for instructional time and both groups were given instruction by the same teacher to control for intervention effectiveness. Forty minutes of instruction was determined after the discussion with the school management, head of the English language and the master teacher. Figure 3.2 represents the assignment of the four intact classes into experimental and control groups.

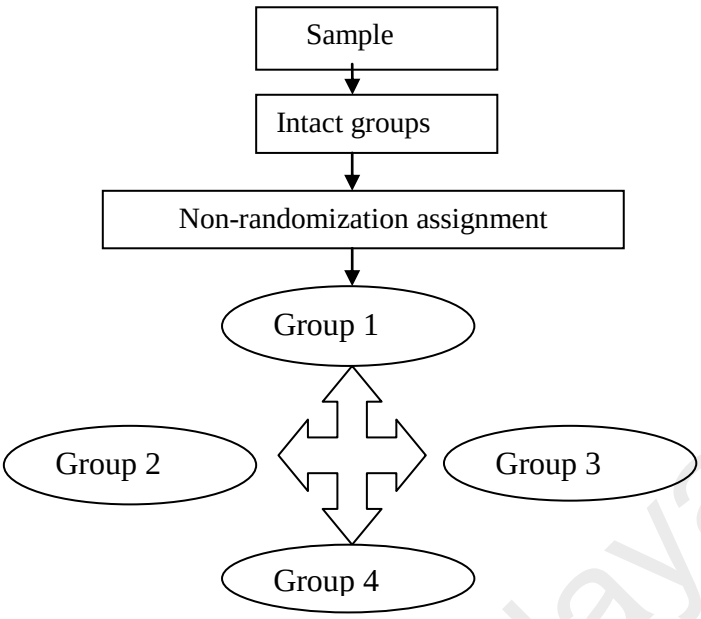

Figure 3.2: Assignment of the four intact classes into experimental group and control group

3.3.1.3 Learning Outcomes and Specifications for the English Language Syllabus

The English Language Syllabus in this establishment was based on the Curriculum Specifications for English Form 4 (upper secondary). The document is a guide for teachers so that they know what skills to achieve, which themes or topics to deal with and which grammatical, vocabulary items and sound system to focus through the communicative approach. In fact, learners ought to be given opportunities to get involved in real/authentic activities so that they can use the target language effectively. Curriculum specifications for English Form 4 (2003) recommend lessons to be based on activities (activity-based) and the focus should be given on real-life tasks to maintain relevance.

The learning outcomes in the Curriculum Specifications for English Form 4 (2003) represent the language skills to be accomplished before learners end their Form 5 studies. Nevertheless, teachers should refer to the specifications mentioned above when they plan lessons for their classrooms. The learning outcomes define the skills that are

specially designed for the Form 4 students. Table 3.2 shows the learning outcomes and specifications of Form 4.

Table 3.2: Learning outcomes and Specifications of Form 4
(Curriculum Specifications for English Form 4, 2003)

Learning Outcomes	**Specifications**
2.0 Language for Informational Use 2.1 Obtain information for different purposes	B. Processing texts read by: x. Acquiring the meaning of words by: Understanding word formation through the use of prefixes and suffixes.

According to the specification mentioned in Form 4, words should be taken from the list mentioned in the syllabus and they are to be exposed within the three main areas of language use, namely the Informational, Interpersonal and the Aesthetic. These three components incorporate LSRW skills (listening/speaking/reading/writing).Additionally, a list of sentence patterns are given so that learners able to master the target language structures. Teachers are reminded to be selective on the structures so that learners can master the structures effectively. Curriculum Specifications for English Form 4 (2003) advocates that it can counter-productive when weak students are given too many structures that are complex in nature.

Moreover, the word list chosen for the instructional purposes in this study is based on high frequency and most common words. Nevertheless, the word list suggested is considered as the minimum for the particular year. Teachers are highly encouraged to add on the list of words if their learners are capable to handle or cope with the more complex words and advanced vocabulary (Curriculum Specifications for English Form 4, 2003).

3.3.1.4 Ethical Consideration

According to Cooper and Schindler (2003), the ethics in any research is that the research actions should not by any chance hurt anyone or give them unpleasant experiences. Berg (2007) claims that researchers need to observe the participants' rights, their confidentiality and also their welfare while conducting a research. For that reason, this study was carried out ethically and responsibly. Below are the steps conducted prior to the implementation of the study which are conducted dutifully so that ethical issues are not violated.

The consent to perform the research is primarily obtained from the Malaysian Ministry of Education to carry out this study in the particular secondary school (see Appendix A). Then, consent is attained from the Principal of the institution (see Appendix B) and the head of English Language Department. Prior to the commencement of the data compilation, the purpose of the research was explained to the participants and confidentiality their identity and findings were assured. The researcher then clarified that their involvement would not have an effect on their school grades. They were assured that only the researcher was accessible to their responses and their identities would not be exposed in the reports of the research. Participants' consent was then obtained (see Appendix C). The information collected from the 140 participants was secured in a safe place, meant to be destroyed after a certain period of time.

3.3.1.5 Insider researcher

The researcher was also the teacher who taught the three experimental and control groups. Thus, certain rules as an insider researcher were to be followed. The insider researcher, who selects to conduct a study on a particular group (Breen, 2007),

should be aware of the possible consequences of perceived bias on their data collection as well as data analysis; respect any ethical issues in relation to the organization's anonymity and individual participants; consider and address any issues pertaining to confidential information at all stages of the particular research in order to conduct a credible research.

Rajendran (2001) reminds that a researcher should conduct a research with techniques/methods as well as procedures that are objective in nature. The researcher constantly reminded herself that she was a researcher, participants were taught in the way they were most comfortable with, and she had to be objective about the data collection and data analysis processes.

3.3.2 Phase 11: Treatment and Data Gathering

3.3.2.1 Target Structures

The current study target structures were primarily selected according to a few criteria. First was from the previous research, where general problematic morphological structures were selected from local and foreign research in the second language context (for example, Windsor Scott & Street, 2000; Mackie & Dockrell, 2004; Akande, 2005; Silliman et al., 2006; Noor & Amir, 2009; Pike, 2011; Saif, 2011; Hamdi, 2012; Larkin et al., 2013). Their study showed that learners experience difficulties when they need to identify or separate root words from the affixes in morphologically complex words. Likewise, they report that learners make errors when they cannot construct new words by adding either affixes or stems correctly and appropriately. They further demonstrate that, they are not aware of, for example, the different use of suffix *-ing* and the suffix *-ed* at the end of words; and also that affixes can change the meaning of words. Likewise, Windsor et al. (2000) ascertain that ESL learners who are less proficient in the target language and learners with poor understanding of morphemic units face

difficulties when they come across with inflections such as *-s, -ing, -ed, -er/-est*); compounding (open, close and hyphenated forms); and derivatives (e.g. *un-, -er, dis-, pro-, -ly* and opaque forms).

Second, 15 years of experience being a secondary school English language teacher, the researcher found that local secondary school learners also make morphological errors that are universal; the mistake patterns are rather general and common. The researcher's finding was further verified by the head of English Department and the master teacher of the particular institution of the current study.

Third, the target structures were judged and chosen by 2 English language experts from two local higher education institutions and 2 master teachers from two different secondary schools which were selected from the highest frequency affixes by the means of a Likert Scale. Rispens, McBride-Chang and Reitsma (2008) stress that learners who read or use the most frequently occurred morphemic words acquire the awareness of morphemes comparatively easy than the least occurring morphemic words. A five-point scale questionnaire was distributed (see Appendix D for the questionnaire and judgment approval of target structures). It includes:

i. strongly disagree (1)
ii. disagree (2)
iii. neutral (3)
iv. agree (4)
v. strongly agree (5)

The rating scale was important to further gauge the impact of the target structures in the treatment phase. Table 3.3 illustrates the results of questionnaires for selecting the target structures.

Table 3.3: Results of Questionnaires for Selecting the Target Structures

Structures	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean
1. un-	3	1				**4.7**
2. re-			2	2		2.5
3. in-	1	1	1	1		3.5
4. im-		1	2	1		2.75
5. dis-	2	2				**4.25**
6. en-		1	2	1		3
7. non-		1	2	1		3
8. -s	1	2	1			2.75
9. -ed	2	2				**4**
10. –ing	2	2				**4.5**
11. Open form	3	1				**4.75**
12. Hyphenated	4					**5**
13. Close form	4					**5**

Hence, according to finding mentioned above, target structures: *-ed, -ing, un-, dis-,* open, close and hyphenated forms were selected for this particular study. There were only two structures chosen from inflectional and derivational morphological structure for instructional purposes due to learners' low proficiency level and also time constraint. However, for compounding morpheme, all the three structures were chosen because they are equally important when writing a compound word. These factors were considered critical for the treatment phase of the study for two main reasons. First, teachers are strongly advised to be prudence in selecting the numbers of structures to be used in the classrooms in order for learners to master those structures effectively (Curriculum Specifications for English Form 4, 2003). This is important as introducing many long and complex structures can be counter-productive when it comes to less proficient learners. Secondly, due to current research confirming "less is more" (Barton, 2001, p. 86). In other words, Baron recommends that focused and limited structures should be presented so that effective results can be accomplished. Similarly, according to Kelley, Lesaux, Kieffer and Faller (2010), there is no possibility to teach or cover all the words that learners need exposure on but teachers can choose a limited number of high frequency words from the school textbook and use them as a venue or platform to teach vocabulary. Figure 3.3 shows how the target structures of the study were selected.

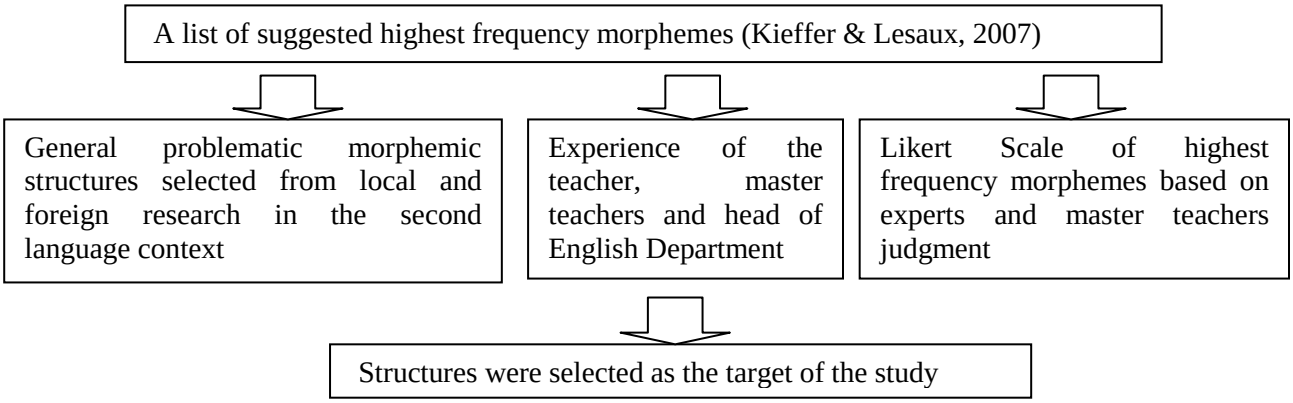

Figure 3.3: Selection Process of the Target Structures

3.3.2.2 Lesson Plan

The researcher followed the stages/steps mentioned in the CALLA model (O'Malley & Chamot, 1990) in accordance to the objective and the target structures of this study. The particular institution is currently using KBSM Form 4 as the textbook for the Form 4 students (Lee, Roberts & Chew, 2002). All of the target structures mentioned earlier is covered in the textbook, thus the textbook can be used as a source as well as authentic source for the intervention. Furthermore, the textbook was used as a source in preparing lesson plans for the target structures in accordance to the topics and tasks contain in it. Nevertheless, a few adaptions were made to suit the objectives of the study.

The lesson plan's content validity and time allocation for the lessons were approved by the master teacher and the head of the English Department of the institution. It was further verified by the language experts from the local higher education institutions (see Appendix E for the lesson plan as well as the judgment approval of the target structures). Accordingly, one period of teaching hour for seven weeks (i.e. 7 x 40 minutes = 280 minutes) is allocated for each lesson for the control and experimental groups (see Appendix F). Talerico (2007) asserts that studies in relation morphological awareness vary to a great length in terms of their types and

instructional timing (1-10 hours). Other than that, these studies addressed not only different types but also limited numbers of morphemic units. However, the information offered in these instructional strategies is rather limited and they pose difficulties for other researchers to replicate them. The amount of time used in this study was set after looking into suggestions proposed by the language experts and master teachers involved in this study. Table 3.4 illustrates the instructional procedure of the study.

Table 3.4: Instructional Procedure of the Study

Lesson	Main focus	Description
1-7 weeks	Compounding	- Preparation - Presentation - Practice - Evaluation - Expansion
1-7 weeks	Inflectional	- Preparation - Presentation - Practice - Evaluation - Expansion
1-7 weeks	Derivational	- Preparation - Presentation - Practice - Evaluation - Expansion

3.3.2.3 Instructional Procedure of the Study

In line with the conceptual framework and the aim of the current study, CALLA model was used to develop the instructional procedure (Kidd & Marquardson, 1997) that was utilized in the treatment phase, called the analytic instruction (Table 3.5). In simple terms, analytic instruction refers to focused and explicit awareness given to a particular language feature.

The lesson plan according to CALLA comes is five phases of activities (Lee, 2011):

i. preparation
ii. presentation

iii. practice
iv. evaluation
v. expansion

This model recommends teaching strategies in the following five steps: First, the preparation: the teacher recognizes learners' previous knowledge on the content as well as their existing or present use of a certain strategy. Second, the presentation: the teacher names, models as well as explicates the new strategies. Third, the practice: learners practise the new strategies in ensuing practices while the teacher encourages the use of strategy autonomously. Next, the self-evaluation, a phase where learners assess/evaluate their individual strategy use directly after every practice. Final, the expansion: learners transfer the strategies learnt in new task. Teacher provides practice opportunities in a wide variety of tasks. Table 3.5 shows the framework of the instructional procedure.

Table 3.5: Framework of the Instructional Procedures

Procedure	Activity
1. Preparation	Teacher activates learners' background knowledge of strategies. This phase is mainly preparatory stage for activating learners' relevant prior knowledge on the topic and brings to the fore some of the important vocabulary in the text.
2. Presentation	Teacher uses morphemic analysis strategy appropriate for the task. a) Presents the language task. b) Mentions strategies by name. Teacher models the strategy. a) Models how to use strategies using authentic, meaningful tasks.
3. Practice	Teacher provides learners opportunities to practice the strategy on tasks similar to the one used for modeling. a)Learners work in pairs, small groups, or individually. b)Teacher circulates around the classroom during this phase, providing assistance when requested. By focusing attention on the checking and correcting of their work, the learners gain experience with the respective strategy.
4. Evaluation	In this phase, teacher goes through the task by asking individual learners to contribute. The learners gain further practice in self-evaluation. a) Teacher discusses how well the strategies worked and if they were helpful for doing the task. b)Emphasizes that some strategies work better in certain contexts only.
5. Expansion	Teacher provides practice opportunities in a wide variety of tasks. a)Encourages learners to use strategies consciously with language tasks. Teacher calls the learners' attention to the language features that have been targeted for instruction in the lesson so that the learners will be able to handle these when they encounter them in their answer-writing.

According to O'Malley and Chamot (1990), the aim of CALLA is to provide learners with ample practices so that they can use the language efficiently in the academic contexts. This helps learners to boost their language production and comprehension to a great length. Newfoundland Labrador Education (2011) claims that CALLA is a content based ESL model for learners of varied level of proficiency, which focuses on application of learning strategies. The strategies outlined by CALLA are relevant to not only L1 learners but also L2. Learners take responsibility for what they learn and how they learn it. In this way, learning becomes learner centered and control of one's own learning facilitates comprehension, which in turn leads to further language learning (Newfoundland Labrador Education, 2011).

Newfoundland Labrador Education (2011) also points out that vocabulary is learned through explicit focus on words and attempts to apply those words or expressions in authentic contexts. At the beginning stages of ESL learning, a teacher can guide vocabulary development but as the language becomes more advanced the learners should take responsibility for their own vocabulary acquisition, identifying and focusing on unfamiliar words as they arise in authentic texts. Interest and curiosity about words is a path to continued vocabulary building. Cunningham (2009) stresses the need to build learners' curiosity about words and to have fun with words. She advises teachers to, "exclude demotivating activities such as copying and memorizing definitions and writing vocabulary words in sentences" (2009, p.10). Strategies that focus on words in meaningful and engaging contexts are more likely to have a lasting effect (Cunningham, 2009).

3.3.3 Phases of the study

Three phases existed in the present research. In first phase, two types of tests were administered, namely a vocabulary test and a morphemic analysis test as a pretest

for the experimental and control groups. The pretest aims to assess learners' entry level before the instruction/intervention. This is important for the purpose of exploring the amount of exposure needed for successful learning (Tankersley, 2005).

The second phase was the intervention phase (Table 3.6). The intervention focused on the compounding, derivational and inflectional morphemes (morphemic analysis instruction) for each individual group. Throughout the seven week sessions, the respective experimental groups were provided with instructions on the compounding, inflectional and derivational morphemes, where the base words of these morphemes were selected from the curriculum specification of Form 4 word list. The particularly chosen words were in line with the theme in the Form 4 Syllabus (see Appendix G).

Table 3.6: Content for Morphemic Analysis Instruction

Week	Group	Lesson	Targeted Morpheme	Activities
1-7	1	Compounding morphemes	Close and hyphenated forms	Preparation Presentation
	2	Inflectional morphemes	Suffix - *ing* (continuous tense) - *ed* (past tense)	Practice Evaluation
	3	Derivational morphemes	Prefix -*un* (not) - *dis* (opposite of)	Expansion

At the end of each lesson, activities were performed to assess their understanding of the taught morphemes. This was done in group and pair work among participants in each experimental group. The more capable peers in the group can provide assistance to others through communicative activities where they can communicate and practise the words/morphemes taught. According to Gerakapoulou (2011), communicative language teaching includes different interactive activities and language games, use of the internet, among others for learners to increase their communicative competence effectively.

The third phase is the posttest phase. After the seventh week, the vocabulary and morphemic analysis tests were administered again as a posttest to the experimental and control groups to establish the effectiveness of the morphemic analysis instruction on learners' vocabulary development.

3.3.4 Research Procedure

To realize the objective of the present study, three types of morphemic instruction (compounding, inflectional and derivational) were given to experimental groups, namely Group 1, 2, and 3 respectively. Meanwhile the control group, Group 4 did not receive any treatment.

The intervention programme started in the second week of February and ended on the fourth week of March 2014. Each experimental group received seven weeks of treatment, with 40 minute lesson for each week, within the school hours at the school lecture hall. Each of the experimental group was taught their respective morphemic instructional strategies with individual content and material, on different days during the week at noon, by the same teacher. Both the treatment and control groups received 40 minutes of instruction each day for seven weeks to control for instructional time and both groups were given the instruction by the same teacher to control for teacher's ability.

3.3.4.1 Compounding Morphemic Instruction

The experimental Group 1 received seven sessions of compounding morphemic instruction (adapted from Talerico, 2007) on open, hypenated and close forms. The compounding experimental group started the lesson with the "basic unit of words" (Figure 3.4). Gerakapoulou (2011) asserts that the purpose of instruction not only helps

learners acquire new knowledge, but also provides them with assistance and support so that they can receive the new context, internalize it and finally, use it independently.

During the lessons, the researcher modeled the morphemic analysis process (Talerico, 2007) using the demonstration of compounding morpheme (e.g., shoe + lace = shoelace).

Basic Units of Compounding Words

- Compound = made up of two root/base words to express a new meaning
- shoelace consists of 'shoe' and 'lace'
- doorbell = ____ + _____

Figure 3.4: Word Chart of Basic Units

The steps for morphemic analysis were as follows:

1. Teacher defined the compound words and gave examples. Teacher introduced the morpheme by writing it on a morphemic analysis chart (Figure 3.5) and the word was pronounced.

Morphemic Analysis Chart

Word: _____

Root: _____ + _____

Meaning of morpheme: _____

Form: _____

Figure 3.5: Morphemic Analysis Chart

For example, the word is ***bedbug***. The root is ***bed + bug.*** The meaning is a ***bug*** that bothers people in ***bed.*** It is a ***close*** form.

2. More compounding morphemic analysis process was given for practice. The teacher gave more examples for learners to practise. Information was then recorded onto the chart.

3. Learners read a text and underlined compound words (text taken from Form 4 Textbook). Learners explained the underlined compound words.

4. Learners completed online compounding tasks (see Appendix H).

5. Learners provided additional examples and explanations.

Appendix I depicts a sample plan for this respective group in learning compounding morphemes.

3.3.4.2 Inflectional Morphemic Instruction

The experimental Group 2 received seven sessions of inflectional morphemic instruction (adapted from Talerico, 2007) on *-ed* and *-ing* structures. The inflectional experimental group started the lesson with the "basic unit of words" (Figure 3.6).

Basic Units of Words

Root: Basic unit of a complex word that carries the main meaning

Prefix: A unit that is attached at the **beginning** of a 'root' to give a different

Suffix: A unit that is attached at the **end** of a 'root' to give a different meaning, tense of a verb or part of speech

Figure 3.6: Word Chart of Basic Units

During the lessons, the researcher modeled the process of morphemic analysis (Talerico, 2007) using inflectional morpheme (e.g., *walk + ing = walking*). The steps for morphemic analysis were as follows:

1. Teacher defined inflectional words and gave examples. Teacher introduced the morpheme by writing it on a morphemic analysis chart (Figure 3.7) and the word was pronounced.

Morphemic Analysis Chart

Word: _____

Root: _____
Prefix: _____
Suffix: _____

Meaning of morpheme: _____

Figure 3.7: Morphemic Analysis Chart

For example, the word is ***walking*.** The root is ***walk***, the suffix is ***-ing*** and the morphemic meaning is ***continuous tense***.

2. More inflectional morphemic analysis words were given for practice. The teacher gave more examples for learners to practise. Information was then recorded onto the chart.

3. Learners read a text and underlined inflectional words (text taken from Form 4 Textbook). Learners explained the underlined inflectional words.

4. Learners completed online inflectional tasks (see Appendix J).

5. Learners provided additional examples and explanations.

Appendix K depicts a sample plan for this respective group in learning inflectional morphemes.

3.3.4.3 Derivational Morphemic Instruction

The experimental Group 3 received seven sessions of derivational morphemic instruction (adapted from Talerico, 2007) on *dis-* and *un-* structures. The deivational experimental group started the lesson with the "basic unit of words" (Figure 3.8).

Basic Units of Words

Root: Basic unit of a complex word that carries the main meaning
Prefix: A unit that is attached at the **beginning** of a 'root' to give a different
Suffix: A unit that is attached at the **end** of a 'root' to give a different meaning, tense of a verb or part of speech

Figure 3.8: Basic Units of Words Chart Analyze Words into Meaningful Morphemes

During the lessons, the researcher modeled the morphemic analysis process (Talerico, 2007) using derivational morpheme (e.g., *un + known = unknown*). The steps for morphemic analysis were as follows:

1. Teacher defined derivational words and gave examples. Teacher introduced the morpheme by writing it on a morphemic analysis chart (Figure 3.11) and the word was pronounced.

Morphemic Analysis Chart

Word: _____

Root: _____
Prefix: _____
Suffix: _____

Meaning of morpheme: _____

Figure 3.9: Morphemic Analysis Chart

For example, the word is ***untidy***. The root is *tidy*, the suffix is ***un-*** and the morphemic meaning is ***not***.

2. More derivational morphemic analysis words were given for practice. The teacher gave more examples for learners to practise. Information was then recorded onto the chart.

3. Learners read a text and underline derivational words (text taken from Form 4 Textbook). Learners explained the underlined derivational words.

4. Learners completed online derivational tasks (see Appendix L).

5. Learners provided additional examples and explanations.

Appendix M depicts a sample plan for this respective group in learning derivational morphemes.

Celce-Murcia (2001) stress that, a number of major steps must be taken during teaching a second language. First, the elements of the language or its use or skills must be brought into classroom (i.e. presented or highlighted). Second, selected elements must be learned through activities arranged by the teacher and the teacher then gave feedback to the learners.

According to Gerakapoulou (2011), teachers are able to challenge as well as extend learners' abilities through series of teaching activities as well as quality support and control or guidance. Learners are able to go beyond their existing abilities or boost their understanding when they participate in the activities provided. This is the part where learning happens and learners are capable to 'internalize' new ideas and understandings (Gerakapoulou, 2011).

Learners were given activities such as quizzes, text comprehension and word search/ crossword puzzles (see Appendix N) to motivate the participants and allow them to demonstrate their newly learned knowledge. These activities were done in pairs and groups. The participants were offered prizes to encourage active participation and fun learning (Hosseini, 2009). According to van Lier (2004), to provide a meaningful

context and situation, teachers usually develop activities, tasks, or projects in classroom to engage learners and to encourage scaffolding.

The steps mentioned above promoted active participation on the learners' side to process and develop the meaning of complex words. As mentioned by Hosseini (2009), the end result is that the learners will see their errors and correct them either by themselves or through the assistance of their peers without further teacher intervention.

3.3.4.4 Instruction for Control Group

The participants in the control group received other vocabulary learning strategies such as guessing meaning of words from contextual clues, dictionary skills and note-taking strategies (but not linguistic clues) during their lessons. According to Talerico (2007), a common and a more conventional vocabulary instruction only happens when there are situations available for dictionary use or word meanings are given through definitions.

During the seven sessions, the control group also received instruction on morphemes. The teacher cum researcher introduced morpheme implicitly/indirectly in the several contexts and plan for a variety of activities.

The teacher started the lesson by tapping on their prior knowledge about morphemes. Then the learners were provided several exposures to morphemes through dictionary skills, wide reading and contextual clues. Then, the teacher organized discussions for the learners to engage in the exploration and development of morphological words. In the classroom, the learners practised what they have learnt from the discussion through reading and writing. As mentioned by Talerico (2007), instruction happens when there are activities for paraphrasing for sentences from a text or when there are presentations of words in a text that need meaning identifications.

Learners will exhibit their knowledge of the morphemes by using them in context such as making sentences, fill in the blanks, dictation, etc.

In this control group, as learners continue to explore on morphemes, they were encouraged to keep vocabulary notebooks to write words/sentences related to morphemes that they came across in their reading. When the learners became aware of the technique, they were encouraged to include more information to words they came across. This is important because these learners could understand the context better because they were aware of the morphemes used, word parts and their meaning, dictionary definitions and example sentences (Bear, Invernizzi, & Templeton, 1996). Appendix O depicts a sample plan for control group in learning morphemes. Learners were given a short story to read and learners were to guess the word meanings through contextual clues in the text (in groups) and they filled in the blanks based on the story read (to practise on the inflectional morpheme) in pairs. As Alsalamah (2011) points out, for learners to acquire vocabulary, reading materials must be carefully chosen so that learners encounter new words in the materials they are reading. If the material chosen is too simple, they encounter 0% new words. If the material chosen is beyond their text coverage level, it will hinder their comprehension. The researcher cum teacher provided feedback.

3.3.5 Research Instrument

Two types of assessments were examined in the current study, i.e. morphemic analysis test and vocabulary test. The former is related to morphemic analysis instructions and research questions 1, 2 and 3. The latter is related to the vocabulary knowledge and research questions of 4 (a, b, c, d, e and f).

Three morphemic assessment tools adapted from Lam (2009) and Lawrence (2008), namely Compounding Morphemic Analysis Test (see Appendix P), Inflectional

Morphemic Analysis Test (see Appendix Q) and Derivational Morphemic Analysis Test (see Appendix R) were administered to the control group and the experimental groups in the both pretest and posttest. The rationale behind the adapted standardized-tests was to get feedback from the tests i.e. to see the effectiveness of each compounding, derivational and inflectional morphemic analysis instruction on ESL low proficiency secondary school learners' morphemic analysis knowledge.

The three morphemic analysis measures mentioned above contained 15 test items for both pretest and posttest phases of the study but they were not presented in the same order. Similarly, the vocabulary test contained 30 test items for the pretest and posttest phase of the research and they were also not presented in the same order. According to Fraenkel and Warren (2009) "the same test can be used for both phases because participants will seldom perform exactly the same, and their results will not usually be identical due to motivation, energy, anxiety and a different testing situation" (p. 171).

Compounding Morphemic Analysis Test, Derivational Morphemic Analysis Test and Inflectional Morphemic Analysis Test were used in this study because acquisition of morphological awareness in English involves three types of linguistically complex words: inflections, derivatives, and compounds (Kuo & Anderson, 2006). As English can be analyzed morphologically, morphemic awareness is instrumental to learning words/vocabulary. Morphologically unfamiliar words and complex words can be decoded by the use of inflectional, derivational, and compounding morphemic analysis; and this strategy can be a catalyst to boost a learner's vocabulary development (Zhang & Koda, 2013).

The Morphemic-Vocabulary Test adapted from Curinga (2014) and Carlisle (2000) (see Appendix S) was also administered for the control group and experimental groups during the pretest and posttest (see Appendix T for permission from the authors). The purpose of this vocabulary test was to test the effect of inflection, derivation and compounding morphemic analysis knowledge on low proficiency secondary school learners' vocabulary achievement in the second language context. According to Al Farsi (2008), morphemic awareness and vocabulary development are correlated. In other words, vocabulary development (in a language) among learners actually mirrors their ability or skill to utilize morphemic analysis. He further points out that learners' vocabulary will grow rapidly if they can apply word formation rules; and here it means learners can apply the rules of compounding and/or affixation. For instance, learners who can comprehend the meaning of the word *promote* will be able to discern *promotion/promoter/promotable* when they have the skills to identify and synthesize morphemic units (Al Farsi, 2008).

In line with it, the contribution of the three morphemic analysis tests to vocabulary development is explained by Zhang and Koda (2013) in three possible reasons. First, the tests can demonstrate the participants' inferencing skills of complex words. Second, the tests can evaluate participants' use of syntactic signals provided by affixes in the morphologically complex words. Finally, the tests can show participants' fluency of decoding morphologically complex words.

Both assessments were adapted in accordance to the competency level of the participants involved in the current study to avoid ceiling and floor effects. According to Al Farsi (2008), the floor and ceiling effects in the scores of the morphemic analysis test can affect the relationship between learners' morphemic awareness and their vocabulary size. Similarly, it is clearly stated in the English Form 4 Curriculum Specifications

(2003) that learners should be able handle or cope with tasks provided and teachers must make sure that learners are performing at their best (not at frustration level). it is also stated that numbers of structures and vocabulary must be in control so that tasks are completed successfully and the effective learning occurs.

3.3.5.1 Compounding Morphemic Analysis Test

Based on the task developed by Lam (2009), this test was designed to evaluate learners' awareness of compound morpheme. For this task, learners were given with the compound word meaning, and they are required to form another compound word with similar structure (that gives the most sense) using the newly presented concepts. For example: *A bug that bothers people in **bed** is called a **bedbug**. What do we call a bug that bothers people on the **sofa**? **Sofabug***. The learners were given instructions and an example to ensure that they had understood the task. This task contained 15 test items for both pretest and posttest.

3.3.5.2 Inflectional Morphemic Analysis Test

This measure was adapted from Lawrence (2008) to examine learners' awareness of inflectional morpheme. For this task, learners were required to produce an inflected word to complete a sentence. For example: *Search: I finally found the kitten after I **searched** for it*. The learners were given an example to ensure that they had understood the task. This task contained 15 test items for both pretest and posttest.

3.3.5.3 Derivational Morphemic Analysis Test

This measure was adapted from Lam (2009) to examine learners' awareness of derivational morpheme. It was used to assess learners' ability to manipulate derivational prefixes. For this task, learners were required to produce a derivational word in order to

complete a sentence. For example: *Tidy: Kevin is so **untidy**. His room is always a mess.* The learners were given instructions and an example to ensure that they had understood the task. This task contained 15 test items for both pretest and posttest.

3.3.5.4 Morphemic-Vocabulary Test

Based on the task developed by Curinga (2014) and Carlisle (2000), this test was designed to evaluate the effect of learners' morphemic knowledge on vocabulary achievement. For this task, learners were presented with 30 questions in three parts. Each part has 10 questions. This task has morphemic linguistic features such as high and low frequency derived words; and also transparent and opaque derived words. The researcher decided to go for the whole word as the whole morphologically complex words are what the learners experience within the reading texts (Curinga 2014). Similarly, they are used in the latest studies on morphemic awareness in reading (Mahony et al., 2000; Curinga 2014).

The first part determines whether learners' can analyze (break down) morphologically complex words into smaller meaningful units (morphemes) (e.g. *running* = ***run*** + ***ing***). For each item, learners identify morphemes in the order they materialize (appear) in the particular word. This aim of this task was to measure the learners' skills in reflecting and manipulating English morphological units (analytic ability).

The second part is concerned with the morphemic structural knowledge. The task is important to evaluate learners' skills in synthesizing or to form new meanings. The learners' task was to remove the roots from the derived words so that they can complete the given sentences (for example: the word farmer was given and they have to

complete the sentence - "My uncle has a **farm**"). This morphemic structure requires learners to synthesize morphemes productively.

The third part measures the learner's syntactic knowledge. Syntactic knowledge is the understanding of the syntactic properties of suffixes. It refers to the ability to recognize the syntactic change that occurs upon addition of a suffix to a base word as well as the knowledge that certain suffixes mark specific syntactic categories. For example, it refers to the knowledge that addition of suffix -ful to a noun converts it to an adjective (e.g., beauty-beautiful). In this task learners read the four word choices and select the most suitable one to complete the sentence. For instance: "Her _____ changes as she gets older.

a) personify b) **personality** c) personalize d) personal

This particular test was significant to the study as it includes word formation rules, both synthetically and the analytically. Secondly as mentioned by Alsalamah (2011) the test "perform consistently and reliably and the results are easy to score and interpret" (p. 21).

3.3.6 Scoring

Each item on the three morphemic analysis assessment tools was given a score of 1 if the response is correct. Meanwhile each incorrect response was given a score of 0. The test/measure results were reported as raw scores with the highest scores amounting to 15 marks. On top of the total score marked by each measure, the researcher also examined the differences in responses between compounding and inflectional test items, inflectional and derivational test items and compounding and derivational test items. The participants' scores were not affected by the participants'

spelling errors as it did not reflect participants' understanding of the morphemic analysis tasks.

In the vocabulary test, each item was given a score of 1 if the response is correct. Meanwhile each incorrect response was given a score of 0. The test/measure results were reported as raw scores with the highest scores amounting to 30 marks. The participants' scores were not affected by the participants' spelling errors as it did not reflect participants' understanding of the morphemic knowledge.

3.3.7 Pilot Study

After getting permission from the Malaysian Ministry of Education, a prior research or pilot study was pilot study was carried out in 2014, January. The pilot study was an antecedent to the full-scale research. The pilot study is usually conducted in a small scale as a trial prior to the main study (Maiyaki & Mokhtar, 2011) to achieve two main objectives of the current study. First was to determine the instruments' validity as well as reliability. Next is to obtain a general insight of the actual conditions pertaining to the main study. This is important because it helps the researcher in anticipating and adjusting to possible issues that might jeopardize the findings of the main study (Maiyaki & Mokhtar, 2011).

The test was piloted with 30 participants from another school. The selected participants were comparable to the participants' proficiency level and age in the full-scale study. It is essential for the participants in the pilot study to have similar characteristics of the main subjects of this study in terms of language proficiency to ascertain if the questions are written on an appropriate level for the participants (Lajooee & Barimani, 2013). The sample was deemed sufficient because Malhotra

(2008) emphasizes that a pilot study needs only small sample, around fifteen to thirty participants; and only a research that involves multiple stages need more participants.

3.3.8 Establishing Reliability and Validity

Validity and reliability are important characteristics of a good test (Yahya, Kamel & Mousa, 2012). Rosenthal (2003) asserts that when a test lacks validity and reliability, results obtained using the test or procedure will be difficult to interpret.

In order to control threats to internal validity for this study which used non-randomization procedure for selecting its participants, single blinding research method was used. Schulz and Grimes (2002) recommended single-blind study because it is the best conduct when the participants' or researchers/assessors' knowledge of the treatment might bias the results of a research. In other words single blinding method is used in this study so that the participants are unaware and not influenced by the assigned intervention (Schulz & Grimes, 2002). Accordingly, in this study the researcher did not inform the participants whether they were in the intervention group or the control group. This was done in order to ensure that participants would not bias the results by acting in ways they thought they should act.

According to Rattray and Jones (2007), pilot study is necessary when a new measure is being developed. This step is important because items that were lacking in clarity or items that were not appropriate participants in the study can be discarded; and to do that item analysis is a means to pilot test the items. Thus, item analysis (difficulty and discrimination indexes) was used to assess and improve the reliability of both vocabulary and morphemic analysis tests in the pilot study before the actual research was carried out. In order to measure the reliability of both types of tests (internal consistency of the instrument), Cronbach's Alpha Coefficient SPSS (Statistical Package

for Social Sciences) version 22 was employed. Cronbach's Alpha Coefficient is a well-known test for reliability purposes (Sekaran & Bougie, 2010).

The discrimination index (D.I.) gives an indication on the degree of discrimination between the low and the high scorers in a particular measure (Rattray & Jones, 2007). The D.I. represents a fraction and it is varied from -1 to 1. Generally, an item needs a positive D.I. of a minimum 0.2. It indicates that low scorers have a small possibility to answer correctly and high scorers have a big possibility to answer correctly. The acceptable range of D.I. is from 0.3 to 0.7 (Rattray & Jones, 2007). Those below than 0.3 are considered too difficult and those above 0.7 too easy. It is suggested that items that have indices of negative to be analyzed in order to determine whether those items have flaws or erroneously computed (Rattray & Jones, 2007).

On the other hand, Facility Index or F.I. is referred to the difficulty level of a particular item (Rattray & Jones, 2007). F.I. is obtained when the number of the participants with correct answers is divided with the overall number of the whole sample (test takers). The amount/percentage of participants' correct answers determines the item's difficulty level. The indication is - the higher the facility index, the easier the item. In other words, the more learners get the items correct, the less challenging are the items. In general, an item has large distribution scores when its F.I. is more or less 0.5 (i.e. 50% of the learners' get correct answers) (Rattray & Jones, 2007). The range of F.I. from 0.75 to 1.0 is easy. Those between 0.25 and 0.75 are average and those below 0.25 are difficult.

Table 3.7: Item Analysis for Morphemic Analysis Tests (n= 30)

Compounding				Inflectional				Derivational			
Item	No Correct	F.I	D.I	Item	No Correct	F.I	D.I	Item	No Correct	F.I	D.I
1	13	.45	.5	1	5	.23	.3	1	7	.23	.2
2	23	.71	.5	2	24	.16	.7	2	20	.67	.5
3	27	.88	.4	3	20	.62	.5	3	20	.67	.4
4	10	.36	.3	4	21	.71	.6	4	27	.90	.5
5	12	.42	.5	5	9	.31	.6	5	23	.77	.4
6	25	.83	.6	6	20	.67	.6	6	25	.83	.5
7	14	.54	.3	7	5	.16	.3	7	14	.54	.3
8	3	.17	.2	8	28	.95	.1	8	11	.35	.2
9	20	.62	.5	9	12	.41	.7	9	20	.62	.4
10	13	.44	.4	10	14	.54	.3	10	14	.54	.3
11	28	.95	.1	11	20	.62	.7	11	13	.44	.3
12	11	.36	.7	12	7	.23	.6	12	5	.23	.1
13	7	.23	.1	13	20	.62	.3	13	14	.54	.3
14	25	.83	.6	14	20	.67	.6	14	25	.83	.5
15	14	.54	.3	15	5	.16	.3	15	14	.54	.3

Table 3.7 shows that F.I. of items 3, 6, 11, and 14 are too easy, while only one item 13 is too challenging for the compounding test. Item 8 is easy while items 1 and 2 are difficult in the inflectional test. In the derivational test items 4, 5, 6, and 14 are easy and items 1 and 12 are difficult. The D.I. of items of the compounding test shows that 8, 11 and 13 are difficult. In the inflectional test (8) is difficult; and in the derivational items 1, 8, and 12 are difficult. On closer scrutiny, item 7 (compounding), items 1 and 7 (inflectional); and items 1 and 12 (derivational) were discriminated badly because they were too difficult for every learner. This is because the items F.I. were low. In contrast, items 3, 6, 11 and 14 (compounding), item 8 (inflectional); and items 1, 8 and 12 (derivational) were discriminated as they were too easy. However, F.I. does not always correspond to discrimination index. For example, the D.I. of items 4 and 33 is 0.3, but item 4 is more difficult than item 33. On the other hand, there is a need to keep the easy and difficult items to achieve the content validity of the test; any item with D.I. greater than 0.19 can be retained (Ebel, 1979). Thus, according to Rattray and Jones (2007), careful reviewing of all these items is necessary to see how they can be made more discriminating and whether certain irrelevant variables such as ambiguity have affected

the results. Therefore, items 11 and 13 (compounding); item 8 (inflectional); and item 12 (derivational) were scrutinized during revision.

Table 3.8: Item Analysis for Vocabulary Test (n= 30)

Vocabulary test											
Item	No Correct	F.I	D.I	Item	No Correct	F.I	D.I	Item	No Correct	F.I	D.I
1	28	.95	.1	11	5	.23	.3	21	13	.44	.3
2	11	.36	.7	12	24	.16	.7	22	5	.23	.1
3	7	.23	.1	13	20	.62	.5	23	14	.54	.3
4	25	.83	.6	14	21	.71	.6	24	25	.83	.5
5	14	.54	.3	15	9	.31	.6	25	14	.54	.3
6	25	.83	.6	16	20	.67	.6	26	28	.95	.1
7	14	.54	.3	17	5	.16	.3	27	11	.36	.7
8	3	.17	.2	18	28	.95	.1	28	7	.23	.1
9	20	.62	.5	19	12	.41	.7	29	25	.83	.6
10	13	.44	.4	20	14	.54	.3	30	14	.54	.3

Table 3.8 shows that F.I. of items 1, 6, 18, 24, 26, and 29 are too easy, while items 3, 8, 11, 12, 17, 22 and 28 are too challenging for vocabulary test. The D.I. of items 1, 3, 8, 18, 22, 26 and 28 are too difficult for the learners; however there were no too easy questions. On closer scrutiny, items 1, 18 and 26 were discriminated badly because they were too easy (with a F.I. of 0.95) for the learners. In contrast, items 1, 3, 18, 22, 26 were ineffective because they were too difficult (with a F.I. of 0.1). However, F.I. does not always correspond to D.I. and there is a need to keep the easy and difficult items to achieve the content realibility of the test (Ebel, 1979). Thus, items 1, 3, 18, 22, 26, and 28 were analyzed during revision and modifications were done accordingly.

Likewise, to ensure content validity of the tests, the research instruments were examined by four language experts. Content validity entails consulting a small group of experts to evaluate whether the chosen items are appropriate to assess a construct (Sekaran and Bougie, 2010). Similarly, Alderson (2000) claims that the best measure of item or text difficulty is combined expert judgment. Two PhD holders from two local higher institutions, with the experience in teaching and testing for more than 10 years, and two master teachers who have been teaching English for the more than 20 years in

two public secondary schools were chosen accordingly. This step was deemed important so that the experts can provide comments and responses regarding on the content, suitability, layout as well as the adequacy of the items tested.

The experts provided comments on the test items of the instruments (see Appendix U) and they confirmed the tests items were suitable for the participants of the current study but with some modifications. The experts along with the master teachers' comments and the results from item analysis were taken into consideration and thus, the ambiguous, confusing and overlapping or redundant items were removed and additional items were added to enhance the instruments' depth and scope. The modifications were made by the researcher to make the test more appropriate for the age group and proficiency levels of the learners of the full-scale study.

After the modifications, to further ascertain the test credibility, Cronbach's Alpha Coefficient reliability indices were computed for the measures using SPSS version 22. According to Pallant (2010), Cronbach alpha coefficient indices are mostly used to indicate internal consistency. The results showed that the indices were high, they ranged from 0.77 to 0.83 (Table 3.9). The reliability of Compounding Morphemic Analysis Test was also high (α = .83). On the other hand, the reliability of Inflectional Morphemic Analysis Test (α = .71), Derivational Morphemic Analysis Test (α = .75) and Vocabulary-Morphemic Test (α = .75) was reasonable.

Table 3.9: Reliability Cronbach's Alpha of Instruments

Test	No of Items	Alpha
Compounding Morphemic Analysis Test	15	0.83
Inflectional Morphemic Analysis Test	15	0.78
Derivational Morphemic Analysis Test	15	0.75
Vocabulary-Morphemic Test	30	0.77

These results were in line with the coefficient benchmark where 0.60 can be considered as an average reliability whereas 0.70 and above indicate that the particular

instrument has high standard reliability and are appropriate for classroom tests (Sekaran & Bougie, 2010).

3.3.9 Research Procedure and Administration of the Tests

140 low proficiency secondary school learners from four existing classes were chosen to partake in the current study. They were assigned in three experimental and a control group by random.

Four days prior to the intervention programme, the learners participating in the study were required to sign consent forms and sit for the pretest. For the purpose of exploring the amount of exposure needed for successful vocabulary learning, the pretest aims to assess learners' entry level before intervention (Tankersley, 2005). The posttest was conducted at the end of the intervention programme. There was no time limit set for the tests; and the participants took their own pace to complete them. Al Farsi (2008) and Alsalamah (2011) claim that time and pace must be taken into consideration when it comes to testing because they affect participants' anxiety/fear and fatigue/weariness which could jeopardize the results of the study.

During each testing session in the pretest and posttest, each experimental group (Group 1, 2 and 3) sat for two tests, a morphemic analysis test and a vocabulary test. Table 3.10 shows the tests for the three experimental groups and the control group.

Table 3.10: Tests for Each Experimental Group and the Control Group

Groups	Tests
G1	Compounding Morphemic Analysis Test and Vocabulary-Morphemic Test
G2	Inflectional Morphemic Analysis Test and Vocabulary-Morphemic Test
G3	Derivational Morphemic Analysis Test and Vocabulary-Morphemic Test
G4	Compounding, Inflectional and Derivational Morphemic Analysis Tests and Vocabulary-Morphemic Test

The tests were set in a day in predetermined places and monitored by the researcher and the English language teacher of each respective class. The English language teachers were given detailed instruction in handling the procedure. Meanwhile, the control group (Group 4) sat for three morphemic analysis tests and one vocabulary test due to the nature of the study. The group sat for the tests in two days so that their fatigue and anxiety were minimized and true feedback can be retrieved. The tests were set in a predetermined place and monitored by the researcher.

Two versions of each morphemic analysis test and vocabulary test were created for the use in the pretest and posttest in which the statements were the same but they were in different order. The validity as well as the reliability of the measures were determined after a pilot study was conducted. The intervention programme which was primarily based on the objective of the research was conducted successfully as planned (as explained in the treatment procedures mentioned earlier).

A day after the treatment programme ended, all the groups participated in the posttest as how the pretest was held (in terms of location, time and procedure). The test-retest effect was minimized as different versions of the measures were used following an interval of six consecutive weeks. The participants' scores gathered from each individual test were scrutinized as explicated in the next section.

3.3.10 Phase 3: Analysis

3.3.10.1 Data Collection and Data Analysis Framework

In the current study, ANCOVA (Analysis of Covariance) as well as Post Hoc (Multiple Comparison) were employed for data analysis purposes. They were used in to see the impact of the morphemic analysis instruction on vocabulary gain. According to Carter (2010), ANCOVA is best used in research that is basically quasi-experimental in

nature, i.e. when the participants are not assigned randomly to the control or experimental groups, and when other predictable variables are controlled such as age and proficiency level in the study. Covariates in ANCOVA reduce the variability or inconsistency of the outcome measures and thus heighten the statistical tests power (Carter, 2010).

Likewise in this study, the dependent variable was the vocabulary and the independent variables were the three types of morphemes (i.e. inflections, derivatives and compounding). Singleton and Straits (2010), mention that, a quasi-experimental research examines the impact of the independent variable which is manipulated on the dependent variable (by the researcher). In order to control the independent variable, the participants are put in different groups: the experimental group which receives the treatment and the control group which is similar to the experimental group. Nonetheless the control group does not receive any treatment. These two groups are then compared on the dependent variable. As random assignment was not applicable in this study, there were high possibilities to have extraneous variables that can affect the dependent variable. Thus, to control for the extraneous factors, both pretest and posttest were conducted for the dependent variables in this study. The purpose of the pretest was to find the differences that exist among the two groups at the beginning of the investigation. Then, Analysis of Covariance (ANCOVA) was applied to statistically control for the pretest scores.

In addition, descriptive statistics were also computed based on the tests sat by all the four groups. The significant level a= .05 ($p < .05$) was used in this research. Table 3.11 illustrates the procedures meant for both data collection and data analysis.

Table 3.11: Data Collection and Data Analysis procedure for Research Questions

Research Question	Data Collection	Data Analysis
Is there a significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge?	Pretest and posttest	ANCOVA and Post Hoc
Does the level of learner's vocabulary development differ by Morphemic Analysis Instruction approach?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant effect of compounding morpheme instruction on learners' vocabulary development?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant effect of inflectional morpheme instruction on learners' vocabulary development?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant effect of derivational morpheme instruction on learners' vocabulary development?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development?	Pretest and posttest	ANCOVA and Post Hoc
Is there a significant difference of derivational morphemes morpheme instruction and compounding morpheme instruction on learners' vocabulary development?	Pretest and posttest	ANCOVA and Post Hoc

To analyze the data, ANCOVA was conducted for morphemic analysis tests and also for vocabulary test. This was followed by Post Hoc analysis. Post Hoc analysis is used in the current study in order to compare the mean scores of the morphemic analysis tests and also to compare the mean scores of the vocabulary test.

3.4 Summary of the Chapter

The chapter has explicated the design of the current study and its methodology in three different phases. The research location, sample of the study and ethical considerations were discussed in phase 1. Phase 2 discussed the treatment that includes the target structures of the study, lesson plans and the procedures of the intervention.

Then, research instruments for assessing morphemic knowledge and vocabulary achievement were discussed. Reliability and validity of the instruments were established by means of a prior research (pilot study). Phase 2 ends with a research procedure and tests administration discussions. Finally, explanation on data analysis was presented in phase 3. The research questions solicited in this research are answered in the next chapter.

CHAPTER 4: FINDINGS

4.1 Introduction

As per discussion in the chapters 1 and 3, this chapter presents the results for the six research questions on the effect of compounding, derivational and inflectional morphemic analysis instruction on low proficiency secondary school learners' vocabulary achievement in the second language context.

SPSS version 22 was employed in this present study to analyze the data. All data were double checked after being computed in the SPSS. Pallant (2010) advocates that statistical procedures should be checked to ensure proper research techniques had been adhered (Pallant, 2010).

Prior to the data analysis, the researcher conducted a preliminary assumptions testing of parametric tests for two main reasons: (i) to ensure the homogeneity of the samples; (ii) to investigate if any differences exist between the four groups (one control group and three experimental groups) (Pallant, 2010). Subsequent to the preliminary assumption testing, namely homogeneity of regression slopes, test of normality, linearity and equality of variance, ANCOVA was employed for scores of the four assigned groups with pretest and posttest scores as covariate and dependent variable respectively.

To shed light on the four research questions of the current study, assessment of the data of the four groups was performed so that research questions and hypotheses could be tested. ANCOVA procedure was employed for all the groups to reduce Type 1 error (i.e., null hypothesis is rejected while it is true). A discussion and summary would end the chapter after the findings.

4.2 Assumptions Testing

According to Leech, Barrett and Margon (2011), prior to computing the statistic ANCOVA, its first assumption is tested. The study should represent a random sampling from the total population. This is because random sampling best ensures that observation is independent. Nevertheless, prior to the collection of data the design issue was addressed. Since random sampling was not applicable in this study, the researcher avoided any relationships among participants in the study. Second assumption refers to normal distributions of the dependent variable. This can be checked by the means of skewness values. It is particularly important having homogeneity of variances, especially if the sample size is different across independent variable or variables values. Levene's Test or Box's Test can be used to assess homogeneity. Levene's test is used in this study. Assumption 4 states that linear relationship should exist between the dependent variable and the covariates. In this study, the dependent variable was the vocabulary and the independent variables were the three types of morphemes (i.e. inflections, derivatives and compounding). Scatter plot is used to check the relationship. A matrix scatter plot on the other hand is employed when more than one covariate exists. One most important assumption is the regression slopes meant for covariates (related to dependent variable) which need to be similar for every group (regression slopes homogeneity). *F* test is used to observe the interaction between the covariate and the independent variables. The assumption is deemed violated when the *F* test is found significant. These assumptions were tested for compounding, inflectional and derivational morphemic analysis tests scores and also vocabulary test scores in the current study.

4.2.1 Test of Normality

According to Razali and Wah (2010), normal distribution is a fundamental assumption of many statistical procedures; and when it is violated interpretation and inferences are no more valid or reliable. According to Ebadi, Abedalaziz, Saad and Chin (2014), choosing a proper statistical test and analyzing the collected data quantitatively, the data ought to be checked for its normality. This is important for identifying which test (parametric or nonparametric) necessitates for calculation.

Numerical method was applied in the current study. As stated by Razali and Wah (2010), numerical method or descriptive statistic, should be performed before any conclusion about the normality is made because it is more formal and supports the graphical method. Moreover, statistical tests have the advantage of making objective judgments of normality. Thus, SPSS version 22 procedure of assessing normality was employed to evaluate the normality of scores for morphemic analysis tests and vocabulary test.

4.2.2 Statistical Analysis

In accordance to the preliminary step of the distribution analyses, the output was determined at 5% *Trimmed Mean*. Table 4.1 explains that there was no difference in the origin means between the groups and the new trimmed means. This shows that the extreme scores do not strongly influence the means.

Table 4.1: Descriptive Scores of Dependent Variables

	Compounding	Inflectional	Derivational	Vocabulary
Mean	11.059	13.222	8.371	7.833
Std. Error	.111	.183	.209	.090
5% Trimmed Mean	11.03	13.309	8. 254	7.800
Skewness	.654	.517	.755	.747
Std. Error	.403	.393	.398	.398
Kurtosis	.072	.057	.078	.053
Std. Error	.788	.768	.778	.778

To establish the violation of normality distribution, the skewness of the data was examined. Skewness refers to the lean of a distribution. In order to decide whether the variables were distributed normally, a Z score was created by dividing skewness value by standard error skewness. The Z score should be between -2 and +2. The compounding, inflectional, derivational and vocabulary tests' Z values were 1.62, 1.45, 1.89, and 1.87 respectively. Therefore, the scores of dependent variables were normally distributed.

A similar procedure was computed for kurtosis. Kurtosis refers to how flat a distribution is. In order to decide whether the variables were distributed normally, a Z score was created by dividing the kurtosis values by standard error kurtosis. The Z score should be between -2 and +2. The compounding, inflectional, derivational and vocabulary tests' Z values were 0.09, 0.07, 0.10, and 0.06 respectively. Therefore, the scores of dependent variables were regarded as normally distributed.

4.2.3 Linearity

To examine the linearity of the current study, general distribution of scores was observed. This procedure of assessing linearity was conducted by SPSS version 22. The result indicated that there were linear relationships for the four groups (three experimental and one control group). Thus, the assumption of a linear relationship was not violated. As stated by Leech et al., (2011) a linearity must exist between the covariate and the dependent variables.

4.2.4 Homogeneity of Regression Slopes

The correlation between the dependent variable of every group and covariates is addressed in the homogeneity of regression slopes (Leech et al., 2011). It is a requirement to find if there was any relationship between the treatment (experimental)

manipulation and the covariate. Thus, assessing homogeneity of the regression slopes was conducted by SPSS version 22 for compounding, inflectional, derivational posttest score as the dependent variables, and compounding, inflectional, derivational pretest score as the covariates, meanwhile the grouping variable listed as the fixed factor.

Table 4.2: Test Between-Subjects Effects Compounding Posttest as Dependent Variable

Source	Sum of Squares	Df	Mean Square	*F*-Value	p-value
Group	6.775	1	6.775	1.165	.284
Pretest	11.829	1	11.829	2.033	.159
Group* pretest	.540	1	.540	.093	.762
Error	378.112	65	5.817		
Total	3427.000	69			

Table 4.2 shows that no significant interaction between pretest and the group was observed. The result attained from this approach showed that .762 was the interaction significant level. It was more than .05. Therefore, violation of the assumption did not occur. The interaction is not statistically significant if the interaction level is found to be more than .05 (Pallant, 2010). Since the interaction between the group and pretest is not significant, there is no violation for homogeneity of regression slopes (Leech et al., 2011).

Table 4.3: Test Between-Subjects Effects Inflectional Posttest as Dependent Variable

Source	Sum of Squares	Df	Mean Square	*F*-Value	p-value
Group	.992	1	.992	.457	.502
Pretest	2.723	1	2.723	1.253	.267
Group*pretest	3.355	1	3.355	1.544	.218
Error	145.594	67	2.173		

Table 4.3 shows that no significant interaction between pretest and the group was observed. The result attained from this approach showed that .218 was the interaction significant level. It was more than .05. Therefore, the assumption was not

violated. The interaction is not statistically significant if the interaction level is found to be more than .05 (Pallant, 2010). Since the interaction between the group and pretest is not significant, there is no violation for homogeneity of regression slopes (Leech et al., 2011).

Table 4.4: Test Between-Subjects Effects Derivational Posttest as Dependent Variable

Source	Sum of Squares	Df	Mean Square	*F*-Value	p-value
Group	2.308	1	2.308	.875	.353
Pretest	9.626	1	9.626	3.651	.060
Group * pretest	.172	1	.172	.065	.799
Error	174.020	66	2.637		

Table 4.4 shows that no significant interaction between pretest and the group was observed. The result attained from this approach showed that .799 was the interaction significant level. It was more than .05. Therefore, violation of the assumption did not occur. The interaction is not statistically significant if the interaction level is found to be more than .05 (Pallant, 2010). Since the interaction between the group and pretest is not significant, there is no violation for homogeneity of regression slopes (Leech et al., 2011).

Table 4.5: Test Between-Subjects Effects with Vocabulary Test Posttest as Dependent Variable

Source	Sum of Squares	Df	Mean Square	*F*-Value	p-value
Group	269.087	3	89.696	25.432	.000
Pretest	7.344	1	7.344	2.082	.151
Group* pretest	21.231	3	7.077	2.007	.116
Error	465.544	132	3.527		

Table 4.5 shows that no significant interaction between pretest and the group was observed. The result attained from this approach showed that .166 was the interaction significant level. It was more than .05. Therefore, violation of the assumption did not occur. The interaction is not statistically significant if the interaction

level is found to be more than .05 (Pallant, 2010). Since the interaction between the group and pretest is not significant, there is no violation for homogeneity of regression slopes (Leech et al., 2011).

4.2.5 Equality of Variance

Equality of Variance examines whether the variance in scores is similar for every group. The method of evaluating the equality of variance (SPSS version 22) was used to compute the data. Levene's Test of Equality was scrutinized to obtain the result. Green and Salkind (2005) assert that if the Levene's Test of Equality of Variance is not significant (p>.05), the two or more variances are approximately equal. Table 4.6 shows the result of Levene's Test of Equality of Variance.

Table 4.6: Levene's Test of Equality of Error Variances

Dependent variables	*F*	Df1	Df2	Sig.
Compounding	1.23	1	67	p>.05
Inflectional	1,96	1	69	p>.05
Derivational	.079	1	68	p>.05
Vocabulary	.98	3	136	p>.05

*p>.05

Table 4.6 shows the significance value for compounding, inflectional, derivational morphemic analysis tests and the vocabulary test. The *p* values were greater than .05. Therefore, the conclusion was that the variances were almost equal. There was also homogeneity of variances of the dependent variables across the groups.

4.3 Results

In order to investigate the differences that exist between the scores of the learners in the control group and experimental group in the compounding, inflectional, derivational and vocabulary tests, ANCOVA was used.

4.3.1 Research Question 1

- Is there a significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge?

H0: There is no significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge.

This research question examined whether compounding morpheme instruction had a significant effect on learners' compounding morphemic analysis knowledge. ANCOVA was employed to observe whether or not the experimental group in this study has significantly gained a higher score compared to the control group in the compounding test. This was done after the differences in the scores of the pretest between the learners in the control and experimental groups were controlled. The findings showed that after controlling the pretest effect, a significant difference existed between the control and experimental groups in compounding morphemic analysis, F (1, 66) = 6.104, p=.016, partial eta squared = .085). The 'effect size' or eta is another important value that needs to be considered in the analysis of ANCOVA. The partial Eta squared value of .085 showed that 80.5% of the variance exists in the dependent variable (compounding morphemic analysis knowledge) was elucidated by the independent variable (i.e. group) as shown in Table 4.7. According to Cohen (1988), the value of eta (eta=.29) is considered as a medium effect size.

Table 4.7: ANCOVA for Compounding Morphemic Analysis as a Function of Group, using Pretest Scores as Covariate

Source	Df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	1	12.332	2.150	.147	.032
Group	1	35.021	6.104	.016	.085
Error	66	5.737			
Total	69				

Table 4.8 shows the standard deviations and the means for the control and experimental groups on the compounding morphemic analysis knowledge, prior to and after having a control on the pretest effect. It is evidently shown that a difference exists between the control and experimental groups on the compounding morphemic analysis knowledge prior to and after having a control on the pretest effect. Analysis of ANCOVA showed that learners in the experimental group (M= 7.324, SD= 2.156) scored significantly higher than learners in the control group (M= 5.886, SD= 2.643). Thus, the null hypothesis was rejected. There was a significant effect of learning compounding morphemes on learners' compounding morphemic analysis knowledge.

Table 4.8: Unadjusted and Adjusted Group Means and Variability for Compounding Morphemic Analysis using Pretest Scores as Covariate

		Unadjusted		Adjusted	
Group	N	M	SD	M	SE
Experimental	34	7.324	2.156	7.317	.411
Control	35	5.886	2.643	5.892	.405

The same procedure had been conducted for the subsequent research question.

4.3.2 Research Question 2

- Is there a significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge?

H0: There is no significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge.

This research question examined whether inflectional morpheme instruction had a significant effect on learners' inflectional morphemic analysis knowledge. ANCOVA was employed to observe whether or not the experimental group in this study has significantly gained a higher score compared to the control group in the inflectional test. This was done after the differences in the scores of the pretest between the learners in the control and experimental groups were controlled. The findings showed that after

controlling the pretest effect, a significant difference existed between the control and experimental groups in inflectional morphemic analysis, F (1, 68) = 43.247, p=.00, eta squared = .389). The 'effect size' or eta is another important value that needs to be considered in the analysis of ANCOVA. The partial Eta squared value of .389 showed that 38.9% of the variance exists in the dependent variable (inflectional morphemic analysis knowledge) was elucidated by the independent variable (i.e. group) as shown in Table 4.9. According to Cohen (1988), the value of eta (eta=.29) is considered as a medium effect size.

Table 4.9: ANCOVA for Inflectional Morphemic Analysis as a Function of Group, using Pretest Scores as Covariate

Source	Df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	1	.452	.206	.651	.003
Group	1	94.729	43.247	.000	.389
Error	68	2.190			
Total	71				

Table 4.10 shows the standard deviations and the means for the control and experimental groups on the inflectional morphemic analysis knowledge, prior to and after having a control on the pretest effect. It is evidently shown that a difference exists between the control and experimental groups on the inflectional morphemic analysis knowledge prior to and after having a control on the pretest effect. Analysis of ANCOVA showed that learners in the experimental group (M= 5.367, SD= .261) scored significantly higher than learners in the control group (M= 5.400, SD= 1.439). Thus, the null hypothesis was rejected. There was a large significant effect of learning inflectional morphemes on learners' inflectional morphemic analysis knowledge.

Table 4.10: Unadjusted and Adjusted Group Means and Variability for Inflectional Morphemic Analysis, using Pretest Scores as Covariate

		Unadjusted	Adjusted		
Group	N	M	SD	M	SE
Experimental	36	5.367	.261	7.866	.257
Control	35	5.400	1.439	5.367	.261

4.3.3 Research Question 3

- Is there a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge?

H0: There is no significant effect of derivational morpheme instruction on learners' derivational morphemic analysis knowledge.

This research question examined whether derivational morpheme instruction had a significant effect on learners' derivational morphemic analysis knowledge. ANCOVA was employed to observe whether or not the experimental group in this study has significantly gained a higher score compared to the control group in the derivational test. This was done after the differences in the scores of the pretest between the learners in the control and experimental groups were controlled. The findings showed that after controlling the pretest effect, a significant difference existed between the control and experimental groups in derivational morphemic analysis knowledge, F (1, 67) = 10.921, p=.002, partial eta squared = .140). The partial Eta squared value of .140 showed that 14% of the variance exists in the dependent variable (derivational morphemic analysis) was explained by the independent variable (group) as shown in Table 4.11. According to Cohen (1988), the value of eta (eta=.37) is considered as a large effect size.

Table 4.11: ANCOVA for Derivational Morphemic Analysis as a Function of Group, using Pretest Scores as Covariate

Source	df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	1	9.579	3.684	.059	.052
Group	1	28.393	10.921	.002	.140
Error	67	2.600			
Total	70				

Table 4.12 presents the means and standard deviations for the experimental group and the control group on derivational morphemic analysis knowledge, before and after controlling for the pretest effect. It is evidently shown that a difference exists between the control and experimental groups on the derivational morphemic analysis knowledge prior to and after having a control on the pretest effect. Analysis of ANCOVA showed learners in the experimental group (M= 7.171, SD= 2.001) scored significantly higher than learners in the control group (M= 6.200, SD= 1.183). Thus, the null hypothesis was rejected. There was a significant effect of learning derivational morphemes on learners' derivational morphemic analysis knowledge.

Table 4.12: Unadjusted and Adjusted Group Means and Variability for Derivational Knowledge, using Pretest Scores as Covariate

		Unadjusted	Adjusted		
Group	N	M	SD	M	SE
Experimental	35	7.171	2.001	7.131	.274
Control	35	6.200	1.183	6.141	.274

4.3.4 Research Question 4

- Does the level of learner's vocabulary development differ by Morphemic Analysis Instruction approach?

Research question 4 illustrates the results between the control groups and the three experimental groups on the vocabulary development. Data analysis was conducted for all the four groups (three experimental groups and one control group) based on their vocabulary test results. This is important because the procedure conducted in ANCOVA

for all the groups in this study to reduce the possibility of making Type 1 error (i.e. the rejection of null hypothesis while it is true).

Table 4.13: Test of Between-Subjects Effects Vocabulary Posttest as Dependent Variable

Source		Sum of Squares	Df	Mean Square	*F*-Value	p-value
Group		269.087	3	89.696	25.432	.000
Pretest		7.344	1	7.344	2.082	.151
Group * pretest		21.231	3	7.077	2.007	.116
Error		465.544	132	3.527		

Table 4.13 shows that there was no significant interaction between the group and pretest. The output obtained from this procedure showed that the significance level of the interaction was .116. It was more than .05. Therefore, the assumption was not violated. The interaction is not statistically significant if the interaction level is found to be more than .05 (Pallant, 2010). Since the interaction between the group and pretest is not significant, there is no violation for homogeneity of regression slopes (Leech et al., 2011).

Table 4.14: ANCOVA for Vocabulary Test as a Function of Group, using Pretest Scores as Covariate

Source	df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	1	3.973	1.102	.296	.008
Group	3	515.227	142.891	.000	.760
Error	135	3.606			
Total	140				

The findings showed that after controlling the effect of the pretest, a significant difference existed between the control and experimental groups in vocabulary test, *F* (3, 135) = 142.891, *p*=.000, partial eta squared = .760). The partial Eta squared value of .760 showed that 76% of the variance exists in the dependent variable (vocabulary development) was explained by the independent variable (group) as shown in Table

4.15. According to Cohen (1988), the value of eta (eta=.87) is considered as a very large effect size.

Table 4.15: Unadjusted and Adjusted Group Means and Variability Vocabulary Posttest Total Scores of Experimental Groups and Control Group as Dependent Variable Pretest Scores as Covariate

		Unadjusted		Adjusted	
Group	N	M	SD	M	SE
Compounding	34	17.912	1.640	17.912	.326
Inflectional	36	23.111	2.053	23.111	.317
Derivational	35	19.571	1.290	19.571	.321
Control	35	13.657	2.413	13.657	.321

It is evidently shown in Table 4.15 that virtually a difference exists between the control and experimental groups on the after having a control on the pretest effect. The table also illustrates that learners in the compounding group (M=17.912, SD=1.640), inflectional group (M=23.111, SD=2.053) and derivational group (M=19.571, SD=2.290) scored significantly higher than learners in the control group (M=13.656, SD=2.413).

To explore the significance of the mean differences in vocabulary development of learners in different morphemic analysis instruction, Scheffe's test was used to examine multiple comparisons (pairwise differences). Tables from 4.16 to 4.21 show the results of the Scheffe's test for the pairwise comparison of the mean differences of the four groups.

4.3.4.1 Research Question 4 (a)

- Is there a significant effect of compounding morpheme instruction on learners' vocabulary development?

H0: There is no significant effect of compounding morpheme instruction on learners' vocabulary development.

Table 4.16: Comparison of Compounding and Control Groups with Vocabulary Posttest Total as Dependent Variable

Means differences		
Group	Compounding	Control
Compounding	-----	4.254**
Control	-----	-----

**p< 0.01

Table 4.16 shows the means score difference of the control and the compounding groups (=4.25) is very significant at p< 0.01 level. The outcome which was based on the mean scores of the control and compounding groups shows that learners in the compounding group achieved a significant mean score (M=17.912, SD=.326) compared to learners in the control group (M=13.657, SD=1.640) in terms of vocabulary achievement. Thus, the proposed null hypothesis was rejected. There is a significant effect of learning compounding morphemes on learners' vocabulary achievement.

4.3.4.2 Research Question 4 (b)

- Is there a significant effect of inflectional morpheme instruction on learners' vocabulary development?

H0: There is no significant effect of inflectional morpheme instruction on learners' vocabulary development.

Table 4.17: Comparison of Inflectional and Control Groups with Vocabulary Posttest Total as Dependent Variable

Means differences		
Group	Inflectional	Control
Inflectional	-----	9.454**
Control	-----	-----

**p< 0.01

Table 4.17 shows the means score difference of the control and the compounding groups (=9.45) is very significant at p< 0.01 level. The outcome which

was based on the mean scores of the control and inflectional groups shows that learners in the inflectional group achieved a significant mean score (M=23.111, SD=.317) compared to learners in the control group (M=13.657, SD=1.640) in terms of vocabulary achievement. This shows there is a significant effect of learning inflectional morphemes on learners' vocabulary achievement. Thus, the proposed null hypothesis was rejected. There is a significant effect of learning inflectional morphemes on learners' vocabulary achievement.

4.3.4.3 Research Question 4 (c)

- Is there a significant effect of derivational morpheme instruction on learners' vocabulary development?

H0: There is no significant effect of derivational morpheme instruction on learners' vocabulary development.

Table 4.18: Comparison of Derivational and Control Groups with Vocabulary Posttest Total as Dependent Variable

Means differences		
Group	Derivational	Control
Derivational	-----	5.914**
Control	-----	-----

**p< 0.01

Table 4.18 shows the means score difference of the control and the derivational groups (=5.91) is very significant at p< 0.01 level. The outcome which was based on the mean scores of the control and derivational groups shows that learners in the derivational group achieved a significant mean score (M=19.571, SD=.321) compared to learners in the control group (M=13.657, SD=1.640) in terms of vocabulary achievement. This shows that there is a significant effect of learning derivational morphemes on learners' vocabulary achievement. Thus, the proposed null hypothesis

was rejected. There is a significant effect of learning derivational morphemes on learners' vocabulary achievement.

However, significant differences existed among the experimental groups and control group in vocabulary achievement. The following research questions and tables display the results individually. As Rispens et al. (2007) explain, different aspects of morphemic awareness such as compounding, inflectional or derivational awareness have distinct contribution on language acquisition such as reading, spelling or vocabulary. This is because "the three kinds of morphological processes are universal features of languages, but the frequency with which these processes occur is language dependent" (Rispens et al., 2007, p. 4). According to them, all three processes of derivational, inflectional and compounding morphology occur but each morpheme has an independent contribution to different aspects of language development.

4.3.4.4 Research Question 4 (d)

- Is there a significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development?

H0: There is no significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development.

This question explored whether there was a significant difference on vocabulary achievement of learners who learnt compounding morphemes and inflectional morphemes.

Table 4.19: Comparison of Compounding and Inflectional Groups with Vocabulary Posttest Total as Dependent Variable

Means differences		
Group	Compounding	Inflectional
Compounding	-----	-5.199**
Inflectional	-----	-----

**p< 0.01

Table 4.19 shows the means score difference of the compounding and the inflectional groups (= -5.91) is very significant at p< 0.01 level. The outcome which was based on the mean scores of the compounding and inflectional groups shows that learners in the inflectional group achieved a significant mean score (M=23.111, SD=2.053) than the learners in the compounding group (M=17.912, SD=1.640) and control group (M=13.656, SD=2.41) on vocabulary achievement. Thus, the effect of learning inflectional morpheme is more significant than learning compounding morphemes. This can be seen from the results of the vocabulary test in this study where the Inflectional Group gained higher scores than the Compounding Group. Thus, the proposed null hypothesis was rejected. There is a significant effect of learning inflectional morphemes than learning compounding morphemes on learners' vocabulary achievement.

4.3.4.5 Research Question 4 (e)

- Is there a significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development?

H0: There is no significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development.

Table 4.20: Comparison of Inflectional and Derivational Groups with Vocabulary Posttest Total as Dependent Variable

Means differences		
Group	Inflectional	Derivational
Inflectional	-----	1.666*
Derivational	-----	-----

*p< 0.01

Table 4.20 shows the means score difference of the inflectional and derivational groups (= 1.67) is very significant at p< 0.01 level. The outcome which was based on the mean scores of the inflectional and derivational groups shows that learners in the

inflectional group obtained a significantly higher mean score (M=23.111, SD=2.05) than the learners in the derivational group (M=19.571, SD=2.41) and control group (M=13.656, SD=2.413) on vocabulary achievement. Thus, the effect of learning inflectional morpheme is more significant than learning derivational morphemes. This can be seen from the results of the vocabulary test in this study where the Inflectional Group gained higher scores than the Derivational Group. Thus, the proposed null hypothesis was rejected. There is a significant effect of learning inflectional morphemes than learning derivational morphemes on learners' vocabulary achievement.

4.3.4.6 Research Question 4 (f)

- Is there a significant difference of derivational morphemes morpheme instruction and compounding morpheme instruction on learners' vocabulary development?

H0: There is no significant difference of derivational morpheme instruction and compounding morpheme instruction on learners' vocabulary development.

Table 4.21: Comparison of Compounding and Derivational Groups with Vocabulary Posttest Total as Dependent Variable

Means differences		
Group	Compounding	Derivational
Compounding	-----	5.914**
Derivational	-----	-----

**p< 0.01

Table 4.21 shows the means score difference of the compounding and the derivational groups (= 5.19) is very significant at p< 0.01 level. The outcome which was based on the mean scores of the compounding and derivational groups shows that learners in the derivational group obtained a significantly higher mean score (M=19.571, SD=2.290) compared to the learners in the compounding group (M=17.912, SD=1.640) and the control group (M=13.656, SD=2.413) on vocabulary achievement.

Thus, the effect of learning derivational morpheme is more significant than learning compounding morphemes. This can be seen from the results of the vocabulary test in this study where the Derivational Group gained higher scores than the Compounding Group. Thus, the proposed null hypothesis was rejected. There is a significant effect of learning derivational morphemes than learning compounding morphemes on learners' vocabulary achievement.

Based on these results, the study suggested that the learning of compounding, inflectional and derivational morphemes has a significant effect on ESL low proficiency secondary school learners' vocabulary development. Nevertheless, the effect of learning each morpheme varies at different levels. Learning inflectional morphemes showed the highest impact on the learners' vocabulary achievement followed by derivational morpheme in the second and compounding morpheme as the least significant effect on the learners' vocabulary achievement in this study.

4.5 Summary of the Chapter

In this chapter, exclusive discussions were presented on the data analysis and also the results of the research. Answers or results for the four research questions with the sub questions mentioned in this chapter were provided based on the data gathered on the 140 ESL low proficiency secondary school learners.

The data analysis illustrated that: i) there is a significant effect of compounding morpheme instruction on the compounding morphemic analysis knowledge; ii) there is a significant effect of inflectional morpheme instruction on the inflectional morphemic analysis knowledge; iii) there is a significant effect of derivational morpheme instruction on the derivational morphemic analysis knowledge; iv) there is a significant effect of compounding morpheme instruction on learners' vocabulary achievement; v) there is a significant effect of inflectional morpheme instruction on learners'

vocabulary achievement; vi) there is a significant effect of derivational morpheme instruction on learners' vocabulary achievement. vii) there is a significant difference between inflectional morpheme instruction and compounding morpheme instruction on learners' vocabulary achievement; viii) there is a significant difference between inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary achievement; ix) there is a significant difference between derivational morpheme instruction and compounding morpheme instruction on learners' vocabulary achievement. However, differences existed on the effect of three different morphemic instructions on the vocabulary development: the effect of inflectional morpheme instruction contributed the most to learners' vocabulary development, followed by derivational morpheme instruction; while compounding morpheme instruction contributed the least to vocabulary development.

In sum, this data could provide empirical evidence to support existing literature to investigate which feature of morphemic analysis instruction is important for facilitating vocabulary achievement in the English language among low proficiency secondary school learners as demonstrated in the current study.

CHAPTER 5: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This chapter discusses the findings illustrated in the previous chapter, observes the significance and makes inferences so that a conclusion can be achieved. The findings of the current study are used to shed light on the research questions and also to clarify new research questions for future research. Likewise, the results of the current study from the literature review and findings would be evaluated against each other. A detailed discussion would be presented should there be any discrepancies and similarities. A subsequent discussion of implications, limitation, delimitation of this study, and suggestions for future research that could close the existing gaps or problem would follow suit.

5.2 Overview of the Study

The current study is aimed at providing empirical data to explore the effectiveness of compounding, inflectional and derivational morphemic analysis instruction on ESL low proficiency secondary school learners' vocabulary development.

This study, inspired by the morphemic analysis strategy, attempts to explain that instruction in word-learning strategies such as morphemic analysis contributes to ESL learners' vocabulary development. As Baumann et al. (2002) believe, instruction in morphemic analysis can significantly help learners to expand their vocabulary. However, they stress that the intervention research on teaching learners to utilize morphemic units as linguistic cues is rather limited in ESL context.

To prove this point, the researcher selected 140 ESL secondary school learners at the low proficiency level from four intact classes from one institution to run this quasi-experimental study. The research was conducted over approximately two months

from the pretest and then the treatment period and finally to the posttest. Three different morphemic analysis instructional strategies namely compounding, inflectional and derivational were given as treatment to three experimental groups. These three instructions are important when considering morphemic analysis as a word-learning strategy because the acquisition of morphological awareness in English involves inflectional, derivational, and compounding morphemes (Kuo & Anderson, 2006). The meanings of morphologically complex words can be deduced with the use of inflectional, derivational, and compounding morphemic analyses which in turn help to develop vocabulary among learners (Zhang & Koda, 2013).

The researcher cum the teacher taught all the experimental groups during the treatment stage. The researcher taught each group according to the lesson plan outlined in the current study. The target morphemes for compounding, inflectional and derivational morphemic instructions were chosen based on the foreign and local studies by Akande (2005) as well as Jalaludin et al. (2008) which stress that errors made by ESL learners are a resultant of their mistreatment of grammatical morphemes on affixation and compound-related words. Suffixes in inflections, prefixes in derivations and open and close forms in compounding were taught explicitly in this study. Meanwhile, the control group was not provided with any explicit morphemic analysis instruction throughout the course.

The effectiveness of each morphemic instruction on each experimental group was determined based on pretest and posttest. Compounding, inflectional and derivational morphemic analysis tests as well as a vocabulary test were used to measure learners' vocabulary knowledge in the pretest as well as the posttest before and after the intervention programme. Pilot study which was carried out before the main study aided in the establishment of the validity and the reliability of the measures utilized in this

research. ANCOVA as well as Post Hoc were employed to analyze the total and individual scores of the groups in order to shed light on the six research questions proposed in the current study. The following section discusses the results and elucidation for all the research questions mentioned in this study.

5.3 Discussion

There are many studies which have suggested that morphemic analysis instruction plays a role in vocabulary acquisition (Akande, 2003; Al-Farsi, 2008; Alsalamah, 2007; McBride-Chang et al., 2005; Chen, 2008; Lam, 2009). Nevertheless, these researchers indulged in a variety of morphological processes and procedures (Rispens, McBride-Chang & Reitsma, 2007). They further questioned that these studies did not offer much on many information such as which aspect of morphology is important to develop vocabulary or learners' age range that morphological awareness can play a significant role in improving their vocabulary gain. Thus, the ultimate aim of this research was to investigate systematically whether or not the understanding of inflectional, derivational, and compounding morphemes can influence vocabulary acquisition. Specifically, this quantitative study examined the effectiveness of compounding, inflectional and derivational morphology on ESL low proficiency secondary school learners' vocabulary achievement after an intervention programme.

Rispens et al. (2007) assert that inflections are formed by various combinations of suffixes to the roots. These suffix additions express grammatical notions like tense, case, SVA (subject-verb agreement), gender and person. On the other hand, derivatives are new words which are formed through adding affixes (prefix and suffix) to the roots. Through derivational process the new word attains new grammatical category compared to its previous root. Another morphological feature is compounding. It is a combination of base words to express a new concept (Rispens et al., 2007).

The results of analysis of the study discussed in Chapter Four suggested that the instruction in compounding, inflectional and derivational morphology has significantly improved ESL learners' morphemic analysis knowledge. The significant effects were seen in each morphemic instructional strategy; however the degree of compounding, inflectional and derivational morphemic analysis knowledge varied at different levels in vocabulary achievement among the low proficiency learners in the ESL context. They ranged from large effect size (inflectional morphemic analysis knowledge) to moderate (derivational morphemic analysis knowledge) and small effect size on compounding morphemic analysis knowledge. This implied that the compounding, inflectional and derivational morphemic analysis instruction have various levels of effect on vocabulary acquisition among learners. This is due to the different nature of each morpheme as mentioned in Chapter Two. According to Lam (2009), there exists a difference in the extent to which morphemes can facilitate learners' acquisition in reading comprehension and also vocabulary acquisition.

5.3.1 Research Question 1

- Is there a significant effect of compounding morpheme instruction on learners' compounding morphemic analysis knowledge?

This research question was proposed with the aim to measure the effectiveness of compounding morpheme instruction on learners' compounding morphemic analysis knowledge. The result demonstrated that learners in the compounding group (experimental) have scored significantly higher than the control group.

This significant effect could be seen from two major aspects. Firstly, in line with the theoretical view of this study that the ability to recognize compounding morphology develops at an early age (Nagy et al., 1992). Lam (2009) mentioned Clark, Gelman and Lane (1985) study showed that children by the age of two were able to understand the

concept of head-modifier in compound words. In other words they are able to label new objects using compounding words (e.g., *balloon-tree*) (p. 25). Kuo and Anderson (2006) noted a firm and steady increase in compounding knowledge of children throughout their primary school years. This evidence suggests that children's compounding morphology structure emerges during preschool and gradually becomes more explicit over the elementary and secondary years.

Second, the instruction given during the treatment phase may have contributed to the achievement. According to Nagy et al. (1992), when conducting a morphemic analysis instruction, the initial instruction on concepts such as roots should be explored with familiar words, known by the learners. Nagy et al. (1992) urge that teachers must make learners aware of the morphemic units exist in the complex words they already know before introducing them to new complex words to be analyzed. The researcher used high frequency words (most common words) before moving on to low frequency words in order to teach them how the conjoining of two base words can result in a new word that is different in meaning (Flood, 2003). However, it is worth noting the majority of the compound words included in the compounding morphemic analysis task was *noun + noun* compounds. Lam (2009) asserts that children's compound structural awareness in English is the greatest for *noun + noun* compounds as compared to other types of compounds and this might contribute to the significant performance by the experimental group in the study. This finding is further supported by Argus and Kazakovskaya (2012) that morphosemantically transparent compound words are more relevant and learners can acquire them more easily and earlier compared to opaque words. Acquisition of early transparent words includes compound words where both modifiers (head and non-head) are transparent in nature.

In sum, the current findings of this study agree with previous research (Lam, 2009; Chen, 2008; McBride-Chang, 2005) that learning compounding morphemes can significantly improve learners' compounding morphemic analysis knowledge.

5.3.2 Research Question 2

- Is there a significant effect of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge?

This research question was aimed to measure the effectiveness of inflectional morpheme instruction on learners' inflectional morphemic analysis knowledge. The result showed that the learners in the inflectional group (experimental) outperformed the control group. In fact, the learners scored significantly better in the inflectional morphemes than the derivational and compounding morphemes after the intervention programme. As mentioned by Wagner (2007), numerous studies of learners learning English as a Second Language indicate that certain morphemes are acquired better than the rest regardless of the learner's age, their first language (L1), the length of instruction or amount of exposure to English. As Cook asserts, "without an explanation it can have only limited relevance to teaching" (1991, p. 14).

On the other hand, Pienemann (2002) maintains that morphemes are acquired in the order of least complex to most complex. Inflectional morphemes do not affect the meaning or change the grammatical category. Meanwhile, derivational morphemes change their grammatical category and compounding morphemes develop to a totally new concept. Learners could score better with inflections because only verbs, nouns, tenses or numbers are transformed or receive modification and these grammatical changes do not involve any change in their meanings. Thus, the changing is more reliable and straightforward and learners are able to follow the rules; and once the learners grasp the rules to apply across a variety of base words, learners will score

(Argus & Kazakovskaya, 2012). This notion is supported by Rispens et al. (2007) that when learners learn to identify base words and the addition of inflected endings rules, the process becomes transparent and less complex. Therefore, the awareness of inflectional morphology can be acquired comparatively easy than other morphemes (Zhang & Koda, 2013).

There are numerous studies that revealed that learners have problems understanding inflectional morphemes (Akande, 2005; Arini, 2013; Yoshimura & Nakayama, 2010). These studies on second language (L2) acquisition have investigated why L2 learners fail to consistently supply inflectional morphology in the production. However, Nielsen, Luetke and Stryker (2011) explained and proved that when learners are provided with morphemic instruction, it can make a difference. They mentioned studies by Carlo et al. (2004), Bow, Blamey, Paatsch and Sarant (2004), and Lesaux, Kieffer, Faller and Kelley (2010) who investigated the effect of morphological training on selected morphemes have resulted in significant effects. For example, a study by Bow et al. (2004) investigated the effect of a 9 week-morphemic analysis training which the focus was on inflections for learners who have difficulties of hearing. The results of the statistical analysis showed that the learners made a significant achievement in English morphological awareness after the training sessions. If the study which had deaf learners can achieve a significant effect, the researcher was confident that such an intervention could be successful too to low proficiency learners, such as in this study.

This current finding contributes to the existing literature that instructions in morphology can help learners improve their morphemic analysis knowledge. Thus this study suggests that morphology teaching especially explicit instruction in inflectional morphemes contributes to the knowledge of inflectional morphemic analysis among low proficiency ESL secondary school learners.

5.3.3 Research Question 3

- Is there a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis?

The research question was aimed to investigate whether there is a significant effect of derivational morpheme instruction on learners' derivational morphemic analysis. The result shows the experimental group of this study scored significantly higher compared to the control group.

However, the result shows that even though the experimental group achieved more than the control group but it was not as significant as the compounding and the inflectional experimental groups. This demonstrates that certain morphological knowledge is quite difficult to achieve in a short instructional programme.

This current finding is concurrent with other previous findings that learners experience different growth in these three types of morphological knowledge. According to Lam (2011), a number of studies have reported that some learners demonstrate early understanding of inflections by two years old, and they mostly acquire the common inflectional morphemes during their primary school. In comparison to inflectional morphemes, the acquisition of derivational morphemes starts later in childhood and can extend over a longer period of time, most likely into adulthood. Lam (2011) further mentions that some evidence show that young learners are more skilled in generating words with highly productive derivational suffixes such as (*-er*). This is because young learners have limited knowledge in derivatives. Young learners know derivatives that are more common and phonetically transparent such as *quiet-quietly* or *teach-teacher*. However, learners in order to understand derivatives that are less transparent or understand less familiar affixes such as *long-length*, take a longer time

(Carlisle & Fleming, 2003). Lam (2011) also claims that even learners at tertiary levels, especially in the ESL context, are still struggling to master the derivative concepts.

Gaustad (2000) claims that common and frequent words are rather short and they contain only one morpheme (root) such as *deny* and they are used throughout many texts. However, when a word contain more morphemes (prefixes and suffixes) such as *undeniably*, the more complex the meaning becomes; and when words become complex they are used sparingly in the text. Therefore, most complex words especially morphologically derived words are low in frequency (occurrence in texts). This occasional introduction/exposure to these complex words in fact does not enhance learners' visual familiarity and also the ability to decode the meaning of the word. Likewise, Baumann et al. (2002) report that there is no single morphemic instruction that has been conducted thus far provides an apparent finding on which morphemic elements promote most effective result. Thus, when the interventions are varied in nature and duration, they provide relatively little insight on their nature and intensity which can be used to enhance learners' morphological knowledge.

Nagy et al. (1993) claim that learners find it difficult to acquire derivational affixes because these morphemic words correlate with more complex formal discourse as well as syntax (in written language). In other words, derivational affixes are found to be more commonly used during writing exercises or when formal speech takes place. Derivatives are not common in everyday or non-formal communications. Nagy et al. (1993) also state that some derivative affixes such as suffix *-er* as in *baker* are found to be more familiar and can be acquired easily at a young age.

The finding of this research question agrees with Rispens et al.'s (2007) study that varied levels of inflectional, compounding and derivational awareness among their participants were found to be responsible for the performance differences in the

inflectional, compounding and derivational tasks. The participants had relatively little trouble with inflectional verbs and compounding tasks while derivative tasks pose more difficulties for them. Similarly, a study by Hoogmoed, Knoors, Schreuder and Verhoeven (2012) showed that their participants faced more difficulties in understanding derivatives compared to compound words. This shows that learners lack of knowledge to understand derivational words due to their complex morphemes added to their roots. Hence, these researchers suggested that it could be beneficial to give instructions on morphemes so that learners are able to utilize morphemic units to decode morphologically complex words.

5.3.4 Research Question 4

- Does the level of learners' vocabulary development differ by Morphemic Analysis Instruction approach?

The research question was aimed to investigate whether there is significant effect of three types of morphemic analysis instruction on learners' vocabulary development. The result showed that the three experimental groups scored significantly higher than the control group.

Previous empirical studies show that morphemic analysis awareness greatly contributes to language skills acquisition (Rispens et al., 2007; Carlisle, 2000; Casalis & Louis-Alexandre, 2000; McBride-Chang et al., 2005; Singson et al., 2000; Nagy et al., 2003). Along the same line, Ferguson (2006) point out that ESL learners' inability to acquire the morphemic analysis awareness (which is important for vocabulary and reading comprehension) implies that there is a solid reason to include morphemic analysis instruction and the teaching of morphemic units explicitly. Collectively, researchers like Al Farsi (2008), Gomez (2009) and Khodadoust et al. (2013) stress that morphemic analysis awareness is definitely important for ESL learners to arrive at the

meaning of complex words and promoting morphemic analysis strategy through morphemic analysis instruction should be considered as a method to effectively boost learners' vocabulary development.

5.3.4.1 Research Question 4 (a)

- Is there a significant effect of compounding morpheme instruction on learners' vocabulary development?

The objective of this was to investigate the effect of compounding morpheme instruction on learners' vocabulary development. The results showed that through compounding morpheme instruction learners can develop their vocabulary significantly. This finding further confirms the findings of Zhang and Koda (2012) and Wang et al. (2009) that compound morpheme significantly correlated with vocabulary knowledge. Their studies showed that compounding awareness has a strong relationship to vocabulary growth in English language.

However, the results showed that the significance was not high as inflectional and derivational morphemic knowledge; it did not exclusively contribute to vocabulary gain among low proficiency learners at secondary level. This finding was in line with two previous findings by Rispens et al. (2007) and McBride-Chang et al. (2005). Their findings showed that compounding morpheme did not uniquely contribute to or were not associated with word knowledge in English. Compounding items were not tested separately in the task but they were mixed together in one task. This had made the result analysis somewhat difficult for discussions (McBride-Chang et al., 2005).

5.3.4.2 Research Question 4 (b)

- Is there a significant effect of inflectional morpheme instruction on learners' vocabulary development?

The objective of this was to investigate the effect of inflectional morpheme instruction on learners' vocabulary development. The result revealed that through inflectional morpheme instruction learners can develop their vocabulary significantly, in fact a very large significance. The results of this study appeared to be consistent with previous cross-sectional and longitudinal studies such as by Deacon and Kirby (2004), Kuo and Anderson (2006) and Deacon (2011) who have repeatedly provided evidence for the influence of inflectional morphology on various aspects of English language acquisition such as vocabulary and reading. These studies further elaborated that inflectional morphemic awareness is important to develop word decoding skills and it contributes to reading comprehension in different age groups.

Accordingly, Singson et al. (2000) study prove that inflectional morphemic awareness made a unique contribution to word decoding skills among the participants of their study. McBride-Chang et al. (2005) who did a study on morphological awareness found that inflections were significantly correlated with word comprehension. These studies and the current study showed that morphemic awareness on inflections was significantly related to learners' vocabulary development.

5.3.4.3 Research Question 4 (c)

- Is there a significant effect of derivational morpheme instruction on learners' vocabulary development?

This research question was aimed to measure the effectiveness of derivational morpheme instruction on learners' vocabulary development. The result showed that through derivational morpheme instruction learners were able to develop their vocabulary significantly. However, it is not as significant as the effect of inflectional morphemes on low proficiency learners' vocabulary development.

This finding with regards to the effect of derivational awareness is persistent with the study by Rispens et al. (2007) that derivational morphology made a contribution to word comprehension. However, derivational morphology contribution was less strong than inflectional morphology contribution. Hoogmoed et al. (2013) who investigated the use of morphology found that derivatives pose more difficulties to learners compared to inflections. Learners were found to use less derivational awareness compared to inflectional. This result can be a possible fact that derivatives are less productive compared to inflections in English language (Kuo & Anderson, 2006).

This result is also consistent with what was revealed in Koosha and Salimian's (2010) study. Their research observed that their participants (Iranians) understand inflections more than derivatives. In fact, they displayed a good knowledge of inflections. According to Koosha and Salimian (2010), Iranian students have better understanding of inflections because more exposure is given inflectional morphology in the ELT (English language teaching) programmes in the high schools of Iran.

5.3.4.4 Research Question 4 (d)

- Is there a significant difference of compounding morpheme instruction and inflectional morpheme instruction on learners' vocabulary development?

The research question was aimed to determine whether inflectional morpheme instruction or derivational morpheme instruction contributes to learners' vocabulary development. The result shows that inflectional morpheme instruction contributes more to the acquisition of vocabulary rather than compounding morpheme instruction among ESL secondary school learners in this current study.

The result of the current study is in line with the study by McBride-Chang et al. (2005). Their study examined the effect of morphemic awareness (compounding and

inflections) on word recognition in three languages, namely English, Korean and Chinese. They found that compounding morpheme awareness was more significant in Chinese and Korean, but not in English.

The finding of this research question could be due to the nature of morphology in English language. Three kinds of morphological awareness (inflectional, derivational and compounding morphology) are common in any languages. However, the frequency where the processes take place is dependent on the individual language itself (Rispens, McBride-Chang & Reitsma, 2008). Accordingly, morphemic awareness has a major role in English language development. However, they have varied levels of contribution on the vocabulary that is crucial for language success. The inflectional morphemes are relatively rich and they frequently occur in English language compared to compounding morphemes. Therefore, when learners read or use the frequently occurred inflected words, they acquire the awareness of inflectional morphemes comparatively easier than compounding morphemes.

Additionally, Delahunty and Garvey (2004) note that the meaning of compound words cannot be predicted at all times if learners depend on the meaning of their elements or constituents.

Generally, the main stress of the compound is on its first constituent or word. However, it is not applicable for all compound words, thus it creates confusion to the language user. For instance "sawmill is a mill for sawing while sawdust is dust from sawing" (Delahunty & Garvey, 2004, p. 9). Another reason is that compound word meaning is highly related to the phrase that corresponds to it. For example, to quote Delahunty and Garvey (2004, p. 9), "A blackbird is a species of bird, regardless of its color; a black bird is a bird which is black, regardless of its species". As such, compound words are provided with individual entries in the dictionary.

On the other hand, inflectional morpheme changes its word form to signal its grammatical properties. There are only 8 inflectional morphemes in English, as discussed earlier in Chapter 2, and most of them are common inflections. These common inflections exist in most of the words including nouns, verbs, adverbs and adjectives to signal number, tense, and degree (i.e. grammatical properties). In English, the order of inflectional morphemic units is rather fixed. There are only suffixes in inflections and they are always added at the end of a word. Thus, their structure and meaning are always at a fixed state. So it can be argued that learners can become a better user of inflectional morphemes compared to compounding morphemes.

This research question findings can be considered as a further support to acknowledge the constraints that were proposed by Argus and Kazakovskaya (2012) that factors such as frequency as well as transparency are entwined in the morphemic awareness achieving process. They argue that the acquisition of morphology is greatly related to the richness of the language system the learners encounter. Argus and Kazakovskaya (2012) asserted that the frequency that exists in some structures such as in inflectional suffixes has an effect on the acquisition of vocabulary.

5.3.4.5 Research Question 4 (e)

- Is there a significant difference of inflectional morpheme instruction and derivational morpheme instruction on learners' vocabulary development?

This research question was aimed to determine whether inflectional morpheme instruction or derivational morpheme instruction contribute to learners' vocabulary development. The result shows that inflectional morpheme instruction contributes more to the vocabulary development of ESL secondary school learners than compounding morpheme instruction.

Finding of this current study demonstrates that vocabulary acquisition is significantly achieved by learners who acquired inflectional morpheme because learners master inflectional suffixes before derivational suffixes (Nagy, Diakidoy & Anderson, 1993). According to Nagy, Diakidoy and Anderson, inflectional is a better predictor for vocabulary development because within inflectional morphemes all of the inflectional suffixes alter the noun or verb (modifying its number or tense) but the meaning remains. As mentioned by Bye (2009), the common inflection of tense (i.e. *-ed*) is applied to around 8600 over 10000 most regular verbs. According to Nagy et al. (1993) inflectional morpheme is a better predictor for vocabulary development than derivational morpheme because learners can identify the roots within the suffixed words prior to learning suffix contributions to words. In other words, learners are able to recognize base words in suffixed words (e.g. *repeat* in *repeatable*) by upper primary level. But, learners' knowledge of what suffixes contribute to the meaning of a derivative is found to continue to increase through secondary and tertiary levels because derivatives represent the most abstract and difficult aspect of morphology that learners require time to master.

Nagy et al. (1993) argue that derivational suffix is mastered later than inflectional suffix because of the complexity of the information conveyed in derivational suffix. As discussed earlier, inflectional morphemes are all suffix while derivational morphemes include both suffix and prefix. The meaning of prefixes are more abstract, however they can still be understood. For example, the word *unseen* means not seen or noticed or *reread* something is to read it over again, however these transparent derivational suffixes are limited in English language.

In sum, morphemes are relevant in English language since they can modify vocabulary. However, Ibanez (2013) asserts that for analytic and fusional languages

such as English, it is often the case that there are more derivational morphemes than inflectional morphemes. Thus, when a learner acquires difficult and abstract morphemes like derivational morphemes, there will be late improvement in their process of language acquisition.

5.4.4.6 Research Question 4 (f)

- Is there a significant difference of derivational morpheme instruction and compounding morpheme instruction on learners' vocabulary development?

The research question was aimed to determine whether derivational morpheme instruction or compounding morpheme instruction contribute to learners' vocabulary development. The results show that derivational morpheme instruction contributes more to the vocabulary acquisition than compounding morpheme instruction among ESL secondary school learners in this current study.

Previous empirical studies show that there is a significant contribution of derivational morphemes to language skills. The result of the study is in accordance with Rispens et al. (2007) who found that derivational morphology developed steadily in the two consecutive years of reading. Similarly, findings also show that derivational morphology awareness has made a significant contribution to word decoding among learners from lower to upper primary level (Singson et al., 2000). In a more recent study, Lam et al.'s (2012) study shows that derivational knowledge was a better predictor not only for reading comprehension but also vocabulary attainment. Lam et al. suggest that having the awareness of affixes in derivatives contributes or enhances reading in English language compared to having the awareness of compounding morphemes.

According to Lam et al. (2012), the above finding is a fact because derivatives in English language make up much larger multimorphemic words compared to compound words. Lam et al. (2012) also affirm that derivational awareness contributes to text comprehension as it aids in syntactical parsing. Having the awareness of derivatives helps readers to identify morphemic cues to determine the syntactical structure in a text (Tyler & Nagy, 1997; Singson & Mann, 2000; Kuo & Anderson, 2006). This is because derivational affixes mark parts of speech clearly and explicitly (for example: normally -*ness* is a noun; -*ful* is an adjective). Therefore, as claimed by Kieffer, Biancarosa and Martinezma (2011), morphological awareness facilitates reading comprehension as the meaning of most words (morphologically complex) can be deduced through morphemic units contained in them. This is because when a morpheme especially derivational affix is added it changes the word meaning. So when learners master the morphemic analysis awareness, they are actually enhanced the skills to acquire vocabulary which is important for reading (Ibanez, 2013).

Rispens et al. (2008) found that morphemic awareness was important to spelling skills and word recognition in Dutch learners. They found that their learners achieved significantly yet moderately in inflectional, derivational and compounding tasks. However, they observed that derivational awareness was significantly related to vocabulary achievement in comparison to other measures such as phonological awareness and mathematics. This shows that derivational awareness plays a major role in acquiring vocabulary compared to the other morphological awareness.

The results in the current study showed that compounding morphemes did not have much effect on learners' vocabulary development as derivatives. It can be concluded that in the secondary school, learners encounter increasing numbers of complex words in print thus the knowledge of derivatives would be much of a help,

better than the knowledge of compounding. However, this result shows that having the awareness in derivatives and compounding morphology is beneficial for future research on vocabulary.

5.4 Overall discussion

The main objective of the current study was to observe the effect of inflectional, derivational and compounding morphemic analysis instructions on vocabulary development among ESL low proficiency secondary school learners in Malaysia.

The findings of the current study can be mentioned in two main discussions. The first, second and third research question results revealed that individual instruction of three types of morphemic awareness has contributed significant results on inflectional, derivational and compounding knowledge of the ESL low proficiency secondary school learners. Nevertheless, derivational morpheme instruction proved to be significantly effective but relatively smaller amount of effect was seen on ESL low proficiency secondary school learners' morphological awareness compared to inflectional and compounding morphemes. On the other hand, inflectional morpheme instruction had a significant result, in fact the most significant effect, on ESL low proficiency secondary school learners' morphemic awareness. Thus, the results of the current study demonstrate ESL low proficiency secondary school learners achieved a significant knowledge of inflectional, derivational and compounding morphemic awareness but the level of awareness of derivatives is lower than and compounding and inflections.

The second discussion is that the fourth, fifth and the sixth research question results revealed that inflectional, derivational and compounding morphemic knowledge was found significantly related to vocabulary achievement of ESL low proficiency secondary school learners in the current study. However, compounding morphemic

knowledge was found to have the least effect on vocabulary achievement from the samples of the study. Meanwhile, inflectional morphemic knowledge has the most significant effect on ESL low proficiency secondary school learners' vocabulary achievement.

In brief, the results indicated two main findings. Morphemic analysis instructions can be seen as a means to develop ESL low proficiency students' morphemic knowledge as well as vocabulary development. Nevertheless the significant of each morpheme was not at the same frequency for both gains. However, inflectional morpheme emerged as the most significant contributor for both morphemic knowledge and vocabulary development among ESL low proficiency secondary school learners.

Therefore, it concludes that the results of the current study support Singson, Mahony and Mann (2000) as well as Kuo and Anderson (2006) arguments that morphemic awareness can be an effective tool to develop vocabulary and improve comprehension. This study rejects the doubt that Oz (2014) claimed. The findings of this research maintained what has been said mostly in the literature that the teaching morphemic awareness is beneficial to learners' language acquisition. This study is definitely another yardstick to prove that learners who are taught inflectional, derivational and compounding morphemes could develop their vocabulary; and that leads to better comprehension and language acquisition.

On the other hand, the researcher has to agree with and Bellomo (2009) and Ruth (2014) who claimed that not all morphemes are equally useful to learners for their language development. Bellomo and Ruth claim that morphemic awareness instruction works better with more frequent morphemes and morphemes with consistent spelling (Bellomo, 2009), or different categories of morphemes, such as base words (Reed, 2008). Ruth (2014) further explain that just as certain words are more useful to learners

in certain disciplines, so too are certain morphemes in learning a language especially to vocabulary acquisition.

Studies on learners' morphemic knowledge have been extensively carried in the literature of language in the past decade (e.g. Berko-Gleason, 1958; Chomsky, 1976; Clark & Hecht, 1982; Clark & Berman, 1987; Gottfried, 1997; Pounder, 2000; Nicoladis, 2002, 2003). Meanwhile, mastering morphemic cues has been found to significantly related to vocabulary development among children, adolescents as well as adults (Nagy & Anderson, 1984; Anglin, 1993; Ku & Anderson, 2003; Chen et al., 2009; Kieffer & Lesaux, 2012). This study is a further acknowledgement that morphemic analysis awareness is still highly applicable to date, in this 21st century where learners' ability to reflect and manipulate morphemic structured words, that involves higher order thinking skills (HOTS), is effective to learners' vocabulary development.

This study is also an empirical evidence that young adult learners who are linguistically impoverished are responsive to morphemic analysis instruction and able develop their vocabulary knowledge successfully. Explicit instruction on morphemic analysis meanings is still effective in promoting vocabulary learning and can be a tool to close vocabulary gaps among learners with rich and poor vocabulary knowledge. This study further demonstrates that morphemic analysis awareness able to contribute to language learning in a snowball effect. First, it develops vocabulary, then it facilitates reading comprehension and finally it contributes to a successful language acquisition.

The morphemic analysis instruction introduced in this study has contributed in certain aspects. First, the instruction is specifically designed for ESL context for the local students using the text and information which are based on locally produced teaching and learning tools such as the English language textbooks. Second, to date

there is no clear evidence showing the existence of an explicit and systematic instructional study to promote morphology in Malaysian ESL context. In fact, no clear evidence was found on morphemic analysis as an explicit instruction that is specifically designed for Malaysian secondary school students. Plus, the instructional content is exclusively tailor made for the low proficiency students using selected morphemes to enhance their vocabulary. The instruction on morphemic analysis is also geared to instructional attention that is teaching explicitly to learners when to use morphemic analysis strategy strategically to develop their vocabulary. Nevertheless, it is utmost important to note the merits of this instruction. Morphemic analysis instruction introduced in this study is not only for learners to learn about morphemes but to understand about features of morphology in the form of sub lexical level (i.e., roots, stems, affixes) to improve low proficiency learners' literacy skills at the lexical level (i.e., vocabulary which in turn increases learners' supra lexical level (i.e., reading comprehension). Thus, the current study contributed in designing an explicit instructional approach from the perspective of linguistics i.e. morphology to develop low proficiency secondary school students in Malaysian ESL context. For that reason, the study scrutinized every aspect of research including the theoretical framework, samples, methodology and intervention procedures that have led to the development of a systematic and comprehensive Morphemic Analysis Instruction.

The research can be deemed current and beneficial as morphology is an often-overlooked building block for vocabulary and comprehension till date in the Malaysian ESL context (Razak, 2016). Razak (2016) further claims that research on developmental morphology in Malaysia were often found to be in the form of anecdotal accounts and were not focused enough to contribute to the explanatory specifics of the target language acquisition. She suggested for more systematic and comprehensive studies to be conducted in the future. Razak (2016) also clearly explains that learners'

underdeveloped linguistic knowledge has influences the development of morphological skills as well as language abilities as a whole.

This research has provided robust and evidence-based findings to provide generalizations across the population studied as envisioned by Hijjo (2013) and Razak (2016). This is important because the finding of this study can represent the linguistic development of Malaysian school going children as well as to develop milestones for making informed diagnoses of Malaysian ESL learners in English language development (Razak, 2016). This is the new dimension that gives merit to the existing literature.

With regard to the contribution theory in this study, Willingham and Price (2009) stresses that schemata or background knowledge is essential to support learners' comprehension because it helps learners recall or recognize the appropriate information needed to understand the words in the text. However, the participants in this study made achievements at different levels ranging from significant to less significant in the vocabulary test. This is because as Glende (2013) asserts to be proficient learners must know not only words but also their word families therefore they must be able to recognize and understand different forms of the same word, whether they are inflections, derivatives or compounds. This is what lacked among the participants of the study: they have limited infinite and accurate schema of morphology especially roots, prefixes and suffixes. Thus, the words did not become more semantically transparent for the learners to excel in decoding and creating the morphologically complex words.

On the other hand, Mahdavi (2014) explains that through scaffolding and metacognition learners can maximize their learning when they use strategies efficiently. When there is a clear understanding what strategies help learners in language learning helps teachers to instruct and guide learners in those strategies. Strategy instructions are

able to provide a lot of opportunities for learners to practise and deepen their understanding on the particular strategy (Mahdavi, 2014).

Mahdavi (2014) also claim that by emphasizing and giving attention to strategy teaching it can enhance and empower learners to be active and autonomous learners. Mahdavi (2014) assert that when teachers integrate metacognitive strategy instruction into vocabulary learning, positive results will yield. Accordingly, teachers also should scaffold during the training given to learners because scaffolding shows the teacher's support throughout the process. This support is important because learners need guided practice to use strategy before they can apply them on their own. Teachers can reduce the scaffolding when the learners are showing their mastery in the strategy put forward to them. This helps learners to move one step forward toward autonomous learning that is crucial for successful language learning (Mahdavi, 2014).

However, despite having little schemata on morphology, they were also not very successful in applying the new strategy (morphemic analysis strategy) in a new context. These participants were not able to retrieve and apply the strategy during the test even though they faired it during the intervention. Similarly, though they were given instruction on morphemic analysis strategy explicitly and through scaffolding the participants were unsuccessful to own their learning efficiently. They also lacked the accountability to control their own progress when internalizing the new knowledge. This might resulted from the short intervention period where low proficiency learners need more time, exposure and scaffolding to be competent learning a new knowledge and skill.

5.5 Implications of the Study

This research experientially observed and analyzed, first, the influence of three types of morphemic instruction on namely, inflectional morphemic knowledge, derivational morphemic knowledge and compounding morphemic knowledge. Second, it aimed to investigate the effect of inflectional morphemic instruction, derivational morphemic instruction and compounding morphemic instruction on vocabulary development among ESL low proficiency secondary school learners. The effect was explored by two relatively separate measures, i.e. morphemic awareness and vocabulary tests.

5.5.1 Empirical Implications

The current study provides numerous implications in terms of academic in relation to the effect of morphemic knowledge on vocabulary acquisition in ESL context. Recent research shows that there is definitely high rate of success among learners who are exposed to morphemic analysis strategies to decode word meaning and to recognize morphology in different forms of a same word in various tests. This does not happen to learners who do not have the awareness of morphemic analysis (Oz, 2014).

It also provides evidence that even though metalinguistic skills such as phonological awareness, orthographic knowledge, and morphological awareness are found to have a significant positive impact on an individual's ability to learn a new language, morphological awareness has been the focus and gained more popularity not only in first language (L1) and second/foreign language (L2) literacy development. It has been examined with reading, writing, and spelling development as well as vocabulary acquisition (Karimi, 2012; Kieffer & DiFelice Box, 2013; Oz, 2014).

The results of this study point to the previous studies that three types of morphological awareness (inflectional, derivational and compounding) have significantly contributed, yet distinct in their effectiveness, to vocabulary development among second language learners at secondary level. Specifically, a major implication empirically which can be highlighted from this research is that inflectional, derivational and compounding morphemic knowledge has a significant effect on vocabulary acquisition; and that inflectional morpheme has been the most significant predictor to ESL low proficiency secondary school learners' vocabulary acquisition. Due to this, the current study further enriches documentation or literature on morphemic analysis awareness and vocabulary development that points towards the significance of compounding, derivational and inflectional morphemic awareness to develop ESL low proficiency learners' vocabulary.

5.5.2 Pedagogical Implications

Learners of English face many challenges as they must not only learn to communicate effectively but also understand the content presented in English well. Thus, it is imperative for teachers of English in any context, not only in second language contect, to understand the best ways to help learners learn the language effectively.

According to Saricoban (2014), Graves (2006), Kieffer (2009) and Kieffer and Lesaux (2012), one way to achieve this is through morphemic analysis awareness. This is because it can help learners to recognize and manipulate complex words. Kieffer and DiFelice Box (2013) claim that language learners who recognize how English words are created, by combining affixes (inflectional, derivational), and base words (compounding), tend to have more words and comprehend texts better.

Acting on prior research in this area, scholars such as Kieffer and Lesaux (2007, 2009 & 2012) offer four main instructional principles that can be used in the language classrooms. These are summarized as follows:

1. Morphology should be taught explicitly; and as a separate component of vocabulary teaching.

2. Teach learners explicit steps in 'a cognitive strategy'. In simple words, Oz (2014) mentions that in order to analyze smallest units in words or morphemes, learners need to go through all the four stages mentioned below:

   a. Recognizing unfamiliar words or identifying difficult words (not having a complete understanding of word meaning)

   b. Analyzing words with known morphemes in the roots and affixes.

   c. Thinking or decoding of a possible meaning based upon the parts of the word.

   d. Checking or guessing the meaning of the word in context.

3. Teach learners to master the use of affixes (prefix and suffix) and roots; and also how these words go into transformation processes.

4. Teach learners cognates, i.e. words with similar spelling and meanings in English and the native language if any to help their word or reading comprehension.

Given the importance of the aforementioned instructional principles, the current study which worked on morphemic analysis strategy framework suggests that there is a significant achievement over the years among learners who have been exposed to strategies to decode words by recognizing morphological features contain the new and complex words, as opposed to learners who were not exposed to such strategies (Kieffer, 2009; Kieffer & Lesaux, 2009; Kieffer & Lesaux, 2012). Therefore, as Oz (2014) recommends, a vocabulary lesson should be accompanied by morphological analysis strategy for better effect in language teaching and learning.

In line with this, Oz (2014) also advocates that learners can be introduced to strategies such as recognizing morphemes in relatively common words. This way, learners can apply their knowledge to words that are not familiar to them or to words that are familiar but presented in various morphological structures. Oz (2014) suggests a few ways for morphemic instruction to assist learners. First, the activities aimed at prompting morphological awareness can be adjusted to suit each age group. Second, young adult learners are given morphemic instruction that starts with simple words and progress slowly to more complex words whereas for adolescents and adult learners, morphemic instruction can be conducted with more morphologically complex words. Third, collaborative learning such as group and pair works (with learners from different proficiency levels and different language background) can help learners to get clearer understanding of English word formation processes.

5.5.3 Methodological Implications

The researcher argues that knowing which strategies work best for learning vocabulary at this level is important as morphologically complex words are prevalent in secondary level. The current study suggests that an explicit morphemic analysis instruction may well contribute to ESL learners' morphemic awareness as well as vocabulary development when a thorough and planned instruction is conducted. According to Roth (2014), since morphological awareness can be implemented in numerous ways, future research must comply with the monolithic conception of morphemic knowledge. This is because various empirical findings for morphological awareness may contradict with one another since it can be trained and applied in many different ways. Roth (2014) further claims that if morphological awareness is imparted through repetitive skill-and-drill exercises, it can be predicted that learners will perform well on assessments that directly align with the drills. Therefore, he recommends future

researchers to compare different implementations of morphological awareness. This notion is supported by Stahl & Nagy (2006) who strongly suggest a measure of morphological awareness that acknowledges the complexities and irregularities in English vocabulary. They also propose to compare morphemic analysis strategy between flexible and strategic version of morphological awareness against a more rigid version. Thus, given the salient features of morphemic awareness and its importance in vocabulary building, it is important to provide a systematic and explicit morphological instruction especially for ESL learners.

5.5.4 Theoretical Implications

Roth (2014) opines that future research should consider approaching vocabulary by scrutinizing the distinction between morphemes and words. He views that teaching morphemes is parallel to teaching words, and teaching words is similar to teaching morphemes. This is because morphemes and words share scores of linguistic commonalities (Roth, 2014). Morphemes and words are stored in the mental lexicon and also in prints such as in dictionary. Both are connected to a set of fairly distinctive meanings where they can be combined and collocated. Vocabulary and morphemic knowledge can also be reinforced through language practice because both have grammatical rules governing how they can and not combine with other morphemes or words (either syntactically or morphotactically). Thus, in short, the study supports Roth's view that morphemic instruction and vocabulary instruction could operate more in parallel.

The researcher firmly believes that adolescents or young adults such as secondary school students are no more natural language acquirers because they have passed the age where they can pick up language without conscious learning like children. Learners are not able to use their innate language-learning strategies when

they reach at a certain age (Subramaniam, 2015). These learners especially low proficiency ones need conscious learning strategy where the right context, support and opportunity must be present so that an effective language acquisition can take place (Subramaniam, 2015). Thus, this study takes the opportunity to provide a conscious or explicit learning strategy, in particular vocabulary learning strategy that can help to uplift the current level of English proficiency among Malaysian school going students - through morphemic analysis strategy. However, the researcher is not trying to prove that morphemic analysis strategy is superior to all other vocabulary learning strategies, as suggested by Roth (2014), but to show that it can be an alternative strategy to promote vocabulary development which is fundamentally important for effective language acquisition. As Berninger and Abbott (2006) claim, learners with weak vocabulary are in dire need of a more direct instruction for vocabulary acquisition; and studies show around three to four hundreds meanings of new words can be taught explicitly through instruction, annually. This is a massive amount of words which learners with less proficiency will be able to learn. Therefore, the researcher deems that morphemic analysis awareness can be used as a strategy to improve ESL low proficiency learners' vocabulary development because the results of the current study have further confirmed the findings of previous research that support morphemic awareness as a successful word learning strategy because it can be taught and applied in so many ways for a successful language learning (Roth 2014).

5.6 Limitations and Delimitations of the Study

5.6.1 Limitations of the Study

The current study provides crucial empirical findings in the area of morphemic analysis awareness and vocabulary achievement. Nevertheless, in the process, some limitations have surfaced.

First, the sample of the study consists of low proficiency learners from a particular school in Malaysia in the ESL context. Thus the findings cannot be generalized to other learners, settings or context. Second, it is assumed that conducting another research in second language environment with learners of various ages (children and adults) and proficiency (high, mediocre or mixed-ability) might bring about different results. Therefore, it should be noted that the findings of the current study are the resultant of learners' ability to analyze morphologically complex words that depend on morphology types, task demands, transparency of the morphemes, and learners' familiarity of the morphemes involved in the study (Goodwin, 2010).

Quasi-experiment is not as strong as randomized experiment or true experiment that can establish a solid evidence of a treatment study because threats or extraneous confounding variables can affect the effect its findings. However, threats in this study were controlled using the statistical control method to further equate the groups, ANCOVA. Therefore, the researcher used a control group, administered the pretest measures, implemented the treatment, and then administered the posttest measures to minimize the effect of possible threats.

The limitations of a non-randomization quasi-experiment can be seen in many aspects (Schanzenbach, 2012). First is that with non-randomization design, the compared groups may not be equal before the intervention takes place; and they might differ in some important ways that can influence the impact of the research (Schanzenbach, 2012). For example in this study, the researcher has to determine whether the participants are better prepared or there are other criteria that the participants have which can influence their achievement before the intervention takes place. Second, problems may arise from the participants in the comparison group where they can incidentally be exposed to the treatment condition such as the experimental

group participants being more motivated than the participants in the other group (Schanzenbach, 2012). Thus, results will be affected as the outcomes may have resulted from the participants' extra effort and not by the underlying programme being studied. Third, additional problems might result if groups being compared are different on the pretest measure. If the participants are found to have differences at the beginning of the study, then any differences that occur in test scores will be difficult to interpret (Schanzenbach, 2012). Next, due to certain constraints, researchers tend to settle in running a relatively small experimental study. Regrettably, having small sample sizes lead to an underpowered experiment (Schanzenbach, 2012). As a result, the researcher is more likely to fail to reject a null finding, and resulting in some potentially important interventions to be overlooked. Another limitation is that it will be too easy to mine the data which will result in some unreliable outcomes (Schanzenbach, 2012).

However, there are ways to minimize these challenges in a non-randomization quasi-experimental research (Schanzenbach, 2012). First, the researcher should specify their hypotheses prior to analyzing data and be assured that these are guided by theory and/or prior related research. Second, the researcher should also provide more detailed information about how robust the findings are by showing the sensitivity of the tests (Schanzenbach, 2012). Third, the researcher should attempt to control other variables except for the independent variable exist in the study. This can be done by standardizing the conditions during the treatment as much as possible so that the only difference that occurs during the experiment is the administration of the levels of the independent variable (Schanzenbach, 2012). For example in this study, the researcher decided to control for the effect of age, grade and proficiency level; so she decided to use only participants of 16 year-old with low proficiency from upper secondary. This is important as the effect of unwanted influence can be controlled. In conclusion, when random assignment is not possible, proper actions should be taken with care to equate

the groups on the extraneous variables before commencing the research. As a result an effective cause and effect establishment can be made (Schanzenbach, 2012).

5.6.2 Delimitations of the Study

The current research was carried out over a seven week intensive treatment procedure that includes a pretest as well as posttest design. A delayed or longitudinal posttest study could offer a comprehensive finding.

The study conducted on only two selected inflectional and derivational morphemes due to the time constraint and level of learners' proficiency. Additionally, the disparity that occurs in the word knowledge in the tasks of compounding, inflectional and derivational may contribute for the performance differences among the respective tasks. This is because the learners had relatively little trouble with compounding and inflectional tasks while derivative tasks were proven to be more difficult. A good reason for this scenario could be that the derivational tasks demand greater understanding of derivational affixes to complete this specific task. However, these learners are yet to master the derivative skills. On the other hand, these learners have sufficient awareness of inflectional and compounding morphemes to score on the vocabulary task. Nevertheless, conducting a research on other types of morphemes with other skills can either substantiate or rebut the findings of this study.

5.7 Suggestions for Future Research

The current study which used a rather small number of participants provided a valuable finding to further substantiate the importance of morphemic analysis awareness to develop vocabulary among ESL low proficiency secondary school learners. This study also points out that there is a need for future research to acknowledge morphemic analysis knowledge to develop vocabulary among ESL learners at secondary level.

Future studies should focus on the impacts of giving instructions only on one aspect of morphemic awareness over a longer treatment period to determine its effectiveness on vocabulary development as compared to training of all aspects of morphological awareness among low proficiency learners. This research results advocate that a more systematic and detailed investigation of one feature of morphemic awareness, theoretically and practically, would be useful to understand vocabulary development.

Another suggestion is that future studies should replicate and establish the results of the current study with a larger and more diverse group of ESL learners such as high proficiency secondary school learners or at tertiary level. Once a larger sample size has been assessed a reliability analysis should be completed (Pike, 2013).

5.8 Conclusion

This research offers new insights into the effect of three features of morphemic analysis instructions on vocabulary development among ESL low proficiency secondary school learners. The effect of inflectional morphemic instruction, derivational morphemic instruction, and compounding morphemic instruction all appeared to be a success and effective yet they are different when each of these individual instructions is associated with the learner's vocabulary achievement. Inflectional and derivational morphemic instruction made a unique contribution to vocabulary achievement. However, compound morphemic instruction did not contribute as much to vocabulary achievement in this study.

Although the awareness of compounding morphology was not significantly related to vocabulary achievement among low proficiency learners, the awareness derivational and inflectional morphology appeared to be significantly important to

develop ESL learners' vocabulary. These findings, theoretically, emphasizes the importance of taking into account different features of morphological awareness to further enhance language literacy, especially in vocabulary development. The results indicate that exploring relations of different aspects of morphological awareness to vocabulary achievement among ESL learners with low proficiency explain that a variety of morphemic analysis skills is required to develop their vocabulary. Practically, these findings show that there should be more focus on derivational morphemic instruction, on top of inflectional and compounding morphemic instructions, may facilitate low proficiency learners' vocabulary development throughout secondary school, at least in the ESL context.

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LIST OF PUBLICATIONS AND PAPER PRESENTATIONS

No	Publication	Type	Publisher
1	Varatharajoo, C., Asmawi, A. & Abedalaziz, N.A.M. (2016). Morphemic Analytical and Synthesis Awareness: Efficacy on Vocabulary Acquisition among Malaysian Pre-University Students.	Journal	In Press
2	Morphemic Analytical and Synthesis Awareness: Efficacy on Vocabulary Acquisition in the 21st Century. (**BEST PAPER AWARD**)	Article	ICTLEDU2015. https://sites.google.com/site/ictledu2015/full-paper-submitted file:///C:/Users/user/AppData/Local/Temp/33_Chandrakala_fullpaper.pdf
3	Morphemic Analysis Awareness: Impact on ESL Students' Vocabulary Learning Strategy	Journal	World Academy of Science, Engineering and Technology International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering Vol:9, No:9, 2015. http://waset.org/Publications/?path=Publications&p=105
4	Morphemic Analysis Awareness: A Boon or Bane on ESL Students' Vocabulary Learning Strategy.	Journal	International Science Index World Academy of Science, Engineering and Technology Vol:9, No:7, 2015 waset.org/Publication/1000239 https://www.waset.org/abstracts/30741
5	The Awareness of Morphemic Knowledge for Young Adults' Vocabulary Learning.	Journal	The Malaysian Online Journal of Educational Science *2015 (Volume 3 - Issue 2) MOJES* http://www.mojes.net/articles/pdf/v03i02/v03-i02-05.pdf
6	Morphemic Analysis Awareness among ESL Low Proficiency Secondary School Students: A Strategy for Assessing Vocabulary Development.	Journal	MELTA http://repository.um.edu.my/40392/1/FULL%20PAPER%20MELTA%202014.pdf
7	Measuring morphological knowledge among secondary school students: Implications for effective vocabulary acquisition.	Journal	Malaysian Journal of Languages and Linguistics Vol.(3)2014: http://repository.um.edu.my/100473/1/MJLL%20PUBLISHED%202014.pdf
8	Varatharajoo, C., Asmawi, A. & Abedalaziz, N.A.M. (2013). The Effect Of Morphemic Analysis Instruction On ESL Secondary School Students' Vocabulary Development.	Conference Proceeding	http://malrep.uum.edu.my/rep/Record/um.eprints.13163/Detail
9	Varatharajoo, C., Asmawi, A. (2013). The Effect Of Morphemic Analysis Instruction On ESL Secondary School Students' Vocabulary Development.	Conference Proceeding	Http://Eprints.Um.Edu.My/13163/
10	Varatharajoo, C., Asmawi, A. & Abedalaziz, N.A.M. (2015). A Perspective into Malaysian ESL Learners' Vocabulary Acquisition in the 21st Century	Conference Proceeding	ICELT (International Conference on English Language Teaching

No	Title	Conference	Date
1	Morphemic Analytical and Synthesis Awareness: Efficacy on Vocabulary Acquisition in the 21st Century. (**BEST PAPER AWARD**)	International Conference on Teaching and Learning 2015 (ICTL 2015), Bangkok, Thailand.	27-28 October, 2015
2	Morphemic Analysis Awareness: Impact on ESL Students' Vocabulary Learning Strategy	ICECET 2015: 17th International Conference on Early Childhood Education and Technology, Paris, France.	20-21 July 2015.
3	A Perspective into Malaysian ESL Learners' Vocabulary Acquisition in the 21st Century	International Conference on English Language Teaching (ICELT), Melaka, Malaysia	19-21 October 2015.
4	Morphemic Analysis Awareness among ESL Low Proficiency Secondary School Students: A Strategy for Assessing Vocabulary Development.	International Conference MELTA, Kuching, Sarawak, Malaysia	28 August 2014
5	The Effect Of Morphemic Analysis Instruction On ESL Secondary School Students' Vocabulary Development	Persidangan Kebangsaan Kurikulum & Teknologi Pengajaran, U.M., KL, Malaysia.	21 Mac 2014
6	The Effect Of Morphemic Analysis Instruction On ESL Secondary School Students' Vocabulary Development.	2nd International Seminar Teaching Excellence and Innovation, U.M., KL, Malaysia	25 February, 2014