Sudan University for Science and Technology
College of Graduate Studies
College of Education

THE ROLE OF MORPHOLOGICAL AWARENESS IN DEVELOPING UNIVERSITY STUDENT'S VOCABULARY

دور النحو الصرفي في تطوير المفردة لدى الطالب الجامعي

A thesis submitted in fulfillment of the Requirements of the Degree of "PhD" in "ELT"

Prepared By:
Samia Merghani Ahmed Ali

Supervised by:
Pro. Dr: Mohammed Bakri Hadidi

Co. Supervised by:
Dr: Muntasir Hassan Mubarak

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Dedication

I would like to dedicate my work to the soul of my father, to my considerate mother, lovely husband, and nice sister, brothers, son, and daughters and everyone who helped me in carrying out this study.

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I would like to extend thanks to the many people, in many fields, who so generously contributed to the work presented in this thesis.

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Abstract

The aim of this study is to investigate the role of morphological awareness in developing university students' vocabulary. The study utilizes the descriptive analytical method represented the tool is questionnaire distributed among (70) teachers of English for Khartoum Locality as well as experimental method represented through the EFL learners ' tests(pre-post.(150) university EFL learners were divided in two groups to represent the experimental and the control group. The two groups were administered under direct supervision of the researcher and some assistant teachers. The study tools were made reliable and valid through the testing of ACC program (Alpha--Cronbach coefficient)

The results have shown that the morphological awareness helps the students develop their vocabulary competency as well as the university EFL learners do not use the morphological aspects when learning English vocabulary. Moreover, the study proves that the morphological awareness affects positively on the university EFL learners' vocabulary development. The study recommends that teachers' should use the morphological awareness process strategies to enhance the EFL learners' vocabulary competency as well as the syllabus designers to integrate the morphological process in the teaching material so as to attend requirement for EFL learners' need.

المستخلص

هدفت الدراسة لمعرفة دور الوعي الصرفي في تطوير مفردات طلاب الجامعات. استخدمت الدراسة المنهج اسلوب التحليل الوصفي المتمثل في الاستبيان الموزع علي (70) من معلمي اللغة الإنجليزية بمحلية الخرطوم وكذلك تم إجراء استبيان لمراجعة آراء معلمي اللغة الإنجليزية وتجاربهم حول الوعي الصرفي لدى الطلاب.

والطريقة التجريبية الثانية متمثلة في اختبار قبلي وبعد لطلاب المرحلة الجامعية في الجامعات السودانية وقد تم ادارة المجموعتين تحت الاشراف المباشر للباحث وبعض الاساتذة وعدد الطلاب مائة وخمسون طالب جامعي ينقسمون إلى مجموعتين لتمثيل المجموعة التجريبية والضابطة تم إجراء اختبار قبلي موثوق وصالح للمجموعتين.

أظهرت النتائج أن الوعي الصرفي يساعد الطلاب على تطوير كفاءتهم في المفردات كما أن طلاب الجامعة لا يستخدمون الجوانب الصرفية عند تعلم مفردات اللغة الإنجليزية.الكثير من الدراسات اثبتت أن الوعي الصرفي يؤثر بشكل إيجابي على تطوير مفردات طالب الجامعة.

توصي الدراسة المعلمين باستخدام استراتيجيات عملية الوعي الصرفي لتعزيز كفاءة المفردات لدى الطالب وكذلك مصممي المنهج لدمج العملية الصرفية في المواد التعليمية حتى يتمكن الطلاب من إثراء حجم مفرداتهم بصورة واسعة.

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CHAPTER ONE

Introduction

1.0. Overview of the Study

This introductory chapter is an overview of the research. It first specifies the researcher's motivation in conducting the research, in which the background and rational of the study are presented. The purposes are then stated, followed by the discussion of the significance of the study, the research questions, and the hypotheses of the study, methodology, and limitation of the study. Finally, the frame of the research is given

1.1 .Background of the Study

Language can be viewed as a powerful tool that helps us go beyond the limitations of our own space and time. Through the experience of the researcher on teaching EFL learners at Gezira college of Technology, the researcher noticed that there are many problems in the use of morphological awareness which in turn works to develop EFL learners' vocabulary, so vocabulary is part and parcel of every language, for this reason and to help university students to develop their vocabulary, this study was conducted. English language has a large, rich vocabulary, with many numbers of English lexical items having been assimilated from other languages during the complex history of the language. Vocabulary is one of the most essential parts of second language acquisition and can be broadly defined as knowledge of words and its meaning. Most EFL learners at university students learn and memorize English vocabulary, focus on the spellings of vocabulary items, and try to memorize the English words with their meaning. However, if EFL learners can learn to use prefixes and suffixes effectively, this may help them understand and use vocabulary in reading comprehension and writing composition. One potential vocabulary learning strategy is the use of morphological awareness to learn novel vocabulary.

Before a detailed inauguration of the proposal items a brief account of definitions and term explanation is necessary. Morphological awareness is defined as the ability to use the knowledge of word formation rules and the pairing between sounds and meanings.

1.2. Statement of the Study problem

University students' encounter many derived words in their reading has motivated researchers to explore further the role of morphological awareness in vocabulary growth. The task of learning new words as they are encountered is tremendous. Students encounter up to 100,000 different words during their academic readings at college level (Graves, 2004). Those 100,000 words include academic words. As learners make the transition from learning English for basic communication to learn academic English, they need to learn the academic words critical to vocabulary development and, therefore, learning success. In order to develop the needed vocabulary knowledge, learners should be exposed to various extensive readings, be taught individual words explicitly, and taught strategies to unlock word meaning, and have their word consciousness raised (according to Graves; 2004, components of vocabulary instruction). The concern of the present study is the third component: vocabulary – learning strategies, particularly those related to morphological awareness and the resulting morphological analysis (the realization of morphological awareness). Although morphological analysis is not the only strategy teachable to enhance learners' vocabulary size, it is a potential learning strategy that seems particularly useful for the learners when attempting to tackle the meanings of new words.

1.3. Objectives of the study

The objectives of the study are as follows:

1. To find out the effect of morphological awareness knowledge on tertiary - level students ` vocabulary development.

2. To identify how far Sudanese are university students are aware of the importance of morphological awareness in developing English language vocabulary.
3. To find out to what extent teachers at tertiary -level make use of morphological aspect to develop students` vocabulary.

1.4. Study questions

1. To what degree do tertiary level teachers make use of morphological aspects to develop EFL learner's' vocabulary y at Sudanese Universities?

2. How far are Sudanese tertiary level EFL learners sensible to the morphological aspects when learning vocabulary?

3. To what degree does morphological awareness affect university students' vocabulary development?

1.5. Study Hypotheses

1. EFL Sudanese tertiary level teachers' use of morphological aspects enhances students' vocabulary.

2. Majority of tertiary-level students at Sudanese universities do not use morphological aspects sensibly when learning English language vocabulary

3. Morphological awareness affects positively on tertiary students' vocabulary development.

1.6. Significance of the study

This study is due to be beneficial in three folds. First it is a guideline for educators and students of English at university level. Since the study investigates the competence and the performance relevant to vocabulary, the research outcomes will be exceptionally beneficial. The research outcomes will inspire the course designers and material development experts. The study will also be of significant interest to further research in the field of ELT

1.7. Methodology of the study

The research will be conducted at selected universities in Sudan, namely, the University of Khartoum, the University of Sudan of science and technology, and the University of Neilein. The subjects of the study are the students majoring English language at these universities. The study will adopt both qualitative and quantitative research methods. The first tool is a questionnaire. There will be a questionnaire for English language teachers at university level which investigate the teacher's perception about the given statements. The second tool is a test. The test will be administered for the tertiary –level students .There will be pre-post -test for control group and experimental group

1.8. Limits of the Study

The condition of the study will inevitably be affected by the following limitations.

1. The implementation of the study will have to be in the period of time between the years 2018-2021.
2. The study will be limited to the morphological awareness of students' vocabulary which will be conducted at three universities in the Capital Khartoum i.e. the situation might not be the same at other regional universities.
3. The results of the study could be generalized only to other similar conditions.

CHAPTER TWO

Literature Review and the Previous Studies

2.0. Introduction

This chapter is the second chapter of this study. It is divided into two main parts. Part one, deals with literature review, reviewing related topics to the present study. The second part of the chapter, deals with previous studies, studies that done on the same area of the present study.

2.1 . Background

The majority of students in Sudan are under the assumption that learning the English language can be done by focusing more on learning its grammar. Thus, students spend many years studying English grammar without reaching the desired level of fluency and proficiency. Grammar is only one pillar of any language. Certainly, the importance of grammar cannot be denied. Intuitively, grammar is essential to formulate comprehensible and clear sentences. Yet, without a good-sized vocabulary, one's means of expressing ideas will be limited. A good vocabulary is required for a good command over any language, as well. The English language is no exception, with its large vocabulary size and diverse grammatical rules.

The number of English words is growing every day. The compendious *Of English Dictionary* lists 616,500 word-forms including headwords of main entries, combinations, derivatives, and phrases (Elert, n.d) (Bauer and Nation, 1993) investigated the importance of word families and word forms in order to find a systematic approach to vocabulary teaching and to determine the vocabulary load of texts. They define a word family as a base word and all its derived and inflected forms that can be understood by a learner without having to learn each form separately. For example, the word family for the word *develop* includes *develops, developing, developed, developable, undevelopable, developers,* and *undeveloped*. A word form is a

particular form of a lexical item occurring in certain grammatical environments. For example, the singular *student* and its plural *students* are two different word forms representing the single lexical item *student* in different grammatical circumstances. The derived and inflected words are the different forms of the base word. If a learner knows the meaning of the base word in the word family, he can easily understand the meaning of the rest of the words in the family. In this way, the learner can increase his knowledge of any given word family by developing his morphological knowledge. Some researchers consider any word and its different forms as separate items while others count these as one word. For example, *house, housing,* and *houses* can be regarded as one word by some researchers because they are members of the same family, while other researchers may count them as three separate words. These differences in defining what counts as a member of the same family are due to different purposes of research and the constraints governing them.

English is the lingua franca of the present time. Many English words are derived from other languages, such as Latin, German, Greek, Arabic and many others, which results in English possessing a massive vocabulary size. This expansion is reinforced by the global, economic, financial, scientific, and military position of the English-speaking countries, especially the U.S. Due to the continued growth in the fields of economics, science, and the military, more vocabulary will be needed to describe and refer to new inventions and discoveries. Thus, every student aiming to acquire a substantial vocabulary is advised to expand his knowledge and read as much as possible.

Learning the entire English vocabulary would be a goal that is far beyond the capability of English language learners and even native speakers of English. (Levine, Reves, 1990) believe that one of the biggest obstacles that students of English as a foreign language (EFL) face is the lack of adequate

vocabulary, which hinders text comprehension. According to (Levine, Reves, 1990), a well-known approach to vocabulary learning is based on the belief that vocabulary can be acquired only through reading instruction. That means students should be exposed to unfamiliar texts with a significant amount of new words in order to acquire vocabulary (both specialized terminology and general vocabulary). However, many students do not prefer this approach since it leaves them with only partial comprehension of the texts. Furthermore, it is difficult to apply reading skills and strategies if the students‟ understanding of the texts is limited. Thus, the need for learning strategies that can help students to decode unfamiliar words in any text is urgent.

(O‟Malley, Chamot, Manzanares, Russo and Kupper 1985, P 23), define learning strategies as "any set of operations or steps used by a learner that will facilitate the acquisition, storage, retrieval or use of information". (Brown, 1994), referred to learning strategies as specific "attacks" that language learners apply when faced with a problem, that is, cognitive steps applied to facilitate language acquisition. Understanding its importance, researchers have conducted a number of studies to find out the most effective strategies for learning vocabulary. One method is the direct instruction of new words (McKeown, Beck, Omalson, &Pople, 1983). In this method, the teacher explicitly teaches new vocabulary as a part of the lessons. Another method is learning vocabulary from context. To encourage learning words from context, the teacher exposes her students to a variety of texts and encourages the students to pay attention to the unknown words and try to guess their meanings using clues from the context. (Sternberg, 1987) argues that most vocabulary is learned from context. Still another method is applying morphological knowledge to infer the meanings of new words. In this method, students apply morphological analysis when they read or hear a complex word that they have never encountered before. They analyze the

words to see if they recognize any of the pieces (White, Power, &Sheila, 1989). Because English has borrowed many words from different foreign languages, students should learn how to analyze the different parts of any new word. Mastering such skills will equip students with a useful tool to decode most unfamiliar words in a given text (Nation, 2001). (O'Malley. Chamot, 1990) consider all three strategies to be learning techniques used for processing information in order to enhance learning, comprehension, and retention. Other researchers (Morin, 2003; McBride-Chang, Wagner, Muse, Chow, &Shu, 2005; Schiff &Calif, 2007) have also suggested that using morphological cues for inferring meaning can help with L2 learning.

2.2. The definitions of Morphology

The term *morphology* is derived from the Greek word *morph*, which means shape, in linguistics, morphology refers to the mental system involved in word formation or to the branch of linguistics that deals with words their interior structure, and how they are formed (Aronoff & Fudeman, 2005). Morphological awareness refers to the ability to reflect upon and manipulate morphemes and to control word formation processes (Koda & Zehler, 2008). According to (Al Farsi, 2008), morphological analysis is the learners‟ ability to learn morphemes and morphemic boundaries by disassembling complex words into meaningful parts and reassembling the meaningful parts into new meanings. For example, the word *kingdom* has two morphemes (*king* and –*dom* meaning condition, state, and dignity). New words, such as *wisdom*, *martyrdom*, and *chiefdom*, can be generated using the morpheme *-dom*.

(Koda , Zehler, 2008) believe that there is a strong relationship between morphological awareness and the ability to read in either the first language (L1) or second language (L2). Furthermore, (Kuo, Anderson 2006) believe that morphological awareness can make students more aware of the writing system by recognizing spelling and phonological irregularities. Recently, (Koda, Zehler) have investigated the importance of morphological awareness

as a key element of vocabulary knowledge in L1 reading. According to (Nurhemida, 2007), a few studies have examined the role of morphological awareness in L2 vocabulary development. These studies concluded that morphological awareness may be a key element in vocabulary acquisition. One similar study was conducted by (Wysocki and Jenkins, 1987). They found that the students' ability to learn new words originates from forming new words by using previously acquired roots. Intuitively, as mentioned earlier in the first chapter, this study aims to investigate the relationship between morphological awareness and English vocabulary development. Moreover, the study synthesizes findings from previous studies that were conducted to investigate the relationship between morphological awareness and vocabulary size and how students decode morphologically complex words. Finally, the study focuses on the morphological development of EFL students and their vocabulary size.

Morphology refers to "the study of word-formation processes, including inflections, derivations, and compounds" (Nagy et al., 2014, P. 2). (McCarthy, 2002), states that morphology is "the area of grammar concerned with the structure of words and with relationships between words involving the morphemes that compose them" Linguistic morphology refers to the study of words, how they are formed, their internal structure, and the mental process that is involved in word formation (Aronoff&Fudeman,2005; O'Grady &Cuzman, 1997). (Aronoff & Fudeman, 2005) state that there are two complementary approaches to morphology: analytic and synthetic, and they both are needed by linguists. The analytic approach is concerned with morpheme identification or breaking words down into meaningful parts (e.g. sunrise is a combination of sun-rise). On the other hand, the synthetic approach deals with the process of producing new words by using different morphemes. Therefore, the analytical approach must in some way precede the synthetic approach. In this study, students will be examined after

receiving morphological instruction for six weeks to determine the impact of morphology instruction on their ability to identify morphemes in words and their ability to produce new words by using different morphemes.

What is meant by word parts and why are they important? *Morphology* can be defined as "the structure of words in a language or the study of word formation" (PREL, 2008, p. 41) A morphemes the smallest part of the word that carries meaning. When readers assemble the parts of word, they are better able to construct meaning of an entire word (Baumann, et al., 2010). For example, in the word *unhappy* there are two morphemes: *un* and *happy*. '***Un'*** means "not" and *happy* means "feeling joy or gladness" Therefore, by assembling the meanings from the morphemes, the word *unhappy* means "not joyous or not glad"

Morphemes are better known as word parts—*root words* or *base words* and *affixes* (also known as *prefixes* and *suffixes*). Results from one study with 4th and 5th graders indicated that students who understood morphology were more successful at learning academic vocabulary and comprehending text (Kieffer & Lesaux, 2007). In addition, researchers have posited that knowledge of morphology can help substantially increase the breadth and depth of one's vocabulary.

During a word study session, the teacher provides in-depth instruction on prefixes, suffixes, and roots.

Once students have a clear understanding of the word parts, these word study sessions may be discontinued or limited to the students that need additional focused instruction.

Some may associate the terms *base word*, *root word*, and *affix* with vocabulary, but are unclear of the role each one plays. Explicit teaching of these word parts gives students an important strategy for learning new words (PREL, 2008). *Base word* – A base word is the smallest group of letters that forms a complete word (PREL, 2008). For example, *care* is a base word that

can be used by itself, as a verb or a noun (for example, *Joseph* cares *for his plants by watering them daily; Mrs. Smith is now under the* care *of a doctor.*) Because *care* is a base word, we can also add different beginnings and endings to change its use or meaning, such as *careful, caring, and uncaring*.

Root word – A root word is a special kind of base word. Like a base word, it carries the main part of a word's meaning, but it often needs a prefix or suffix to form a complete word in English. Many roots come from Greek or Latin. For example, con*structs* a root word meaning "build or form." However, cons*tructs* not a word on its own. To make this a word—for example, *construction, destruction, obstruction* other word parts must be added. There are a few root words, such as *meter*, *script,* and *port* that can stand alone. But for most root words, more letters must be added to be form a usable word (PREL, 2008).*Affix* – An affix is a word part that can be placed at the beginning or end of a root or base word.

2.3. Morphological Awareness as a Vocabulary Learning Strategy:

As noted above, morphological awareness refers to the awareness of and access to the meaning and structure of morphemes that are part of or related to the word. It includes knowledge of derivational morphology such as prefixes (e.g., the un- in undisciplined to indicate the antonym of the original, disciplined), suffixes (e.g., the -ion in graduation changes the part of speech of the base word –graduate is a verb whereas graduation is a noun), and compounding (e.g., cowboy to create new word combining the two root morphemes: cow and boy). On the other hand, knowledge of inflectional morphology focuses primarily on indicating grammatical changes in words (e.g., the s in dogs to indicate the plural form of the base or the -ed in acted to refer to the action in the past time). Kuo and Anderson (2006) argue that morphological awareness in L1 English becomes an increasingly important predictor of reading ability, as children grow older because this awareness contributes to the decoding of morphologically complex words and it is

therefore assumed to contribute to the development of reading comprehension. They also suggested that morphological awareness is intertwined with other aspects of metalinguistic awareness and linguistic competence, especially phonological awareness, syntactic awareness, and vocabulary knowledge. Schiff and Calif (2007) compared previous studies that investigated the relationship between phonology and reading, and morphology and reading. They found that the relationship between phonology and reading development in English (as an L1) is well-documented (Nagy and Anderson, 1998), but the parallel relationship between morphological awareness and reading skill has been less studied (Singson, Mahony, and 10 Mann, 2000). Even fewer studies have dealt with vocabulary learning and morphology or morphological awareness, but the small corpus of existing research suggests a strong link between morphological awareness and vocabulary learning. Prince (2007) reports a study done by Nonie Lesaux (in press), that shows that a learner who understands how words are formed, by combining prefixes, suffixes, and roots, tends to have larger vocabularies and better reading comprehension. The main concern for this present study is to relate morphological knowledge to vocabulary learning in the L2. The type of morphological knowledge, namely derivations and inflections, will also have an effect on vocabulary learning (Anglin, 1993). For example, previous research suggests that derived words might be acquired somewhat later than inflected and compound words (Wysocki and Jenkins, 1987) and that, morphologically speaking, words that are more complex generally will be acquired later than simpler words (Clark and Berman, 1987). Nunes, Bryant, and Bindman (2006) reported that the English L1 children took several years to learn to use the -ed ending systematically to denote the past of regular verbs: even at the age of 10 years many children still made mistakes with this morphologically based rule. The authors concluded that awareness of morphology influences

children's knowledge of when and when not to use the morpheme -ed. Moreover, Fowler and Liberman (1995) assessed children's knowledge of the connection between a base and a derived form, and proposed three measures of progress in literacy (word recognition, pseudo-word decoding, and spelling). They observed significant correlations between all three measures of literacy and performance in the morphological awareness tasks even after controlling for age and vocabulary. Of interest in the present study is whether EFL students in Sudan acquire the aspects of morphological knowledge in a manner similar to that reported in studies in an L1 context. Chang et al. (2005) note that there are differences in languages as to the relative importance of derivational and inflectional morphemes. For example, inflectional morphology is obviously important in English or Finnish, but is relatively unimportant in Chinese. In contrast, lexical compounding is far more common in Chinese than it is in English. Bertram, Laine and Virkkala (2000) examined the role that morphology plays in vocabulary acquisition in L1 Finnish. Systematically, they investigated the role that affix frequency and productivity might play in the development of the students' knowledge of words. The results showed that the university students benefit significantly from utilizing morphology in determining word meanings. In contrast to the research done on morphological awareness in the L1, there have been only a few studies that have focused on morphological awareness in the L2. In order to investigate the role of morphological awareness in developing vocabulary for L2 learners, Morin (2003) studied Spanish classes to examine the acquisition of derivational morphology - the use of suffixes that can change the part of speech and cause variations in meaning - by native English-speaking learners of Sudanese . In this study the main questions were: (1) Do beginning L2 learners who focus on English derivational morphology learn more vocabulary than learners who do not, (2) can they apply morphological knowledge receptively and

productively, and (3) does their success depend on their L2 proficiency level. The results indicate that the strategy for building vocabulary by consistently focusing on English derivational morphology may yield 12 immediate benefits in the area of production, at least among one experimental group, the second-semester learners, who were introduced to English morphology. There is also a suggestion that, for second-semester learners, there may be benefits or effects of such knowledge of derivational morphology with respect to their receptive morphological knowledge. In addition, the second-semester experimental group demonstrated a significantly greater knowledge of productive English derivational morphology than any of the other groups studied. In her conclusion, Morin (2003) emphasized that the results of her study could not make specific claims to all L2 learners generally. However, it does indicate a positive trend in the effectiveness of morphological knowledge as a tool for building vocabulary knowledge. Morin (2003), Schiff and Calif (2007) both cite Koda (2000) who underscores the effect that L1 knowledge can have on L2 morphological awareness. Schiff and Calif (2007) examined the effect of phonology and morphology awareness in Hebrew (L1) on L2 English development. Their findings revealed that the more similar the language features, the more positive the cross-linguistic influence in terms of learning outcomes, whereas for languages that are less similar, a less positive influence was shown. In the current study, an attempt is made to investigate if the results of the previous studies hold when the L1 is Bahasa Indonesia. Tala (2003) stated that Bahasa Indonesia morphology can be considered simpler than English because it does not mark tenses, gender or plural forms. However, Sneddon (1996) found that two groups of verbs in Bahasa Indonesia primarily occur with form of affixation - prefixes and/or suffixes. In addition, the affixation rules for verb bases in Bahasa Indonesia can be unpredictable, with total mastery predominantly evident in native speakers only (Sneddon, 1996). 13 Compared to the learners' Bahasa

Indonesia, English is more complicated morphologically. Nunens and Bryant (2004) show that there are many words in English whose spelling cannot be predicted from phonology, but are entirely regular if analyzed into morphemes. The word madness, for example, ends with a double s; this is entirely predictable from the fixed spelling of the suffix -ness but not from phonology. Similarly, the word musician would be considered highly irregular if it was analyzed in terms of letter-sound correspondences, but its spelling is completely regular considering it was formed by music and the suffix -ian, a morpheme to indicate ‘doer’ or ‘person who xs’ (where x refers to the noun the suffix attaches to). They conclude that an awareness of morphology should benefit the development of children's vocabulary. Thus, for L1 learners, knowledge of English morphology makes a significant contribution to the vocabulary size and other language skills. This present study is then aimed to investigate if such knowledge makes a significant contribution to English vocabulary learning for EFL students in Sudan

2.4. Measuring English Morphological Awareness

(Anglin, 1993) identifies five different morphological word types in English. The five types are root words (e.g., *short, closet),* inflected words (e.g., *smoking, repstorts),* derived words (e.g, *shortlist, treeless),* literal compounds (e.g., *sunburn, birthday),* and opaque, idiomatic compounds or lexical idioms, which are then called simply ‘idioms’ (e.g., *mouse tail,* "a plant of the crowfoot family"; *pink lady,* "a cocktail").

In this present study, four of the morphological word types (root words, inflected words, derived words and literal compounds) were used to investigate the two types of morphological awareness: Morpheme Identification Awareness and Morphological Structural Awareness. The Morpheme Identification task tests the participants ‘knowledge of root words and use of morphemes to guess meaning, whereas the Morphological Structure task assesses the ability to create literal compounds, inflected, and

derived words. Further discussion on these two measures of morphological awareness is provided in the next sections.

2.5. Morpheme Identification Awareness

(Chang, et al. 2005) defines awareness of Morpheme Identification as the ability to distinguish different meanings across homophones, for example by understanding that *flower* in *flowerpot* is represented by a plant with petals as opposed to a sack of white powder (*flour*). The authors believe that this aspect of morphological awareness might help language learners to distinguish among meanings of syllables with identical sounds, facilitating language analysis and vocabulary growth. In this case, morphological awareness involves understanding that different meanings can simultaneously be attributable to phonologically identical words. For example, in the Morpheme Identification task used here, the participant is shown a picture of the sun and a picture of male child and then given the word *grandson*. The participant is then asked to choose which picture correctly reflects the meaning of the word. This is an adaptation of the test used in study on young children by (Chang et al, 2005).

2.6. Morphological Structure Awareness

The other type of morphological knowledge measured in this study is the awareness of Morphological Structure. This Morphological Structure requires learner's to make use of linguistic knowledge to derive new meanings. Skill in manipulating language, variously referred to as generatively, creativity, or productivity of language, may be important in learning new meanings within one's language (Chang et al., 2005, p.421). For example, in the Morphological Structure Test used here the participant is given a single sentence scenario and a prompt to make a novel compound word, as in:

*There's a paper that is **white** in color, we call that **white paper***

*There's a paper that is **red** in color, what do we call it? ———————— (red paper)*

The participants' knowledge of inflectional morphology is also assessed in the test by providing a context and then requiring the grammatically appropriate novel response.

*John is **setting**. Yesterday he did this. What did he do yesterday?*

Yesterday, he _____

Of interest here is whether the knowledge required completing this Morpheme. Identification and Morphological Structure Awareness tasks relate to L2 vocabulary knowledge. (Chang et al, 2005), believe this is important because it demonstrates that there are two different aspects of morphological awareness and that both of these might be important in fostering vocabulary acquisition.

2.7. Morphological, structural Analysis

Morphological, or Structural, Analysis is the process of breaking down morphologically complex words into their constituent morphemes (word meaning parts). For instance, the word *worker* is comprised of two meaning units, the base *work*, and the inclusion of *–er*, which conveys the meaning of an agent (person or thing) that does whatever is implied in the base. Thus, the worker is one who works; a film projector is that which projects film onto a screen. As students proceed through the grades, course texts will take on increasingly sophisticated language. Oftentimes, these multi-syllabic words will be of the Graeco-Latin origin, which collectively, comprise approximately two thirds of the English lexicon (Carr, Owen, & Schaeffer, 1942). Studies have shown that moving along the word frequency continuum from more frequent to less frequent displays an increased percentage of Graeco-Latin words, while the percentage of Germanic, mono-syllabic words decreases (Carr, et al., 1942; Old father, 1940). It is in the academic arena that students will come across an influx of content specific vocabulary

throughout the curriculum. Recognizing frequent roots and affixes that transfer among the disciplines can support students as they make sense and attempt to retain the meanings of this deluge of new words. (Corson, 1997), noted, 46

Pedagogical processes of analyzing words into their stems and affixes do seem important in academic word learning. These processes help to embody certain conscious and habitual meta-cognitive and meta-linguistic information that seems useful for word acquisition and use. Getting access to the more concrete roots of Graeco-Latin academic words in this way makes the words more semantically transparent for a language user, by definition. Without this, English academic words will often remain "hard" words whose form and meaning appear alien and bizarre. So this kind of meta-cognitive development that improves practical knowledge about word etymology and relationships seems very relevant for both L1 [native English speaker] and L2 [non-native English speaker] development. (pp. 707-708). Before a detailed inauguration of the proposal items a brief account of definitions and term explanation is necessary. Morphological awareness is defined as the ability to use the knowledge of word formation rules and the pairing between sounds and meanings, (Kuo & Anderson, 2006). With morphological awareness, learners are able to learn morphemes and morphemic boundaries by disassembling complex words into meaningful parts, learning the meaning of roots, affixes, and reassembling the meaningful parts into new meaning. While teaching vocabulary, a few teachers use word family techniques, which is close in style to morphological analysis. The practice of this dissembling – reassembling method is called morphological analysis. There is increasing interest in morphological awareness as a crucial dimension of vocabulary knowledge, especially in reading. In the first place, morphemes have semantic, phonological and syntactic properties that express the role of a given word in reading context. For another thing, words

are organized in the mental lexicon according to their phonological properties with morphological knowledge as a framework for string words (Sandra, 1994). Moreover, morphological awareness makes the learner more aware of the writing system. With the morphological knowledge, learners can perceive spelling and phonological irregularities.

The relationship between morphological awareness and reading may be reciprocal or directional (Chung and Hu, 2007, Kuo and Anderson, 2006). In the case the relationship being reciprocal, both reading and morphological awareness can contribute to the development of one another. In directional term, morphological awareness leads to reading proficiency, but not the other way around. Studies show that language learners encounter complex words at early stages of their learning. For instance, (Nagy & Anderson 1984) demonstrate that 60% of newly encountered words by children are morphologically- transparent complex words. Learners are found to be able to use their morphological knowledge to uncover the meaning of newly encountered words (Gordon, 1989: Carlisle and Stone, 2003).

2.8. Morphological Awareness and Reading

(Nagy & Anderson, 1984; Nagyet al., 2003; Nagy et al., 1985), and others have conducted numerous empirical investigations to substantiate the relationship between morphemic knowledge, both derivational and inflectional, and reading. According to (Verhoeven& Perfetti, 2003), derivational morphology involves words formed from a base morpheme across different grammatical categories (e.g., dark, darkness, and darken), and inflectional morphology involves additions to a word's stem (e.g., -s,ing, -ed). (Nagy, Berninger, & Abbott, 2006) explained that within the English language over half of the words are morphologically complex and are more common in written language than in speech. Researchers have found that even young readers demonstrate morphemic abilities when they read. Research by (Nagy et al. ,2003), as well as by (Rubin, 1988), found that for

hearing second graders, morphemic knowledge made a significant unique contribution to reading achievement when phonological and orthographical abilities, as well as expressive vocabulary, were controlled. Similarly, a study by (Deaco & Kirby, 2004) revealed that second-grade morphemic abilities predicted fourth- and fifth-grade reading comprehension. A common conclusion in the studies reviewed by (Apel &Swank 1999) and (Carlisle, 1995, 2004) was that morphology is routinely used by hearing children as a word-recognition strategy by third grade and that poor English morphological awareness contributes to poor decoding skills. The findings of Deacon and Kirby revealed that morphemic awareness made a significant unique contribution to decoding beyond that of the phonological for third, fourth, and fifth graders. This shift, from phonological to morphological word analysis, was also documented by (Mahoney, Singson, and Mann, 2000), who reported it for typical (hearing) fourth graders, an age when the reading achievement of deaf students is often reported to plateau (Traxler, 2000).In a very recent study, (Berninger, Abbott, Nagy, and Carlisle 2010), investigated the growth of phonological, orthographic, and morphological awareness from Grades1–6. Using growth curve analysis, the authors found that (a) word-level phonological and orthographic awareness show greatest growth during the primary grades but some additional growth thereafter, and (b) three kinds of morphological awareness show greatest growth in the first three or four grades but one—derivation—continues to show substantial growth after fourth grade .These findings reinforce the importance of attention to morphemic awareness, even with young readers. Researchers emphasized that their findings point to the value of attention, even with beginning readers, to more than the phonological aspects of words.

Among the authors' recommendations was to convey the importance of morphological awareness with practitioners and to provide them with suggestions for instruction that support its development, reminding teachers

that their students' reading achievement will be optimized as a result. (Anglin, 1993) studied the relationship between students 'use of morphology and lexical development in first, third, and fifth grades. He found that students 'knowledge of derived words increased sharply between first and fifth grades. (Anglin,) noted that this finding supports the idea that lexical development is characterized276 Journal of Deaf Studies and Deaf Education 16:3 (summer, 2011) by increasing morphological complexity. He found evidence, for example, that as children increased in age, so too did their use of morphemic analysis to figure out more complex words. His analysis revealed that the middle-grade students learned an average of 8–10multi-morphemic words per day, potentially ''thousands 'per year. Thus, as (Gusted & Kelly 2004), suggested, 'morphologically based vocabulary growth, rather than being linear, is more likely to be exponential'' (p. 272). (Nagy et al. ,2006), who studied the contribution of the morphological awareness of students in fourth/fifth, sixth/seventh, and eighth/ninth grades with regard to aspects of reading (vocabulary, comprehension, and rate of spelling and decoding morphologically complex words), empirically verified the importance of morphological awareness. They found that morphological awareness made significant and unique contributions to vocabulary, reading comprehension, and spelling for all groups, as well as to the decoding rate of the eighth/ninth graders. In addition, their analysis revealed that for all three groups, morphological awareness significantly affected reading comprehension, even ''above and beyond that of reading vocabulary'' (p. 134). Because reading comprehensions the ultimate goal for all readers, these findings are not only statistically significant but also of paramount importance with regard to practical application. Whereas most research on reading has been done with native English speakers, there is a growing body of knowledge focused on the reading development and achievement of English language learners (ELLs).The recently published findings of the

National Literacy Panel on Language Minority Children and Youth. (August & Shanahan, 2006) reported that some of the same elements of reading (e.g., phonological awareness) that affect native speakers' reading achievement also affect the reading achievement of ELLs. Whereas most of the research with ELLs has focused on vocabulary knowledge in general, recent studies have focused on the role of morphology. For example, (Kieffer and Lesaux, 2008) investigated the relationship between (derivational) morphological awareness and reading comprehension in English of a group of Ells whose first language was Spanish. The researchers followed the students for two years (university students) and found that during this time, the relationship between morphology and comprehension increased. In addition, the students' morphological awareness was a significant predictor of their reading comprehension in fifth grade.(Carlo et al.,2004) studied the effect of a vocabulary focused intervention on fifth-grade participants' knowledge of taught words, depth of vocabulary knowledge, understanding of multiple meanings, and reading comprehension.

The intervention included explicit instruction of selected academic vocabulary as well as strategies (use of cognates, context, and morphology) to learn new words. They found that the effects of the intervention 'were as large for the English-language learners (ELLs)as for the English-only speakers (EOs), though the Ells scored lower on all pre-and posttest measures'' (p. 189).In a similar study with 346 sixth-grade ELLs and 130English-only (peers, Lesaux, Kieffer, Faller, and Kelley,(2010) found that an academic vocabulary intervention resulted in significant effects on several aspects of vocabulary knowledge, including morphological awareness. Effects for ELLs were comparable to their English-only peers.

2.9. Morphological Awareness and Reading Comprehension

Morphological awareness depends on experience with printed words for refinement, but itself is also functional in the development of reading

comprehension ability. Because it entails the ability to perform morphological analysis, morphological awareness has often been found to be a significant contributor to word learning and vocabulary development in that learners can decompose unknown morphologically complex words into their constituent morphemes and apply morphological rules to derive meanings of unknown words (e.g., Paribakht and Wesche, 1999;Wysocki and Jenkins, 1987). More recent research has revealed that, in addition to being important to vocabulary development, morphological awareness is also a significant contributor to reading comprehension (e.g., Carlisle,2000; Deacon and Kirby, 2004; Ku and Anderson, 2003; Nagy et al., 2006). Because of the inter-relations between morphological awareness and vocabulary knowledge on one hand, and vocabulary knowledge and reading comprehension on the other hand, researchers often controlled for vocabulary knowledge when the unique contribution of morphological awareness to reading comprehension was examined (Ku and Anderson, 2003; Nagy et al., 2006). (Kuand Anderson ,2003), for example, showed that, after pertaining out the influence of vocabulary knowledge, morphological awareness explained a significant proportion of variance in reading comprehension among Grades 2, 4, and 6 children. A similar finding also surfaced in (Nagy et al. 2006), which reported that morphological awareness, while contributing significantly to vocabulary knowledge, also predicted reading comprehension after the effect of vocabulary knowledge was accounted for. The unique contribution of morphological awareness to reading comprehension, according to (Nagy ,2007), may be explained by three possible reasons: first, the contribution could be attributed to the mediating effect of learners 'lexical inference ability. In other words, morphological awareness facilitates meaning differencing of complex words during reading; this 'on the spot vocabulary learning' (Nagy, 2007, p. 64) in turn helps learners resolve vocabulary gaps in reading and lead to better

comprehension. In addition, learners can use the syntactic signals provided by suffixes in derived words to help parse complex sentences, which may also contribute to comprehension. Finally, morphological awareness may also contribute to comprehension via its effect on fluency of decoding morphologically complex words. Note that the evidence supporting the importance of morphological awareness to reading comprehension comes predominantly from studies on monolingual children. Very limited research has so far been conducted in this field of inquiry on L2 learners with morphological awareness as a construct of central interest, and the few relevant studies sometimes led to different findings regarding whether morphological awareness could make a contribution in L2reading comprehension. (Kieffer and Lesaux ,2008) found that Spanish English as Second Language (ESL) learners 'derivational awareness had a unique effect on reading comprehension over and above oral vocabulary and word reading ability. Similar findings surfaced in studies on Korean learners of English as a foreign or second language (e.g., Jeon, 2011; Wang et al., 2009). On the other hand, (Qian's 1999) study on Chinese and Korean ESL readers in Canadian universities failed to reveal a unique contribution of derivational knowledge to reading comprehension after controlling for vocabulary knowledge. In (Zhang and Koda 2012), advanced Chinese EFL learners' derivational awareness was found to contribute to reading comprehension indirectly through the mediation of lexical inferring ability and vocabulary knowledge, instead of having a direct contribution.

Different from the above studies, (Pasquarella, et al. 2011), incorporated derivational as well as compound awareness in their study on Chinese immigrant children in Canada. They reported that both types of morphological awareness made a significant and independent contribution to English reading comprehension. Yet, with a similar group of children in the United States, (Wang et al. 2006), failed to yield the same finding. Instead,

they found that only compound awareness, not derivational awareness, significantly predicted English reading comprehension.

Overall, there does not seem to be convergent evidence to show a significant, unique contribution of morphological awareness to reading comprehension among English L2 learners. While the few studies, overall, tend to agree on the importance of morphological awareness, it remains unclear whether compound and derivational awareness are both predictive of English L2 reading comprehension. In addition, because existing studies focused largely on English literacy acquisition in a context where English is the societal language and the medium of instruction in schools, the findings can hardly be easily generalized to English learning in an FL context. And the few existing studies on EFL learners (e.g., Zhang and Koda, 2012) almost all focused on derivational awareness, instead of incorporating in their design the multi-affectedness of English morphological awareness. Consequently, it remains an empirical question.

2.10.Vocabulary, Reading and text overage

The relationship between vocabulary knowledge and reading comprehension is symbiotic, meaning that vocabulary knowledge can lead to reading comprehension, and reading comprehension can lead to vocabulary knowledge and growth (Hu & Nation, 2000). (Chall, 1987), argues that this relationship happens at different times for young native speakers of English. At early ages, young native English speakers rely on their vocabulary knowledge to achieve reading comprehension. At an older age, a native speaker of English enters school with a vocabulary size of 5,000 word families. After two to three years of learning to read and after acquiring good reading skills, the relationship will be the opposite. Reading then becomes an essential way to acquire vocabulary. (Stahl, 1999), found that vocabulary size is directly linked to reading comprehension. Students ‘vocabulary knowledge relates strongly to reading comprehension and overall academic

success Students need to know at least a certain percentage of words to be able to comprehend a passage and to decode the meanings of new words when they encounter them (Lehr, Osborn, & Hiebert, n.d).

Moreover, familiarity with high frequency words will facilitate text comprehension for EFL students since they contribute to a high level of text coverage. Text coverage refers to the percentage of running words in the text known by the readers (Hu & Nation, 2000). A running word refers to a particular instance of a word in a text. For example, if a text contains 1,000 words and a reader's text coverage is 80%, this means that 800 words out of 1,000 words are known, which means that for every five known words there is one unknown word. This would make reading very difficult and would most likely cause a low level of text comprehension.

By knowing the high frequency words, which make up a very large portion of any normal text, students will have a good degree of text coverage, which will lead to improved text comprehension (Milton, 2009). The relationship between text coverage and reading comprehension has been the focus of a number of studies, one of which was conducted by (Hu, and Nation, (2000). They measured the level of comprehension of a fictional text by replacing the low-frequency words in the text with nonsense words to ensure they were unknown. To measure the reading comprehension level, (Hu and Nation), gave the non-native English speaker participants a multiple-choice reading comprehension test, consisting of 14 items and a written cued recall of the text, twenty-seven items. To decide what can be considered as adequate comprehension of the text, an arbitrary decision allowing for degree of human error was used. For example, fourteen correct answers out of fourteen multiple-choice questions is obviously adequate, and allowing for human error, twelve or thirteen correct answers out of fourteen is also adequate. With text coverage of 80% (that is, 20 out of every 100 words [1 in 5] were nonsense words), the level of text comprehension was very low. With text

coverage of 90%, only 24% of the students had good comprehension of the text. With a text coverage of 95% (1 unknown word in 20), only 25.7% had good comprehension of the text. The study concluded that a reader of a text needs more than 98% of text coverage to be able to read and comprehend the text.

Hu and Nation concluded their study by stating that possessing 98% coverage of the vocabulary in any text is not the only skill or knowledge needed to gain adequate comprehension of the text. Other reading skills should be used along with the 98% text coverage to be able to read a text and comprehend it, such as knowledge of English grammar.

(Francis, & Kucera, 1982), carried out a study to understand the effect of high frequency words and text coverage on comprehension. They gathered 500 texts totaling one million words and classified them according to their level of frequency, creating the Brown Corpus. It is the earliest computerized study of English vocabulary. The words were arranged according to their frequency level, i.e. the first 1,000 words, the second 1,000 words, etc. The texts were carefully compiled and the language used in the texts was current American English. They collected the texts from a wide variety of sources. In their study, they provided a table showing what proportion of a text is covered by certain numbers of high frequency words.

Table 2.1 Percent coverage of tokens by groups of types/lemma

Non-fiction		Fiction		Oral
1st	Thousand	76.0	79.6	87.8
2nd	Thousand	8.0	6.5	4.9
3rd	thousand	4.2	3.5	2.3

Table 3 demonstrates the group results of the tests. As the data indicates, a limited vocabulary of 1000 words would allow language learners to

recognize between 75-80% of all lexemes in written English, and about 88% of all lexemes in spoken Spanish (which is due to the higher repetition of basic words in the spoken register). Subsequent extensions of the base vocabulary have increasingly marginal importance. By doubling the vocabulary list to 2000 words, we account for only about 5-8% more words in a given text, and the third thousand words in the list increases this only about 2-4% more. There clearly is a law of "diminishing returns "in terms of vocabulary learning. The following table indicates how the data from Spanish compares to that of (Nation, 2000), for English and Jones (2003) for German.

Another study conducted by (Carver, 1994) investigated the percentage of known words in fiction texts varying in the level of difficulty. Carver stated that in easy material about 0% of the words are unknown. In appropriate material nearly 1% of the words are unknown. In difficult material around 2% of the words are unknown (Nation, 2001). In order for EFL learners to acquire vocabulary and increase their vocabulary size, reading materials need to be chosen carefully to ensure that learners encounter new words in the materials they are reading. If the material chosen is too easy, they will encounter 0% new words. If the material chosen is beyond their text coverage level, the percentage of unknown words will be high and will therefore hinder their comprehension. Easy reading material with no new and challenging vocabulary will increase the depth of vocabulary, but not its breadth. The depth of vocabulary refers to how well one knows the meanings of words. Additionally, the breadth of vocabulary refers to the number of words one knows (Lehr, Osborn, &Hiebert, n.d.). Words have various aspects that can facilitate understanding their meaning, such as their literal meaning, their various connotations, the sorts of syntactic constructions they occur in, the morphological options they offer and a rich array of semantic associates, such as synonyms and antonyms (August, Carlo, Dressler, &

Snow, 2005). These various aspects are related to the depth of word knowledge, which is as important as breadth of word knowledge

2.11. Definitions of Vocabulary

Vocabulary knowledge is one of the language skills crucial for fluent language use (Nation, 1993). Vocabulary size is an indicator of how well the second language (L2) learners can perform academic language skills such as, reading, listening, and writing (Bear, intermezzi, Templeton and Johnston, 2008).

According to (Nation, 1993), knowledge of around 3,000 word families is the threshold needed for tapping other language skills. Without this threshold, learners encounter problems understanding the language they are exposed to (Alderson and Banerjee, 2002).

((Ellis, 1997) argues that vocabulary knowledge is a predicator of learners' discourse comprehension, which allows grammatical rules to be patterned in the learners' mind. Having inadequate vocabulary hampers learners' reading comprehension in a way that makes it more likely the learners will face difficulties in the path of academic achievement. As such, vocabulary learning and teaching is a central activity in the L2 classroom. One way in which vocabulary learning can be fostered is through the use of learning strategies. These strategies are consciously or unconsciously learned techniques for processing information in order to enhance learning, comprehension and retention (O' Malley and Chamot, 1990). One potential vocabulary learning strategy is the use of morphological awareness to learn novel vocabulary.

Vocabulary is a key part of any language-teaching program. (Nation, 2001), proposed four general goals that are important in a language classroom. These learning goals concern: Language, which includes vocabulary; Ideas, which covers content and subject matter as well as cultural knowledge; Skills; and finally Text or discourse (Nation 2001, p.1). Moreover, in

learning a language, specifically for vocabulary goals, there are three aspects to be looked at: the number of words in the language, the number of words known by the native speakers, and the number of words needed by a learner to use the language productively. The number of words in English and number known by English native speakers are not the interest of the current study, which instead focuses on the third aspect: the words needed to use English productively, specifically for EFL learners in Khartoum State. The research literature in vocabulary learning in a second language (L2) has revealed the importance of knowing a sufficient number of words to be able to function in the language (Duin and Graves, 1987; Walker, Greenwood, Hart and Carta, 1994; Nation, 2001; Read, 2004; Tschirner, 2004; Zimmerman, 2005). The development of adequate vocabulary size is vitally important, and researchers have examined the use of learning strategies as one means to foster the development of L2 vocabulary knowledge. Strategies that have been proposed to help develop vocabulary learning include Memory Strategies (MEM), Social Strategies (SOC), Cognitive Strategies (COG), Meta-cognitive Strategies (MET) and Determination Strategies (DET) (Schmitt, 1997). (Morin, 2003; 2 Chang, Wagner, Muse, Chow, and Shu; 2005; and Schiff and Calif, 2007) have also suggested that use of morphological cues for inferring meaning can help L2 learning. Although only a handful of studies have examined the role of morphological awareness in L2 vocabulary development, the findings suggest that various aspects of morphological awareness may be particularly useful for vocabulary building. Morphological awareness is defined as the "awareness of and access to the meaning and structure of morphemes in relation to word" (Chang et al., 2005, p. 417). For example, (Wysocki and Jenkins 1987) found that students were able to learn new words by generalizing from those sharing a root morpheme. Pica (1988, as cited in Morin, 2003) also states the importance of the study of inter-language morphology and the belief that "morpheme

analysis can provide important insights into the sequences, processes, and input relevant to second language acquisition" (Morin, 2003, p. 107). This paper builds on this body of research by examining the relationship between the English vocabulary size of EFL university students in Sudan and their morphological awareness. The study presented here attempts to evaluate and possibly extend findings from previous studies to the context of EFL learners in Sudan. The obstacle that lack of vocabulary knowledge presents for Sudanese EFL learners has been noted (Nur, 2004). An ultimate aim of the study is to assess the potential value of incorporating instruction in morphological awareness as part of EFL.

Vocabulary refers to words we use to communicate in Orland print language. Receptive vocabulary refers to the words we understand through reading and listening. Productive *vocabulary* refers to the words we use to communicate through writing and speaking (Lehr, Osborn, &Hiebert, 2004). In order to communicate effectively using oral and print language, we must beagle to flexibly use words that we recognize and understand. Effective reading requires two types of vocabulary, word recognition vocabulary and word meaning (Chall, 1983; as cited in Blachowicz, Fisher, & Watts-Taffe, 2005). Word recognition is the readers' ability to pronounce or figure out the word by using word attack strategies. Word meaning refers to words students know or can define. Though we recognize the importance of both word recognition and word meaning, the emphasis of this book will be on word meaning. Base word is called a *prefix*. The word part at the end of a root or base word is called a *suffix*. (Stahl and Kapinus ,2001) estimate that more than half of all words contain a familiar prefix or suffix or are compound words. The base or root word carries the main meaning in many sophisticated and academic words. For example, the root word *graph* means "writing or printing." When students understand this root word, they are more likely to know the meaning of words such as *biography*, *telegraph*, and

photograph. A compound word comprises two different words. For example, *backpack*, *raindrop*, and *sunlight* are compound words. A compound word is different from words formed with prefixes and suffixes because if you break up the compound word, its separate word parts can stand alone (*back* and *pack*, *rain* and *drop*, *sun* and *light*). It is important for students to know how to use their understanding of prefixes, suffixes, and root/base words to unlock the meaning of words. And they can use a *process approach* to accomplish this. A process approach is a much more effective method for learning word parts than merely identifying and labeling specific word parts as prefix, suffix or root/base. The process approach for integrating the teaching of words parts into a vocabulary program consists of three key components:

- Provide students with knowledge of prefixes, suffixes, and root/ base words in focused lessons.
- Teach meaningful word parts explicitly as the need arises in the reading material.
- Teach students different strategies for analyzing the word parts.

2.12. Prefixes and suffixes

Before students can apply prefixes, suffixes, and root/base words to unlock the meaning of words, they must first know what these word parts mean. Teachers can begin by explaining the meaning of prefixes, suffixes, and root/base words and how each supports the meaning of words. The following are examples written in student friendly language:

Base word: A base word is the smallest group of letters that forms a complete word. (PREL, 2008) .For example, the word *pay* is a base word. We can add letters to the beginning or end to form new words (for example, *repay* and *payment*).

Root word: A root is actually a special kind of base word. A root carries the main part of the meaning. Like the root of a tree. A word root is necessary

for growth or word building. Because so many roots come from Greek or Latin, most roots need to be combined with other groups of letters when they are used in English (PREL, 2008). For example, the root word *astro* means "star." Other letters are needed to form complete words, such as *astrology, astronaut,* and *asteroid*. A prefix is a group of letters that is added to the beginning of a root or base word and that changes its meaning (PREL, 2008). For example, the prefix *un* means "not" or "opposite of." In the word *unlike*, the base word is *like*. One of the meanings of *like* is "similar to." By adding the prefix *un*, the meaning changes to "not similar" or "different."A suffix is a group of letters that is added to the end of a root or base word and that changes its meaning, although its new meaning is often close to the original meaning (PREL, 2008). A suffix can:

1. Change the part of speech (for example, *run, and runner*).
2. Change a noun from singular to plural (for example, cat,at).
3. Change verb tense (for example, wait, waited).
4. Establish a relationship (for example, employer, and employee).
5. Show a difference in quantity (for example, less, lesser) and
6. Number (few, fewest).

2.13. The Important of vocabulary instruction

In reading, vocabulary knowledge is essential to comprehending text (National Institute of Child Health and Human Development [Nichd, 2000). When students do not understand at least 90%of the words in a text, they do not adequately understand what they read (Hirsch, 2003; Sedita, 2005). Research suggests that students acquire 2,000 to 3,500 new words a year and know the meaning of approximately 50,000 words by the time they graduate from high school (Graves, 2006; Lehr, Osborn, and Hiebert, 2004; PREL, 2008).As students' progress from the lower elementary grades into the middle grades, the majority of their reading moves from narrative to expository text. *Narrative text* is fictional material that mainly uses one text

structure (or format). Text structure is the way an author organizes the text (PREL, 2007, 2008). The narrative text structure usually includes plot, setting, problem, and resolution. This commonly used structure makes it easier for students to predict what the story will be about or what the author plans to write. *Expository text* or nonfiction usually has more complex content and higher-level vocabulary and is written using different types of text structures, such as description, compare and contrast, cause and effect, and problem and solution. As a result, students find it difficult to anticipate what the author plans to write next or which direction the content will flow. Below are two examples explaining how a mother panda supports its young one example is written using a narrative structure, the other using an expository structure.

2.14. Narrative Text

After playtime, his mother sat down to snack on her favorite food, bamboo. Lin Lin loved to eat almost as much as BaoBao loved to play—which was good, because grown-up pandas have to eat a lot of bamboo. (Liwska, 2008, unnumbered)

2.15. Expository Text

Giant pandas spend about 16 hours a day eating. They eat mainly the leaves and stems of bamboo plants… Giant pandas must eat large amounts of bamboo. A giant panda's body does not have much time to digest the bamboo. *Digest* means "to break down food" quickly so the body can use it. Pandas digest food quickly. (Duden, 1997, p. 11)

2.16. Teaching Vocabulary Explicitly

The vocabulary used in expository text builds the foundation for current and future learning. Teachers need to explicitly teach these words to help students comprehend the text. For example, the word *digest* used in the above text is repeated three times. If students understand *digest* in this

context, they have a better chance of knowing this word when they learn about the digestive system in human bodies.

2.17. The Essential component of vocabulary

What are the Essential Components of Vocabulary Instruction?

Students can also learn vocabulary through indirect and direct exposure to words in a variety of language contexts. For example, students can learn vocabulary indirectly when they engage in conversations with others, through read aloud, and through independent reading (Armbruster, Lehr, & Osborn, 2001). Students can learn vocabulary directly when teachers target individual words and promote word-learning strategies (Armbruster, et al., 2001).

According to (Michael Graves, 2006), there are four essential components of vocabulary instruction listed below:-

- Providing rich and varied language experiences
- Teaching individual words explicitly
- Teaching word-learning strategies
- Fostering word consciousness

For each component, there are specific strategies to enable EFL learners to increase their vocabulary (see Figure 1).

2.18. Oral language development

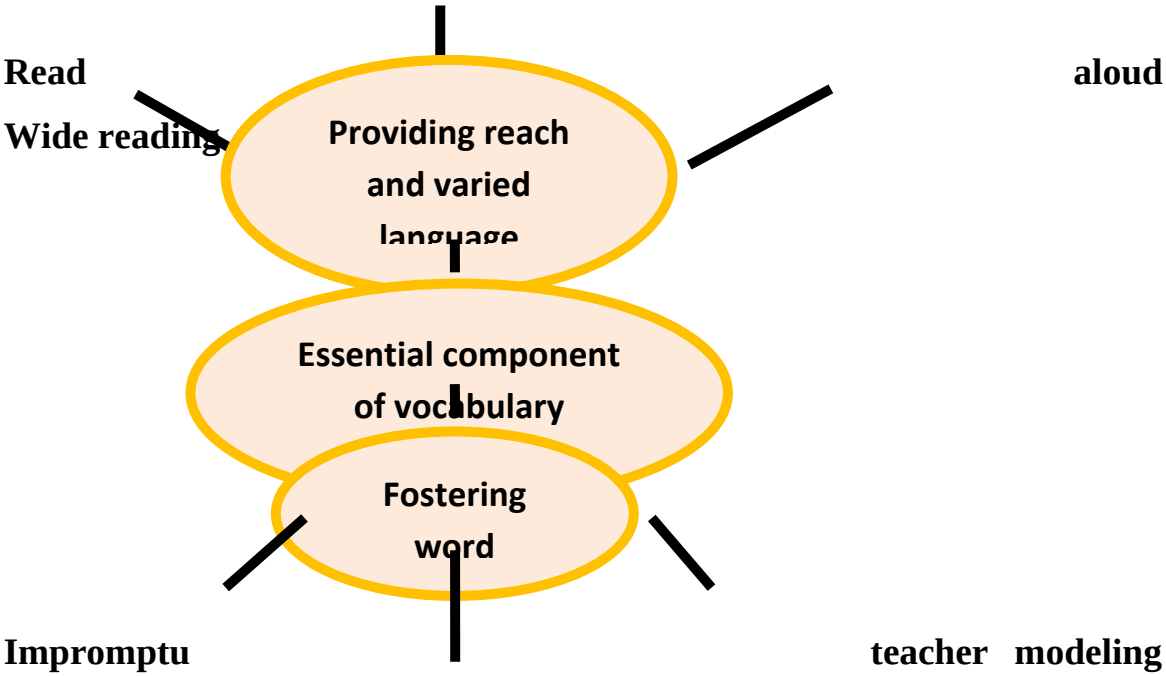

Figure1. The four essential components of vocabulary instruction Adapted from

Teaching Vocabulary Explicitly experiences According to research, students' vocabulary increases, when they are exposed to new words through various language experiences, such as reading aloud, independent reading, and oral discussions (Graves, 2006) In addition, when students are exposed to a wide variety of reading genres, from biographies to fairy tales to how-to books, they learn different types of vocabulary.

In order to be exposed to vocabulary that is more sophisticated and academic, students need to spend time reading books and having books read to them. Several researchers have concluded that reading aloud has the potential to significantly increase children's vocabularies (Lehr, et al., 2004). Combining read aloud with discussion about the text and promoting

independent reading experiences outside of school hours are both effective strategies for expanding children's vocabularies (Cunningham, 2010).

It is essential that students be provided time to engage in oral language activities such as discussing the book in class after the read aloud and discussing it at home. Children's books contain many rare words as compared to adult conversations (Hayes & Ahrens, 1988). When students are exposed to these rare words, they acquire the vocabulary to support their reading of the increasingly complex texts they encounter as they progress through school (Cunningham &Stanovich, 1991). For example, the well-loved children's book *The Very Hunger Caterpillar* (Carle, 1987) uses *cocoon*, an academic word, "to explain one stage in the life cycle of a butterfly."The volume of reading greatly affects a student's vocabulary knowledge (Cunningham & Stanovich, 2001). Students who can read with ease tend to read more difficult material and are thus exposed to a greater number of rare words. Even striving readers will increase their vocabulary if they engage in reading (Cunningham & Stanovich, 1991); however, these students tend to avoid reading, thus missing out on the opportunity to learn rare words.(Keith Stanovich ,1986) termed this phenomenon the "Matthew effects" of achievement, based on a Biblical passage that speaks of the rich getting richer and the poor getting poorer. Mrs Kaholo feels validated and plans to continue her daily *read aloud* after lunch. She thinks about groups what they heard in the *read aloud* and incorporating table group discussions after students' independent reading. She hopes that discussion will expose students to other rich and varied vocabulary words. The possibility also exists of increasing student motivation to read more and to read the books that are being read by their peers. Effective Instructional Strategies Fostering word consciousness the next component of promoting vocabulary development is fostering word consciousness. Word consciousness can be thought of as "an awareness of, and interest in words, and their meanings"

(Graves, 2006, p. 7). This also includes word play and expressively used words such as idioms and figurative language (Lehr, et al., 2004). Teachers can increase students' vocabulary by helping them develop word conscious behaviors such as showing strong interest in words, noticing words, and learning new words. Personal interest and excitement in new words can be contagious. Encouraging students to be word conscious helps them to become lifelong learners of new words.

Ways to foster word consciousness include playing word games, telling tongue twisters or jokes, and highlighting interesting words found in the texts (Lehr, et al., 2004).Vocabulary instruction in Sudanese settings, similar to the one examined here.

2.19. Strategies of learning Vocabulary

There have been many studies about the significance of vocabulary in language learning. For example, (Walker, Greenwood, Hart and Carta ,1994) stated that early vocabulary knowledge has been shown to be a strong predictor of school progress in the first language (L1). They found that vocabulary knowledge was particularly important in Reading achievement in addition, (Tschirner,2004) states that vocabulary size has been identified as one of the most important indicators of L2 reading proficiency and of academic language skills in general He discusses the relationship between the extents of Participants' L2 English vocabulary and other background information such as length of time spent in English language-speaking countries, number of English books read per 5 year, learning strategies, etc. In other studies, the size of students' vocabulary has also been found to closely correlate with L2 writing ability (Laufer and Nation, 1995; Laufer, 1998; Beglar and Hunt, 1999; Zimmerman, 2005). Furthermore, Duin and Graves (1987) Found that if students are given a related set of words (through an intensive vocabulary instruction as a prewriting technique) before they write an essay in which the words might be used, the quality of

their writing improves. In another study, (Read, 2004), found that L2 learners are typically aware of the extent to which limitations in their vocabulary knowledge hinder their ability to communicate effectively in the target language. This is because lexical items carry the basic information load of the meanings they wish to comprehend and express. In other words, the learners realize that knowing more vocabulary will have a direct effect on their ability to use and further develop the L2 they are learning. Thus, vocabulary can lead the learners to be more confident in using the language. Words are the primary carriers of meaning, and it is widely recognized that there is a strong relationship between the individual's vocabulary size and his/her general language proficiency (Vermeer, 2001; Zimmerman, 2005). Methods for learning vocabulary, then, are an important part of language learning there is variety of ways in which a child learns vocabulary in the L1. These include:

1) Experiential learning (Armbruster, Lehr, and Osborn, 2001).e authors claim that a student learns most vocabulary through reading or listening to words being used in context. In other words, students are able to develop vocabulary through their experiences with the words.

2) Memorizing (Levin, Levin, Glasman and Nordwall, 1992).

These authors believe that students learn new words by memorizing. If students are able to connect words to a familiar image or visualization, they are more likely to be able to remember, retrieve, and use the words in sentences.

3) Using words repeatedly, namely, the students are given practice (Long and Rule, 2004). The learners are provided with worksheets to practice words that have already been introduced.

Some of the viewpoints discussed above are also adop0ted for vocabulary learning in the L2 teaching context. Additionally, (Anglin, 1993), referring to

some previous studies, proposed three approaches in the research literature to the development of vocabulary knowledge:

1) Direct instruction of vocabulary in school (McKeown, Beck, Omalson, and Perfetti, 1983)

2) Learning words and their meanings from context, especially during reading activities (Miller, 1991; Nagy and Anderson, 1984). In addition, (Zimmerman, 2005) emphasizes that the primary method for acquiring new vocabulary (breadth) and deepen understanding for existing vocabulary (depth) is through extensive reading. Furthermore, (Krashen, 1985, 1989, as cited in Morin, 2003), believes that reading is the most efficient way to learn vocabulary naturally.

3) Applying morphological knowledge to infer the meanings of words (Nagy and Anderson, 1984; Wysocki and Jenkins, 1987).

The third approach is the focus of this thesis. In particular, it will consider the individual learners' application of morphological knowledge as a vocabulary learning strategy. Learning strategies can play an important role in development because they encourage the learner's active involvement in the learning process. Vocabulary

Instruction is most effective when students are positively and actively involved in their learning and they are allowed to use their own strategies to learn the vocabulary (Longand Rule, 2004). Therefore, investigating instructional approaches to the use of morpheme or root word families in teaching vocabulary, Long and Rule (2004) found that the learners could develop their vocabulary better when vocabulary was taught through concrete representations (i.e. using pictures and real objects) and morphological analyses rather than more traditional class instruction methods (e.g. simply writing words down, students note taking, no morphological analysis).The use of morphological knowledge as a potential strategy for vocabulary learning was the focus of the following studies.

(Anglin, 1993), found that the students could analyze the morphological structure of complex words which they have not actually learned before to figure out the meanings. (Morin, 2003), proposed the strategy of using morphological knowledge to infer word meanings, and with it, the need to develop morphological awareness in the L2. She characterizes morphological awareness as the ability to reflect on and manipulate morphemes and word formation rules in a language (Morin, 2003). Similarly, (Chang et al. 2005), define morphological awareness as "the awareness of and access to the meaning and structure of morphemes" (the smallest units of meaning in a language) in relation to words. They quote (Carlisle, 995, p. 194), who defines morphological awareness as "children's conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate that structure". The focuses on students' abilities to distinguish and manipulate morphemes at the word level, so that student' knowledge of both inflections and derivations in language are simultaneously considered. English morphology involves knowledge of both inflectional and derivational processes, and each makes a distinctive contribution to language learning and use. (Fromkin, Blair and Collins, 1999) define inflectional morphology as changes in the form of a word according to its grammatical function, for example, *talk* becomes *talked* to indicate activity in the past time. On the other hand, derivational morphology concerns changes of a word to give additional meaning to the original word (e.g. *sufficient* becomes ***in****sufficient*) and may be in a different grammatical class from the un-derived word as well (e.g. *beauty*, a noun, becomes *beauti****ful***, an adjective).Knowledge of inflectional morphology plays a key role in grammatical accuracy, while knowledge of derivational morphology plays a role in the development of vocabulary knowledge. The role of learner knowledge of both inflectional and Derivational morphology in the development of L2 vocabulary is the focus of the present study. The study

examines the relationship between morphological awareness and vocabulary knowledge for the EFL Sudanese learners, with a focus on possible implications this relationship might have for incorporating morphological awareness as a part of vocabulary instruction in the L2 classroom. Morphological awareness will be discussed in the next section.

2.20. Prudent Word Part and Vocabulary Selection

In creating a workable vocabulary strategy curriculum that capitalizes on the strengths of morphological analysis, one must be cognizant of three underlying criteria requisite for a successful program these components were touched upon by (Orleans, 1922), but appear to have not been implemented in many books and programs that have deservedly earned the rebuke of cynics discrediting word part analysis. Orleans stated, "The possibility of transfer from the Latin to the English is determined by such elements as similarity of form, similarity of meaning, and perhaps number of derivatives" (p. 559). I will discuss each of these in turn, and then delineate a vocabulary acquisition program that was used among a heterogeneous class of college preparatory students.

2.21. Similarity of Form

According to (Webster's Third International Dictionary 1993), the root *morph* in morphology is defined as *form*. In (Venezky's ,1967) article on the patterns of English orthography, the author observed that "Orthography is not merely a letter-to-sound system riddled with imperfections, but, instead, a more complex and more regular relationship wherein phoneme and morpheme share leading roles" To illustrate a morpheme's leading role, were the English writing system to reflect a purely phonetic sound/symbol relationship, the words induce, reduction, and educate might be written respectively as [ĭndōōs**'**]**,** [rēdək**'** šən], and [ĕj**'** ōōkāt]. However, the root [duc], which means "to lead," would not be apparent either aurally or orthographically since it is spoken, and consequently would be written, as

dōōs, dək, and jōōk. Moreover, in the word educate, jōōk would be divided among three separate syllables! Yet a visual cue demonstrating a semantic connection among the words is evident due to the stable form of the morpheme [duc]—regardless of its pronunciation. As students learn the meaning of a particular word part and corresponding words, the visual cue of the morpheme serves as a mnemonic when encountering those same words later on in text; also, it can often assist as a word attack device when encountering new words derived from the same morpheme. For the latter, this association often will be viable only to the degree that the instructed word part is visually similar to the part found in the derivation, or word family. For example, (Brown & Thompson, 1958) compiled a list of 14 master words that were taught to his adult education students. Based on 20 prefixes and 14 roots, it was claimed that these word parts pertained to "over 14,000 words in the Webster's Collegiate Dictionary and a projected 100,000 words in an unabridged dictionary" (p. 62). Such claims appear hyperbolic. Indeed, based on the divergent form of some of the master roots, the success of transferring knowledge of word parts from the known to the unknown is problematic. One of Brown's master words was *precept*. The prodigious vocabulary derived from /capere/, the root in this word, comes into question when one considers the variant spellings provided by (Brown): *cept*, *cap*, *capt*, *ceiv, ceit,* and *cip*. This dissimilarity in form would most likely diminish the amount of words students can realistically expect to know based on the master word *precept*. If students were introduced to a more formalized Latin-centered curriculum, changes in declensions and conjugations would reveal an order behind the spelling changes of /caperer/ (Hayriye Karliova, personal communication, July 25, 2008), but the inclusion of such instruction would likely be deemed beyond the scope of a college preparatory program. To take advantage of similarity of form, a word part should be taught in the form it appears throughout the vocabulary curriculum and will most likely

appear in the words students are apt to encounter in their own reading. For instance, the word part /malus/, which means *bad*, would be taught to students as /mal/, which is visually evident in such words as malign, malignant, malicious, malediction, and malefactor. Practical utility, not classical purity should be the aim of such instruction. *Similarity of Meaning (Semantic Transparency)* I will take the liberty to extend Orleans‟ prior observation to suggest that not only should the same meaning be conveyed within the family of words being introduced, but that this meaning should be transparent. In other words, there should be a clear (transparent) parts-to-whole relationship between the morphemes in a word and overall meaning in the word itself. For example, the five words above that are based on /mal/ all convey an aspect of "bad." Conversely, an empirical study by (Swisher, 1988) found the root /fer/ to be "the most difficult to master based on the number of words generated and retention of its meaning after instruction over time" (p. 204). That is not surprising when considering one of the study's instructional words, vociferous, where the root /fer/, which means *to bear* or *carry*, is not semantically transparent see (Levin, Carney, & Pressley, 1988,), for an original study in semantic transparency.

(Nagy and Anderson, 1984) grouped words into six divisions based on semantic relatedness. A zero would indicate a perfectly clear parts-to-whole relationship, while six would suggest that no evident relationship exists between the word parts and the overall meaning of the word itself. Words from half of the six-point continuum were deemed semantically transparent (SEM 0-2) and the remaining divisions were deemed semantically opaque (SEM 3-5). Semantic relatedness was defined in terms of the following question: "Assuming that a child [grades 3-9] knew the meaning of the immediate ancestor, but not the meaning of the target word, to what extent would the child be able to determine the meaning of the target word when encountering it in context while reading?" According to their scheme, it was

determined that multiple words from the same family in the SEM 0-2 category would be inferable if the child already knew only one of the related words. For older students (late high school and beyond), it is quite possible for a number of words in the SEM 3 category to be grouped within the transparent word family due to the older students‟ advanced decoding capabilities and enriched schemata which means that although the meaning of the derived from [from SEM 3] is not completely predictable from the meanings of its component parts, the meanings of the component parts do in fact contribute something to the derived meaning. Even in these cases, then, knowledge of word formation processes will be helpful to the reader trying to figure out the meaning of words in context. Similarly, knowledge of only one morpheme within a multi-syllabic word can assist in differentiating between commonly confused words. The prefix [*im*-] means “in”; the prefix [*e*-] signifies “out.” Knowing that distinction may suffice in obviating the confusion between immigrates and emigrates; one immigrates into a country while emigrating out of his/her original country.

2.22. Number of Derivatives (ambiguity)

Building a vocabulary strategy program based on morphological analysis that includes word parts that are stable in form and transparent in meaning will not be of much use if these parts assist in recalling or learning only a few words. Ideally, selected morphemes should transfer to multiple words that will allow the student to obtain much mileage from this strategy.

(Holmes and Keffer, 1995) sought to increase Scholastic Aptitude Test (SAT) scores through a computer program that enlarged students‟ vocabulary by using classical word parts. In determining which roots to incorporate into the program, the criterion for root selection was determined by whether or not a minimum of five English derivatives per root were found on a particular frequency list.

Ubiquitous word parts, like high frequency vocabulary, may assist in automaticity. Morphologically complex words appearing on the low-end of a frequency list are often more easily recognized when one considers its overall family—those derivations based on the same roots. Nagy, Anderson, Schommer, Scott, and Stallman (1989) contended that the best measure of frequency is not the individual word itself, but the family or those words closely related in form and meaning:

The word inactivity, for example, is a relatively low-frequency word, occurring less than once in a hundred million words of school text ... If word recognition were determined only by the frequency of the individual word, independent of morphological relationships, this word would be accessed slowly. However, when related words such as active, inactive, activity and activities are taken into account, the family frequency of inactivity is 10 thousand times as great as the frequency of this individual member.

Word families and their association with frequency, then, do not merely multiply a word's frequency but appear to operate exponentially. At present, this author is assembling w2.12ord parts and vocabulary based on the three aforementioned criteria, and these will be utilized in a college preparatory reading program comprised of both native and non-native speakers of English. Until its completion, good success has been achieved these past twelve years by modifying aspects of the book *Word Power Made Easy* by Norm Lewis (1978). How I have tailored the contents of this text to meet the needs of my students, and the methodology I implemented for a vocabulary acquisition program based on morphological analysis will be the focus of the remainder of this paper.

2.23. Morphology and vocabulary enhancement

Morphology is widely held to be part of the explanation for how children learn so many words that they were never explicitly taught (e.g., Anglin,

1993; Carlisle &Fleming, 2003; Carlisle, 2007; Nagy & Anderson, 1984; Taft & Kougious, 2004).

Anglin (1993) described morphological problem solving as a process by which the meaning of previously unknown complex words can be deciphered. This process involves morphological analysis in which learners break complex words into constituent meaning elements called morphemes (bases, prefixes, and suffixes). A synthesis of the meaning of those component morphemes provides cues to the meaning of a previously unknown word. Nagy and Anderson (1984) estimated that about 60% of the novel words students encounter in texts could be worked out through problem solving morphological structure and their use in a sentence. This meta-linguistic process has garnered growing interest in the literature as an important word-learning skill (e.g., Baumann et al., 2002; Henry, 1989, 2003; Nagy, 2005; National Reading Panel, 2000; Scott, 2005; Templeton, 1989, 2004). Wysocki and Jenkins (1987) investigated the extent to which untaught morphological knowledge could account for the increases evident in children's vocabulary that far exceeded the number of words explicitly taught. They found evidence of transfer of word knowledge from taught words to untaught derivations of those words. Anglin (1993) suggested that morphological problem solving is in part responsible for the rapid growth in the knowledge of the meaning of derivations between 3 and 5.

2.24. Vocabulary acquisition

Researchers have begun to investigate the effects of explicit instruction about morphology (e.g., Baumann et al., 2002, Baumann, Edwards, Boland, Olejnik, & Kame'enui, 2003; Carlisle, 2007). Nunes, Bryant, and Olson (2003), Nunes and Bryant (2006), and Henry (1989) provided experimental evidence that morphological instruction improves word reading and spelling, but they also noted that this type of instruction is rare in schools. This

omission may have particular relevance for literacy development in English due to the particular nature of oral and written morphology in English.

English has been called a morphophonemic language due to the special interrelationship of its phonology and morphology (Venezky, 1999). It is common for the pronunciation of morphemes to shift across English words. For example, consider the pronunciation of the base do in its inflections does and done or that of sign in derivations such as signal and design. Carlisle (2003a) pointed out that familiar word parts can facilitate language learning compared to learning each complex word in isolation. This, however, can only occur when students recognize morphemes within complex words. In a study with third and fifth grade students, Carlisle (2000) showed that learners are less able to recognize morphological cues in ‘‘shift words’’ that have changes in pronunciation and/or spelling due to suffixing patterns across related forms. Written morphology links large word family’s with concrete meaning elements via a system of consistent compounding and affixing patterns. It is an empirical question whether explicit instruction about how this system works would help children make better use of relatively transparent connections for independent vocabulary learning. Such instruction could also help children by making it easier for them to recognize morphological cues in shift words. Carlisle (2003b) commented, ‘‘Leaving morphological analysis to be discovered by students on their own means that those who are not inherently linguistically savvy are likely to be left behind their peers in the development of vocabulary, word reading and comprehension, and spelling’’ (p. 312). So far, however, morphology remains a resource of meaning cues that has been poorly exploited by explicit instruction and is only beginning to be investigated experimentally (Nunes & Bryant, 2006; Henry, 2003).

2.25. Morphology and vocabulary instruction

Pressley, Disney, and Anderson (2007) reviewed the evidence for the value of teaching internal context cues (morphological word parts) for vocabulary development. Although they described the evidence so far as ‘‘thin and equivocal’’ (Pressleyet al., 2007, p 214) they reported that there was some evidence that teaching about morphemes can improve children’s and adults’ ability to infer the meanings of words. Graves and Hammond (1980) taught Grade 7 students the meaning of prefixes in the context of one set of vocabulary words. Those students were able to generalize the knowledge to new vocabulary words. The vocabulary intervention by Baumannet al. (2002) incorporated morphology instruction that taught the meaning of eight common prefix families. Morphological instruction produced large immediate effects for deriving the meaning of morphologically decipherable instructed words P. N. Bowers, J. R. Kirby123compared to a comparison group who received vocabulary instruction about learning words from (non-morphological) context cues, and to a control group, but delayed effects were small. There were no instructional effects on delayed transfer tests. In a follow up intervention, Baumann et al., (2003) used the context of social studies textbook lessons in the classroom to compare the effects of vocabulary instruction which integrated teaching about external context cues and morphological instruction (MC) with the effects of instruction of textbook vocabulary (TV).

The morphological instruction in this study focused on 15 prefixes and five suffixes and how to use the meaning of these word parts in conjunction with root words (base words) to learn the meaning of new vocabulary words. MC students were more skilled than TV students at inferring the meanings of morphologically decipherable words on a delayed test but not an immediate test. These studies provide evidence of moderate to small effects on word learning skills through morphological instruction.

Finally, the potential of motivating students to engage in active processing tasks with words through instruction which emphasizes problem solving of word structure cues rather than memorization is another reason for investigating morphological instruction. Focusing on morphology introduces order to the English spelling system, which brings with it the possibility of using problem solving to investigate what Templeton (2004) described as the vocabulary-spelling connection. Studying words through one-at-a-time memorization characterizes much of spelling instruction, but it fails to motivate many children to learn about words (Fresch, 2007).

Students who begin to understand morphological structure can find ordered spelling and meaning cues in words that morphologically unaware students could only assume are irregular. (e.g., busy/i? ness? business; do? es? does). Vocabulary instruction can involve meaning-rich, active processing and learning experiences without addressing morphology. However, neither the shallow but wide instruction encouraged by researchers such as Biemiller (2004) nor the rich but narrow instruction recommended by others such as Beck, McKeown, &Kucan(2002), offers students the generative spelling knowledge that ‘‘provides the basis for explicit awareness and understanding of morphology, which, in turn, may guide the systematic growth of vocabulary knowledge’’ (Templeton, 2004, p. 120). Such instruction may bring a double benefit of (a) generative word structure knowledge, and (b) motivation to attend closely to words.

2.26. Morphological awareness and writing skills

Casalis et al.: Morphological awareness and spelling given that morphophonemic written systems also represent the morphological structure of words, the application of information about morphemes, or the minimal units of meaning in language, often allows one to choose between several plausible spellings. Many morphological relationships are captured within the root consistency principle, which specifies that roots retain their spelling

in related words (Bourassa &Treiman, 2008; Deacon & Bryant, 2006; Pacton & Deacon, 2008). For example, vowels can be spelled in several ways in English (/e/ as in *bed*, *head*, and *said*) and French (/e/ as in lait, /le/, *milk*, sel, /sel/, *salt*). Morphological

Information makes the choice between the different spellings straightforward; in English, *health* is spelled with an *ea* because of its root *heal*, and in French *laitier*(milkman) is spelled with an *ai* because of its root *lait*.

2.26.1. The Influence of Morphology on students' spelling

Prior research suggests that both English- and French-speaking children's spellings influenced by morphological structure. In English, Carlisle (1988) found that10- to 14-year-old writers were more likely to spell derived forms accurately if they knew how to spell their roots. In a similar vein, Deacon and Bryant (2006) showed that 7- to 9-year-old children were more likely to spell a segment correctly (e.g., *turn*) if it was a part of an inflected word (e.g., *turning*) than of a control word (e.g., *turnip*). Other studies have shown that children rely on morphology to spell particularly challenging sounds (Kemp, 2006; Rubin, 1988; Treiman, Cassar,& Zukowski 1994). For instance, Treiman and Cassar (1996) showed that 5- to9-year-old children were more likely to spell the penultimate consonant of consonant clusters correctly when that consonant was a part of the root morpheme than when it was not (e.g., /n/ in *tuned* vs. *brand*).S´en´echal (2000) and S´en´echal, Basque, and Leclaire (2006) demonstrated that7- and 9-year-old French-speaking children's spelling is also influenced by morphological structure. Children were more likely to spell the ends of words correctly when these had a derived form that indicated the word-final silent consonant (e.g., he derived from *camper* /k˜ape/ suggests the use of *p* in *camp* /k˜a/, a camp, where it is silent) than deep words with no such related word (e.g., *jument*, mare). This difference suggests that children refer to related words in

determining the spelling of silent endings. The use of the morphological structure to choose between several possible spellings has also been evidenced with pseudo word spelling tasks (Pacton, Fayol, & Perruchet, 2005).

2.26.2. The role of morphological awareness in spelling

Morphological awareness refers to s's "conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate that structure" (Carlisle, 1995, p. 194). Several tasks have been developed to assess children's morphological awareness. In the completion task, children are asked to produce a related form to appropriately complete a sentence (e.g., "Four. The horse came in . . ." [correct answer: *fourth*]). This task is easier when the stem is

Pronounced similarly in the base and related form (e.g., *four–fourth*) than when it is pronounced differently (e.g., *five–fifth*; Carlisle, 1988; Fowler & Liberman, Applied Psycholinguistics 32:3 501

2.26.3. Morphological awareness and spelling 1995)

In the analogy task, students are given a pair of sentences or words, such as "Tom helps Mary" and "Tom helped Mary" or "teach" and "teacher." They are asked to carry out the same kind of transformation on another sentence (e.g., Tom sees Mary) or on word (e.g., write) as we will discuss later, the nature of the Phonological relation can also be manipulated in this task. According to Bryant and collaborators (e.g., Nunes, Bryant, &Bindman, 1997a), the analogy task is particularly well suited to assessing morphological awareness because it requires explicit manipulation of the relations between morphologically related words (in contrast to, for example, the sentence completion task).

2.27. Word Formation Process

Word formation process aims at "analyzing and understanding the processes through which the lexis is created or renewed" (Lang, 1990:3) purists and

lexicographers, however, might criticize and even condemn the creation of new terms, which they might consider irrelevant and unnecessary.

Nevertheless, speakers and writers, support lexical innovation and creativity either proposed by themselves or by mass media because it allows them to be more expression when speaking and writing. To illustrate, let us think of all poets, and authors that have for long coined words of their own to give way to richer linguistic devices. Consequently, the data analyzed when looking at word formation processes obtained from dictionaries, scientific and technological texts, the mass media, modern literature, and colloquial speech (Lang, 1990)

Most common word formation processes are compounding and derivation. The former occurs when independent lexemes, also known as free morphemes, combine and give way to more complex morphological structures. Compounding can be divided into two types: orthographic and syntactic. The former occurs when free morphemes are graphically joined egsabiondo. The latter takes place when the compound have become semantically coherent but without orthographic function e.g patria pates tad. Derivation on the other hand, involves the combination of words or stems of words with affixes either prefixes, suffixes or infixes. These latter might not be able to freely exist in the language and therefore, are called bound morphemes (Lang, 1990)

Word formation brings together pretty much all branches of linguistics: syntax, semantics, morphology, and phonology. Grammar or syntax and semantics hold a particularly important role as they restrict possible combination of affixes and or stems. An affixes for example can be mono syntactic.

2.27.1. Morphology y and Word Formation

They had in their home languages; for example, we pluralize *operetta* as *operetta**s*** rather than as *operett**a***s Italian does; similarly, we sing *oratorio**s***

rather than *orator*. [Thanks to Paula Malpezzi-Price for help with these examples.]

The regular inflections are the default inflections that learners tend to use when they don't know the correct ones (for example, *growed* rather than *grew*). Nouns: {-s} plural (the bird**s**) noun phrases: {-s} genitive/possessive (the bird**'s** song) adjectives/adverbs: {-er} comparative (fast**er**) {- est} superlative (fast**est**) verbs: {-s} 3rd person singular present tense (prove**s**) m {-ed} past tense (prov**ed**) {-ing} progressive/present participle (is prov**ing**) {-en} past participle (has prov**en**) (was prov**en**)

[Note: the regular past participle morpheme is {-ed}, identical to the past tense form {-ed}. We use the irregular past participle form {-en} to distinguish the two.]

However, because of its long and complex history, English (like all languages) has many **irregular** forms, which may be irregular in a variety of ways. First, irregular words may use different inflections than regular ones: for example, the modern past participle inflection of a regular verb is {-ed}, but the past participle of *freeze* is *froz**en*** and the past participle of *break* is *brok**en***. Second, irregular forms may involve internal vowel changes, as in *man/men*, *woman/women*, *grow*/*grew*, *ring*/*rang*/*rung*. Third, some forms derive from historically unrelated forms: *went*, the past tense of *go*, historically was the past tense of a different verb, *wend*. This sort of realignment is known as **suppletion**. Other examples of suppletion include *good*, *better*, and *best*, and *bad*, *worse*, and *worst*. (As an exercise, you might look up *be*, *am*, and *is* in a dictionary that provides etymological information, such as the American Heritage.) Fourth, some words show no inflectional change: *sheep* is both singular and plural; *hit* is present and past tense, as well as past participle. Fifth, many borrowed words, especially nouns, have irregular inflected forms: *alumnae* and *cherubim* are the plurals of *alumna* and *De-laundry and Garvey-cherub*, respectively.

Irregular forms demonstrate the abstract status of morphemes. Thus the word *men* **realizes** (represents, makes real) the two morphemes {man} and {plural}; *women* realizes {woman} and {plural}; *went* realizes {go} and {past tense}. Most grammar and writing textbooks contain long lists of these exceptions.

As a final issue here we must note that different groups of English speakers use different inflected forms of words, especially of verbs. When this is the case, the standard variety of the language typically selects one and rejects the others as non-standard, or, illogically, as "not English," or worse. For example, many English speakers use a single form of *be* in the past tense (*was*) regardless of what the subject of its clause is. So, they will say, *we were there yesterday*. This is an uncontroversial issue: *was* in instances like this is universally regarded as non-standard. Other forms are more controversial.

For example, what is the past tense of *dive—dived* or *dove*? How are *lie* and *lay* to be used? How does your dictionary deal with such usage issues?

2.28. English derivational morphology

Derivation is the process of creating separate but morphologically related words. Typically, but not always, it involves one or more changes in form. It can involve prefixing, as in *re-saw*, and suffixing, as in *sawing*, *sawer*, *saw-able*.

Another type of derivation, while not visible, is at least audible. It involves a change in the position of the primary stress in a word. Compare:

Permit (noun) per

mit (verb)

Contact (noun) con

Tact (verb)

Perfect (adj.) per

Feet (verb)

Convert (noun) convert (verb)

In some derivationally related word pairs, only a feature of the final consonant changes, usually it's voicing:

Advice advise /s/-/z/

Belief believe /f/-/v/

Mouth mouthe

Breath breathe

In some cases adding a derivational morpheme induces a change in a stressed vowel:

Divine divinity

Profane profanity

Serene Serenity

In other cases, the addition of a suffix triggers a change in the final consonant of the root. For example, an alveolar consonant becomes palatal with the same voicing value:

Part partial

Face facial

Delahunty and Garvey seize seizure

Remit remission

In a multi-syllabic word with a stressed tense vowel, the palatalization may be accompanied by a laxing of that vowel:

Collide collision

Elide elision

Sometimes the addition of a derivational affix requires a change in the stress pattern, with consequential changes in the pronunciations of the vowels.

In most cases an unstressed vowel is pronounced as schwa:

Telegraph

legraphy

Regal re

galia

tutortu

torial

In still other cases we find suffixing, stress migration with change of vowel quality, and change of consonant:

ap

proveappro

bation

Additionally, English allows us to change a word's part of speech without any change of form. As a result, identical forms may belong to different parts of speech, e.g., *saw* the noun and *saw* the verb:

a. This saw is too dull (noun)

b. Don't saw that board (verb)

Other examples include *hit*, *buy*, *dust*, *and autograph*, *brown-bag*, which can all be both verbs and nouns. Change of part of speech without any corresponding formal change is called **conversion (**also **functional shift** or **zero derivation**).

There is more on this topic in our chapter on Major Parts of Speech.

The term **word family** is often used for a set of words that are related to each other derivationally or inflectionally, though the term is also used to refer to any set of words that rhyme with each other.

2.29. Compounding

The italicized words in (11) are created by combining *saw* with some other word, rather than with a bound morpheme.

a. A *sawmill* is a noisy place.

b. Every workshop should have a *chain saw*; a *table saw*, a *jig-saw*, a *hack saw*, and a *bucksaw.*

c. *Sawdust* is always a problem in a woodworker's workshop.

d. *Sawing horses* are useful and easily made.

Such words are called **compounds**. They contain two or more words (or more accurately, two or more roots, all, one, or none of which may be bound; cf. *blueberry* with two free morphemes and *astronaut* with two bound morphemes). Generally, one of the words is the head of the compound and the other(s) its modifier(s). In *bucksaw*, *saw* is the head, which is modified by *buck*. The order is significant: compare *pack rat* with *rat-pack*. Generally, the modifier comes before the head.

In ordinary English spelling, compounds are sometimes spelled as single words, as in *sawmill*, *sawdust*; sometimes the parts are connected by a hyphen, as in *jig-saw*; and sometimes they are spelled as two words, as in *chainsaw*, *oil well*. (Dictionaries may differ in their spellings.) Nonetheless, we are justified in classifying all such cases as compound words regardless of their conventional spelling for a variety of reasons.

First, the stress pattern of the compound word is usually different from the stress pattern in the phrase composed of the same words in the same order. Compare:

2.29.1. Compound phrase

White House white house

Funny farm funny farm

Blackbird black bird

Flatcar flat

In the compounds the main stress is on the first word; in the phrases the main stress is on the last word. While this pattern does not apply to all compounds, it is so generally true that it provides a very useful test.

Second, the meaning of the compound may differ to a greater or lesser degree from that of the corresponding phrase. A *blackbird* is a species of bird, regardless of its color; a *black bird* is a bird which is black, regardless of its species. A *trotting-horse* is a kind of horse, regardless of its current activity; *a trotting horse* must be a horse that is currently trotting. So,

because the meanings of compounds are not always predictable from the meanings of their constituents, dictionaries often provide individual entries for them.

They do not do this for phrases, unless the meaning of the phrase is **idiomatic** and therefore not derivable from the meanings of its parts and how they are put together, e.g., *raining cats and dogs*. Generally the meaning of a phrase is predictable from the meanings of its constituents, and so phrases need not be listed individually. (Indeed, because the number of possible phrases in a language is infinite, it is in principle impossible to list them all.)

Third, in many compounds, the order of the constituent words is different from that in the corresponding phrase:

Compound phrase sawmill mill for sawing: sawing horse, horse for sawing sawdust dust from sawing

Fourth, compound nouns allow no modification to the first element.

This contrasts with noun phrases, which do allow modification to the modifier: compare **a really-blackbird* and *a really black bird*.

There are a number of ways of approaching the study and classification of compound words, the most accessible of which is to classify them according to the part of speech of the compound and then sub-classify them according to the parts of speech of its constituents. Table 2 is based on discussion in Bauer (1983).

2.29.2. Compound nouns

a. Noun + noun: bath towel; boy-friend; death blow

b. Verb + noun: pickpocket; breakfast

c. Noun +verb: nosebleed; sunshine

d. Verb +verb: make-believe

e. Adjective + noun: deep structure; fast-food

f. Particle + noun: in-crowd; down-town

g. Adverb + noun: now generation

h. Verb + particle: cop-out; drop-out

i. Phrase compounds: son-in-law

2.29.3. **Compound verbs**

a. Noun + verb: sky-dive

b. Adjective + verb: fine-tune

c. Particle + verb: overbook

d. Adjective + noun: brown-bag

2.29.4. Compound adjectives

a. Noun + adjective: card-carrying; childproof

b. Verb + adjective: fail safe

c. Adjective + adjective: open-ended

d. Adverb + adjective: cross-modal

e. Particle + adjective: over-qualified

f. Noun + noun: coffee-table

g. Verb + noun: roll-neck

h. Adjective + noun: red-brick; blue-collar

i. Particle + noun: in-depth

j. Verb + verb: go-go; make-believe

k. Adjective/Adverb + verb: high-rise;

l. Verb + particle: see-through; tow-awa

2.29.5. Compound adverbs uprightly cross-modally

Neo-classical compounds astronaut hydro-electricmechano-phobeenglish compounds (bauer, 1983)

An alternative approach is to classify compounds in terms of the semantic relationship between the compound and its head. The head of a com135 pound is the constituent modified by the compound's other constituents.

In English, heads of compounds are typically the rightmost constituent (excluding any derivational and inflectional suffixes). For example, in *traffic-cop* the head is *cop,* which is modified by *traffic;* in *line-backer* the

head is *backer*, which is modified by *line*. Linguists distinguish at least three different semantic relations between the head and modifier(s) of compounds. First, the compound represents a subtype of whatever the head represents. For instance, a *traffic-cop* is a kind of cop; a *teapot* is a kind of pot; a *fog-lamp* is a kind of lamp; a *blue-jay* is a kind of jay. That is, the head names the type, and the compound names the subtype. These are called **endocentric**

2.29.6 Compounds.

Second, the compound names a subtype, but the type is not represented by either the head or the modifier in the compound. For example, *Deadhead, redhead,* and *pickpocket* represent types of people by denoting some distinguishing characteristic. There is typically another word, not included in the compound that represents the type of which the compound represents the subtype. In the case of *Deadhead, redhead,* and *pickpocket* this other word is *person,* so a *Deadhead* is a person who is an enthusiastic fan of the band *The Grateful Dead.* These are called

2.29.6.1. Exocentric compounds.

Third, there are compounds in which elements are heads; each contributes equally to the meaning of the whole and neither is subordinate to the other, for instance, *bitter-sweet.* Compounds like these can be paraphrased as both X and Y, e.g., "bitter and sweet." Other examples include *teacher-researcher* and *producer-director*. These can be called **coordinative compounds**.

2.30. Other sources of words

Besides derivation and compounding, languages make use of coining, abbreviating, blending, and borrowing to create new words.

2.30.1. Coining

Is the creation of new words without reference to the existing morphological resources of the language, that is, solely out of the sounds of the language. Coining is very rare, but *googol* [note the spelling] is an attested example,

meaning 10100. This word was invented in 1940 by the nine-year-old nephew of a mathematician (see Compact Edition of the Oxford English Dictionary Vol. III Supplement to the OED Vols. I-IV: 1987 p. 317).

2.30.2. Abbreviation

It involves the shortening of existing words to create other words, usually informal versions of the originals. There are several ways to abbreviate. We may simply lop off one or more syllables, as in *prof* for *professor, doc* for *doctor.* Usually the syllable left over provides enough information to allow us to identify the word it's an abbreviation of, though occasionally this is not the case: United Airlines' low cost carrier is called *Ted.* (Go figure!) Alternatively, we may use the first letter of each word in a phrase to create a new expression, an **acronym**, as in UN, US, or SUV. In these instances the acronym is pronounced as a sequence of letter names. In other instances, such as *UNICEF* from *United Nations International Children's Emergency Fund,* the acronym can be pronounced as an ordinary English word. Advertisers make prolific use of acronyms and often try to make them pronounceable as ordinary words.

2.30.3. Blending

It involves taking two or more words, removing parts of each, and joining the residues together to create a new word whose form and meaning are taken from the source words. *Smog* derives from *smoke* and *fog* and means a combination of these two substances (and probably lots of others); *motel* derives from *motor* and *hotel* and refers to hotels that are convenient in various ways to motorists; *Pre-vacid* derives from *prevent acid*; *eracism* derives from *erase* and *racism* and means erase racism or, if read against the grain, electronic racism (cf. *email, ecommerce, E-trade*); *webinar* derives from *(worldwide) web* and *seminar*. In November 2007, an interviewee on an NPR news item created the blend *snolo*to refer to playing bike polo in the snow

2.30.4. Borrowing

It involves copying a word that originally belonged in one language into another language. For instance, many terms from Mexican cuisine, like *taco* and *burrito,* have become current in American English and are spreading to other English dialects. Borrowing requires that the borrowing language and the source language come in contact with each other. Speakers of the borrowing language must learn at least some minimum of the source language for the borrowing to take place. Over its 1500 year history

English has borrowed from hundreds of languages, though the main ones are Latin (*homicide*), Greek (*chorus*), French (*mutton*), Italian (*aria*), Spanish (*ranch*), German (*semester*), and the Scandinavian languages (*law*). From Native American languages, American English has borrowed place names (*Chicago*), river names (*Mississippi*), animal names (*opossum*), and plant names (*hickory*).

The borrowed word never remains a perfect copy of its original. It is made to fit the phonological, morphological, and syntactic patterns of its new language. For example, the Spanish pronunciation of *burritos* is very different from the English pronunciation. At the very least, the two languages use different /r/s and /t/s, and the plural marker {-s} is voiced in English but voiceless in Spanish.

See our chapter on the History of the English Language in Book II for Delahunty and Garvey more on borrowing.

2.31. Registers and words

Although most of the words we use every day can be used in almost any context, many words of the language are restricted to uses in certain fields, disciplines, professions, or activities, i.e., **registers**. For example, the word *phoneme* is restricted to the linguistic domain. Interestingly, some words may be used in several domains with a different meaning in each, though these meanings may be a specific version of a more general meaning. For

example, the word *morphology* is used in linguistics to refer to the study of the internal structure of words and their derivational relationships; in botany to refer to the forms of plants; in geology to refer to rock formations. The general, abstract meaning underlying these specific meanings is the study of form.

Besides words that may be used in almost any context and those that are technical or discipline specific, there are words that play important roles in academic discourses generally, for example, *accuracy; basis; concept* and its related forms, *conception*, *conceptual, conceptualize; decrease; effect; factor; indicate* and its related forms, *indication, indicative;* and *result*. As such words are used across disciplines, generally without local idiosyncrasies of meaning; they are important words for English learners, both native and non-native speakers. For a useful overview of the attempts to create lists of such **academic** (or **sub technical**) **words** and a new list of them, see Coxhead (2000) and the references therein (another academic word).

2.32. Previous Studies

The researcher presents some studies that have been conducted in the same area as the present study. Reviewing the contribution of these studies is important of having clear picture which help for giving suggestion and contribution. Therefore, the researcher in this parts of the study revisers the contribution of other researchers in the area of morphological awareness.

2.32.1. The first study

This study was MA thesis. Carried out by Badria AL Faris in 2008 at The University of Queensland, under the title "Morphological Awareness and Its Relationship to Vocabulary Knowledge and Morphological Complexity among Omani EFL University student" .

The purpose of the study was to investigate the morphological awareness and its relationship to vocabulary knowledge morphological complexity among EFL university students. The required data for the study were collected by

using students' experimental pre- posttest. The findings revealed that the overall morphological awareness and vocabulary size were limited. The relationship between the constructs could not be established. The study fails to show any correlation between the constructs11 due to factors of floor effect, task difficulty, and instrument items design. The study recommended that such difficulties should be solved in the future.

2.32.2. The second study

This study was carried out by Taha Talib Ali in 2015 at Faculty of Social Science and Humanities, University of Kebangsaan, Malysia. Under the title "The Influence of Morphological Analysis on Vocabulary Learning among Iragi Secondary school Students". It is a PhD thesis.

The objective of this study is to investigate the influence of morphological analysis on vocabulary learning. The data were collected by using, pre-test and post-test. The data obtained from this instrument were analyzed experimentally, and quantitatively.

The results of this study reveal that participants in the experimental group made significantly greater gains than those in control group. The study concluded by recommending and suggesting that there is a need for morphological analysis strategy.

2.32.3. The third study

This study was carried out by Chandrakala Varattharjoo in 2003 at University of Malaya, Malaysia under the title "The Awareness of Morphemic Knowledge among young adult learners in the ESL Context". It is a PhD thesis

The study tries to find out the awareness of morphemic knowledge among young adult learners of English language. The instrument used in this study was, pre – post-test. The findings show that young adults have modest ability in both tasks. Their performance was poorer in manipulation task to the reflective task. The study concluded and suggested that explicit instruction

on morphology units can be introduced as a strategy to develop morphemic knowledge among Malaysian young adult learners. The study further proposes that young adult learners can expand their vocabulary by analyzing the meaningful parts within words through morphological knowledge.

2.32.4. The fourth study

This study was carried out by Ermy Dikta Sumanik in 2015 at Brawijaya University, Malany, Est Java under the title "The Effectiveness of Morphological Awareness Training in Acquiring Vocabulary for English Foreign Language Learners". The study is a MA thesis. The aim of this study was to investigate the effectiveness of morphological awareness training in acquiring vocabulary for English foreign language. The instruments used in this study include experimental (pre-posttest) and questionnaire.

The findings of the study reveal that there was an effect of morphological awareness training in students' vocabulary. The results also showed that students have motivation to practice their vocabulary ability. Morphological awareness makes the learners more aware of the analysis. The study concluded by recommending the necessity of morphological training in acquiring vocabulary for foreign language learners.

2.32.5. The fifth study

The study was conducted by Alissa Melinger in 2004 at university of New York, Buffalo. It was a PhD thesis under title of the study "Morphological Complexity in English Prefixed words". The aim of the study was to explore the morphological complexity in English prefixed words. The findings of the study suggests that lexical representation of some prefixed words include associative links to their component morphemes while others link to their component morphemes while others include only weak associative links. Semantic transparency of a prefix, which was found to be a strong cue for morphological complexity, was also interacting facto with root type. Bound

root words with semantically transparent prefixes produced different patterns of results than free stem words with semantically transparent prefixes.

2.32.6. The sixth study

This study was carried out by Rachmat Faisal in 2015 at Muhammadiyah University of Surakarta, under the title "Morphological and Syntactic Errors found in English Composition written by the Students of Daarut Taqwa Islamic Boarding School. It is a MA thesis the purpose of this study focuses on morphological and Syntactic errors found in English composition written by the students.

The researcher uses Test of Experiment (1-2-3) as main tool for collecting data. The test was used as a second tool for data collection. The results indicate that students create more errors in syntax than in morphology with different sources of errors. Also the results show overgeneralization in the biggest source of errors. The study recommends some suggestions to these problems to be solved in the future.

2.32.7. The Seventh study

This study was carried out by Mohammad Nabi Karimi in 2001 at Tabiat Moallem University, Tehran, Iran, under the title "The Impact of Morphological Awareness on Iranian pre-University Students' listening Transcription" . It is a MA thesis. The purpose of this study focuses on the impact of morphological awareness on students' listening transcription.

The researcher uses Test of Experiment (pre-posttest) as main tool for collecting data. The test was used as a main tool for data collection. The results indicate that there is significant different between the two groups. The study concludes with some suggestions as to the incorporation of MA L2 learning programs.

2.32.8. The Eighth study

This study was carried out by Cecilia Kirk in 2007 at University of Canter bury, New Zealand under the title "Integrating Morphological Awareness

Intervention as a Tool for Improving Literacy. It is a PhD thesis. This study evaluated the effect of an intervention program aimed at improving reading and speaking ability through instructions in morphemic awareness.

The main tool of this study is experimental test (pre-posttest). The results indicate that participants in the experimental group made significantly greater gains in reading and spelling accuracy than those in control group on both tests.

2.33. Summary of the Chapter

This chapter is the second chapter of this study. It is divided into two main parts. Part one, deals with literature review, reviewing related topics to the present study. The second part of the chapter, deals with previous studies, studies that done on the same area of the present study.

CHAPTER THREE

Research Methodology

3.0. Introduction

This chapter describes the research methodology of the study .It presents a concise description of what has been done by the researcher about the methodology that is adopted. It describes the design of the study, the target population, research instrument, and procedures for data collection. Then it goes further to present tools, validity and reliability of the study .The researcher uses questionnaire and pre-posttests as main tools, to answer the questions of the study. The questionnaire; is designed for the teachers of English language as a foreign language and the test is designed for tertiary level students.

3.1. Design of the Study

In any research study, the researcher usually goes through a series of inter-related phases which together make up the design of the study .A research design there for, refers to the general plan of data collection and procedures, which are used in the analysis of data, in order to shed light on the problem(s) under investigation. The aim is to obtain data which serve to answer the research questions thus, a research design in this sense can be defined as the procedures for conducting the study including when, from, whom and under what condition data were obtained. Its purpose is to provide the most valid, accurate answers as possible to the research questions. 89 This study adopts descriptive analytical and experimental approach. The aim of such mixed method is to provide quantitative qualitative interpretive data obtained from the analysis of the test which administered to tertiary level students at some Sudanese universities, and questionnaire to teachers of English language at university level. In this study, the research method is featured by observing in depth groups of tertiary level students for certain period of time for the purpose of evaluating their performance

comprehensively. The results of both the questionnaire and preposttest will be discussed in the following chapter.

3.2. Population and sample of the study

3.2.1. Population of the study

This includes the samples who respond to the test, and to the questionnaire. The first sample groups of this study are English language teachers at different Sudanese universities in Khartoum state. They are asked to respond to the statements of the given hypotheses .The second sample population, are tertiary level of EFL learners at three Sudanese universities namely; University of Khartoum, Sudan University of Science and Technology and AL-Neelain, they are requested to answer the pre-posttests questions. The questionnaire and test results will be analyzed statistically through SPSS program.

3.2.2. Sample of the study

The sample of the questionnaire is English language teachers teaching at university level. Most of teachers are full-time at university. The numbers of questionnaire teachers are 70. In order to ensure that the observed directive responses strategies would not be influenced by gender different, the participants' gender will almost be equally presented in each group as possible.

The sample of the test is tertiary students at different Sudanese universities namely; University of Khartoum, Sudan University of Science and Technology. They are (54). They were selected in this study because they have already chosen because they suit this level. They were chosen randomly to represent the whole population of the tertiary students in these three universities.

3.3. Data collection, procedures and instruments

3.3.1 Data

Choosing a method that enables the researcher to collect relevant information is quiet important, thus selecting the data and gathering tools which apparent to be more suitable and adequate for the study are so crucial. In this study a descriptive analytical method is used. The questionnaire was conducted for the English language teachers teaching English as a foreign or second language at different Sudanese universities. The second tool is the pre-posttest, which designed for the tertiary level students at three Sudanese universities.

3.3.2. Procedures.

The researcher follows these procedures in order to conduct the study:

- Reviews' the related literature which related to the impact of morphological process awareness on vocabulary competency of university students
- Identifies the research objectives, samples and questions which utilize reading from previous studies and thus the elements of the study are established.
- In the questionnaire, the reviewers are asked to respond at the questionnaire statements whether they agree or disagree with the given response
- The questionnaire is conducted for the reviewers of English language and asked to respond to the statements.
- The data of the questionnaire is analyzed statistically via SPSS program.
- The data of the questionnaire was collected and analyzed by using simple tables and figures followed by commentary on the items of the questionnaire along with logical explanation to them.
- Finally, the researcher drew the main findings, conclusion of the study, and recommendation for further researches.

- The tests are given to tertiary level of EFL learners at three Sudanese universities in Khartoum state.
- The tests are analyzed through different SPSS program.
- The data of the tests is analyzed statistically.

3.3.3. Instruments

The researcher employs two methods to collect and to ensure the validity and reliability.

3.3.3.1 The questionnaire

The questionnaire is considered as the main tool for gathering data on the topic of the research. Questionnaire, are any written instrument, that present respondents with a series of questions or, statements to which they are to react either by writing out their answers or, selecting their options from among existing answers, so it is one of the main instrument used in this study, it is designed for teachers who teaches English as foreign language at Sudanese secondary schools. Teachers are requested to identify their options by ticking in the proper place, relating to the mentioned statements. They are 15 statements, designed from the hypotheses of the study. These statements are about the impact of morphological awareness on vocabulary competency of university students. The questionnaire is divided into two parts: the first part includes, information about the teacher's demographic data such as, age, years of experience and qualifications. The second part consists of the three domains of the study. The aim of the questionnaire is to see teacher's views about impact of morphological awareness on vocabulary competency of university students.

3.3.3.2. Population of the Questionnaire

The population of the questionnaire is English language teachers teaching English as a foreign language in different Sudanese universities in Khartoum State. They were asked to respond to the questionnaire statements given to them.

3.3.3.3. Sample of the Questionnaire

The sample of the questionnaire is English language teachers teaching at university level. Most of teachers are full-time at university. The number of questionnaire teachers is 70. In order to ensure that the observed directive responses strategies would not be influenced by gender different, the participants' gender will almost be equally presented in each group as possible.

3.3.3.4. The test

The test is the second tool used in this study. The test is used as pre-post experimental tool to give in-depth information that is not covered by the questionnaire. The test is pre-post one. The pre-posttest for samples in the various composes of different universities are designed to be the same. Both tests include six questions divided into sub-questions. The questions of the tests are meant to test the following faculties:-

1. Morphology section which was designed to assess the participants' awareness and knowledge as related to morphological skills.
2. Affixes and non-affixes skills in which the subjects are asked to add or leave out affixes
3. Word class section in which the subjects are intended to contextualize words and select the appropriate word class.
4. Vocabulary questions in which subjects are required to specify their knowledge for vocabulary by finding out meaning through multiple choice questions and using appropriate words in order to fill blanks.

3.3.3.4.1. Population of the test

The population of the test is tertiary students at different Sudanese Universities. They were asked to answer the six pre-posttests' questions related to the impact of the morphological process awareness on vocabulary competency of university students.

3.3.3.4.2. Sample of the test

The sample of the test is tertiary students at different Sudanese universities namely; University of Khartoum, Sudan University of Science and Technology. They are (54). They were selected in this study because they have already chosen because they suit this level. They were chosen randomly to represent the whole population of the tertiary students in these three universities

3.3.3.4.3. Tests Administration

The test is administered during regular class times of each group. The seating and monitoring of the tests which are administered by the researcher and a colleague are simulated to those at the end of the semester. Every four students are seated in every bench in order to maintain tests reliability and to avoid the copied answers. In depth discussion of the validity is detailed later in this chapter and during the explanation of the results of the tests later in chapter four of this investigation.

3.4. Reliability and Validity

3.4.1. Reliability

Reliability refers to the reliability of any test, to obtaining the same results if the same measurement is used more than one time under the same conditions. In addition, the reliability means when a certain test was applied on a number of individuals and the marks of every one were counted; then the same test applied another time on the same group and the same marks were obtained; then we can describe this test as reliable. In addition, reliability is defined as the degree of the accuracy of the data that the test measures. Here are some of the most used methods for calculating the reliability:

Alpha-Cronbach coefficient.

3.4.2. Validity

On the other hand, validity also is a measure used to identify the validity degree among the respondents according to their answers on certain criterion. The validity is counted by a number of methods, among them is the validity using the square root of the (reliability coefficient). The value of the reliability and the validity lies in the range between (0-1). The validity of the questionnaire is that the tool should measure the exact aim, which it has been designed for.

In this study the validity calculated by using the following equation:

$$\text{Validity} = \sqrt{\text{Reliability}}$$

The reliability coefficient was calculated for the measurement, which was used in the questionnaire using Alpha-Cronbach coefficient Equation as the following:

For calculating the validity and the reliability of the questionnaire from the above equation, the researcher distributed (30) questionnaires to respondents to calculate the reliability coefficient using the Alpha-Cronbach's coefficient; the results have been showed in the following chapter.

3.5. Summary of the chapter

This chapter is the third chapter of the study. It is the theoretical part of Chapter four. It is known as the research methodology. This chapter is extremely important because it describes what has been done by the researcher throughout this study in terms of methodology. It describes the population and sample of the instruments used in this study. It also describes the validity and the reliability of the study. The results of the study of this chapter will be discussed in the following chapter.

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CHAPTER FOUR

Data Analysis and Discussion

4.0. Introduction

This chapter is devoted to the analysis, evaluation, and interpretation of the data collected through the questionnaire which was given to 70 respondents who represent the teacher's community in some Sudanese universities. The test was used as a second tool in this study.

4.1. Analysis of the Experiment.

The analysis of the experiment will focus on answering vital questions on learning and its effects on classroom interaction effect on the overall standards of the students' interlanguage and knowledge of English. To answer these questions, we computed the mean, standard deviation, standard error and ranges for the pretest- and post-test scores of both experimental and control groups. T-test was computed to find out whether each group had made any progress as a direct result of instruction. The following three hypotheses will be verified or confirmed in view of the analysis of the diagnostic test, Discourse Completion Test (DCT) as well as the questionnaire for the tutors.

4.2. The Responses to the Questionnaire

The responses to the questionnaire of the 70 teachers were tabulated and computed. The following is an analytical interpretation and discussion of the findings regarding different points related to the objectives and hypotheses of the study.

Each item in the questionnaire is analyzed statistically and discussed. The following tables will support the discussion.

4.2.1. Analysis of the Questionnaire

Analysis of the Questionnaire The researcher distributed the questionnaire on determined study sample (70), and constructed the required tables for collected data. This step consists transformation of the qualitative (nominal)

variables (strongly disagree, disagree, Undetermined, agree, and strongly agree) to quantitative variables (1, 2, 3, 4, 5) respectively, also the graphical representations were used for this purpose.

4.3. Statistical Reliability

Reliability refers to the reliability of any test, to obtaining the same results if the same measurement is used more than one time under the same conditions. In addition, the reliability means when a certain test was applied on a number of individuals and the marks of every one were counted; then the same test applied another time on the same group and the same marks were obtained; then we can describe this test as reliable. In addition, reliability is defined as the degree of the accuracy of the data that the test measures. Here are some of the most used methods for calculating the reliability: Alpha-Cronbach coefficient.

On the other hand, validity also is a measure used to identify the validity degree among the respondents according to their answers on certain criterion. The validity is counted by a number of methods, among them is the validity using the square root of the (reliability coefficient). The value of the reliability and the validity lies in the range between (0-1). The validity of the questionnaire is that the tool should measure the exact aim, which it has been designed for.

In this study the validity calculated by using the following equation:

$$\text{Validity} = \sqrt{\text{Reliability}}$$

The reliability coefficient was calculated for the measurement, which was used in the questionnaire using Alpha-Cronbach coefficient Equation as the following:

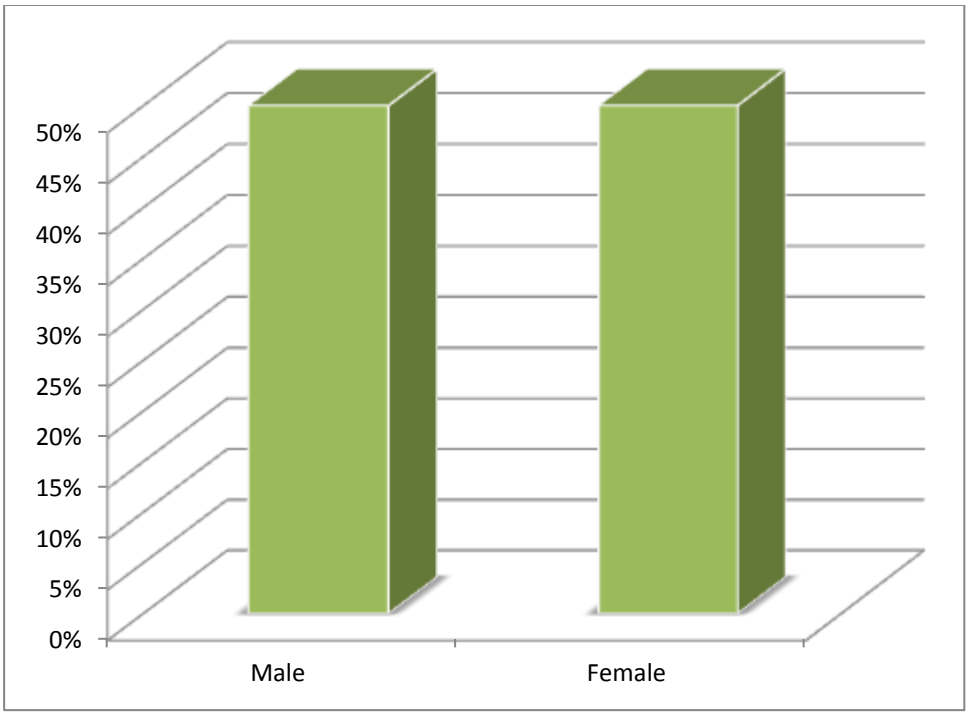
For calculating the validity and the reliability of the questionnaire from the above equation, the researcher distributed the questionnaires to 30 respondents to calculate the reliability coefficient using the Alpha- Cranach coefficient; the results have been showed in the following table

Cranbach Alpha	N of Items
0.89	15

Table No (4.1)

The Frequency Distribution for the Respondent's Answers According to Gender

Valid	Frequency	Percentage
Male	35	50%
Female	35	50%
Total	**70**	**100**



From the table (4.1) and figure (4.1) it is clear that the number of males is (35) which represents (50%) and the number of females was (35) which represents (50%) of the total population.

Table No (4.2) The Frequency Distribution for the Respondent's Answers According to their Academic Status

Valid	Frequency	Percentage
BA	35	49.5%
MA	18	25.7%
PhD	13	18.6%
Other	4	6.2%
Total	**70**	**100**

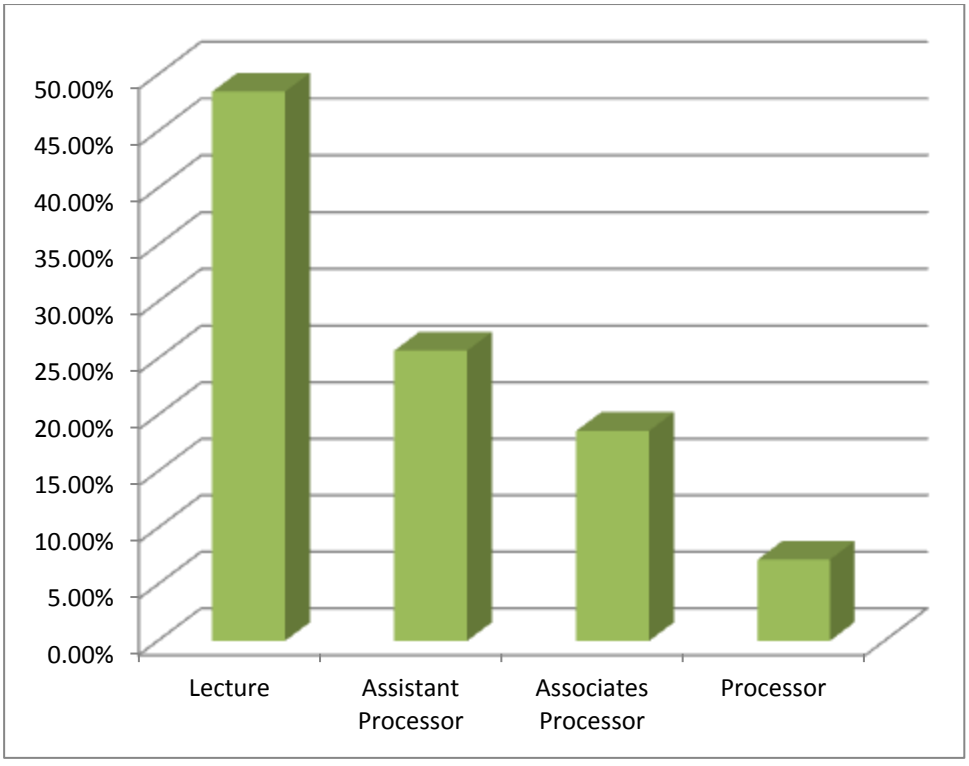


Table (4.2) and figure (4.2) have (49.5%). The number of Assistant Professors was (18) with (25.7%) and the number of Associate Professors was (13) people with (18.6%), and the number of Professors was (5) with (6.2%)

Table No (4.3) The Frequency Distribution for the Respondent's Answers of According to their Years of Experience

Valid	Frequency	Percentage
From 1 to 5	25	35.7%
From 6 to 10	20	28.6%
From 11 to 15	16	22.9%
15 over	9	12.8%
Total	**70**	**100**

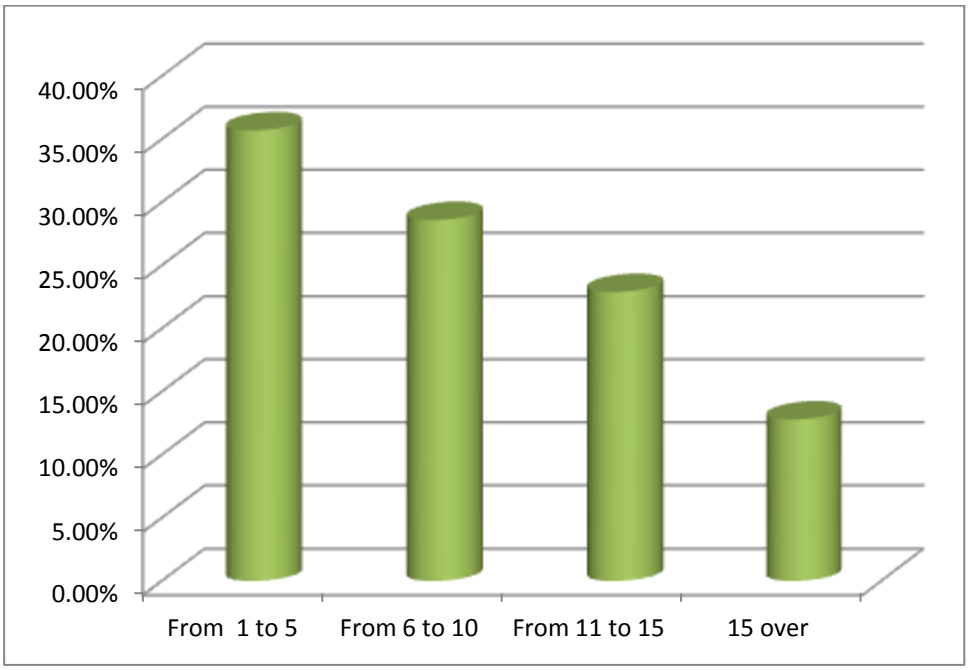
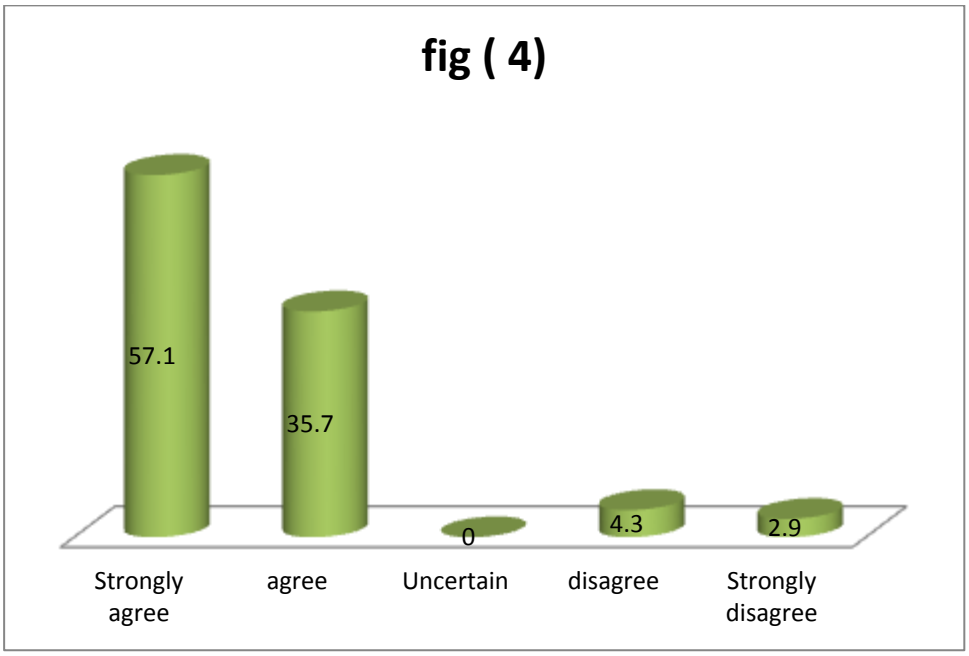


Figure No (4.3) The Frequency Distribution for the Respondent's Answers According to their Academic Status

, it is clear that the number of teachers with years of experience from 1 to 5 was is (25) with (35.7%) of teachers with years of experience from 6 to 10 was (20) with (28.6%) of teachers with years of experience from 11 to 15 was (16) people with (22.9%), of teachers with years of experience above 15 years was (9) with (12.8%).

Table No. (4.4): Statement No. (1) Using Word Formation Processes Activities.

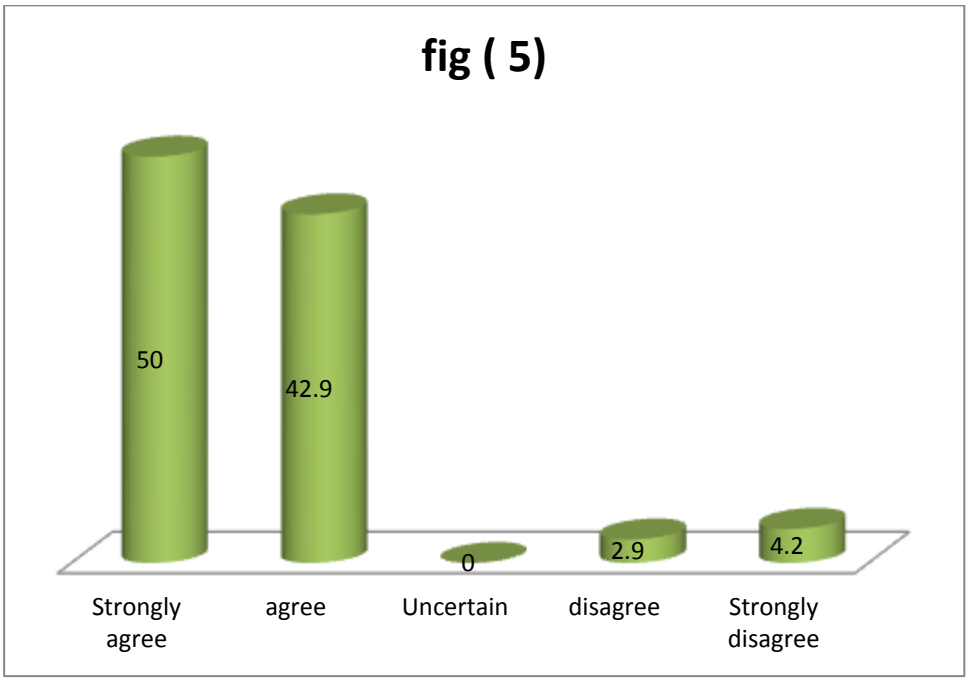
Valid	Frequency	Percentage
Strongly agree	40	57.1
agree	25	35.7
Uncertain	0	0
disagree	3	4.3
Strongly disagree	2	2.9
Total	**70**	**100**



It is clear from table (4.4) and figure (4.4) that there are (40) persons in the study's sample with (57.1%) strongly agree with "Using word formation processes activities to help develop university students' vocabulary competency". There are (25) persons with (35.7%) agree with, and (0) persons with (00.0%) are not sure, and (3) persons with (3.4%) disagree, and (2) persons with (2.9%) strongly disagree.

Table No. (4.5): Statement No. (2): The students should practice using the affixes appropriately to develop their vocabulary competency

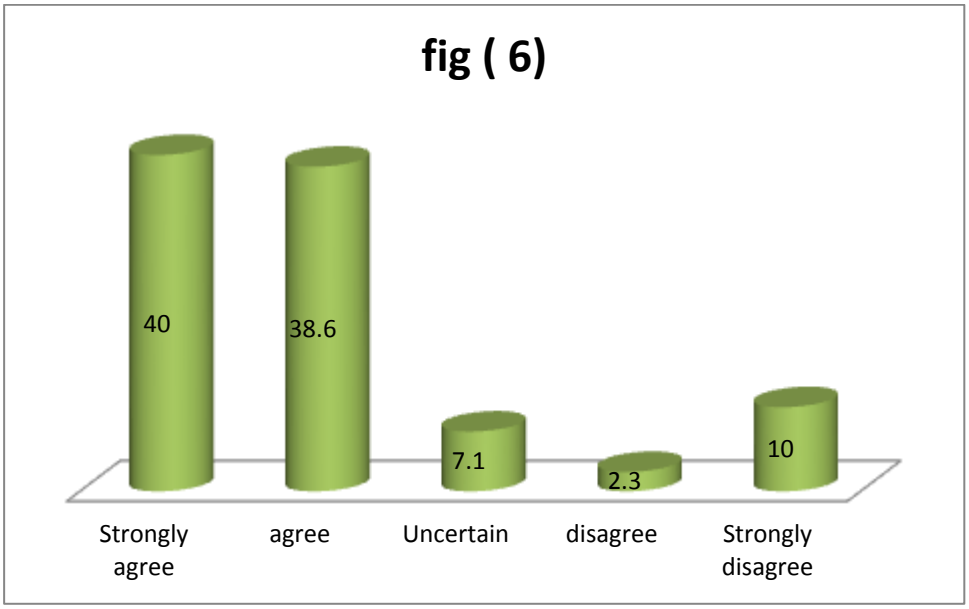
Valid	Frequency	Percentage
Strongly agree	35	50
agree	30	42.9
Uncertain	0	0
disagree	2	2.9
Strongly disagree	3	4.2
Total	**70**	**100**



It is clear from table (4.5) and figure (4.5) that there are (35) persons in the study's sample with (50.0%) strongly agree with "The students should practice using the affixes appropriately to develop their vocabulary competency". There are (30) persons with (42.9%) agree with that, and (0) persons with (00.0%) are not sure that, and (2) persons with (2.9%) disagreed, and (3) persons with (4.2%) strongly disagree.

Table No. (4.6): Statement (3): Maintaining the learning of compound words, fosters university students' vocabulary competency.

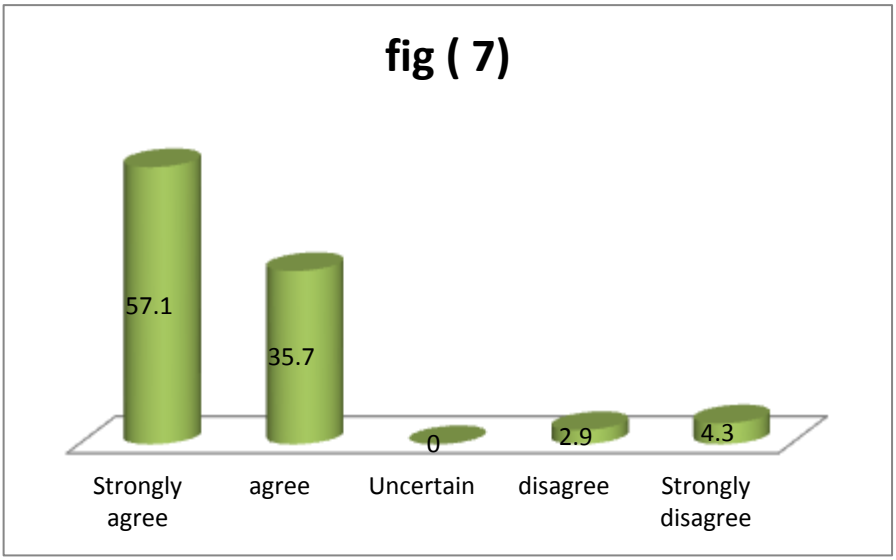
Valid	Frequency	Percentage
Strongly agree	28	40
agree	27	38.6
Uncertain	5	7.1
disagree	3	2.3
Strongly disagree	7	10
Total	**70**	**100**



It is clear from table (4.6) and figure (4.6) that there are (28) persons in the study's sample with (40.0%) strongly agree with "Maintaining the learning of compound words, fosters university students' vocabulary competency". There are (27) persons with (38.6%) agreed with that, and (5) persons with (7.2%) are not sure that, and (3) persons with (2.3%) disagree, and (7) persons with (10.0%) strongly disagree.

Table No. (4.7): Statement No (4): Morphological process should be integrated and provided with enough activities in teaching materials to develop university students' vocabulary competency

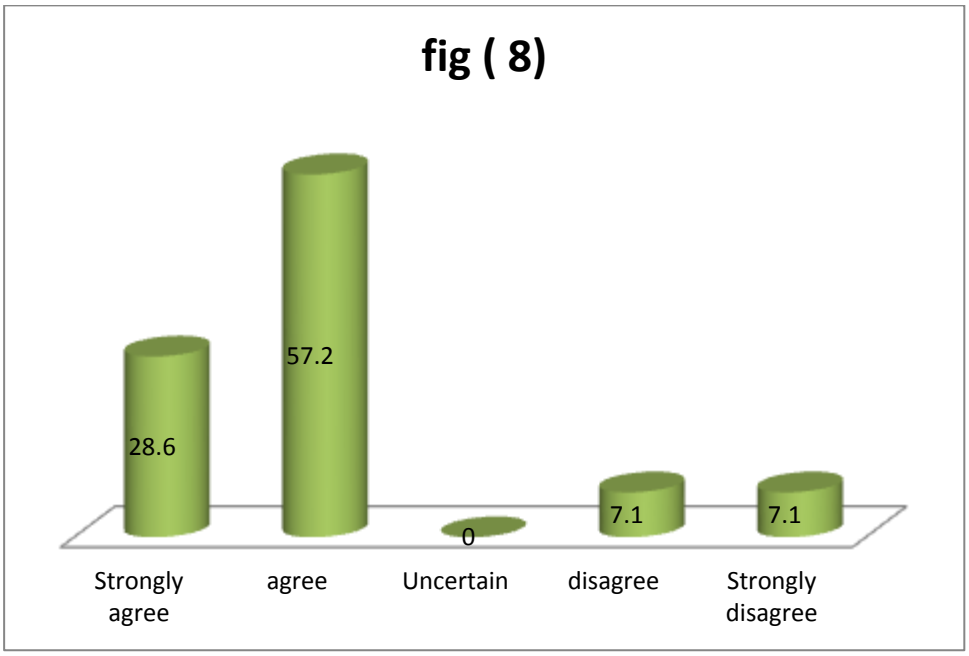
Valid	Frequency	Percentage
Strongly agree	40	57.1
agree	25	35.7
Uncertain	0	0
disagree	2	2.9
Strongly disagree	3	4.3
Total	**70**	**100**



It is clear from table (4.7) and figure No (4.7) that there are (40) persons in the study's sample with (57.1%) strongly agree with "Morphological process should be integrated and provided with enough activities in teaching materials to develop university students' vocabulary competency". There are (25) persons with (35.7%) agree with that, and (0) persons with (0.00%) are not sure that, and (2) persons with (2.9%) disagreed, and (3) persons with (3.4%) strongly disagree.

Table No. (4.8): Statement No (5): There is a connection between teaching morphological process and developing students' vocabulary competency.

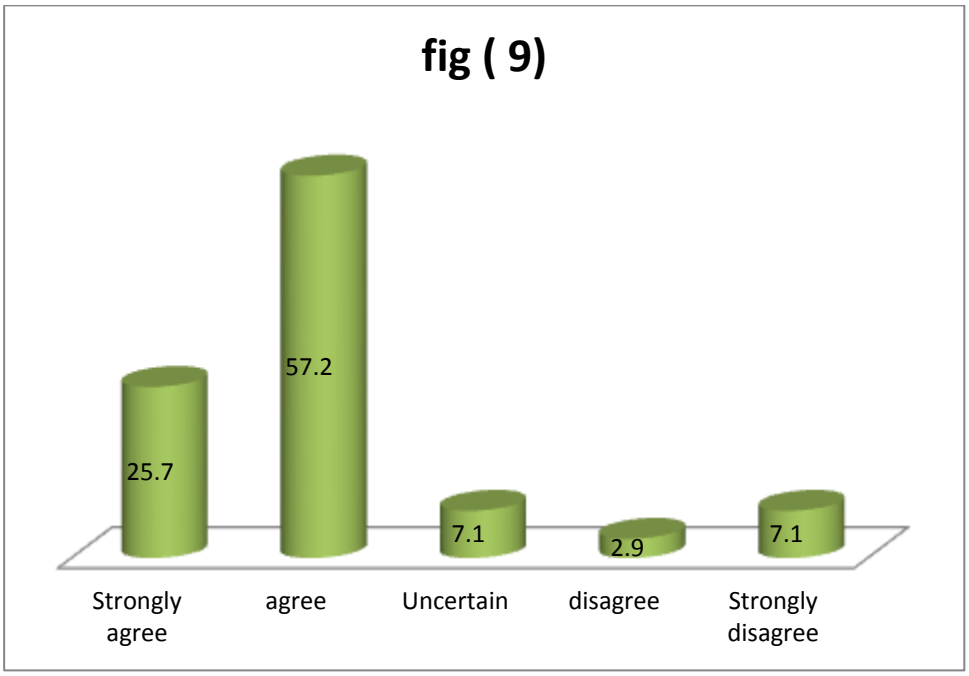
Valid	Frequency	Percentage
Strongly agree	20	28.6
agree	40	57.2
Uncertain	0	0
disagree	5	7.1
Strongly disagree	5	7.1
Total	**70**	**100**



It is clear from table (4.8) and figure (4.8) that there are (20) persons in the study's sample with (28.6%) strongly agree with "There is a connection between teaching morphological process, and developing students' vocabulary competency". There are (40) persons with (57.2%) agree with that, and (0) persons with (0.00%) are not sure that, and (5) persons with (7.1%) disagree, and (5) persons with (7.1%) strongly disagree.

Table No. (4.9): Statement No. (6): Morphological process is meant to develop university students' vocabulary competency

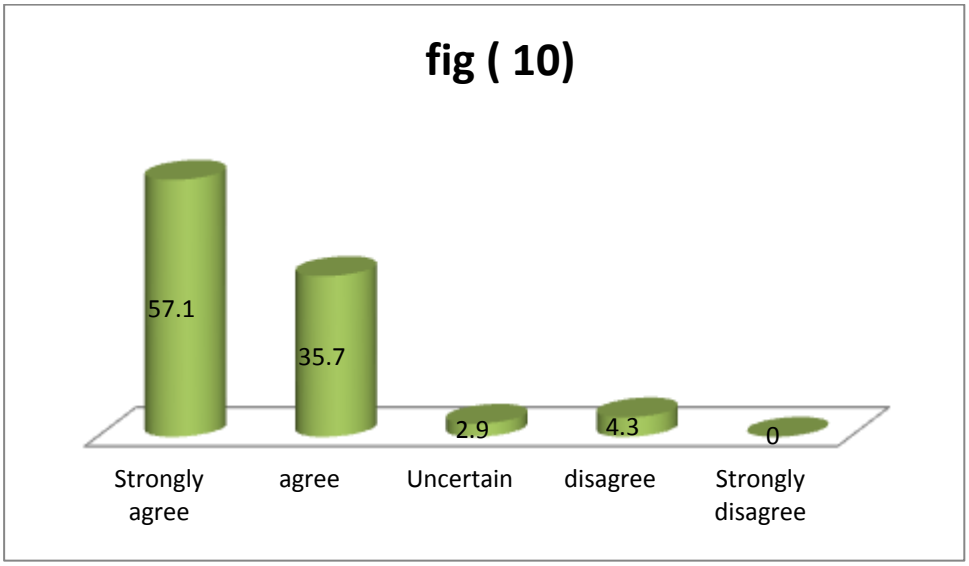
Valid	Frequency	Percentage
Strongly agree	18	25.7
agree	40	57.2
Uncertain	5	7.1
disagree	2	2.9
Strongly disagree	5	7.1
Total	**70**	**100**



It is clear from table (4.9) and figure (4.9) that there are (18) persons in the study's sample with (25.7%) strongly agree with "Morphological process is meant to develop university students' vocabulary competency". There are (40) persons with (57.2%) agree with that, and (5) persons with (7.1%) are not sure, and (2) persons with (2.9%) disagreed, and (5) persons with (7.1%) strongly disagree.

Table No. (4.10): Statement No. (7): There should be a relationship between the students' vocabulary size and the morphological process awareness to help enhance their vocabulary competency.

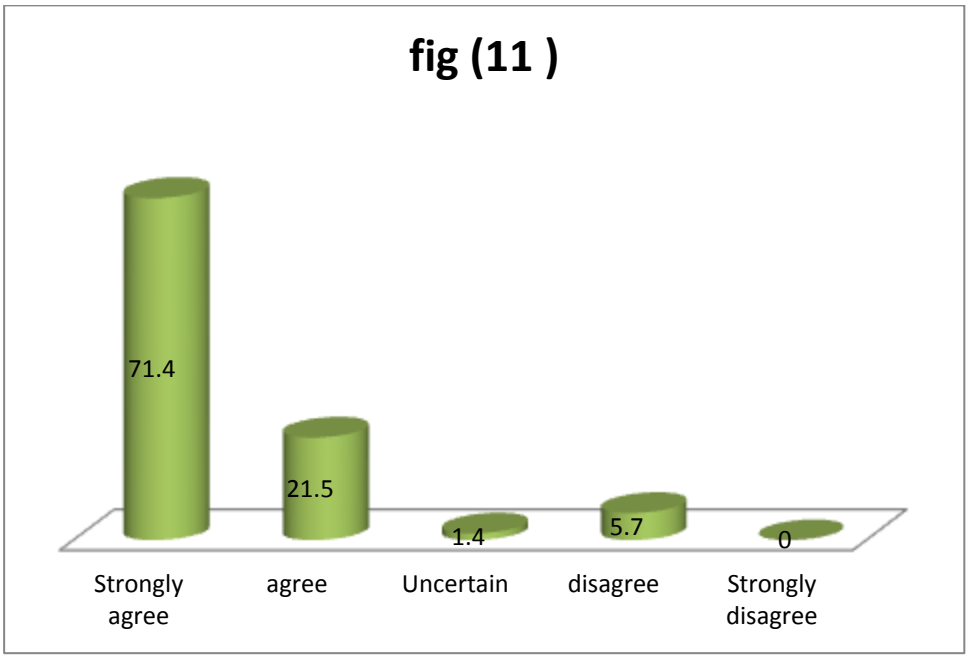
Valid	Frequency	Percentage
Strongly agree	40	57.1
agree	25	35.7
Uncertain	2	2.9
disagree	3	4.3
Strongly disagree	0	0
Total	**70**	**100**



It is clear from table (4.10) and figure No (4.10) that there are (40) persons in the study's sample with (57.1%) strongly agree with "There should be a relationship between the students' vocabulary size and the morphological process awareness to help enhance their vocabulary competency". There are (25) persons with (35.7%) agree with that, and (2) persons with (2.9%) are not sure, and (3) persons with (3.4%) disagreed, and (0) persons with (0.0%) strongly disagree.

Table No. (4.11): Statement No (8): When learners are aware of English inflectional morphology, this will improve their grammatical accuracy.

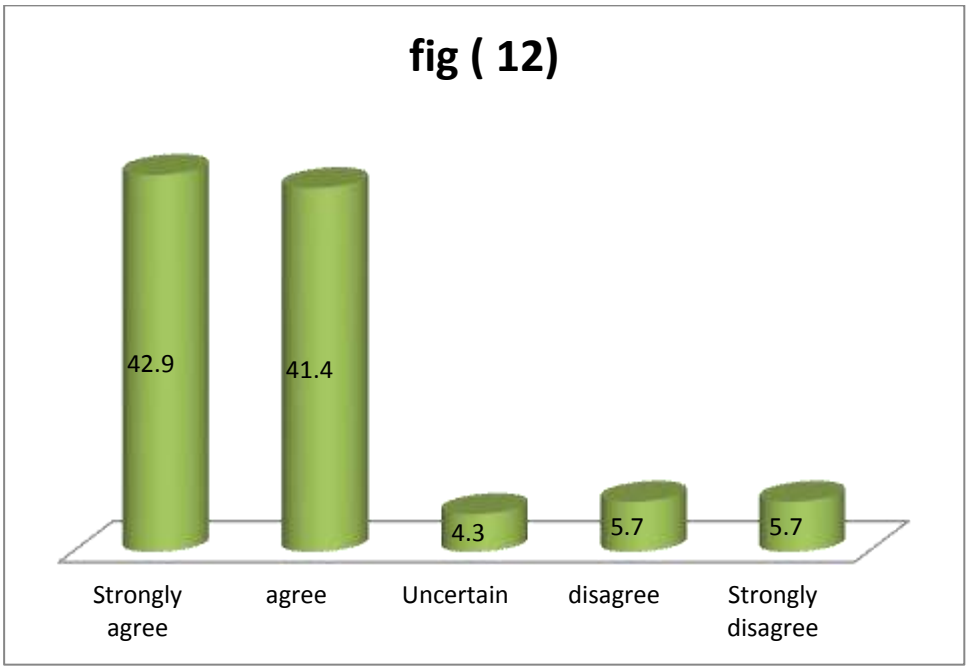
Valid	Frequency	Percentage
Strongly agree	50	71.4
agree	15	21.5
Uncertain	1	1.4
disagree	4	5.7
Strongly disagree	0	0
Total	**70**	**100**



It is clear from table (4.11) and figure (4.11) that there are (50) persons in the study's sample with (71.4%) strongly agree with "When learners are aware of English inflectional morphology, this will improve their grammatical accuracy". There are (15) persons with (21.5%) agree with that, and (1) persons with (1.4%) are not sure that, and (4) persons with (5.7%) disagree, and (0) persons with (0.0%) strongly disagree.

Table No. (4.12): Statement No (9): Students will become more able to infer the meaning of unfamiliar words after receiving instruction in morphological analysis.

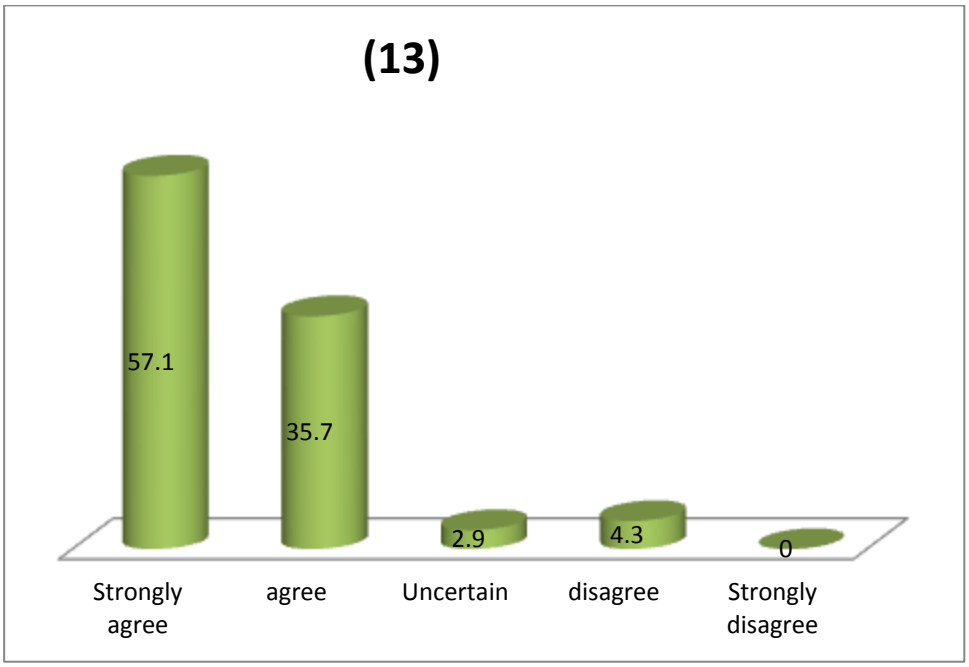
Valid	Frequency	Percentage
Strongly agree	30	42.9
agree	29	41.4
Uncertain	3	4.3
disagree	4	5.7
Strongly disagree	4	5.7
Total	**70**	**100**



It is clear from table (4.12) and figure (4.12) that there are (30) persons in the study's sample with (42.9%) strongly agree with “Students will become more able to infer the meaning of unfamiliar words after receiving instruction in morphological analysis. ". There are (29) persons with (41.4%) agree with that, and (3) persons with (4.5%) are not sure that, and (4) persons with (5.7%) disagreed, and (4) persons with (5.7%) strongly disagree.

Table No. (4.13): Statement No. (10): Morphological awareness promotes the students' language comprehension of new words.

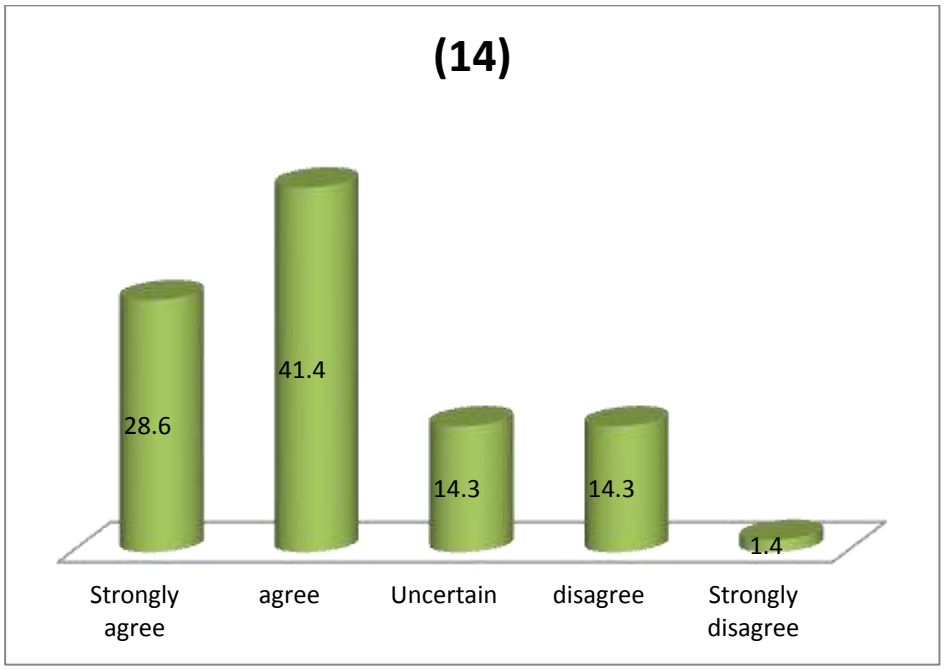
Valid	Frequency	Percentage
Strongly agree	40	57.1
agree	25	35.7
Uncertain	2	2.9
disagree	3	4.3
Strongly disagree	0	0
Total	**70**	**100**



It is clear from table (4.13) and figure (4.13) that there are (40) persons in the study's sample with (57.1%) strongly agree with. "Morphological awareness, promotes the students' language comprehension of new words." There are (25) persons with (35.7%) agree with that, and (2) persons with percentage (2.9%) are not sure that, and (3) persons with (4.3%) disagreed. and (0) persons with (0.0%) strongly disagree.

Table No. (4.14): Statement No (11): When learners are aware of English derivational morphology, this will improve their grammatical accuracy.

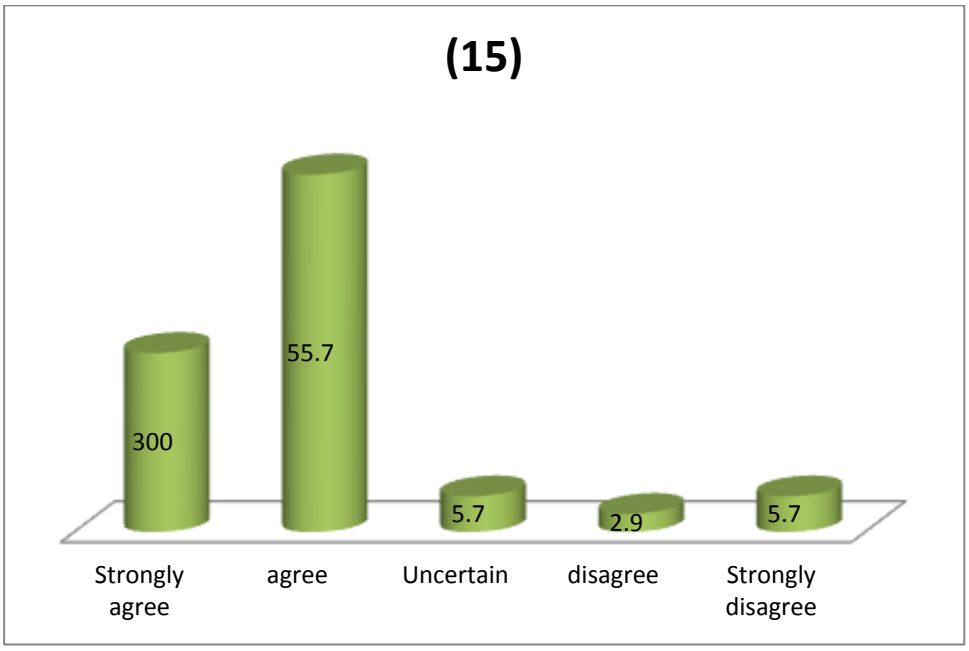
Valid	Frequency	Percentage
Strongly agree	20	28.6
agree	29	41.4
Uncertain	10	14.3
disagree	10	14.3
Strongly disagree	1	1.4
Total	**70**	**100**



From (4.14) and figure (4.14) It is clear that there are (20) persons in the study's sample with (28.6%) strongly agree with “When learners are aware of English derivational morphology, this will improve their grammatical accuracy." There are (29) persons with (41.4%) agreed with that, and (10) persons with (14.3%) are not sure that, and (10) persons with (14.3%) disagreed, and (1) persons with (1.4%) strongly disagree.

Table No. (4.15): Statement No. (12): Morphological awareness, resembles language students' knowledge of the process of word formation

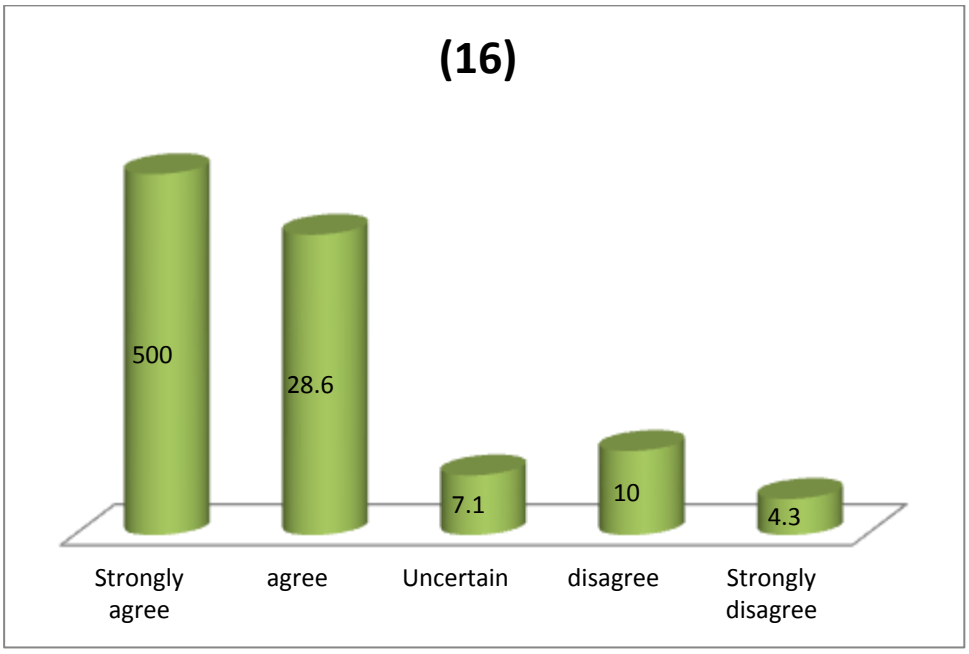
Valid	Frequency	Percentage
Strongly agree	21	30.0
agree	39	55.7
Uncertain	4	5.7
disagree	2	2.9
Strongly disagree	4	5.7
Total	**70**	**100**



From table (4.15) and figure (4.15) It is clear that there are (20) persons in the study's sample with (30.0%) strongly agree with "Morphological awareness, resembles language students' knowledge of the process of word formation." There are (40) persons with (55.7%) agree with that, and (4) persons with (5.7%) are not sure that, and (2) persons with (2.9%) disagreed, and (7) persons with (5.7%) strongly disagree.

Table No. (4.16): Statement No (13): There is a connection between morphological process awareness and the students' lexical development.

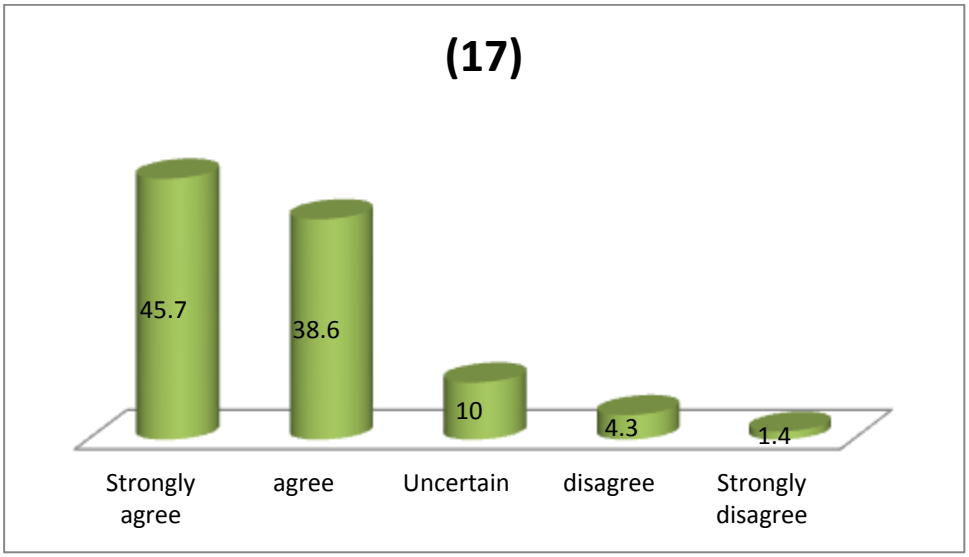
Valid	Frequency	Percentage
Strongly agree	34	50.0
agree	20	28.6
Uncertain	5	7.1
disagree	7	10
Strongly disagree	3	4.3
Total	**70**	**100**



From table (4.16) and figure No (4.16) It is clear that there are (35) persons in the study's sample with (50.0%) strongly agree with "There is a connection between morphological process awareness and the students' lexical development ''. There are (20) persons with (28.6%) agree with that, and (5) persons with (7.1%) are not sure that, and (7) persons with (10.0%) disagreed, and (3) persons with (3.4%) strongly disagree.

Table No. (4.17) Statement No. (4.17): The students' knowledge of inflectional and derivational affixes and stem should be obtained to gain more perception of the students' morphological knowledge.

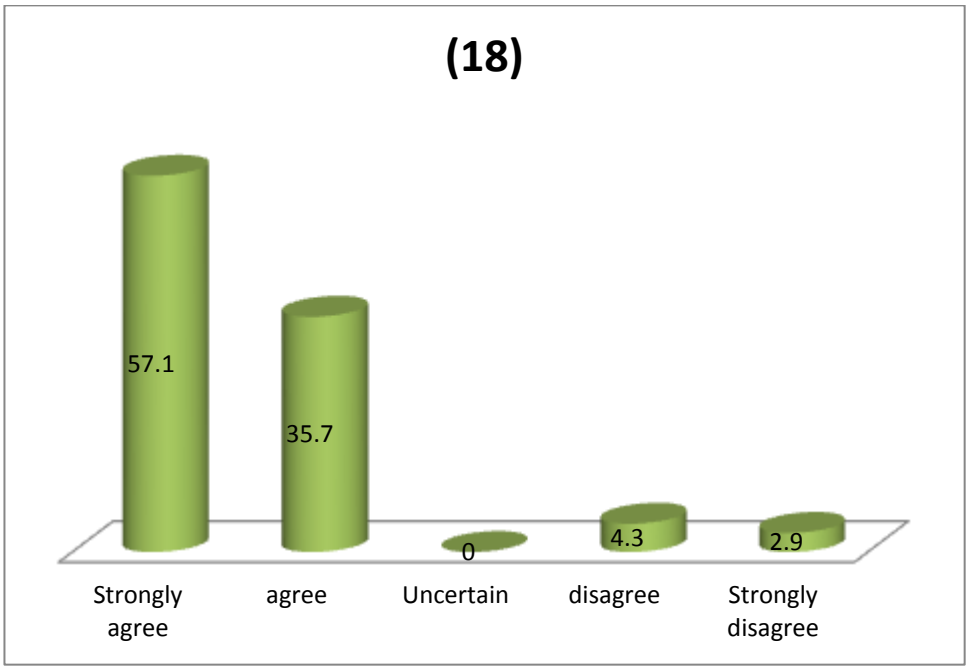
Valid	Frequency	Percentage
Strongly agree	27	38.6
agree	32	45.7
Uncertain	7	10
disagree	3	4.3
Strongly disagree	1	1.4
Total	**70**	**100**



It is clear from table (4.17) and figure No (4.17) that there are (32) persons in the study's sample with (45.7%) strongly agree with "The students' knowledge of inflectional and derivational affixes and stem, should be obtained to gain more perception of the students' morphological knowledge''. There are (27) persons with (38.6%) agree with that, and (7) persons with (10.0%) are not sure that, and (3) persons with percentage (3.4%) disagreed and (1) persons with (1.4%) strongly disagree.

Table No. (4.18) Statement No. (4.18): Students need more processes for learning vocabulary according to frequency of morphological awareness level.

Valid	Frequency	Percentage
Strongly agree	40	57.1
agree	25	35.7
Uncertain	0	0
disagree	3	4.3
Strongly disagree	2	2.9
Total	**70**	**100**



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It is clear from table (4.18) and figure (4.18) that there are (40) persons in the study's sample with (57.1%) strongly agree with " Students need more processes for learning vocabulary with different frequency morphological process awareness level". There are (25) persons with (35.7%) agree with that, and (0) persons with (00.0%) are not sure that, and (3) persons with (3.4%) disagreed, and (2) persons with (2.9%) strongly disagree.

Table No (4.19) Chi-Square Test Results for Respondents' Answers of the Questions of the Hypotheses:

No	Statement	mean	SD	Chi square	p-value
1.	Using word formation processes, activities help develop university students' vocabulary competency.	**3.6**	**0.3**	**27**	**0.000**
2	The students should practice using the affixes appropriately to develop their vocabulary competency.	**3.4**	**0.7**	**25.7**	**0.000**
3	Maintaining the learning of compound words fosters university students' vocabulary competency.	**2.5**	**0.2**	**23**	**0.000**
4.	Morphological processes should be integrated and provided with enough activities in teaching materials to develop university students' vocabulary competency.	**2.9**	**5.6**	**26**	**0.000**
5	There is a connection between teaching morphological process and developing university students' vocabulary competency.	**2.5**	**1.5**	**32**	**0.000**
6	Morphological process is meant to be used to develop university students' vocabulary competency	**3.2**	**2**	**25**	**0.000**
7	There should be a relationship between the students' vocabulary size and the morphological process awareness to help enhance their vocabulary competency.	**2.5**	**0.6**	**28**	**0.00**

8	When learners are aware of English inflectional morphology, this will improve their grammatical accuracy.	**2.6**	**0.8**	**27.7**	**0.00**
9	Students will become more able to infer the meaning of unfamiliar words after receiving instruction in morphological analysis.	**2.4**	**0.9**	**25.7**	**0.001**
10	Morphological awareness promotes the students' language comprehension of new words.	**2.5**	**1.4**	**17**	**0.00**
11	When learners are aware of English derivational morphology, this will improve their grammatical accuracy.	**2.7**	**2.6**	**15**	**0.00**
12	Morphological awareness resembles language students' knowledge of the process of word formation.	**2.8**	**.80**	**20**	**0.001**
13	There is a correlation between morphological process awareness and the students' lexical development.	**2.5**	**.70**	**21**	**0.008**
14	The students' knowledge of inflectional and derivational affixes and stem should be obtained to gain more perception of the students' morphological knowledge.	**3.5**	**2.7**	**21**	**0.00**
15	Students need more processes for learning vocabulary according to frequency of morphological awareness level.	**2.4**	**4.2**	**33**	**0.00**

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (1) question was (27) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Using word formation processes, activities help a lot to develop university students' vocabulary competency.

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (2) question was (25.7) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "The students should practice the affixes appropriately, to develop their vocabulary competency.

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (3) question was (23) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Maintaining the learning of compound words fosters university students' vocabulary competency.

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (4) question was (26) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the

answers of the respondents, which support the respondent who agreed with the statement "Morphological processes should be integrated and provided with enough activities in teaching materials to develop university students' vocabulary competency

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (5) question was (32) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement " There is a connection between teaching morphological process and developing university students' vocabulary competency.

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (6) question was (25) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Morphological process is meant to be used to develop university students' vocabulary competency

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (7) question was (28) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "There should be a relationship between the students' vocabulary size and the morphological process awareness to help enhance their vocabulary competency.

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (8) question was (27.7) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "When learners are aware of English inflectional morphology, this will improve their grammatical accuracy.

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (9) question was (25.7) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Students will become more able to infer the meaning of unfamiliar words after receiving instruction in morphological analysis

The calculated value of chi-square for the significance of the differences for the respondents' answers in the statement No (10) question was (35) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (12.4). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Morphological awareness, promotes the students' language comprehension of new words.

The calculated value of chi-square for the significance of the differences for the respondents' answers in statement No (11) was (17) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (8.57). this indicates that, there are statistically significant differences at the level (5%) among the answers of

the respondents, which support the respondent who agreed with the statement "When learners are aware of English derivational morphology, this will improve their grammatical accuracy.

The calculated value of chi-square for the significance of the differences for the respondents' answers in statement No (12) was (15) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (8.57). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Morphological awareness resembles language students' knowledge of the process of word formation

The calculated value of chi-square for the significance of the differences for the respondents' answers in statement No (13) was (20) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (8.57). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "There is a correlation between morphological process awareness and the students' lexical development.

The calculated value of chi-square for the significance of the differences for the respondents' answers in statement No (14) was (21) which is greater than the tabulated value of chi-square at the degree of freedom (4) and the significant value level (5%) which was (8.57). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "The students' knowledge of inflectional and derivational affixes and stem should be obtained to gain more perception of the students' morphological knowledge.

The calculated value of chi-square for the significance of the differences for the respondents' answers in question No (15) was (21) which is greater than the tabulated value of chi-square at the degree of freedom (5) and the significant value level (5%) which was (8.57). this indicates that, there are statistically significant differences at the level (5%) among the answers of the respondents, which support the respondent who agreed with the statement "Students need more processes for learning vocabulary with different frequency morphological process awareness level.

4.4. Pre- posttests analysis

Before the treatment, a pretest (*PET test*) was given to the participants in order to guarantee their homogeneity and determine their ability and knowledge. The test which consisted of six questions separated in different parts was administrated to both groups. The students" individual scores on the proficiency test (50 scores for the experimental group and 50 scores for the control group) are listed in following table

Pre test			Post test	
Experimental group	**Control group**		**Experimental group**	**Control group**
23	34		46	38
26	26		39	28
29	45		33	37
32	29		42	32
35	23		46	30
28	27		44	27
27	33		37	25
20	37		32	26
38	46		38	30

29	25		37	29
25	30		46	25
17	52		41	17
20	17		47	20
23	12		30	20
13	12		33	17
14	16		44	14
19	12		33	19
17	14		38	17
10	25		37	11
17	18		49	17
17	15		36	17
20	12		33	28
20	5		41	20
31	34		39	30
28	16		45	28
20	12		32	22
29	11		37	16

Table 4.20 the show Scores of the Experimental and Control Groups on the Pretest and Posttests

Table (4.21): Descriptive Statistics for pre and post for both experimental and control tests

	Mean	Std. Deviation	N
post control	**24.5**	**3.4**	**30**
Pre control	**23.3**	**7.2**	**30**
Post exp	**38.9**	**7.3**	**30**
Pre exp	**25.2**	**5.5**	**30**

Resource: the researcher

The following figure illustrates the comparison of the mean values of both groups on pretest and posttest for the students' test

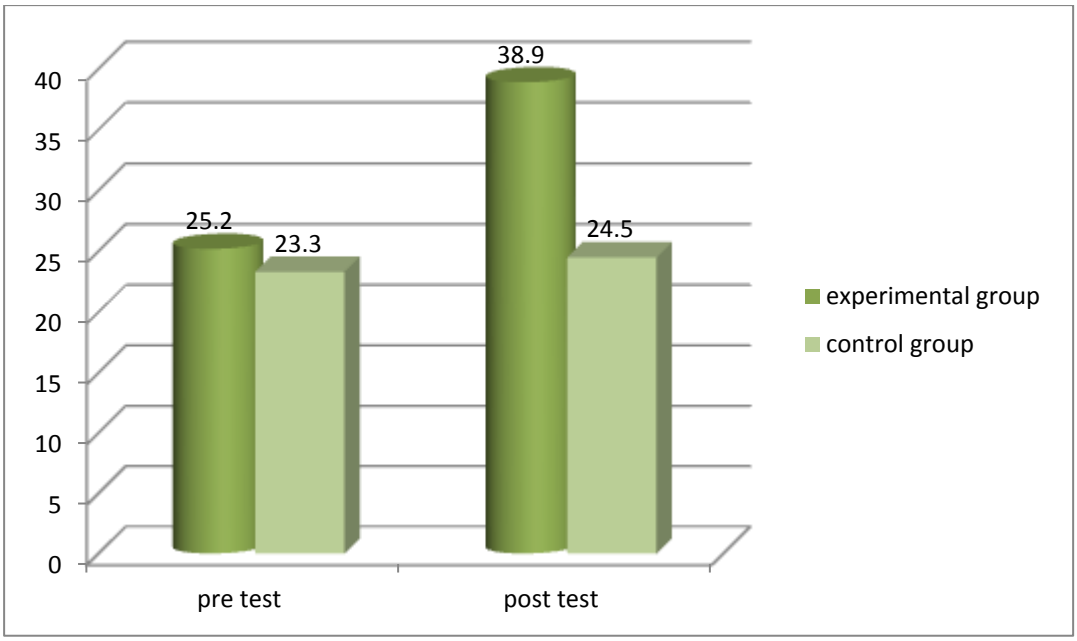

Figure (4.21) Comparison of the Mean Values of both Groups in Pretest and Posttest

According to Figure 20, the performance of the experimental group was better than the control group. There is a significant difference between their mean values after the treatment. Conclude that our strategy has been helpful and that our student's knowledge has been improved

Table (4.22) T-test for the differences between the two means

Groups	$\bar{X}$	SD	DF	T-value	p-value	95% confidence. Interval	
						L	U
Experimental	**25.2**	**5.4**	**29**	**2.862**		**-.33**	**6.5**
control	**23. 3**	**5.2**	**29**	**2.824**	**0.324**	**-.34**	**9.7**

Resource: the researcher

Table 21 T-test analysis of the means of two groups in the pre test

For the scores gained from the pretest (*PET test*), the mean value was calculated. Mean for the control group was (23.3) and for the experimental group it was (25.2). Moreover a T-test was employed on these scores for hypothesis testing purposes. As the result of T-test suggests (P-value 0.421) being greater than 0.05), our null hypothesis is accepted since we have not applied the intended strategy. There is not significance different between two groups

Table No (4.23).*T-Test Analysis of the Means of Two Groups in the Posttest*

groups	$\bar{X}$	SD	DF	T-value	p-value	95% confidence. Interval	
						L	U
Experimental	**38.9**	**7.088**	**24**		**0.002**	**3.32**	**12.72**
control	**24.5**	**7.966**	**24**	**3.54**		**3.30**	**11.40**

Resource: the researcher

For the scores gained from the posttest, the mean value was calculated. Mean for the control group was (23.22) and for the experimental group it was (39.64). Moreover a T-test was employed on these scores for hypothesis testing purposes. As the result of T-test suggests (P-value 0.008 being less than 0.05), there is a meaningful difference between two groups. Therefore the null hypothesis is rejected and the alternative hypotheses

4.5. Summary of the Chapter

This chapter is the fourth chapter of the study. It was dealt with data analysis, discussion and interpretations. Tow tools were analyzed in this chapter namely; the questionnaire and pre-posttest. They were analyzed through chi-square program.

CHAPTER FIVE

Findings, Conclusion, Recommendations, and Suggestions for Further Research

5.0. Introduction

In this final chapter, the results of the study obtained from the questionnaire and test are presented and conclusion regarding the results is deduced. The chapter is then followed by recommendations, and suggestions for further researches

5.1. Main Findings

In this part, the results obtained from the questionnaire and test is discussed in relation to research questions. Following are the main findings of the study

1. It is found that EFL Sudanese tertiary level teachers do not make use of morphological aspects to enhance students' vocabulary. Word formation process is not used effectively to help enhance students' vocabulary competency. Teachers do not practice affixation appropriately to help students develop their vocabulary competency. Morphological process is not integrated and provided with enough activities in teaching materials to develop university students' vocabulary competency. Students are not aware with the connection between teaching morphological process and developing university students' vocabulary competency.
2. Another findings show that majority of tertiary level students at Sudanese universities are not aware of the importance of morphological awareness in developing English language vocabulary. It is found that morphological awareness is meant to be used to develop university students' vocabulary competency. There is a relationship between students' vocabulary size and morphological process awareness to help enhance their vocabulary competency. The awareness of inflectional and derivational rules helps students to develop vocabulary knowledge and competency. Morphological

awareness promotes students' inference and language comprehension of new words

3. The findings also show that morphological awareness, affects positively on tertiary level students' vocabulary development. There is correlation between morphological process awareness and the students' lexical development. The students' knowledge of inflection and derivation contribute to their vocabulary knowledge and development. Students need more perception for learning vocabulary with different frequency morphological awareness level.

4. Generally the results of questionnaire and test show that morphological awareness process has impact on vocabulary competency of university students.

5.2. Conclusion

After ending the present study and analyzing the results of the questionnaire and test, morphological process awareness proved to be effective in developing the tertiary students' vocabulary at university.

1- Regarding the results of the hypotheses verification and the discussion, it could be concluded that there is a significant effect of using morphological awareness process on students' vocabulary development and competency.

2- With regard to the study hypotheses, there were no statistically significance different in the mean average scores of vocabulary test between students who were to be taught by using morphological awareness process (experimental group) and those who were to be able to be taught traditionally (control group).

3- Regarding the results of teachers' questionnaire, and students' test, morphological awareness process affects the development of vocabulary learning. The results of the questionnaire and test indicated that the morphological awareness process is an effective tool in developing vocabulary learning, so this hypothesis is accepted.

4- Regarding the students' test, the experimental group had positive attitudes towards using morphological awareness process in vocabulary learning development and competency.

5.3. Recommendations

1- Morphological awareness process in teaching vocabulary is highly recommended to develop vocabulary competency.

2- Teachers should use the morphological awareness process strategy to enhance students' creativity in learning and developing vocabulary competency.

3- The syllabus designers at university level should provide English language teachers with sessions how to use morphological awareness process strategies in teaching vocabulary.

4- English language teachers should use active learning methods and strategies like morphological process awareness in their teaching.

5- Teachers of English language should develop their student's vocabulary learning through morphological process awareness.

6- Teachers should use the morphological process awareness strategy for developing other linguistics competences.

7- Curriculum designers can integrate various morphological process awareness strategies in the textbook which will facilitate better comprehension of students' vocabulary learning.

8- Teachers should encourage using pair work and group work as part of the morphological process awareness strategy to provide opportunities for meaningful interaction and facilitate vocabulary learning.

5.4. Suggestions for further researchers

The following studies are suggested for further researchers

1. The effectiveness of the use of morphological process awareness on students' vocabulary competency and development.

2. Investigating the attitudes of EFL teachers towards the use of morphological process awareness strategy on other aspects of teaching and learning.

3. The effectiveness of the use of morphological process awareness strategy in e-learning based on computer generated morphological maps.

4. The impact of using morphological process awareness strategy as an assessment tool.

5. The influence of using other types of morphological process awareness on developing vocabulary learning.

6. The importance of ESP vocabulary mastering through the morphological process awareness on students' vocabulary learning.

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Appendixes

Sudan University of Science and Technology

College of Graduate Studies

College of Education

Questionnaire for teachers

Dear teachers:

This questionnaire is designed to collect the data of a Ph.D. dissertation in English language teaching entitled concerning morphological awareness of EFL learners in developing vocabulary. Your responses are purposefully required and appreciated. Just please tick (√) where it is appropriate and significant for you. It worth mentioning that no names are going to be mentioned and all the responses are highly confidential and just used for the purpose of the study.

Thank you for your cooperation

Part one: personal data

1- Gender: **male** ☐ **female** ☐

2- Years of experience: **1-5** ☐ **6-10** ☐ **more than 10** ☐

3- Academic status: **Ph.D.** ☐ **MA** ☐ **BA** ☐

Part two: the questionnaire

(A) The first hypothesis (*Teachers at university level*

(B) *make use of morphological aspect to develop students' vocabulary)*

	Statement	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
1	Using word formation processes activities help a lot to develop university students' vocabulary.					
2	The students use the affixes appropriately and communicatively					
3	Maintaining the learning of compound words fosters University students vocabularty					
4	Morphological aspects should be integrated and provided with enough tasks to develop university students' vocabulary.					
5	There is a connection between teaching morphological aspect and developing university students' vocabulary.					
6	Morphological aspect are meant to be used to develop university students' vocabulary.					
7	The students should practice how to use morphological aspect to develop their vocabulary.					

8	Activities on morphology are used to develop students `vocabulary.					
9	Students are asked to identify the morphological structure of the vocabulary they study.					
10	Morphological aspects should be integrated in teaching materials to develop the students' vocabulary.					
11	When learners are aware of English derivational morphology, this will improve their grammatical accuracy					
12	Morphological awareness resembles language students' knowledge of the process of word formation.					
13	There is a correlation between morphological process awareness and the students' lexical development.					
14	The students' knowledge of inflectional and derivational affixes and stem should be obtained to gain more perception of the students' morphological knowledge.					
15	Students need more processes for learning vocabulary according to frequency of morphological awareness level.					

Students' Test

Question one

Study the following list of words and complete the table below.

Words	**Stem**	**Morphemes**
Childhood		
Likelihood		
Demotivation		
Harden		
Bilingual		
Improvement		
Changeable		

Question two

B) Change the word so as to match the sentence. Read the sentence silently, then fill in the blank with the form of the word that matches the sentence.

Example A: Help: My sister is very helpful.

1- Decision. It was for the boy to----------

2- Success. The woman's career was very ----------

3- Courageous. The man showed great ----------

4- Five. This student is the fourth and the next is the----------

5- Reason. Her argument was ----------

6- Adventure. The ski trip seemed ----------

7- Know. The professor had a lot of ----------

8- Happy. The little girl jumped up and down----------

9- Discussion. Her enemies have a lot to ----------

10- 10- Appear. He cared about his ----------

Question three

Fill in the blanks using the following suffixes/prfixes with the suitable words in brackets:

Dis – ment – tion – bi - able

1- I am ……..because I speak both English and Arabic. ***(Lingual)***

2- Many ……are made in the management system***.(improve)***

3- You can change it. It is…….. **(Change)**

4- The ……..in Sudan is improving. (Educate)

5- They feel ……because of the results of the project. ***(comfort)***

Question four

A- Match the nouns in A with those of B to form compound nouns.

A	B
Baby	Ground
Eye	Sitting
Lunch	Mate
Class	Ring
Ear	Loaf
Under	Brow
Meat	Machine
Washing	Box

B- What do we call the following?

1- A kind of train that go under the ground?

2- Someone who is receiving a training in a company?

3- Someone who is sitting for an examination?

4- A box used to store mail?

5- The building that are built very high?

Question five

A- Give two examples for each of the followings:

a- Blending

---

b- Compounding

---

c- Shortening (clipping)

---

d- Borrowing words in English

---

e- Abbreviation

B- The underlined words are nouns. Change them into verbs and rewrite the sentence.

1- People in Sudan are farmers. They grow cotton to **produce** oil.

2- Please use the following statement to **answer** the question.

3- We use the morphological aspects to **develop** the vocabulary.

C- How are the (ed) morpheme pronounced in the following words? (Tick where it is appropriate)

Word	**(t)**	**(id)**	**(d)**
Looked			
Wanted			
Asked			
Stopped			
Loved			

Question six

Complete the following table. Then use the nouns in sentences.

Verb/adjective	**Noun**
Decide	
Successful	
Enjoyable	
Courageous	
Produce	
Discuss	
Know	