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### IMPACT OF USING ELECTRONIC DICTIONARY ON COLLOCATION LEARNING AND RETENTION OF IRANIAN EFL LEARNERS



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#### ABSTRACT

*One of the first and potential strategies used in order to develop language learning is using dictionary. Digital dictionaries have changed this process dramatically in the last two decades. The current study was intended to investigate the impact of electronic dictionary on learning and long term retention of language collocation of Iranian intermediate EFL learners. In order to this end, Oxford Placement Test (OPT) was run among 340 learners in 6 different language institutes. In total, 100 participants whose scores were between 40 to 50 were chosen as the intermediate level and were assigned to experimental and control groups. The participants in both groups received the treatment in 8 sessions, 45 minutes each. Two groups were taught 64 collocations during the eight sessions of the treatment. The experimental group used electronic collocation dictionary (ECD) to find meaning and definition of a new taught collocation, while the control group recognized collocation through the prior knowledge. Each group acquired pretest in one form (fill in the blank), an immediate posttest was run immediately after the treatment and a delayed posttest administered two weeks later. The outcomes of the study showed that the experimental group significantly outperformed the control group. Hence, using electronic dictionary to teach collocation can improve the process of acquiring collocations, but it cannot guarantee long term retention of collocations. This study also provides pedagogical implications to utilize ED as an effective learning tool.*

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**Keywords:** Informational and communicational technology (ICT), Collocation, Electronic dictionary, Electronic collocation dictionary, Vocabulary, EFL learners.

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#### Contribution/ Originality

This study is one of very few studies which have investigated In fact, this study provides a combination of technology and language practice in mastering the collocations of language. In light of the possible findings of this study, EFL learners could be aware of the characteristics of ED, and applied its advantages appropriately to their learning.

#### 1. INTRODUCTION

In order to gain a better understanding on the concept collocation, first the superordinate term, vocabulary, should be elaborated on. The first thing that researchers require in studying vocabulary acquisition is a definition of

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vocabulary. Perhaps the first thing that comes to mind is the "word". But, what do we mean by "word"? Dictionaries give definitions such as, "A speech sound, or series of speech sounds, that symbolizes and communicates a meaning without being divisible into smaller units capable of independent use" (Webster's Seventh New Collegiate Dictionary, 1(71), or "A sound or combination of sounds that expresses a meaning and forms an independent unit of the grammar or vocabulary of a language" (Oxford Advanced Learner's Dictionary, Fourth Edition, 1(93).

Vocabulary knowledge was classified by Nation into four general categories including form (spoken and written), position (grammatical patterns and collocation), function (frequency and appropriateness) and meaning (concept and association) (Nation, 1990). Eight subcategories were identified in total with receptive and productive knowledge being further distinguished in each. For instance, receptive knowledge of spoken forms involves the ability to make a distinction between phonetically similar words and productive knowledge involves the ability to produce the sounds.

A number of studies have investigated the meaning and types of collocations (Hoey, 1991; Lewis, 1993). The technical term of collocation implies more than mere placing words side by side but, according to Firth (1968) it is the habitual juxtaposition or association of words with each other or group of words together. Firth believes that: "You shall know a word by the company it keeps" (1968, p. 179). According to Jones and Sinclair (1974) collocations are words which occur near each other with a random frequency more than is expected. Sinclair (1991) believes that "words which stand in many terms are used by second language researchers to refer to collocations as fixed lexical units including speech formulate (Peters, 1983) lexicalized stems (Pawley and Syder, 1983) lexical phrases (Nattinger and Jeanette, 1992; Schmitt, 2000) and, above all, prefabricate chunks (Lewis, 1993).

Collocation is considered a hindrance in learners' interlanguage, especially in the EFL context. Bahns and Eldaw (1993) believed while advanced learners try to produce accurate language, they mainly face problems to utter collocations. This problem roots from the fact that no rule exists to manage learning collocations. The experience of living in an English context, enables native speakers to produce the correct collocations. However, non-native speakers are in lack of this experience, they may use words in a way that looks strange. So far, language learners have mostly relied on dictionaries and the internet. Nowadays, there are many excellent collocation dictionaries. A good example is Oxford Collocation Dictionary. This dictionary is considered to have what language teachers and learners need. When language learners face problem in collocation, they can look the key words up from the dictionary. They are listed according to the frequency of each collocation. In the context of EFL learning in Iran, due to lack of connection with English native speakers, there are major problems in mastering the word repertoire and collocations. Still, unfortunately, not many Iranian EFL learners make use of collocation dictionaries. In addition, the electronic and digital dictionaries are quite new in Iran and their application has not been extremely studied so far. The present study investigates whether it is possible to learn English collocation of EFL learners by electronic collocation dictionaries.

## 2. LITERATURE REVIEW

### 2.1. Vocabulary Knowledge

Vocabulary is considered as one of the important components of language knowledge. Horwitz (1988) found that a large number of ESL students completing their questionnaire either agreed or strongly agreed that the most important part of learning a foreign language is learning its vocabulary. Also, research has shown that lexical errors tend to impede comprehension more serious than grammatical errors and native-speaking judges tend to consider lexical errors as more serious than grammatical ones (Ellis, 1994). As far as vocabulary knowledge is concerned, one of the cases which can lead to misunderstanding among EFL learners is lack of knowledge of collocational phrases. Widdowson (as cited in Lewis (1993)) states that the more we consider the matter the more reasonable it seems that lexis is the starting point that the syntax needs to put in the service of words and not the other way round.

In the instrumentalist view (Anderson and Freebody, 1981) vocabulary knowledge is considered as a major prerequisite factor in comprehension. According to this view, a good and sufficient vocabulary knowledge leads to good comprehension. Vocabulary knowledge is not only one of the most important factors in reading ability, but also it has a central role in listening, speaking, and writing skills. Laufer (1998) pointed out that vocabulary correlates with the holistic assessment of writing and general proficiency is the best predictor of reading comprehension. Concerning the importance of vocabulary in speaking abilities, Skehan (1996) proposed that memorized lexical units play an important role in learner's production both at the early stages of language acquisition and at the more advanced stages. On the other hand, Foster (2001) explored the extent to which both native and non-native speakers use lexicalized language in performing various tasks. It has also been found out by researchers that vocabulary correlates highly with writing quality (Linnarud, 1986). In the process of teaching writing, although most teachers focus on grammatical well-formedness of a composition but lexis is also an important element that requires more attention. As Ellis (1994) stated, these lexical errors impede comprehension more seriously than grammatical ones. Therefore, it is clear that in each of the basic language skills, vocabulary plays a fundamental role that should be noticed by language teachers and program planners.

Schmitt (2000) traces the history of second language learning back to the second century B.C., when Roman children studied Greek. Students were taught to read by first mastering the alphabet, then progressing through syllables, words, and connected discourse. Some of the texts provided students with vocabulary which was grouped either alphabetically or under various topic areas (Bowen *et al.*, 1995). At that time vocabulary was considered as an essential component of language education. Vocabulary items include various items such as idioms, special expressions, metaphors, and collocations. Collocations are among troublesome items among the word repertoire. The following section is dedicated to detailed description of collocation.

## 2.2. Collocation

Studies on collocations started in Greece. The Greek Stoics related collocations to semantics and used the concept of collocation to study the meaning relationships between words. According to these ancient scholars, words "do not exist in isolation, and they may differ according to the collocation in which they are used" (Robins, 2000). Traditionally, collocation was defined as: "a sequence of one or more consecutive words that has characteristics of a syntactic and semantic unit, and whose exact and unambiguous meaning or connotation cannot be derived directly from the meaning or connotation of its components" (Christopher and Hinrich, 1999).

Widdowson (2007) stated that "certain items tend to keep company, or collocate, with others: there is, a kind of mutual attraction that draws them together. So the word unforeseen will attract the word circumstances, foregone will attract conclusion, and so on. But collocation goes beyond the relationship between two lexical items in a noun phrase to include many other recurring combinations in phrases like: as a matter of fact, all things considered..." (pp. 79-80).

Hoey (2005) defines collocation as words apart and evidences by their occurrence together in corpora more often than is explicable in terms of random distribution (as cited in Munday (2009)). Based on Naixing (2002) definition, "a collocation is a conventional syntagmatic association of a string of lexical items, which co-occur, in a grammatical construct with mutual expectancy greater than chance as realization of non-idiomatic meaning in texts" (p. 100).

For Mitchell (1965) collocation is an association of roots or potential lexical meanings rather than actual words; furthermore, a linguistic item or class of items is meaningful not because of inherent properties of its own but because of the contrastive or differential relationships it develops with other items or classes. Meaning is much less in the name than in the network of relevant differential relationship (as cited in Nofal (2012)).

Collocations and phrases are important for EFL learners to gain a native-like fluency in an academic context. "Collocational Competence" according to Lewis (2000) is a characteristic of advanced learners which assist them to

produce accurate, fluent and correct English sentences, while lack of knowledge may result in creation of incorrect, long and inappropriate phrases and utterances.

Candy (2000) studied strategy use in creating lexical collocations among freshmen English officers at the Chinese Culture University. Generally, recovery, correct translation, de-lexicalized verbs, synonyms and appeal to authority were the most effective types of strategy use leading to construction of adequate collocations.

Wang (2007) studied three most popular series of English textbooks for senior high school in Southern Taiwan in order to find verb-noun collocation. Their attention is on parts as these verb-noun lexical collocations have been the troublesome part for EFL learners. Using a proprietary computer-based program to search the textbook corpus, they identified repetitions of these collocations that were three to five times on average. Additionally, through the whole series of textbooks, only five times occurred. As a result, if the repetition of collocation is important for the textbook writers, they probably need to pay more attention to using them.

The lexical aspect of interlanguage development has been studied by Shahheidaripour (2000). His investigation's focus was on the relationship between learning only one sense of a word and collocational clash and vocabulary misplacement. In this study, he also discussed that if it is or not a major source of errors in second language acquisition. He proposed two directional hypotheses: H01: learning only one sense of a word results in vocabulary misplacement and collocational clash. H02: vocabulary displacement and collocational clash may be considered as main sources of errors in second language acquisition. His first hypothesis has been accepted while the second one has been rejected.

Shei and Pain (2000) conducted an online correcting program in order to improve the ability of collocational in advanced Chinese learners who were learning English. This program helped them correcting their problems by detecting collocational errors in the learner's writing and also gave them some examples of standard collocational form. As a result, it should be connected to a large corpus as a reference. This system supported by two main corpora. First the learner corpus, which is used to extract standard English collocations and also it was connected to a dictionary of synonyms from word net that investigates most happening collocational errors in learner's input. It is connected to a paraphrase database which is made by learners themselves to help discover uncollocational phrases of learners.

### 2.3. Electronic Dictionary

The term electronic dictionary (ED) is supposed to utilize for referring any reference material saved in electronic arrangement that provides information on spelling, meaning, or word usage. All EDs of a type which are the same in the system of packing and retrieval are as follow: 1. A spell checker in a word processing program, which is used for scanning and interpreting the written words. 2. A word list for online teaching materials. 3. An electronic form of a related hard-copy dictionary.

Recently, electronic dictionaries have changed language learning style and have made learning process easier for learners. It's pedagogical advantages are recognizable to be ignored (Nesi, 1999). Vesi (1999) believed that electronic dictionaries have priority over hard copy ones. To name few examples of advantages of using electronic dictionaries we can refer to different search functions that help faster look-up, links attached to multimedia files such as sound and pictures, there is no limitation in space, so extra examples and database are available, they can be connected to the other portable. Beside these advantages one question can be raised here: whether fast searching in electronic dictionaries still has the positive impact on vocabulary learning comparing with the hard-copy ones (Guillot and Kenning, 1994).

Retrieval system is the most important difference between electronic dictionaries (ED) and paper dictionaries. This difference makes electronic dictionaries, superior to the paper ones. Searching in ED provides groups of words in any information failed created during its development. For instance, the Oxford English dictionary on CD-ROM

can easily find synonyms, terminology or any kind of information which is arranged in the original paper dictionary. Most of learners' dictionaries provide a limited range of definitions and examples. On the other hand, a dictionary such as Word Net offers a wide range of links to synonyms, coordinate terms and even hyponyms. Using pocket electronic dictionaries (PED), provides a limited group of words close to the searching word. Comparing PED with CD-ROM dictionaries, the latter one offers a hyperlink and interface for learners in order to access for unknown entries within the searching entry (Nesi, 1999). The mobile dictionaries which are nowadays popular among Iranian EFL learners are considered as PED.

Laufer and Hill (2000) using a Computer Assisted Language Learning (CALL) program to studied L2 learners' look up patterns and the connection among their look-up patterns and retention of the looked up words. They concluded that long-term recall was improved by the use of the multiple dictionary.

Koyama and Takeuchi (2004) studied the effect of changed in ED and PD condition in their interface design for searching behavior of EFL students. Their research resulted that although the interface design improved but there was no time and quality of search to retrieve information. On the other hand, it was found that this difference made a significant change in the mean score. It was higher in ED condition. In this study they found it convenient but the students didn't recognize the effectiveness of it on learning EFL. Finally, it is concluded that PD conditions has a higher retention in the process of searching.

Amirian and Heshmatifar (2013) studied the impact of using electronic dictionary on learning vocabulary. In their study the retention score of participants who were Iranian EFL learners was two standard deviation above and below the mean. They selected a homogeneous group, one using electronic dictionary (ED) and finally, they found that the group of learners used ED had a progress in vocabulary learning comparing with the PD group. They concluded that using ED has a better impact on vocabulary learning of the learners.

One of the first attempts to examine the differences in two types of dictionaries in both qualitative and quantitative techniques was conducted by Koyama and Takeuchi (2004). They found the relationship between the dictionary interface using each dictionaries. They claimed that the number of times using ED to look up words was not necessarily constant to the retention of looked up words. They also reported that the relatively basic interface design of PD might result to higher word retention. Another study designed by Koyama and Takeuchi (2004) verified this and made it clear that the look up words in the PD are retained better comparing with the ED. They claimed that as a result of using interface design the searching process was longer in PD dictionaries.

Toshiko and Osamu (2004) conducted a study entitled "how look up regularly affects EFL learning? An experimental study on the use of handheld electronic dictionaries". They discovered some changes in the look up performance of students in handheld electronic dictionaries (ED) and printed dictionaries (PD). They found out that learners in ED group look up more words to understand the text comparing with the PD group learners in a given time. No significant difference was found in the quiz score, however. These outcomes revealed that the increase in look up frequency using ED does not necessarily guarantee reading comprehension ability of learners to be improved.

### 3. METHOD

#### 3.1. Participants

The participants of this study were Iranian EFL learners who were learning English in language institutes in Isfahan. Their age ranged from 15 to 20 at intermediate level, 40 males and 60 females. In order to have a more homogeneous sample, participants were chosen from a group of 340 students after taking OPT (Oxford Placement Test). Then the participants were divided into two groups randomly (n=50 each): the experimental and control group.

#### 3.2. Materials

In order to conduct the experiment and collect the required data, the following types of materials were employed:

### 3.2.1. Dictionary

In the present study one type of learners' dictionary, namely, Oxford Collocation Dictionary (for students of English) was utilized by participants in the experimental group, while the participants in the second group were not allowed to use any kind of dictionary. Instead, they used their own background knowledge and experiences to effort tackling the tests.

This dictionary helps learners:

- Pay more attention to collocation and be aware of the importance of collocation in the acquisition of a word.
- Discover how it helps spread their knowledge of vocabulary.

### 3.2.2. Test-Retest Equivalent Forms

The study made use of both quantitative and qualitative designs. To answer the first research question of the study, a pretest was administered in each group. This test was in the form of fill in the blank including 64 items. Both groups were given an immediate posttest after the treatment, a delayed posttest was administered two weeks after the posttest. A two-week span was chosen since if the time interval is shorter, the learners might use their short term memory to answer the questions. Moreover, more than two-week interval had the problem of more learning.

### 3.3. Procedure

This study, conducted among Iranian intermediate EFL learners learning English at Isfahan English language institutes. Two weeks before conducting the study, an Oxford Placement Test (OPT) administered to the total of 340 participants, based on the results 100, of the participants who scored between 40 to 50 were chosen as the sample to be studied. They were at intermediate level.

Then, four institutes were selected with nine classes consisting of 11 learners with the same atmosphere and educational conditions. This study were carried out during the summer in one month's career. At the onset of the study, a pretest was devised by the researcher, and the participants were sat for that test. This test was in the form of fill in the blank and contained series of simple and difficult collocation items combination. In order to choose the collocations to be taught using electronic dictionary, the participants were presented with a list of eighty collocations and were asked to write down the meaning of the collocations in Farsi. Fourteen words which students can recognize their meanings were rejected. Accordingly, sixty four unknown words were selected for the purpose of this study. When the final participants as well as the target words were identified, the participants were divided into two groups of 50.

The classes were held 2 days a week for one month. The participants in both groups received the treatment in 8 sessions, 45 minutes each. The learners in experimental group were allowed to use the soft copy of Oxford Collocation Dictionary during this month to find meaning and definition of newly taught words, while the learners in control group followed the traditional method for finding the meaning of new words. Participants in experimental and control group took part in weekly intermediate classes. Every session, eight new words were taught by the teacher. At the end of the course a posttest was administered. As it was stated earlier, two weeks after the posttest another test called delayed posttest was applied to see if the electronic dictionaries can enhance the long term retention of the collocations learnt using EDs.

### 3.4. Dada Analysis

The main purpose of this research was to focus on impacts of electronic dictionary on English collocation learning of EFL learners. Electronic dictionary is independent variable and the learning English collocation by the EFL learners in the intermediate classes is dependent variable in this study.

In order to answer the first research question of the study, data were analyzed using SPSS. Descriptive statistics including frequencies, means, standard deviations, and percentages were acquired. T-test was used to investigate significant differences between scores taken in experimental and control groups. Also, to answer the second research question, the mean scores of the participants from experimental group were compared using a paired samples t-test.

#### 4. RESULTS

##### 4.1. Performance of Participants in Two Groups in the Pretest

The first hypothesis of the present study which was formulated based on the first research question was that using electronic dictionaries has no significant effect on improving collocation learning among Iranian intermediate EFL learners. Therefore, the following steps were taken in order to test the hypothesis to find the answer for the first research question of the study.

Out of 340 EFL learners, 100 were selected based on their performance in the OPT. Then, they were divided into an experimental and a control group, 50 each. At the onset of the study a pre-test was run to ensure the homogeneity of the participants in terms of their collocation knowledge.

As it is shown in Figure 1, the mean score of the participants in experimental group is 43.22 and that of the control group is 42.40 which is not considered to be significant.

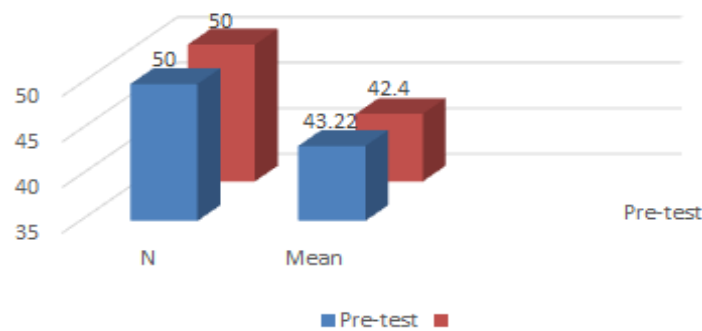


Figure-1. The performance of participants in two groups in the pretest

##### 4.2. Performance of Participants in Two Groups in the Posttest

Having assured the homogeneity of the participants in two groups, the participants in experimental group were exposed to the treatment which included teaching the unknown collocations using electronic dictionaries. At the same time the students in control group were taught the unfamiliar collocations without using electronic dictionaries. After the treatment the participants in both groups sat for a test, as the post-test, designed based on the unknown vocabularies. The performance of the participants in two groups is compared in figure 2.

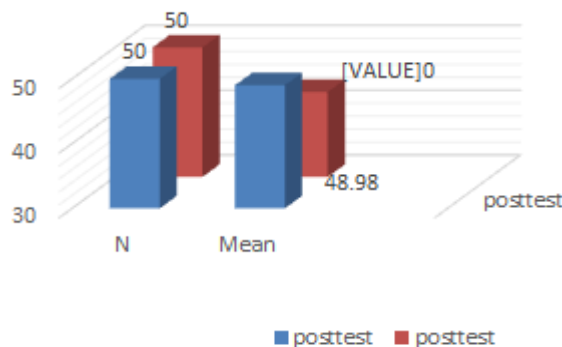


Figure-2. Difference between mean scores of experimental and control groups in the Posttests.

### 4.3. Performance of Participants in Two Groups in the Delayed Posttest

The second hypothesis stated that using electronic dictionaries has no significant effect on long term retention of collocation among Iranian intermediate EFL learners. To put it another way, it was hypothesized that there was no significant difference in the performance of the participants in experimental group in posttest and delayed posttest. To provide information to accept or reject this hypothesis, two weeks after the collocation posttest, another test with the same test items but different item arrangement was run. The purpose of this test was to evaluate the long-term recall of the participants of the acquired collocations. Since only the participants of the experimental group took part in this test, paired samples t-test was suitable. The gathered data were calculated and analyzed. The following section analyzes the results of this test.

**Table-1.** Descriptive statistics of experimental group's post and delayed post-test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Delayed posttest	45.5200	50	6.33500	.89590
	Posttest	48.9800	50	6.44756	.91182

According to the statistics depicted in Table 4.7, it can be seen that the mean difference of post and delayed posttest for experimental group is 3.46 (the mean for posttest is 48.98 and it is 45.52 for the delayed posttest); therefore, it can safely be claimed that there is a statistically significant difference between the scores of collocation posttest and delayed posttest. Differently stated, the performance of the participants in delayed post-test was weaker than their performance in the posttest. This analysis shows that although using electronic dictionary to teach collocation can enhance the process of acquiring collocations, it cannot guarantee long term retention of collocations.

## 5. DISCUSSION AND CONCLUSION

Collocation is a big problem in learners' interlanguage, especially in the EFL context. In the context of EFL learning in Iran, due to lack of connection with English native speakers, there are major problems in mastering the word repertoire and collocations. So far as the concrete methods of learning collocation are concerned, students can make use of the rich resources of dictionaries and the Internet. A good case in point is Oxford Collocations Dictionary for Students of English. The dictionary can meet the needs of students and teachers. Whenever you meet a difficulty in collocation, you can just look up the key word in the collocation in the dictionary. All its collocations are listed sequentially according to the frequency of each collocation. In addition to helping students understand the meaning and concepts of collocations, electronic collocation dictionaries can help EFL learners master the pronunciation of the collocations.

This study focus on the effect of electronic dictionaries on English collocation learning of EFL learners. Referring to the first hypothesis of the present study, which was formulated based on the first research question was that using electronic dictionaries has no significant effect on improving collocation learning among Iranian intermediate EFL learners, results are presented that electronic dictionaries, affect learners' collocation learning, that is the learners' vocabulary knowledge especially collocation words improve while using dictionaries. Using dictionaries can be useful for English learners in that it has flexible grammar and also according to the needs of the use has different levels of difficulty. Therefore, in this study, the experimental groups outperformed the control group in collocation vocabulary test.

Regarding the second hypothesis of the present study, which was formulated based on the second research question was that using electronic dictionaries has no significant effect on long term retention of collocation among Iranian intermediate EFL learners, this study showed that using electronic dictionaries does not positively affect collocation recall among intermediate Iranian EFL learners.



After conducting different analyses, it was made clear that using electronic dictionaries to teach collocations can be a suitable media which can significantly enhance mastering collocations. In fact, the group that received the new collocations through electronic dictionary outperformed the other group that was taught without making use of electronic dictionaries. The results also showed that using electronic dictionaries does not positively affect collocation recall among intermediate Iranian EFL learners. In other words, it was confirmed that looking up the new collocation using electronic dictionaries does not have a positive effect on the intermediate level EFL learners' long term collocation recall enhancement.

The quantitative results of the study tend to support the effectiveness of using electronic collocation dictionary on English collocation learning vocabulary. Not only did the treatment group out-perform the control group in posttest, but this group also revealed more receptive and productive knowledge of collocation words. In addition, the treatment group was able to use more collocations in writing. Thus use of ECD could be a powerful tool for improving students' collocation learning. Most of the learners utilized the components of collocation unconsciously without realizing them to be taken account as collocations.

Experimental group learners mentioned that using electronic dictionary completely changed their English knowledge. In this research, the researchers focused on collocation nevertheless, learners referred to dictionary to study it purposefully, not only they learned these components well, but also learned the etymology, parts of speech, pronunciation and examples which were with these words.

Evidences revealed that EFL learners scarcely referred to dictionary before this study, or they check the dictionary to get the correct pronunciation of words. However, one of the outcomes of this research was the raise of learners' grammatical and vocabulary knowledge. Also, they got to know with the correct use of collocations in sentences. Therefore, this study might claim correctly that dictionary is the influential tool which can help learners in all stages of English learning, specifically if this dictionary would be installed on cell phones to be as a mobile tool with learners. Therefore, it is essential to all EFL learners to learn how to use dictionary technically and correctly.

## 6. SUGGESTIONS FOR FURTHER RESEARCH

Like any other research studies, some suggestions could be generated from this study for further research. It is hoped that L2 researchers keep these suggestions in their mind and apply them for their forthcoming research studies. The L2 proficiency of the learners is an important factor and this study was performed on intermediate level of learners. It is hoped that further research can be taken into considering the proficiency level of L2 learners. Further studies considering other characteristics of vocabulary like the etymology, parts of speech, pronunciation and examples which were with these words. Moreover, considering both groups of EFL and ESL learners can shed light on the effect of electronic collocation dictionary on learners' vocabulary knowledge.

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