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**The American University in Cairo**

**Software Application for Computer Aided Vocabulary Learning in a Blended Learning Environment**

**A Thesis Submitted by Rasha Essam Hashem Hassan  
To the Department of Teaching Arabic as a Foreign Language  
Arabic Language Institute  
Spring 2010**

In partial fulfillment of the requirements for  
The degree of Master of Arts/Science

بسم الله الرحمن الرحيم

«و قل اعملوا فسيرى الله عملكم و رسوله و المؤمنون»

To my parents, my source of inspiration and motivation.

My mother, you will always be my soul of enthusiasm and success.

My father passed away in 2009, I dedicate all my work to you and I miss you so much.

Mohamed and Bassem, you are such supportive brothers who always surrounded me with love.

Yassin, you are my little beloved nephew who always prayed for me.

Thank you All

## Acknowledgments

Dr. Raghda, I will never forget your sincere words, motivation, and positive feedback which really affected me so much during my thesis. I will always remember the verse which you kept on telling me because it really changed me a lot:

«وهزى إليك بجذع النخلة تساقط عليك رطباً جنياً فكلي واشربي وقري عينا»

Dr. Badawi, thanks for being very supportive. I really learned from you so much and I will never forget your words when you first interviewed me in the department. In fact, having you as my reader is an honor.

Dr. Zeinab, thanks for your advices and feedbacks that taught me how to reach my goals. I will never forget your smile which really helped me so much in hard times.

Dr. Perry, you are the one who taught me how to do research. I will always be grateful for you through my entire life.

## **Abstract**

This study focuses on the effect of computer-aided vocabulary learning software called “ArabCAVL” on students’ vocabulary acquisition. It was hypothesized that students who use the ArabCAVL software in blended learning environment will surpass students who use traditional vocabulary learning strategies in face-to-face learning environment even though both groups were using the same framework for introducing vocabulary. Pre-test and post-test were used for assessing the previously mentioned factors, while a questionnaire with open-ended questions was used to elicit students’ attitudes toward using the software. Despite the fact that both the Nation (2001) framework and the ArabCAVL software showed a significant increase in students’ vocabulary recognition and usage, the results of the treatment group exposed to ArabCAVL software were clearly higher than those of the control group. Finally, the results supported the previously mentioned hypothesis, and it was shown that students had a positive attitude toward the software.

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### Introduction

#### *A- Rationale and statement of the Vocabulary acquisition problem*

In this section, the importance of vocabulary learning to foreign language learners will first be highlighted by presenting different studies done in this field.

In fact, many studies were interested in vocabulary acquisition in the field of second language vocabulary acquisition (SLVA) for the past fifteen years (Bates and Goodman, 1999; Boland and Boehm-Jernigan, 1998; McKoon and Ratcliff, 1999, Lewis, 1997; Nattinger and DeCarrico, 1992; Sinclair, 1991, as cited in Hunt and Beglar, 2005). Penno, Wilkinson, and Moore (2002) demonstrated that acquiring vocabulary is an essential aspect in language learning. Also Saville-Troike (1984) indicated that vocabulary knowledge is perceived as the most important factor to second and foreign language learners. Additionally, it was demonstrated that foreign language learners are keen to acquire as many words as they can because they believe that without this knowledge they will not be able to communicate properly in real life situations (Leki & Carson, 1994).

Moreover, it was mentioned in a study done by Hunt and Beglar (2005) that foreign language learners have a deficiency in developing their lexicons to an adequate level which would enable them to function properly in different language contexts (Barrow, Nakanishi, and Ishino, 1999; Nurweni and Read, 1999, as cited in Hunt and Beglar, 2005). Verhallen & Schoonen (1993) also found through their study that second-language learners have problems in acquiring a deep knowledge of vocabulary even with high frequency words (as cited in August et. al, 2005). Also West (1930) stated that many language learners lack the usage of suitable vocabulary words that enable them to communicate properly (as cited in Zimmerman, 1997). West highlighted that the cause of this conspicuous problem is due to the following reasons: First, learners' time was spent on activities that were not assisting them in speaking the language; second, students were learning impractical words which they were not using. Finally, even the words which they learned were not mastered adequately enough (as cited in Zimmerman, 1997). Michael West demonstrated that the most primary aspect in learning a new language is acquiring its vocabulary (as cited in Zimmerman, 1997).



Naiman, et al. (1978) were interested in identifying many efficient techniques for language learning like: vocabulary, sound acquisition, listening comprehension, grammar, speaking, writing, and reading. Among all skills, they found that focusing on vocabulary learning was the most important (as cited in Thu, 2009).

This increased prominence on the lexicon is crucially important due to its effect on different language aspects such as: speaking (Altman, 1997; de Bot, 1992; Levelt, 1989), reading (de Bot, Paribakht, and Wesche, 1997; Durgunoglu, 1997; Laufer, 1997), listening (Miller and Eimas, 1995; VanPatten, 1996), and writing (Astika, 1993; Engber, 1995; Laufer and Nation, 1995) (as cited in Hunt and Beglar, 2005).

Therefore, teachers and researchers have come to understand the chief role of vocabulary in language learning and communication. Consequently, the increased attention to vocabulary teaching has become more important (Hunt and Beglar, 2005). Now the question that comes to mind is which method to use in order to deliver vocabulary knowledge properly to foreign language learners?

Actually, different methods perceived vocabulary acquisition in different ways. The role of vocabulary using different methods will be stated briefly as follows: First, the "Grammar Translation Method" addressed vocabulary explicitly through introducing words in a list, as stated by Zimmerman (1997). Second, the "Direct Method" adhered also to the explicit language learning where basic vocabulary was taught in classes through pictures. As stated also, (Rivers, 1983; Richards & Rodgers, 1986) concrete vocabulary was introduced in pictures with labels while abstract vocabulary was explained through associations of thoughts and ideas (as cited in Zimmerman, 1997). According to West (1927), he criticized the "Direct Method" for concentrating more on speech than on content (as cited in Zimmerman, 1997). Third, Zimmerman (1997) stated that the "Reading Method/Situational Language Teaching Method" was designed to enhance reading skills through vocabulary. Concerning the "Direct Method", West also highlighted the fact of the important usage of teaching high frequency words in the form of lists (as cited in Zimmerman, 1997). Fourth, the "Audio-Lingual Method" addressed vocabulary knowledge according to its simplicity and familiarity, as the advocates of this method thought that giving students too many words to learn can distract them (Zimmerman, 1997). In this method, Zimmerman (1997) stated that the main concern was on pronunciation and oral drilling concerning the basic sentence patterns. Fifth, the "Communicative Language Teaching Method" which was started by Noam Chomsky in 1957 concentrated mainly on promoting fluency over accuracy (as cited in Zimmerman, 1997). Zimmerman (1997) claimed that vocabulary learning was not the main focus in communicative

language learning, but rather toward language as discourse. Consequently, we can infer that it focused more on implicit vocabulary language learning rather than on explicit vocabulary language learning. Advocating the communicative approach, Anthony suggested addressing vocabulary better in its cultural context (as cited in Zimmerman, 1997). In fact, the communicative approach always introduced vocabulary in contexts by focusing more on the discourse level rather than the sentence level (Zimmerman, 1997). Sixth, the "Natural Approach Method" put great importance on vocabulary acquisition as they perceived it as very important in the language learning phases (Zimmerman, 1997). Finally, Krashen stated that reading is the most effective means of acquiring new vocabulary (as cited in Zimmerman, 1997). Aside from this, he suggested that free reading is very much as effective in gaining new vocabulary. In fact, Krashen makes a clear point in the first part that reading facilitates gaining of vocabulary. Yet, reading comprehension in leisure time is not that effective as too much freedom given to students will not lead to the desired outcomes. Consequently, one can infer from all of the above there are advocates for either explicit or implicit language learning. As a result of that, the second question that arises now is which type to use: "explicit" or "implicit" vocabulary learning?

It was stated by Hunt and Beglar (2005) that second language vocabulary learning lacks the concentration on the methods acquiring vocabulary. Moreover, Meara (1997) confirmed the same opinion that most of these studies did not investigate different methods for word retention; however, they concentrated instead on the target vocabulary knowledge (as cited in Pigada and Schmitt, 2006). Now there are two lines of thoughts to consider. The first one is explicit vocabulary language leaning and the second one is the implicit vocabulary language learning. Actually many researchers were having different points of view regarding both methods of learning.

First, many researchers advocated implicit vocabulary learning such as: Huttenlocher, Haight, Bryk, and Lycons, who asserted that vocabulary knowledge is very much linked to reading proficiency (as cited in Tozcu and Coady, 2004 ). Also, Coady (1993) and Meara (1980, 1984) claimed that vocabulary acquisition in the reading context has become prominent currently for both foreign and second language learners (as cited in Tozcu and Coady, 2004). Moreover, Chall in 1987 claimed that a high acquisition of vocabulary is gained through effective reading as the learner will have the skill of guessing new vocabulary through context (as cited in Tozcu and Coady, 2004). Huckin and Haynes (1993) also concentrated on not isolating the process of learning the words, yet learning new words in reading leads to more achievement as this will enhance their reading skills as well (as cited in Tozcu and Coady, 2004). Furthermore, they highlighted the fact that learning the word out of context prevents learners from

understanding the different meanings of the word thus making them unable to interpret it correctly. There is also an opinion stated by Krashen that vocabulary acquisition can be learned easily through reading in learners' leisure time. According to what Leki and Carson indicated in 1994, too much freedom for students will lead to distracting their thoughts because of their lack of knowledge concerning which word to learn and which word to skip in each level. All in all, it was found that vocabulary knowledge is essential for reading comprehension (Anderson & Freeboy, 1981; Qian, 2002; Chall, 1987; Fender, 2001, as cited in Tozcu and Coady, 2004). However, it was claimed also that incidental vocabulary acquisition has many deficiencies, such as being time-consuming, making it an unpredictable process (as cited in Tozcu and Coady, 2004). Consequently, as stated by Paribakht, Wesche, and Zimmerman in 1997, its suitability for foreign language learners is not confirmed yet (as cited in Pigada and Schmitt, 2006). Also, Paribakht and Wesche in 1997 stated that incidental learning through reading cannot be counted on because which words will be learned, when exactly words will be learned and to what degree the word meaning is acquired are hard to be predicted. In fact, the process of incidental vocabulary acquisition is not fully proven to be successful in vocabulary acquisition (Paribakht and Wesche, 1997; Paribakht and Wesche, 1999; Schmitt, 1998), and therefore, it cannot be used by teachers and learners in classes (as cited in Pigada and Schmitt, 2006).

Second, many researchers advocated explicit vocabulary learning such as: Beck, McKewon, and Osmanson in 1983, and Nation (2001) who indicated that multiple exposures have a positive effect on vocabulary acquisition (as cited in Vidal, 2003). Supporting this also were Paribakht, Wesche and Zimmerman (1997) who indicated that systematic instruction results in more vocabulary acquisition than just reading target words from the context. Nation (2001) again suggested that the primary focus in teaching at the beginning should be focusing on increasing the size of vocabulary of the learner through direct vocabulary teaching. Beck, Perfetti, and McKeown (1982) also stated that direct vocabulary teaching instruction leads to a high vocabulary growth (as cited in Penno et al, 2002). Laufer (1989, 1992, 1997) highlighted the fact that learners who have a large vocabulary acquisition are capable of understanding texts more (as cited in Tozcu and Coady, 2004). Moreover, Nation (2001) acknowledged the strong linkage between deep processing and vocabulary acquisition. Furthermore, Anderson and Freeboy in 1981 claimed that those who have a high reading skill also have a high increase of vocabulary knowledge (as cited in Tozcu and Coady, 2004).

On one hand, implicit learning involves only awareness of the stimulus but does not involve any other conscious processes as it is highly affected by repetition (Nation, 2001). On the other hand, explicit

learning is more conscious, where the learner uses hypotheses in order to search for a suitable structure for recognizing the word (Ellis 1994, as cited in Nation, 2001). Moreover, explicit learning involves searching for effective rules or even applying other suggested rules in order to increase the production of vocabulary knowledge (Nation, 2001). This process is called by Ellis 1994 as the 'meditational' phase where the learners try to map or link word knowledge to word meaning (as cited in Nation, 2001).

Accordingly, the researcher supports Ellis (1995) and Nation (2001) who claimed that there should not be a distinction between explicit and implicit learning because students should use them interchangeably. In other words, production and formal recognition depend on implicit learning, while meaning relies on explicit and conscious processes (as cited in Nation, 2001). The third question that arises now is: "Why introduce vocabulary through reading contexts?"

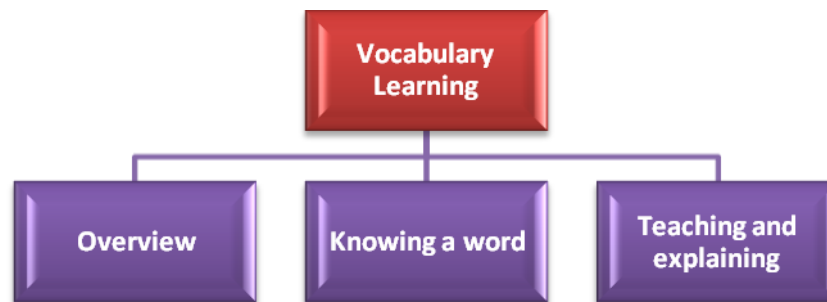
Highlighting the previously mentioned line of thought, Paribakht and Wesche in their study done in 1997 argued that acquiring vocabulary through reading is very much effective, however, reading plus instruction leads to superior results which means that we cannot desert either explicit or implicit language learning in order to achieve effective results. Accordingly, we must take a closer look at the advantages of reading, which makes it an asset for acquiring vocabulary through instruction.

As stated by Nation (2001), reading encompasses the presence of both top-down and bottom-up processes which lead to the repetition and going through the words more than one time. According also to Perfetti (1985), the process of word identification is crucial in understanding the reading texts (as cited in Tozcu and Coady, 2004). In addition, it was stated by Pigada and Schmitt (2006) that a number of studies during the last two decades have confirmed the widespread belief that second language learners can acquire vocabulary through reading.

In light of all the above, it is strongly believed that the core of language comprehension is the lexicon (Hunt and Beglar, 2005). Thus, the chief purpose of this study is to present the following: a framework for the development of vocabulary acquisition in reading contexts for foreign language learners, a means for delivering that framework efficiently to AFL learners, and an environment for delivering the chosen framework with the chosen means.

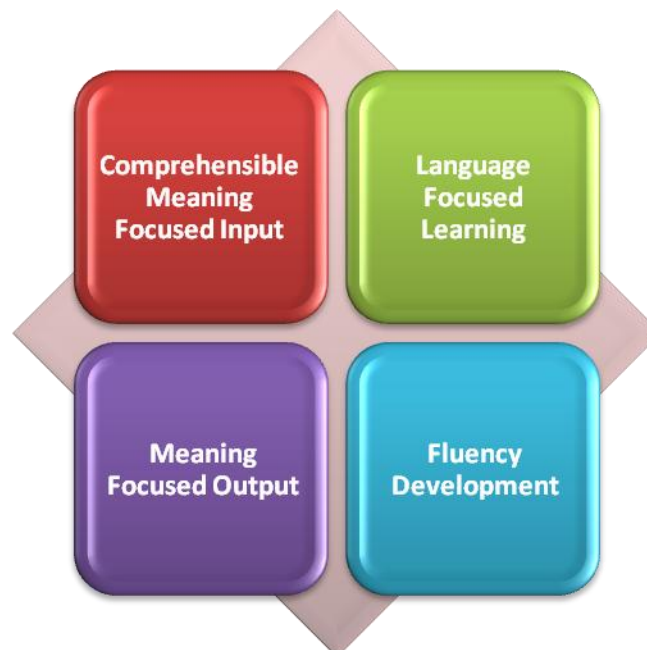
After presenting all the above points of view regarding vocabulary importance in language learning and methods of teaching it, Nation's theory concerning vocabulary acquisition for foreign language learners (Nation, 2001) seems the most applicable to this research.

This section will concentrate on describing Nation's framework through three main areas as follows:



#### a. Overview

As stated by Nation (2001), in order to achieve a balanced language course design, four strands must be considered. These four strands are as follows:



**Comprehensible Meaning Focused Input** is the first strand through which the learner can acquire language items during reading and listening activities where the main focus is on the information presented in what they are reading or listening to. This type of learning cannot exist if there are many unknown words. In other words, the number of known words should be at least 95% of the words presented in the text.

**Language Focused Learning** is the second strand through which the learner can acquire language items through deliberate teaching. In this type of learning, a cumulative learning of vocabulary takes place when directly taught. Since second language learners are not exposed to the language as native speakers, learning vocabulary directly will enhance their acquisition process.

**Meaning Focused Output** is the third strand through which learners become capable of using the language in both speaking and writing activities. Here the main focus is on the information they are trying to express. Indeed, producing the words in the form of speaking and writing are very essential where development of vocabulary takes place. Productive activities reinforce the usage of previously learned vocabulary as well.

The last strand which is **Fluency Development** is very important since it enables learners to use previously learned language items efficiently. This type of learning does not focus on new language; however, it focuses on the already learned language.

This study will focus on Language Focused Learning and Meaning Focused Output for addressing vocabulary as will be further discussed in the methodology section.

Another important aspect in the acquisition of vocabulary is its cumulative nature (Nation, 2001). It has been proven that vocabulary acquisition takes place in cumulative process for a word to be known thoroughly, thus the learner must meet it more than one time in different meetings (Nation, 2001; Zakar, Cobb, & Spada, 2001). Indeed, researchers examining the effect of one exposure to the word show that this leads to a very low acquisition (Knight, 1994). On the other hand, the words being repeated between ten to twelve times leads to better achievement (Coady, 1997). One of the most important factors that must be taken into consideration during vocabulary teaching is the psychological and environmental conditions surrounding the students, such as the class environment, teaching approach, and teaching tools. Consequently, designing vocabulary activities must strongly consider this in order to achieve effective goals in learning.

From the word perspective, learners' knowledge of suffixes and prefixes is strengthened from gaining more experience about the language, and this is also true of Arabic words. As a result, it can be expected that proficiency and level play an important role in this part. Consequently, word families such as nouns, adjectives, adverbs, and verbs are introduced gradually to students according to their language proficiency.

According to Nation (2001), words are classified into five categories as follows:

First, academic words needed for anyone using a certain language for academic purposes. Second, technical words related to a specific topic or subject. Consequently, there is no specific set of vocabulary as it is changed according to the field in which it is used. Third, high frequency words which occur frequently and are decided by the teacher to be important for usage. These words are known from the coverage percentage in the text. Fourth, low frequency words which embrace the technical vocabulary since one's technical vocabulary is another's low frequency vocabulary. Fifth, specialized words categorize high frequency words for certain purposes. Each of technical vocabulary and academic vocabulary can be seen as specialized vocabulary since they are used for special purposes according to the learner's field or interest. As a result, specialized vocabulary is seen as a complement to the vocabulary used in the course because it is narrowed to each one's special interest.

It is therefore important that each kind of vocabulary must be tested in a way different than the other type. From testing learners' vocabulary, teachers will be able to know which parts learners have deficiency in so that more development can take place in the weak area. This will also assist the teacher in designing the curriculum of the course.

#### **b. Knowing a word**

In order to know the main concept behind learning words, the fact that words are never dealt with independently but are integrated in the language system should be stressed enough. Actually, there are many degrees in knowing a word and many things needed to know about the word as well (Nation, 2001).

First there must be a distinction between receptive and productive acquisition of words. In fact, words can be acquired through both receptive and productive skills. Receptive skills are those that embrace both listening and reading while productive ones are those that include writing and speaking. Receptive skills convey the idea that people receive language from others and try to comprehend it. However, productive skills depend on trying to express a certain meaning or message in order to be comprehended by others (Nation, 2001).

Receptive skills engage learners in recognizing the form of words during the process of reading and listening while productive skills involve using these word forms in expressing a certain meaning through

speaking and writing. Consequently, it should be observed that both receptive and productive skills as a continuum are used interchangeably to enhance word usage (Nation, 2001).

Nation (2001) said that in order to know a word, we must concentrate on three main aspects which are form, meaning, and usage.

Consequently, from the receptive point of view, knowing a word involves the following: recognizing the word when it is heard; recognizing the word in its written form; recognizing that the word consists of parts and each part has a certain meaning; knowing that the word conveys a certain meaning; knowing that the word can be used in different contexts, and in each context it can convey a certain meaning; knowing that there are some words related to it as well; recognizing that the word is used correctly in a certain context when it occurs, and knowing that some words have collocations (Nation, 2001).

Moreover, from the productive point of view, knowing a word involves the following: pronouncing it correctly, writing it with a correct spelling, constructing it with the right words properly, being able to use the word for expressing a certain meaning, being able to use the word in different contexts for expressing different ranges of the word meaning, being able to use the words with each collocation, and being able to use the word according to the formality of the situation (Nation, 2001).

Accordingly, using the word depends on the student's level of proficiency in order to master word production effectively. This is why productive knowledge is more difficult than receptive knowledge (Nation, 2001).

Words can also be learned explicitly or implicitly. Implicit learning occurs during form recognition and production while explicit conscious learning occurs during word meaning. For example, in high frequency words, teachers explain words to students explicitly due to their high importance in usage. Explicit teaching embraces teachers explaining word meanings; learners look up new words in the dictionary and think about the meaning with exercises. Implicit learning of the word then occurs during producing the word in a meaning focused usage. Consequently, the best way of explaining the word is explicitly while producing it implicitly will be more effective through repeated exposure to this kind of learning (Nation, 2001).

Nation (2001) highlighted the fact that repetition of the newly learned words is very important for its acquisition. Besides, it leads to implanting the words in the long-term memory in order not to be forgotten easily.



It has been ascertained that the learning burden or the time taken for the word to be acquired by the learner is easier if it consists of known parts. Some of the known word parts are the stems, affixes, and prefixes. Consequently, knowing word parts will lead to dealing more professionally with complex words leading to predictable patterns of how the word is built (Nation, 2001).

From here, it can be said that it is essential to draw the learner's attention to the importance of understanding word parts for facilitating the strategy of learning new words, which is the case in Arabic words. One must also not forget that there is a strong connection between the word form and its meaning. In other words, retrieving either the word's form or meaning more than one time results in strengthening the word usage. Consequently, repeated word retrieval is extremely important in enabling the learner for using the word efficiently (Nation, 2001).

It was suggested also by Nation (2001) that knowing the concept behind word usage is better than running through all its uses in order to reduce the burden of learning too many words. Learning the concept behind the item is considered as repetition for every occurrence of the word, as Nation (2001) demonstrated that the word should be repeated between five to sixteen times in order to be acquired efficiently. It must also be mentioned that a word can be comprehended through two forms either through its lexical meaning (isolated word) or inferential meaning from the context. This occurs because a word has a range of meanings starting from being concrete to being abstract, which can be inferred from the context.

Words can be explained from more than one perspective as follows: (Nation, 2001)



First, associations are essential for distinguishing between parts of speech, such as noun, adverb, and adjective. Actually understanding the relationships among these associations is very important in creating activities for enriching learners' understanding of the word (Nation, 2001).

Second, grammatical functions are essential in knowing the role of each word in a sentence. Without knowing the grammatical functions, an unguaranteed composition of a meaningful sentence is achieved (Nation, 2001).

Third, collocations are needed for knowing which words normally occur with other words, leading to effective usage of words in different sentences (Nation, 2001).

Fourth, words have some constraints in when and where they are used. The misuse of words leads to inappropriateness in usage (Nation, 2001).

### **c. Teaching and explaining vocabulary**

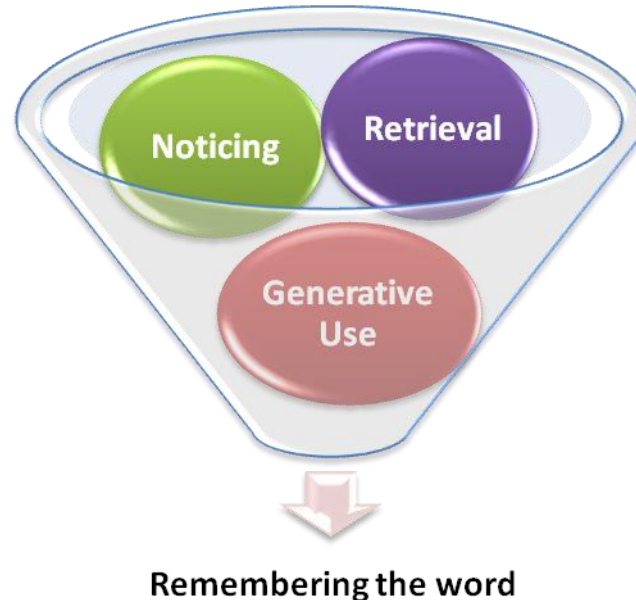
Teachers should keep in mind four aspects while designing vocabulary activities. These factors embrace the following: activity learning goal, psychological condition needed for facilitating the reaching of the goal, learning signs, and activity design feature (Nation, 2001).

Nation (1978) stated that in order to acquire a certain word, the learner should pass through the following steps: knowing the spoken form of the word, linking the word form to the meaning, and using the word in context (as cited in Nation 2001).

As a result, the learner should first know some information about the word in different ranges of contexts. Second, the teacher should repeat the sentences using the newly learned word more than once. Accordingly, it is suggested by Nation 2001 that in order to work out the meaning of a new word, the word must be repeated in different contexts and to be paid attention to. Finally, one of the most important signs that show that the learning process is taking place in its correct path is to see that the learners are paying attention to the word and trying to find the meaning.

Some of the learning goals that can be achieved through vocabulary activities are: spelling, pronunciation, and recognizing the word form and linking it to a meaning. Virtually, there are some activities that concentrate on one goal at a time and there are others that target more than one goal. In order to teach the word effectively, information about the word should be available such as: example of word meanings, and the source of input (reading, listening, context, teacher, dictionary, etc.)

Remembering and understanding the word can be achieved by the following three processes (Nation, 2001):



**Noticing** occurs through giving attention to the item. In other words, the learner needs to notice the new word and be aware that it is a beneficial language item to be used in production skills. Noticing takes place when the learner looks up a word in a dictionary, studies the word deliberately, guesses the word from a context, or has it explained. Actually, motivation plays an important role in this step. Noticing also includes de-contextualization which means that the word is taken from the context and perceived as a language item. In fact, there are two kinds of de-contextualization: negotiation and definition. Negotiation here means that learners get to discuss the meaning of the words leading to more knowledge about it. Definition means that the word is noticed from knowing a short explained definition about it. (Nation, 2001)

**Retrieval** is the second major step which leads to the word being remembered effectively. In other words, without retrieving the word more than one time after getting to notice it, the memory of that word will not be strengthened. (Nation, 2001)

**Creative or generative use** is the last step in remembering the word. Actually, for the word to be used effectively, it must be used in more than one form and in different contexts.

There are certain signs that can be traced in order to know if the learning goal is achieved or not such as: learner's involvement in the activity and his/her completion of the task.

Finally, we must highlight the fact that repetition benefits learning significantly since there is much to be known about the word, and that cannot be achieved in only one meeting. Consequently, because vocabulary items must be known well in order to be fully accessed, then repetition is suggested to be a very good means in achieving such a goal.

The reason for not dealing with the word in only one meeting is because of the numerous things that should be known about the word. For example, regarding the word form, students should know a word's written form, spoken form, and component (affixes and stem). From the perspective of word meaning, students should know the underlying concept of the word, a word's particular meaning, and its associations. Moreover, concerning word usage, students should know word collocations, grammatical patterns, and constraints on usage. (Nation, 2001)

From all of the above, it is obvious that the learner will not be capable of learning all the aspects of the word at a time. Yet, repetitive meetings should occur in order to acquire the word from different perspectives and in a more efficient way. Accordingly, the word is being learned accumulatively step by step.

The teacher's role regarding vocabulary teaching is crucial. In fact, teachers apply different procedures in order to assure that the word is learned properly by the student from the various perspectives of the word. Repetition is the main frame of ensuring that the word is implanted in the long term memory and produced creatively through speaking and writing.

As the methodology for vocabulary learning is chosen through the previously introduced framework, the other point that needs investigation now is what means to use for delivering vocabulary effectively.

Traditionally speaking, computer technology is referred to as the medium used to send a certain learning material to the learner. Clark (1994) suggested that a method can be implemented by more than one way such as: computer technology (as cited in Ma and Kelly, 2006). As a result, the means has an essential effect on the efficiency of language learning while the methods depend on the researchers' preferences and views.

As a matter of fact, there is a great difference between technology driven and pedagogically driven software applications (Colpaert, 2003; Levy, 1997, as cited in Ma and Kelly, 2006). Therefore it is essential to view educational software applications from two perspectives as follows: First, methodology; second, media. Accordingly, technology alone cannot determine the design of the

application, yet the choice of the methodology used behind this design is the complementary part (Ma and Kelly, 2006).

First, a brief introduction regarding the software applications that are provided in the area of vocabulary learning will be given. As indicated by Ma and Kelly in their study done in 2006, there exist many programs which lack in the pedagogical basis. In other words, no solid research has preceded them leading to being vulnerable during the process of language learning and meeting learners' needs. Actually the lack of research basis regarding these projects from the perspective of vocabulary learning leads to disappointing results (Ma and Kelly, 2006). It was proven also that the learning rate of vocabulary in a multimedia environment resulted in better outcomes than using paper materials (Ma and Kelly, 2006). Moreover, the most conspicuous problem regarding these commercial software applications is with the information presented regarding a certain word. There is a good example based on research methodology represented by Groot (2000) during the designing of a program called "CAVACO" that goes through the three stages of word acquisition which are: "Noticing," "Storage," and "Consolidation".

Kukusla-Hulme's model regarding the flow of vocabulary acquisition stated that for the word to be acquired properly, it must go through eight steps as follows: introducing vocabulary item in context, isolating the vocabulary item, finding its meaning, recording it, producing it through writing, retrieval, usage, and finally introducing it in a new context (as cited in Ma and Kelly, 2006).

Actually the above stated journey agrees to a great extent with what Nation (2001) indicated regarding word acquisition. Consequently, it is demonstrated that the quality of a software program is determined according to the methodology used in it and not the technology itself. Methodology here refers to the approach behind designing the software that is used for the process of learning (Ma and Kelly, 2006). Accordingly, the selection of a certain methodology to use in the software implementation serves as a guide for using the appropriate technology.

Now that we chose the means (technology) for delivering the methodology framework (Nation 2001), the question of which environment to use arises.

The environment adhered to in this study is the Blended Learning Environment. Blended learning, as defined by Akkoyunlu and Soylu (2006), is a learning environment that combines both technology and face-to-face learning together. In other words, blended learning refers to the use of versatile methods of delivery to meet course objectives in an effective way by integrating web-based materials in traditional face-to-face classrooms. Furthermore, blended learning was described later as a merge of a number of

activities together embracing face-to-face classrooms, web-based learning, and self paced autonomous learning (Yang, S. C., & Chen, Y., 2007; Barker, 2004). Consequently, advantages of both web-based learning and face-to-face learning must be highlighted. First, what does web-based instruction mean, and what are its advantages?

Khan (2000) in his study defines web-based learning as the usage of the internet to access learning materials, to interact with content, instructors and other learners. Consequently, it guides students through the learning process. Indeed, that leads to acquiring more knowledge and growth from the learning experience which students acquire from the internet.

Web-based learning has many benefits to deliver to students. One of its most prominent benefits is being practical and common as the learning content becomes available for a longer period of time compared to the classroom environment. It also ensures the continuation of the education process throughout the day. Web-based learning provides learners with an environment where they can study in spite of place and time restrictions, taking into consideration their pace of learning. As a matter of fact, there are many factors that must be taken into consideration in any learning environment. For instance, most of the students have different characteristics and preferred learning styles. As a result, a learning environment that takes into consideration students' needs is supposed to be exponentially successful, agreeing with Hicks, Reid, and George (2001), that there are demands for providing technology-based activities in the curriculum for facilitating an enduring learning. The need for this blend stems from the ability of web-based learners to be connected to the learning environment anytime and anywhere, without being restricted to a certain time, place, or situation.

Defining the theoretical framework of web-based instructions is extremely important in order to understand its pedagogical features in a logical way. Indeed the need to better understand the meaning of WBI is extremely high in order to accommodate its new teaching style. The overall researches on WBI have indicated that it is a student centered learning environment, full of multimedia resources, adaptable to different student characteristics, offering the service of instant feedback, enhancing autonomous learning, acting as a virtual teacher, and being time effective (Khan, 2000). So, what are the benefits behind integrating face-to-face learning and web-based instructions together?

Web-based learning environments alone pose certain disadvantages as they affect the communication and socialization process of individuals. Indeed that leads to weakening the attractiveness of web-based learning environments. One of the biggest disadvantages of web-based learning is that both instructors and learners do not recognize each other, leading to limited communication among them. These

disadvantages lead to searching for a new environment that combines both the advantages of web-based learning and traditional learning environments together. The newly emerged environment has been known as hybrid learning, mixed learning, or blended learning.

Blended learning has integrated both the strengths of face-to-face learning with the strengths of the web-based environment in order to assure a well established learning environment for students (Barker, 2004). On one hand, web-based learning provides the efficiency and flexibility of learning which face-to-face learning cannot assure in a traditional classroom environment. On the other hand, face-to-face learning assures the interactive and social environment which any person cannot abandon. Indeed McCampell (2001) emphasized that blended learning is undoubtedly an appropriate approach for integrating web-based applications into an existent course (as cited Akkoyunlu and Soylu, 2006). He also highlighted the fact that some parts of the course content should be available as web-based material and the rest could still exist in the course (classroom). This leads to a closer look at what should be explained in classes and what could be given to students in a web-based application in order to enhance learning alone without the need for their teachers. Stressing on that point, it is highly important to set up the equilibrium between both face-to-face education and web-based environments, taking into consideration the advantages of both methods.

When the significance of interactive communication is taken care of in an effective learning style, students will be exposed to more productive learning experiences. As a matter of fact, Campbell, Logan, and Frost in their study done in 2005, stated that both deep learning and desired student outcome emerged by providing students with a blended learning environment.

Campbell et. al (2005) and Sethy (2008) stated that the goals of a blended educational interference concentrate on keeping students in a profound learning process throughout the semester, broadening their cooperation in a mixed-mode environment and enhancing their learning style.

Ogusthorpe and Graham (2003) highlighted the fact that the important concern is to make certain that the blend between the two types of learning (face-to-face and web-based learning) encompasses the power of each type. It was found that students in blended learning have control over their learning and do not have to wait for their teachers to tell them what to do. However, it gives them the ability to practice alone for some time and think by themselves. Moreover, it was recommended for teachers to concentrate on broader goals and to cope with different students' characteristics thus spending more time responding to students' production (Burgon & Williams, 2003). The foremost purpose from using

blended learning is to create a harmony between students and learning material in order to prolong teaching in a more useful and motivating way instead of the classical and intensive teaching style (Campbell et. al, 2005).

As mentioned by Garrison and Kanuka in 2004, the main purpose of blended learning is that it provides both meaningful and profound learning. In fact, leaders of higher education are challenged to place their organizations in a position capable of meeting the competing demands of students for producing a highly qualified learning experiences and productive outcomes.

Christensen (2003) hypothesized that blended learning is an effective learning strategy which prepares universities for the technological developments that will be approaching in the next few years. Of course, this results in the need to raise higher education's expectations to meet the modern level of academic talent. Nonetheless, both internet information and classroom communication tools facilitate the flexibility of time and place. Consequently, the reality of unbounded educational discourse is achieved.

All of the aforementioned does not represent the termination of the traditional classroom environment but will lead educators to reconsider how superlative it is to employ both face-to-face and web-based learning for the sake of language learning. Consequently, according to all the above points of view, it can be suggested that blended learning is the successful amalgamation of both face-to-face (text based learning) and web-based learning. The most important issue here is that when there is a solid and deep understanding of the internet features and how to efficiently integrate internet technology with the most attractive and valued uniqueness of face-to-face learning experiences, a great shift occurs in both the quality and nature of the education (Meyer, 2003).

With the combination of both web-based learning and verbal learning, blended learning offers significant advantages in providing advanced levels of learning through creative and reflective thinking. Moreover, the blended learning environment provides autonomy and increased control needed for developing critical thinking. As a matter of fact, the potential of the internet and technology to support productive educational experiences has been observed as being flexible, reflective, and interpersonal as well as developing team work skills and increasing motivation. Furthermore, mutual learning environments result in profound understandings of students' needs (Rovai, 2002).



The main target of blending both web-based learning and knowledge together is to build a meaningful and dynamic educational experience where the chief focus is on building knowledge. The main idea behind blended learning is reframing and reorganizing the learning and teaching relationship. One of the chief goals is to seriously think about the best way for delivering contents to students in a more innovative and well organized manner.

In light of that, blended learning is meant to be facilitating the learning process especially in the higher educational institutions in order to be learning centered (Oliver, 2004). Tracking the progress which blended learning produces is very important for its usage with respect to student satisfaction, learning outcomes, and achievement, as well as measuring the degree of progress occurring. As stated also by Jung (2001), measuring both the learning outcomes and the learning process are essential for researchers to start exploring the impact of blended learning in the classroom in achieving more meaningful and advanced learning experiences.

It can be observed that high achievements in web-based learning environments are strongly linked to students' perceptions regarding why it is used, and that is why it is highly recommended to know students' attitudes toward web-based learning. In fact, this can lead to the exploration of the following: Arabic Foreign Language Learners attitudes toward the web-based instructions and students' suggestions on how to incorporate WBI in language learning.

### ***B- Students' attitudes toward Web Based Instructions (WBI)***

A study was conducted for investigating the above mentioned points. In fact, twenty participants were used, and they were chosen from two classes in the American University in Cairo studying Arabic in a non intensive program. A survey was administered in order to explore students' attitudes toward web-based learning. This survey was used to focus on students' level of enjoyment and level of comfort in using the web in language learning and to what extent they think the internet is useful. Moreover, open-ended questions were used in order to seek more information on students' responses for complementing information covered by the survey. The following set of questions is expected to suggest different means for using the web inside and outside the classroom. Answers will represent suggestions to be taken into consideration for tailoring the web in order to meet their pedagogical needs. As a matter of fact, from the below mentioned set of questions, any gaps can be discovered and solutions presented for students to best support their learning. The questions were "Do you enjoy using the web in learning Arabic? If yes, what did you enjoy about it? If not, why didn't you enjoy it?"; "Which skills do

you think will benefit you more if practiced over the internet?"; "Do you think the internet can help you in improving your vocabulary and grammar? If yes, how will that happen?"; "What are the suggestions you can give that makes you use the internet in advancing your Arabic skills?"; "Do you like enhancing any of the four skills using the internet in class or outside the class?"; "Do you like to have feedback from your teacher better or from the computer"; and "What are the pros and cons of using the web-based language learning in your own point of view".

The results showed that using the web-based instructions can be very suitable in creating independent and mutual learning environments. Students were having positive attitudes toward the power of the internet in learning and believe that it can both enhance and enrich their language learning. Students were also interested in learning vocabulary and grammar through the web and they need both teacher and computer for feedback and interaction. Furthermore, students claimed that they did not find the appropriate resources that assist them in learning the Arabic language through the internet.

Here are some quotes taken from students' suggestions:

- "Making resources such as alkitab available online and using the power of computers (embedded multimedia, instant feedback, mouse over translations, etc.)"
- "I would like to communicate with language partner to practice my Arabic."
- "Making it more interactive".
- "More programs that assist in oral pronunciation and grammar. Also to categorize vocabulary. Example: Items in the bedroom, kitchen, grocery, bathroom, office, fruits, vegetables, and many nouns."
- "How words are pronounced correctly."
- "If the internet helps place us in ordinary settings such as in a cab or store, then it will probably help us more."

Based on all the above, the theoretical framework underlying this study is formulated based on Nation's (2001) theory through explicit word knowledge learning. A computer aided vocabulary learning software called ArabCAVL based on the former framework is designed for assisting AFL learners to acquire vocabulary in a blended learning environment.

## ***C- Current research questions***

The research questions which will be addressed in this study are:

- Will the chosen Nation (2001) framework enhance AFL learners' recognition and usage of vocabulary?
- Will ArabCAVL software using the chosen framework enhance AFL learners' recognition and usage of vocabulary in a blended learning environment?
- What is students' attitude toward using the software?

The independent variables are Nation's framework and ArabCAVL software while the dependent variables are vocabulary usage and recognition.

## ***D- Definition of terms***

Below is a list of all the terms used in this study with their definitions:

**Audio-Lingual Method:** It is an approach where vocabulary knowledge is addressed according to its simplicity and familiarity. (Zimmerman, 1997)

**Blended Learning:** It is a learning environment that combines both technology and face-to-face learning together. (Akkoyunlu and Soylu, 2006)

**Computer Aided Vocabulary Learning:** It is a learning environment that uses computer and software applications as a supplement for vocabulary learning.

**Communicative Approach:** Noam Chomsky in 1957 stated that it is an approach concentrating mainly on promoting language fluency over accuracy (as cited in Zimmerman, 1997).

**De-contextualization:** It means that a word is taken from the context and perceived as a language item. (Nation, 2001)

**Direct Approach:** It is an approach that teaches basic vocabulary in classes through pictures and lists. (Zimmerman, 1997)

**Explicit Learning:** It means that learning occurs consciously and deliberately by the learner. (Nation, 2001)

**Face-To-Face Learning:** It is the traditional learning environment which takes place in class between the teacher and students.

**Grammar Translation Method:** It is an approach where vocabulary is being addressed explicitly through a list of words. (Zimmerman, 1997)

**Implicit Learning:** It means that learning occurs incidentally through context by the learner. (Nation, 2001)

**Natural Approach:** It is an approach where vocabulary is perceived as an essential aspect that needs to be learned effectively. (Zimmerman, 1997)

**Reading Method/ Situational Language Teaching Method:** It is an approach designed to enhance reading skills through vocabulary. (Zimmerman, 1997)

**Web-based Instruction:** It is the usage of the internet to access learning materials, to interact with content, instructors and other learners. (Khan, 2000)

### ***E- Abbreviations used in the Study***

Below is a list of all the abbreviations used in this study:

<b>AFL</b>	Arabic Foreign Language Learners
<b>SLVA</b>	Second Language Vocabulary Acquisition
<b>WBI</b>	Web Based Instructions
<b>CALL</b>	Computer Aided Language Learning
<b>CAVL</b>	Computer Aided Vocabulary Learning

### Literature Review

#### *A- The Goals of this Review*

After presenting an introduction regarding the importance of teaching vocabulary in the field of second language learning, and the essential need for choosing a powerful means in a successful environment capable of delivering vocabulary efficiently, the researcher will present through this literature review a number of studies done on the following three areas: vocabulary learning strategies, computer aided vocabulary learning, and blended learning environment. In fact, the main aim from listing these studies is to establish a rigid ground to emphasize the connection between the previously mentioned three areas and explain how their cohesion results in an outstanding outcome in vocabulary acquisition. Aside from that, creating a deep knowledge regarding these strands will assist teachers in establishing different curriculums targeting students' needs, satisfactions, and different learning styles.

This review covers twenty three studies from 2001 to 2009. The first eight studies are concentrating on researchers' findings in delivering vocabulary that use different strategies. The second eight studies are shedding light on different computer aided vocabulary learning applications and their effect on teaching vocabulary to second language learners. Aside from that, a detailed description regarding each software application is explained in order to know how its features deliver vocabulary successfully to students. Finally, the last seven studies are concentrating on the blended learning environment and its efficiency in addressing students' different needs and learning styles.

**Keywords:** vocabulary; learning, acquisition; computer aided vocabulary learning; computer aided language learning; blended learning; mixed learning; hybrid learning; face to face learning

## ***B- Vocabulary Learning Strategies***

**(Pigada and Schmitt, 2006)**

The main Purpose of this study was to investigate if extensive reading programs have the ability to develop vocabulary knowledge efficiently or not. Researchers were concerned in answering the following questions: Whether or not extensive reading guides to an increased acquisition of vocabulary from the perspectives of meaning, spelling, and grammatical usage of words; whether or not the previous three parts which are spelling, meaning, and grammatical usage of words are equally affected by extensive reading program; and whether or not high frequently words that exist in the texts are more affected by the three previously mentioned aspects of word knowledge. The researchers hypothesized that reading will affect the three sides of word knowledge, yet they speculated that spelling would be the most affected side and that advocates the respective points of view of each of Schmitt (1998) and Waring and Takaki (2003) (as cited in Pigada and Schmitt, 2006). Aside from that, they expected that high frequency words will be acquired more than low frequency words. This research was a case study consisting of only one participant who was 27 years old and learning French. His second language was English which he used to speak fluently. He had a diploma in the French language indicating that he was in the intermediate level. This diploma embraced four stand alone units. In addition, the participant took long breaks between completing these units; sometimes the break lasted for a year. He took his last exam a year before the study as he didn't practice the language after that. Consequently, it was mentioned by the researchers that his level was below the intermediate. The participant was living in England during the study which lasted for a month as he was a postgraduate student studying in a non-linguistic field. Moreover, the learner chose four readers according to his preference. The first level of these readers was appropriate to him from the perspective of recognizing both known and unknown words. In other words, the proportion between the numbers of known to unknown words was equal. The instrument used for collecting data from this learner was a one-to-one interview. Researchers kept on asking the sample until satisfaction occurred regarding his knowledge of words. The researchers also mentioned that the participant knew some of the target words. Consequently, they gave him a pre-test and post-test. Moreover, the pre-test and post-test were identical, but the participant never knew that before. Actually the participant knew that he was tested in reading but didn't know the research questions. The tests were divided into two sections that were taken in two different days. On the first day, he was tested on the spelling of target words, while on the second day he was tested on grammatical function of words and their meanings. The first section of the test lasted for ninety minutes

and the second section lasted for two and a half hours. In the spelling test, the researchers read for him the target words aloud so that he could write them down. After that, the participant was asked to write five words that are familiar to him, and then write a sentence on each word, taking into consideration that he didn't know that this task is irrelevant to the study. The researchers' main goal from this task was to distract him from using the target words. Also, this task was used in order to remove the target words from his immediate memory. In fact, the researchers indicated that they did this in order to force the participant not to give attention to these words in order not to look for them in the dictionary after the session. Indeed, the researchers claimed that if that happened, the study could be flawed. As a matter of fact, the researchers claimed that they used these distractions as an effective means in order not to give the participant direct attention to the target words outside the reading. Both the word grammar functioning test and meaning test were conducted concurrently. On that day, the words were ordered differently than the previous day's test. The researchers intended not to inform the participant that both tests embraced the same words. Yet, he remembered some of these words. In this test, he was given a list of verbs in order and was asked to infer their meaning regardless of their difficulty. Consequently, the researchers indicated different degrees of knowledge concerning these words from being completely known to completely unknown. The participant was then asked to produce sentences with these words in order to test his knowledge regarding their grammatical behavior. He was also asked to highlight any of the prepositions used with these words. After the verb list, he was given a noun list and was asked to follow the same procedure that was done with the verbs, but here he was asked to concentrate on the articles such as "le" and "la". The participant was then given a distracting task by reading three short reading texts and was then asked to answer six multiple choice questions based on his comprehension regarding these tests. The researchers intended to select these texts deliberately by excluding the target words. Moreover, the participant was asked to start reading the first graded reader after four days in order to allow a gap between the pre-test and the reading. Finally, after finishing the last reader by one day, the participant was given the post-test. The post-test followed the same procedures as the pre-test. The results showed that extensive reading leads to significant vocabulary knowledge, yet this is not applicable to all types of knowledge related to the word. As a matter of fact, this finding advocates what Nation (2001), Hulstijn, Hollander and Greidanus (1996) said concerning this issue (as cited in Pigada and Schmitt, 2006). Consequently, when teachers want to decide which type of learning to use, they must indicate first which knowledge s/he wants to introduce to the learner. Moreover, Zimmerman (1997) indicated that the word knowledge has a range of skills, so each skill needs a certain approach for facilitating its delivery to the learner (as cited in Pigada and Schmitt, 2006).

**(Rott, 2005)**

The main purpose of this study was to focus on the characteristics of second language readers in learning unknown words while reading texts using either single-translation glosses or multiple-choice glosses. The research questions were concerned with: the qualitative characteristics of the strategies used in word processing of second language readers who use multiple-choice glosses compared to single- translation glosses, the qualitative characteristics of the strategies used in word processing of second language readers who use multiple-choice glosses compared to single-translation glosses during encountering a list of unknown words, times of using either of the two types of glosses in interacting with target words, and the effect of using either types of glosses on words' entry strength in the mental lexicon. The researcher posed the following questions: Do the types of glosses affect the retention of words after four weeks? Does using either type of glosses affect text comprehension, and do learners who are using either type of glosses understand both chief and supporting ideas equally? Participants were ten native speakers of English who were learning German as a foreign language. They were enrolled in an intensive course in the summer semester in a public university in the United States. All students were learning the new language in both their first and second semesters. The instructor of these learners notified the researcher that all volunteers were motivated but not all of them were within the same level. According to their results in their last exam, their grades ranged from A to C. A think aloud procedure done by Ericsson and Simon in 1993 (as cited in Rott, 2005) was used in order to elicit readers' behavior in processing. Actually, participants were asked to verbalize everything they were thinking about during reading the passages. The whole session was recorded on tapes. The study was conducted in three phases. First, volunteers signed the participation agreement on the third week of the semester. In addition, they completed a pre-test using a vocabulary checklist test to assure that these words weren't known by them. In fact, the students received a vocabulary list embracing 16 words and four target words. Researcher asked each student to explain the meaning of each word according to their knowledge and to discard the word which they didn't know at all. It was also mentioned that the target words were claimed to be unknown to the participants. Second, the participants were engaged in the treatment after a week from the first phase. The learners first received the treatment passage without using the glosses and were asked to read it silently. Indeed, the focus was on the content of the text and not the words. Next, the researcher explained to them the meaning of thinking aloud during solving a mathematical task. This explanation was followed by a short practice passage for the participants. After that, learners received the treatment passage but this time by using the glosses. In this step, they were asked to think aloud, and to ensure that they read the text for comprehension, they



were asked to talk about the text aloud. Indeed, students didn't know that they would receive two vocabulary tests immediately after discussing the text aloud. Third, after the treatment took place for four weeks, the same vocabulary tests were administered without the students' knowledge. The results showed six conclusions. First, a task using word intervention leads to dealing with strategies that can affect the process of encountering the words more than one time. Second, during the readers' search for a certain meaning of a word, their search concentrated on using background information, context and the valuation of the word's semantic fit in the text. Their way of searching for the meaning is suggested to be retaining more aspects about the words. Moreover, it is induced that this process is encouraged by a certain task using lexical interference. Third, both the processes of search and evaluation appear to activate the rehearsal of strong word training in the mental lexicon. Fourth, both the evaluation and search processes appear to activate the usage of multiple strategies in processing unfamiliar words. That results in strengthening the mental lexicon of the learner. Fifth, the tasks of lexical interference may guide the readers by supporting them with ideas for their assistance in text comprehension. Sixth, recursive reading leads to better comprehension compared to linear text processing.

**(Laufer and Hulstijn, 2001)**

The main purpose of this study was to focus on investigating the effect of additional word involvement in different tasks toward word retention in an incidental learning environment. The researchers were interested in answering the following questions: Can the instructional tasks be classified according to their effectiveness in learning vocabulary? What is the effect of task induced involvement on vocabulary learning? In addition, they hypothesized that the retention of unfamiliar words depends on: the degree of involvement regarding processing these words, the one who designed the task, if the new word has to be searched, and if it should be compared to or combined with other words. This retention is hypothesized to be strengthening the involvement load of the word. The participants in this study consisted of six groups from the Netherlands and Israel. All participants were learning English as a foreign language in their universities. The researchers took three groups from each country and assigned a task to a randomly chosen group. The three chosen groups from the Netherlands were having their first year major in English. Also, the three chosen groups from Israel were studying advanced English for using vocabulary in academic purposes. The total number of participants from the Netherlands was 97 while 218 were from Israel. The researchers assessed other students from both countries regarding their knowledge of the target words before conducting the experiment on the participants. These students were having their major in English language in a highly proficient university. The researchers gave them

10 words in a list and asked them to explain or translate them. The results showed that the average mean of their knowledge was less than 1 out of 10. In addition, the proficiency level of the participants was lower than or nearly equal to the students who took the test. Consequently, it is assumed that the participants will be unfamiliar with the target words as well. Researchers then started conducting the experiment on the participants during class time highlighting the fact that they didn't know that they were in an experiment. All tasks weren't presented as vocabulary tasks and each task had a different completion time, such as: 40-45, 50-55, or 70-80 minutes. Task 2 took more time than Task 1 since it included fill-in-the-blank questions. Moreover, task 3 took the most time because it included writing composition. The aim of the study was to assess the effect of tasks on word retention. Researchers collected the papers after the participants finished their tasks. Then, they were given a list of the target words immediately after finishing the tasks unexpectedly. Participants in this task should write either the English translation or the meaning of these words. Furthermore, they were asked to indicate if they knew these words before or not. This check was used in order to know if they have a pre-knowledge regarding these ten target words or not. Students' tests were collected after that without knowing what they did. After a week in the Netherlands and two weeks in Israel, students were given the test again. Researchers then started grading the tests. They found that words that weren't translated or wrongly translated received a zero score, while a half point was given to words that were nearly correct semantically. It is important to mention also that if the word was translated totally correct, but s/he indicated that they knew it before, it is scored zero as well. Researchers also mentioned that this situation happened rarely and most target words were unfamiliar to the participants. The results showed that the writing group outperformed the two other groups who used reading and reading with fill-in-the-blank. Finally, the overall results advocate the hypothesis that the more involvement in word usage, the higher word retention. Indeed, the superiority of the composition task was very significant as it was proved by Swain's Output Hypothesis (Swain 1985, 1995, as cited in Laufer and Hulstijn, 2001) stating that the composition tasks lead to enhancing the linguistic resources more. It was also found that the more involvement of the word in the task, the higher it is retrieved. This also advocates Nation's (2001) point of view regarding the three steps of word acquisition. The three steps which Nation (2001) listed were: Notice-Retrieval-Generative Usage. It is worth mentioning also that Laufer and Hulstijn (2001) compared various studies that used the effect of task on learning vocabulary. Effective tasks have a higher involvement than low involvement tasks. Moreover, it was found that words are implanted in the long term memory when learners are more exposed to it. Consequently, the relation between having the word in the long term memory and the number of exposures to the word is directly proportional.

**(Fan, 2003)**

The main purpose of this study was concerned with three main points as follows: exploring students' vocabulary size and whether they need assistance in academic vocabulary or not, finding out the best efficient vocabulary strategies in general and those strategies that are efficient for each of high and low frequency vocabularies, and finally tracing the difference of the word frequency usage. In addition, the study was concerned with the usefulness of perceiving vocabulary, and the actual benefits of strategies in learning vocabulary. The research questions stressed on: knowing the most efficient strategies used by learners and which one of these strategies they find most useful, if there is a difference between the frequency and usefulness of the strategy used, which strategies are most used by students who have high proficiency in L2 vocabulary, and finally the strategies that are more appropriate for learning low frequency and high frequency words. The number of participants in this study was 1067 students in their first year coming from different disciplines. 40% of the students were male and 60% were female. All students took the Hong Kong admission test in order to be enrolled in the higher education. Their grades in English language ranged from grade "A" to "E", but most of them were in the range between "C", "D", and "E". Actually "D" was the most common grade among students. Two instruments were used in this study. The first one was a vocabulary test and the other was a vocabulary learning strategies questionnaire. The purpose of the first instrument was used for identifying the vocabulary knowledge of students in order to know to what extent they were professional in L2. The purpose of the second instrument was for knowing which strategy students used the most and perceived as the mainly useful one in learning vocabulary in L2. The vocabulary test embraced matching the word with its definition. Students were asked to match 6 words to three definitions. The questionnaire embraced the following points: general background about the participant, learning strategies, time spent on each strategy, and the reason behind the benefits of learning vocabulary. Students received an envelope enclosing both the test and the questionnaire. They were asked neither to have the assistance of any person nor to use the dictionary for looking up the words. Students should then send the test and the questionnaire answered to the researcher after three days. It was shown from the results that the most frequently used strategy was reading as students needed to recall the words they have just learned for understanding the context. Also, using the dictionary showed a significant usage as learners need to look up the word in order to understand the context. The other strategies that showed preferences from students were: revising new words; paying attention to words' different meanings in contexts; reading stories, magazines, and newspapers; using the dictionary for knowing the word's grammatical function; and

analyzing the word by dividing it into sound segments. Indeed, students showed high importance in strategy usage especially that which assists them in retrieving the word. Aside from that, they didn't show any preference toward the keyword strategy as they perceived it as being un-useful. The researcher also found that learners used strategies such as guessing and knowing the words more than grouping, association, and management. Moreover, high level proficiency students used memorization strategies while low level students used associations and repetition strategies more. Dictionary and guessing strategies were used more in high and low frequency words while repetition and association strategies were the least used.

**(Mizumoto and Takeuchi, 2009)**

The aim of this study was to inspect the effectiveness of explicit vocabulary language learning. There were four research questions as follows: Is there any dissimilarity between the control group and experimental group after ten weeks from using vocabulary learning strategy instruction? If there is any dissimilarity, which strategy caused the differences? Do any differences exist in the experimental group which its samples knew in advance a number of vocabulary learning strategies? If that really happened, what are the reasons behind these differences? A group of 146 females learning English as a foreign language from two Japanese universities were used as participants in this study. Their ages ranged from 18 to 22. A vocabulary test and a questionnaire concerning vocabulary learning strategies and motivation were given to students. The researchers used the explicit instructions with the experimental group in their ordinary language lessons, while the control group didn't receive any vocabulary learning strategy. The same test and questionnaire were given to students at the end of the semester to trace the change in their test scores. The results showed that explicit vocabulary language instructions were very effective in vocabulary acquisition. In addition, it was shown that explicit vocabulary learning led to the following: improved vocabulary test scores, increased strategy usage among students with both low and moderate levels, a small change among learners with high levels of usage, and more motivation among learners. These results advocate past findings concerning strategy instruction that explicit vocabulary learning leads to higher usage of strategy, higher self-efficacy, more motivation, wider strategy knowledge, and more positive attitudes (Chamot *et al.*, 1996; Nunan, 1997, as cited in Mizumoto and Takeuchi, 2009). This study proved that using strategy instructions are more beneficial to less effective learners (Wenden, 1986, as cited in Mizumoto and Takeuchi, 2009). The researchers suggested in this study that the instruction of vocabulary learning strategies should be further employed and expanded in normal classroom settings.

**(Barcoft, 2009)**

The aim of this study was to discover strategies used during deliberate vocabulary learning. Its main target was to assess the relationship between the usage of strategy and the performance occurring during vocabulary learning. The investigated research questions were: What are the strategies which learners use in word-picture deliberate vocabulary learning? Among the strategies used, is there a strategy that yielded in more vocabulary learning than the other? What is the relationship between the number of strategies used by the learner and vocabulary acquisition? Number of students participated in this study was 120. They were English speakers studying Spanish in the United States. Students were being taught in the first and second semester with communicative and task-based approaches. Their learning process included information related to the real world. Number of participants in the first semester was 93 and 69 only in the second semester. Pre-test and post-test were administered to students. Data was collected during students' regular class time in ordinary class hours. Students were first administered a pre-test with 24 experimental Spanish words. Students were asked to write the translation of the words they know or think they might know in English. Moreover, students were asked to learn new words presented to them in class thoroughly. The researcher told them that they would be tested on these new words after the learning phase ends. New words were presented to students with images for six seconds in the class for two times in the same order. Two post-tests were administered to students. First, a picture was shown for recalling L2 and a productive test to write the target words when they view the pictures that resemble them. Second, a receptive test was administered for asking students to write the English translation of the Spanish words, taking into consideration that these words were presented without pictures. These two types of recalls were used mainly in this order to measure the vocabulary learning performance without comparing the difference between these two recalls. The first recall was used in order to examine participants' knowledge regarding the form of a target word. The second recall was used in order to assess students' ability to identify these words and connect them to their L2 corresponding word. The activity of completing the picture for recalling L2 might help participants to enhance their performance in L2–L1 retrieval. After the post-tests, the participants wrote answers to questions about their strategy use during the learning phase. Students were asked to write the strategies which they used in their learning phase. In fact, they were asked also about which strategy they used most. The results showed that strategies such as word picture association outperformed strategies such as L2-L1 translation or repetition. It was also shown from the

students' question regarding their strategy usage that the more students used strategies in learning vocabulary, the more chances words were recalled efficiently.

**(Scafaru, Tofan, & Coanda, 2006)**

The main aim of this study was to identify the types of strategies used by English learners and to examine how often these words were used. The researchers wanted to discover if strategy usage differ in acquiring vocabulary with respect to both good and bad learners. The research question was concentrating on how learners handle the difficulty of acquiring new words. The participants of this study came from different fields, but they used to study English for 7 years, 5 years, or 3 years, but the total number of participants wasn't declared. The groups were divided into professional and underachieved learners of English. Students were assigned to the two groups according to their records in English language. Instruments used for collecting the data were: think-about task, direct observation, and interview. First, the think-about task wanted the participant to undertake a certain task and verbalize his/her performance. The think-about sessions were tape recorded and observed by an observer. Second, the observation was used as a complement to the think-about task. Observation covered two categories of strategies which couldn't be achieved by the think about-task. These two categories were as follows: strategies such as writing a word several times till remembering it thoroughly and strategies that required a conscious level such as looking up a word in a monolingual or bilingual dictionary. Third, the participants were interviewed regarding the strategies used in learning their vocabulary using a questionnaire. The first part of the questionnaire was focusing mainly on how they reached the meaning of target words and what did they use to reach it. The second part was concerned with the usage of dictionaries and their type. Moreover, they were asked about the information they were interested in regarding the word. The third part was concentrating on taking notes and strategies used. The fourth part was concerned with memorization and practice. Results showed that professional students relied more on a variety of strategies in acquiring new vocabulary, while poor students didn't follow the same style of learning.

**(Atay and Ozbulgan, 2007)**

The aim of this study was to examine the effect of memory strategy and learning from context on acquiring vocabulary. It was concerned with the following research questions: Is there a difference between students who use memory strategies along with learning from context, and those who learn vocabulary from context only? Is there a difference regarding the memory strategy usage in the experimental group after having instructions regarding its usage? Participants were 50 male pilots enrolled in a Turkish army course of learning languages. Their ages ranged from 23 to 35 years old. All of them took English language in their tertiary and secondary education. Data was collected through a multiple-choice vocabulary test prepared by the researchers consisting of 50 items. The vocabulary test aimed to assess: the vocabulary knowledge level concerning the 24 items, comprehension skills (6 items), and application skills (20 items). The target words were selected randomly from the target vocabulary of Air Traffic terminology words. Both pre-test and post-test were administered to students. Both groups used the same course book. The course book focused on different topics related to aviation and aviation communication. The lesson proceeded as follows: First, students were asked to listen to a dialogue between the pilot and the controller, and then guess the meaning of the target words from context. If students couldn't guess the meaning of the target words, the teacher explains the words to them. Then, definitions of all target words were written for all students on the blackboard in order to be familiar with them. Second, students listened to communication recordings then were asked to go through post-listening activities such as: matching and comprehension questions. Third, the researchers wanted to concentrate on speaking. Consequently, they asked them to role play with their partners in different dialogues. In fact, the main target behind this activity was stressing on the pronunciation and fluency of the target words. Students were then asked to listen to authentic communications between controllers and pilots in different conditions to be familiar with the context and target words. All in all, the researchers used these types of activities in order to enhance students' vocabulary acquisition through being subjected to target words more and to practice them as much as possible. In fact, that led to implanting the target words in long term memory rather than the short term memory. It is worth mentioning also that both groups completed all the above activities in six hours, but the experimental group completed the tasks in five hours and had one hour daily for learning memory strategies. Also, the control group spent more time in listening and role playing. In order to be clearer about how the researchers conducted the experiment, we must mention that the researchers started the lesson with the experimental group highlighting the importance of vocabulary acquisition in language learning depending on the suggestions given by several researches such as: Cohen (1998), Hulstijn (1997), and

Nation (2001) (as cited in Atay and Ozbulgan 2007). In addition, they talked to them about the different ways of vocabulary learning such as: explicit and implicit vocabulary learning. The researchers then concentrated on the memory strategies suggested by Schmitt (1997) (as cited in Atay and Ozbulgan 2007). In other words, after explaining each strategy, they gave an example on how to use it and activities for applying them. Results showed from the post-tests that the percentage of usage and varieties of strategies increased. In other words, both semantic maps and connecting the new word to a previous experience were the most used strategies. In fact, the experimental group who used both memory strategies along with learning from context outperformed the control group who used learning from context only. On one hand, students in the experimental group reported that using memory strategies inside the classroom motivated them since they didn't wait all the time for the teacher's explanation, but they were applying the strategies which were explained to them. On the other hand, students in the control group were losing focus and attention in the last hour of class since they didn't use any strategy that could motivate them.

### ***C- Computer Aided Vocabulary Learning***

**(Tozcu and Coady, 2004)**

The main aim from this study was to explore the effect of using computer aided language learning (when teaching direct vocabulary) on word recognition speed, reading comprehension, and vocabulary knowledge. The research attempted to answer the following questions: Do students who use computer assisted vocabulary learning acquire the most frequently used words better than those in the control group? Does the students' reaction time decrease in recognizing the words when they use computer assisted vocabulary learning in acquiring high frequency words? Do students who use computer assisted vocabulary learning in acquiring the most frequently used words show extensively improved reading comprehension than those in the control group? The researchers hypothesized that both native and non-native speakers have the same universal model in recognizing the word. In fact, this hypothesis was suggested by Coady, Carrel, and Nation in 1985 (as cited in Tozcu and Coady, 2004). The participants consisted of 56 students. All of them were in the intermediate level studying English for the academic preparation of the university. Students were randomly assigned equally to the control and the treatment group. Students were from Asia, Latin America, Europe, Russia, and the Middle East. The software used in this study was named "New Lexis". This software was based on three modes: Study,



Practice, and Review. It embraced the 6400 most frequently used words in English. First in the "Study" mode, words were presented in the form of a list as the student can view the meaning of a certain word with sample sentences. The "Study" mode also embraced two features which were the review list and the reminders. The review list allowed students to add all the words which s/he wanted to study. The reminders also enabled them to remember the chosen words using different aids such as: antonym, synonym, paraphrase, and translation. Second in the "Practice" mode, students can undergo five activities such as: choosing words, finding definitions, selecting missing words, spelling the defined words and finally spelling the missing words. In fact, students in this study were advised to use more the exercises which concentrated on choosing definitions, choosing missing words, and choosing words. The Instant feedback feature was also embedded in this software. Third in the "Review" mode, students had the option to select either a lesson of 20 words, or a list of words to revise for further study. Based on the authors' observations as well as conversations with the students, it appeared that among the practice exercises 'choose word' and 'choose missing word' were preferred over 'choose definition'. Both pre-tests and post-tests were given to students in the treatment group and control group. It is worth mentioning also that the two tests were identical. In addition, a survey was administered to them at the end of the study to inspect students' reaction toward software. Two months lasted between the pre-test and post-test. Students completed both the pre-test and post-test in the computer lab in order to assess their reaction time. Students in the treatment group were asked to study 2000 words 3 hours per week for 8 weeks, while the students in the control group were asked to read two articles every week and answer comprehension questions related to these articles. These questions required very short answers. Students were also asked to summarize the articles which they read. All in all, we can say that students in the control group were using only reading comprehension in class. The researchers administered at the beginning of the study a survey to be filled by the control group in order to determine their areas of interest. Accordingly, the articles were selected according to students' preferences. The study revealed that students who use computer aided vocabulary learning in acquiring vocabulary outperformed those who didn't use it. In addition, their reaction time toward recognizing the word and reading comprehension was better than the control group.

**(Johnson and Heffernan, 2006)**

The main purpose behind this study was to discuss the pedagogical basis of software designed to enhance students' vocabulary acquisition. The study intended to show the description of the software called "Short Reading" and how it can be used as a tool in enhancing vocabulary knowledge.

Consequently, the main aim of this study was to test the effect of reading on students' vocabulary comprehension in both audible and written forms. Data was collected through 119 Japanese students enrolled in fall 2005. "Short Reading" project is a computer aided vocabulary learning software intended to present 112 vocabulary items to students through fifteen short readings. The main intention of that software is recycling the target words to six times. The researchers introduced the target words of vocabulary to students after completing the reading and answering the comprehension questions. Students first read the fifteen short readings and by that time they will be exposed to the target words for at least three times. The short readings encompassed the target vocabulary where the student can click on any of them in order to view the definition, example, and picture if applicable. There were also contextual tips provided within the target vocabulary in order to enhance the guessing of target words meaning. The researchers used to assess students on their comprehension regarding the target words after each reading. In addition, they showed the trailers to students in order to reinforce their long term memory by being exposed to target words many times. In fact, these trailers encompassed the 112 words which were used in the short readings. Identical pre-test and post-test were administered to students for collecting the data. In the pre-test, students were assessed after each reading on ten words that were randomly selected from the 112 words. Then students were asked to answer multiple choice questions after viewing ten short clips from the trailers. These multiple choice questions were targeting ten randomly selected words from the 112 target words as well. Finally, students were asked to listen to the trailers inside the class. The researchers mentioned that students became familiar with the target words in the trailer after being exposed to the short readings. Students were administered the pre-test in the first week and during the successive seven weeks as they were asked to do two readings with vocabulary checks every week. Students took the post-test after finishing the reading in the ninth week. They were also allowed to work on the short readings with the comprehension check vocabulary at their own pace. The researchers mentioned that students didn't know that both the pre-test and the post-test were identical. The software showed that students' scores were highly significant after being exposed to the "Short Reading" software. In other words, students' vocabulary acquisition rate increased after they used the software, but not to the desired expectations since further researches are needed to be done on the effect of both trailers' viewings and reading on students' vocabulary acquisition.

**(Ma and Kelly, 2006)**

The main purpose of this study was to shed light on a computer aided vocabulary learning software called "WUFUN". This software was designed in order to show the efficacy of computer aided vocabulary learning on vocabulary acquisition. The study posed the following research questions: How much will WUFUN help Chinese students in acquiring difficult vocabulary both inside and outside the classroom? Will WUFUN assist students in following certain strategies in learning vocabulary after using it either inside or outside the classroom? What is the students' evaluation regarding WUFUN inside and outside the classroom? What were students' actions regarding their learning results both inside and outside the classroom? Data was collected in this study through two groups in their first year at three different universities. Participants consisted of 35 low intermediate level students. The first group embraced 17 volunteered students, while the second group embraced 18 students and they were chosen deliberately by their teacher. The second group was the one who took the experiment. Both pre-test and post-test were administered to students. These tests were having both receptive and productive activities. Receptive and productive tests were administered to students before using the software in order to make sure that they didn't know the target words. The same tests were given to students after using the software to identify their vocabulary gain. A pre-questionnaire was given to students before using the software in order to collect information about their learning strategies and their expectations toward using the software. The post-questionnaire was administered to students after using the software in order to know their comments and suggestions for enhancing the software in meeting their needs. First, a description of the context is explained to students in order to enhance their background information. Students can view a list of pictures while listening to short sentences. In this activity, each spoken sentence accompanies the picture to which it belongs. The main aim from this activity was to give a brief idea about the story they will be exposed to later. A number of vocabulary items listed in a mini dictionary with collocations, words in sentences, translation, definition and pictures were then presented to students. Moreover, students listened to a sentence and were asked to create a mental image regarding it. In fact, different tips were given to students in order to remember the word such as: roots, affixes, or any associations with other words. Researchers intended to use different aids in order to help students memorize words taking into consideration their different learning styles. Furthermore, students were asked to complete different exercises, and by that time they should be familiar with the target words. These exercises included: synonyms, acronyms, and collocations. Researchers also mentioned that these exercises could be repeated more than one time.

Students, after finishing the exercises, were exposed to idioms. In fact, students perceived idioms difficult since their meanings are subtle. Accordingly, researchers assisted students in learning these idioms by providing them with pictures referring to the meaning popping up with a voice explaining them. The experiment went through eight phases as follows: pre-productive and receptive tests, pre-questionnaire, software usage, post-questionnaire, post-productive and receptive tests, and finally an interview. The interview was used with the first group only who used the software in order to elicit their opinion concerning it. It was shown through the study that computer aided vocabulary learning using “WUFUN” was effective inside and outside the classroom. Aside from that, students perceived difficult vocabulary better from “WUFUN”, yet the productive learning rate was a little bit higher than the receptive learning rate. Learners acquired a few vocabulary learning strategies but not in a systematic way that would allow their further independent use, which is probably due to their limited mental processing. For the second research question, learners' evaluation in both settings was fairly satisfactory despite the constraints incorporated with the software, and the majority of learners reported that they would like to use the software when more units are developed.

**(Loucky, 2007)**

The main purpose behind this study was to search for new means intended to enhance both vocabulary learning and online reading. The researcher compared various types of programs to investigate how useful they are in guiding learners during the journey of vocabulary acquisition and how to assess students' vocabulary in a more creative and innovative way. The researcher intended to recycle the exposure of vocabulary more than one time for maximizing learners' gain of vocabulary through using different vocabulary programs and online readings. Forty-five graduate students including forty-three males and two females participated in this study. These students were studying in the national university in Kyushu. They used to do extensive readings including online readings during the semester. The instruments used were: vocabulary knowledge scale, online testing, and a computerized management system. These instruments were used by the researcher in order to evaluate them individually. The researcher intended to increase students' motivation in learning vocabulary through reading. In fact, the researcher used different features such as: listening to the text and instant glossing. These features were used by the researcher in order to enhance students' learning of vocabulary during their leisure time without being distracted. By assessing the different vocabulary programs and tests which the researcher used, students were able to configure the most used lexical strategies. The researcher claimed that different instruments should be used in order to address every aspect of word

knowledge and these instruments should be used inside and outside the classes side by side with an individual assessment portfolio and interviews in order to get a bigger view of how learners acquire vocabulary. All in all, results showed that computer aided vocabulary learning enhanced students' vocabulary acquisition taking into consideration that word knowledge should be addressed with different activities in order to make sure that all words' aspects are handled appropriately. In other words, there is no one single strategy to be used for all word knowledge; however different strategies for word knowledge should take place in order to guarantee a satisfactory acquisition of most words' aspects.

**(Lenders, 2008)**

The main purpose of this study was to investigate the effect of online dictionaries on English learning vocabulary. The research questions posed in this study were: When and how do learners use electronic dictionaries? What are learners' perceptions toward electronic dictionaries as a means for learning vocabulary? The researcher hypothesized that students will become familiar with using electronic dictionaries and the electronic dictionaries will enhance active vocabulary acquisition. Seventy-four participants were used in this study. Their English level was between upper-intermediate and advanced levels. Screen observation, Likert scale questionnaire, and interviews were used in collecting data from participants. The study was conducted on these participants for four consecutive semesters in a real classroom where they were introduced to the electronic dictionary during their reading tasks. The researcher concluded from the study that electronic dictionaries enhanced students' vocabulary acquisition. Electronic glosses were also perceived as an efficient tool for teaching specialized vocabulary and useful for general language teaching purposes as well. All in all, students perceived it as a helpful aid in learning and relevant for their careers in the future. Participants claimed also that it assisted them in learning low frequency words which they can't find in standard dictionaries.

**(Christensen, Merrill, and Yanchar, 2007)**

The main purpose of this study was to compare the effect of CAVL software based on the diglot theory and another complicated computer software application on the acquisition of vocabulary. The meaning of "di" is two and "glot" is language. The researchers investigated the following research questions: Will the diglot method enhance the acquisition of vocabulary learning more than an ordinary complicated computer based drill program? Will the diglot method increase the development of vocabulary more

than an ordinary complicated computer based drill program? Will the diglot method appear as more attractive to students than an ordinary complicated computer based drill program? Data was collected from twenty-seven volunteer students enrolled in a large private university taking introductory Spanish courses. Most of these participants were female. Researchers used a vocabulary test assessing both the breadth and depth of Spanish vocabulary acquisition. The depth scale embraced short Spanish paragraphs with comprehension questions, cloze paragraph, and word associations such as identifying acronyms, synonyms, and collocations. The breadth scale embraced translation and matching. In addition, a questionnaire was administered to students to inspect their perception toward using either the diglot method or computer-based drills in learning vocabulary. The questionnaire was in the form of a 5-point Likert scale. Students were asked in this questionnaire to check whether they feel confident, at ease, irritated, anxious, bored, frustrated, entertained, or overwhelmed while using the programs. The twenty-seven students were randomly assigned to two treatment groups. The first treatment group used the diglot method while the second group used the computer-based drill method. The study lasted for one week where students used to practice for three sessions fifty minutes each. In the first session, the vocabulary test was administered to both groups as a pre-test. After that, they were asked to use the method which they were assigned to. Students were then asked to complete a post-test and then an affection questionnaire. The researcher gave each student five minutes to explore the other program and comment on it. It is worth mentioning the description of the two software programs developed in this study. The diglot reader software showed texts written in English with underlined Spanish words. A new Spanish word appears every fifteen words in the text. The students were asked to click with their mouse on the Spanish word in order to view its English translation and hear a native Spanish speaker pronouncing it. Students were first asked to read a story written in English with Spanish words. The diglot reader software consisted of fifteen chapters including a total of 5417 words. A total of 326 Spanish words were embedded in these chapters. The second program was a computer-based drill program that presented Spanish words in the form of a list with its English translation through electronic flash cards. Here the Spanish words were presented in isolation without context. After studying five Spanish words, students were asked to select the appropriate English translation of the word from four alternatives. Instant feedback was embedded as a feature in this software. In addition, students can listen to the Spanish words pronounced by a native speaker upon clicking on the desired word. The software has an option of moving the word that is well practiced from the practice section to the review section. New items were then introduced in the practice section with some items from the review section. The results of this study showed that both groups performed equally when using both the diglot reader and the computer-based drill method, yet students were more interested in using the

diglot reader more than the practice program. They also stated that the diglot reader enhanced the usage of vocabulary since it introduces vocabulary in context through reading. Consequently, the researchers suggested that a deeper consideration should be given to the diglot reader approach in vocabulary acquisition.

**(Zapata and Sagarra, 2007)**

The purpose of this study was to investigate the effect of both paper workbook and online workbook on learning vocabulary. The researchers hypothesized that students will show equal performance in online workbooks and paper workbooks in a short period of time. In addition, they claimed that students' higher performance will be observed after using the online workbook for a longer period of time. Data was collected through 549 Spanish learners enrolled in an American university. Students received four hours of instructions per week with either online or paper workbooks. They also completed four vocabulary tests and a screening test. Two of the vocabulary tests were administered to them in the first semester while the other two in the second semester. Students in the first week of the second semester course in Spanish were asked to complete a vocabulary test and a questionnaire. The questionnaire included questions referring to the language they speak at home, Spanish books they took before, any other languages that can facilitate their Spanish learning, and their specialized major. Students were asked to complete the vocabulary tests on the computer. This test included two sections as follows: First, the part that concentrated on the word synonym from Spanish to English, and second the part that concentrated on the word antonym through matching Spanish words with their opposite meanings in English. The researchers mentioned that each task consisted of 12 words in Spanish and 4 words in English for every Spanish word. Students were asked to do their homework every week for 24 weeks. Indeed both the amount and content of the assignments in both the paper workbook and online workbook were the same in order to facilitate the comparison process. The assignment embraced vocabulary, grammar, and listening activities. It is worth mentioning also that the researchers highlighted the great benefit of the instant feedback feature embedded in the online workbook software. They elaborated that the instant feedback feature with the multiple exposures to exercises facilitated the process of learning in the online workbook. Consequently, students have multiple opportunities for enhancing their vocabulary by practicing more. Researchers said that the previously mentioned advantages do not exist in the paper workbook because students have to wait for a longer time to have their teacher's feedback. The four tests were identical regarding the vocabulary knowledge. Two months apart were given between the pre-test and post-test. The tests were receptive

in the form of recognizing the meaning of Spanish words and productive in the form of using words in sentences. The results of this study advocated the hypothesis claimed by the researchers which stated that there will be no significant difference between students who are using an online workbook and those who are using paper workbooks for a short period of time, yet a significant difference in more vocabulary gain will occur when using online workbooks for a longer period of time. Consequently, the beneficial outcomes of using CAVL are approved to be positive, adhering to what other studies showed through their experiments.

**(Stockwell, 2007)**

The main purpose of this study was to inspect the effect of using mobile technology on vocabulary acquisition. The researcher in this study was concentrating on the following research questions: Do students prefer using the mobile or the computer more for vocabulary learning? Are there any distinctions between the activities performed on the mobile and those performed on the computers? What are students' perceptions regarding using mobiles in vocabulary learning? Participants included eleven students learning English language at Waseda University. Data was collected through students' logging into the system and a survey. Data concerning students' logs embraced the following: exercise scores, number of attempts logging into the system, time taken on each exercise, and the platform used (mobile versus computer). A survey was administered to students at the end of the semester to infer their preferences toward using either the computer or the mobile. In addition, the survey aimed to know why they prefer one platform over the other and elicit suggestions concerning improving them. The results showed that students preferred computers more than mobiles in acquiring vocabulary. Indeed, many learners did not like to use mobile phones for learning vocabulary at all. The researcher also suggested that better mobile interfaces could be provided in order to have more preferences toward using it.



## ***D- Blended Learning Environment***

**(Precel, Eshet-Alkalai, and Alberton, 2009)**

The main purpose of the study was to know students' views regarding the pedagogical design issues of a new blended learning course model. The research question investigated students' perceptions regarding course pedagogy, textbook format, and usability of the course learning environment. Ninety one students participated in this study and they were chosen randomly between 2006 and 2007. A questionnaire was used to collect the required data. Indeed the questionnaire was designed in order to examine students' perceptions toward the following: pedagogy of course instructions, learning materials, technological tools, and the effect of both design of learning environment and content on the learning process. The results showed that students preferred so much blended learning and are highly recommending it to be used in classes. Moreover, students were very much satisfied with the highly interactive components of learning which the online process provides advocating the results of other studies done by Throne, 2003, Singh, 2004, Bersin, 2004, Bonk et al., 2005 (as cited in Precel et. al, 2009).

**(Akkoyunlu and Soylu, 2006)**

The main purpose of this study was to examine students' perspectives toward blended learning. This study was concentrating on the following points: students' perspectives regarding the blended learning environment and students' views toward blended learning depending on their level of achievement and participation frequency to the forum. Number of subjects participated in this study was 64 students chosen from the computer education and instructional technologies department in 2005 and 2006. Data was collected through the following: a questionnaire that is mainly designed to elicit students' views regarding blended learning, open ended questions posed to students at certain periods, students' achievement scores, and records showing students' participation in online activities. Results showed that students enjoyed learning in a blended learning environment as their score increased. In addition, they had a positive attitude regarding using blended learning in classes. As a result of that, this shows an extremely high importance of the usage of communication and interaction for the success achievements of online learning.

**(Campbell et. al, 2005)**

The main purpose of the study was to examine the process of designing a well balanced environment for blended learning. The research question was concentrating on knowing students' perceptions regarding course pedagogy, textbook format, and usability of the learning environment of the course. There were 35 participants in this study. Data was collected through a pre-survey, post-survey, and an online assessment with authentic and collaborative tasks. Results revealed that students have a positive attitude regarding using blended learning in classes. Students also indicated that they learned a lot from the online material. In addition, the lecturer found that the online learning achieved its goal in enduring the learning process and therefore enhancing the quality of learning for a longer period of time without the need for the teacher all the time. In other words, it was found through this study that blended learning has achieved its goal in creating an optimal balance between face-to-face and online learning.

**(Gulbahar & Madran, 2009)**

The main purpose of the study was to concentrate on the concepts which affect blended learning such as: collaboration, autonomy, equity, satisfaction, and communication. This study was concerned with answering the following research questions: How the observed collaboration and communication skills of students are affected by students' levels from the perspective of computer and internet usage? To what degree were students satisfied with the environment of blended learning and did gender, internet usage, frequency of computer usage, and frequencies of internet usage affect that? In addition, the study investigated students' views concerning their equity and autonomy in the blended learning environment and also instructors' perceptions regarding the usage of blended learning inside the classroom. There were 910 participants in this study distributed among 49 sections and managed by 27 teachers. Data was gathered through a survey and interviews. The survey was used to examine students' perceptions toward the new learning process. Teachers were interviewed to obtain a more specific view concerning their experiences. The findings showed that students have different communication, satisfaction, and collaborative levels according to their computer and internet literacy. Gender also played a role in students' level of satisfaction. All in all, students viewed blended learning as giving them a more autonomous style of learning. The researchers concluded that there are four chief aspects that must be taken into consideration while developing a qualified blended learning environment which are: technology, instructors, students, and pedagogy.

**(Lim and Morris, 2009)**

The main purpose behind this study was to examine the effect of learner variables and instructions on the learning process in a blended learning environment. This study was interested in answering the following research questions: What are the effects of the instructional, involvement, motivational, and learner variables on the learning process in a blended learning environment? Why are some students perceived as high or low learners? Researchers used 60 students as participants in this study. 21 of these participants were male and 39 were female. In addition, 38 were freshmen and 22 were junior students. All of these students were enrolled in a southeastern university. Researchers used three instruments to assess the following: perceived learning, actual learning, and perceived learning application. An exam was given to students before and after the semester in order to assess their actual learning. A questionnaire was designed for eliciting students' perceptions toward both learning and learning application. The questionnaire embraced a five point Likert scale. Moreover, pre-test and post-test were demonstrated to students in order to measure their learning increase before and after the semester. There were also open ended questions enclosed within the questionnaire for giving students more space to express their opinion freely regarding how to improve the course. In fact, data was collected between 2004 and 2005. The researchers adhered to a certain framework in order to deliver course content in a blended learning environment depending on the following: individualized self paced learning, instructor based learning for deeper understanding, group sessions for exchanging their learning experiences, and finally checking students' learning progress through assessing them every week and at the end of each semester. Indeed, researchers used to mix between face-to-face and online learning by explaining the learning content first to students then asking them to complete the online modules in order to reinforce their learning process. The results of this study showed the emergence of two main themes. First, instructors should consider different students' characteristics in learning within a blended learning environment. Second, student's level of learning is a prominent aspect that must be taken into consideration. Aside from that, learning content is considered a critical factor for sustaining learners' motivation and increasing learning acquisition in a blended learning environment. All in all, researchers concentrated on the fact that instructors should consider two main points while teaching students in a blended learning environment such as: learning activities and students' needs in order to prolong the learning process without losing students' focus and interest.

**(Motteram, 2006)**

The main purpose behind this study was to concentrate on students' experiences regarding online tools. The researcher investigated the following research questions: How do different groups perceive blended learning environment? Why does a certain group perceive blended learning as being less successful? How do the experiences gained through this study serve in designing the best way for conducting successful activities? Are these activities suitable for onsite learners? Data was collected from 20 participants using questionnaires and open ended questions. Results showed that participants had positive attitudes toward blended learning environment, and it motivated them a lot during the learning process. Accordingly, the researcher recommends that in order to achieve a successful blended learning environment, knowing participants' learning communities must be taken into consideration.

**(Ginns and Ellis, 2009)**

The main purpose behind this study was to investigate students' perceptions regarding blended learning environment. Data was collected through a students' experiences questionnaire. Researchers used a data set collected from 3602 students in the 2005 semester. The results of this study showed that a blended learning environment is successful regarding content delivery, yet replicating similar studies in different universities is important to assure its efficiency.

### Methodology

#### *A- Design of the Study*

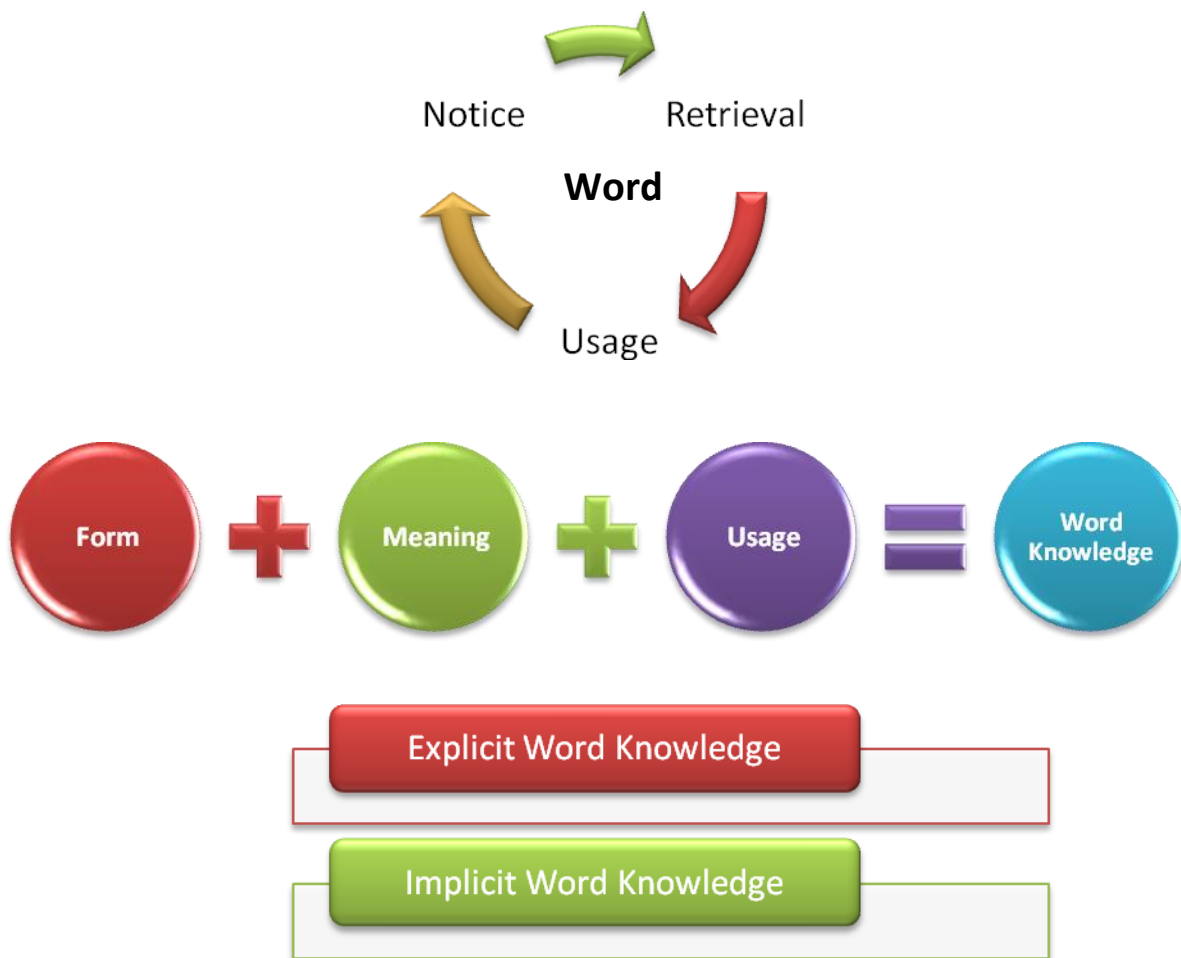
There are two input strands proposed by Nation (2001) for learning new language items: Language Focused Learning and Comprehensible Focused Input. Through the Language Focused Learning strand, word knowledge can be acquired through deliberate explanation in class. Nation (2001) stated that learning vocabulary directly will enhance second language learners' acquisition process since they are not exposed to the language as native speakers. He stated also that high frequency word knowledge is best learned through teaching them directly in class. In this study, the researcher is targeting the fifty target words which are previously perceived of high frequency in lesson one of El Kitab textbook, Part 2. Accordingly, the Language Focused Learning strand is perceived to be the most appropriate type for teaching target vocabulary words in this study.

Nation (2001) indicated that the best way for introducing word knowledge is through direct teaching in class then reinforcing it through repeated exposure, leading to deeper knowledge. The design of this study adhered to the Nation (2001) framework by getting students learn new target words explicitly. In addition, word knowledge is aimed at enhancement through repetitive exposure by offering different activities.

Because vocabulary items must be known well in order to be fully accessed, then repetition is suggested to be a very good means in achieving such a goal (Nation, 2001). Accordingly, when students are exposed to the word more than one time through different activities, better acquisition occurs and that is the reason for choosing the software as a means for delivering vocabulary since it is easily accessed, and repetitive exposure inside and outside the classroom can occur leading to fulfilling the Nation (2001) framework efficiently.

The fact must also be highlighted that a word goes through three consecutive but also cyclic phases in order to be totally acquired such as: word notice, word retrieval, and generative usage (Nation, 2001). Also, for the word to be effectively studied, it must be seen from three different perspectives as follows:

form, meaning, and usage taking into consideration receptive/productive skills and explicit/implicit learning (Nation, 2001).



This study is experimental since it is aiming to investigate the effect of computer aided vocabulary learning software as opposed to traditional vocabulary learning strategies on students' vocabulary recognition and usage.

As mentioned earlier in the literature review, there are research studies that have shown the efficiency of computer aided vocabulary learning and its ability to yield better results than the traditional face-to-face learning such as: Tozcu and Coady (2004), Johnson and Heffernan (2006), Ma and Kelly (2006), Loucky (2007), Lenders (2008), Christensen et al. (2007), Zapata and Sagarra (2007).

Accordingly, data was collected based on the hypothesis that students who use computer aided vocabulary learning will surpass those who use only traditional vocabulary learning strategies. The

quantitative data was collected and examined through pre-test and post-test while the qualitative data was collected through a questionnaire with open-ended questions.

The experiment was administered to two groups, one control and one treatment. The control group was exposed to the Nation (2001) framework in a traditional learning environment, while the treatment group was exposed to the computer aided vocabulary learning software using the former framework in a blended learning environment. The study used one control group and one treatment group in order to make sure that the Nation (2001) framework was not the main reason behind vocabulary acquisition. However, the researcher wanted to know the effect of the software usage on vocabulary acquisition by comparing the results of the treatment group with the results of the control group.

The study tested learners' vocabulary acquisition of fifty target words from the first lesson in the students' text book El Kitab, Part two by measuring the degree of students' vocabulary recognition and usage. Recognition here means knowing words' different forms (such as: أخرى, أواخر, آخر) and the meanings of each form in different contexts (such as: جلسنا في آخر الصف). On the other hand, usage means producing words correctly either through writing or speaking. Testing the experiment using the vocabulary of the first lesson in three weeks only was based on neutralizing a number of external factors as follows:

- First, avoiding the influence of any other Arabic classes such as: media or colloquial Arabic from affecting students' vocabulary acquisition process so affecting the results of the experiment.
- Second, avoiding the effect of contact with native speakers on the participants' recognition and usage of vocabulary since they are living in Cairo.
- Third, avoiding the exchange of information between students of the two groups regarding the software usage since they are studying in the same university which could lead to demoralizing the control group and so affect their motivation leading to affecting the results of the study as a whole.

## ***B- Participants***

The number of subjects who participated in this study was 22 students from the Arabic Language Institute at the American University in Cairo. The subjects were assigned randomly to one treatment group and one control group. Each group consisted of 11 students. It is worth mentioning also that assigning students to any of the two groups wasn't based on any conditions except language proficiency

since all subjects were in the intermediate level studying Arabic during the spring semester of 2010. This number of participants is close to different studies done in the same field such as: Ma and Kelly (2006), Loucky (2007), and Christensen et al. (2007).

It is worth mentioning also that the previously mentioned Arabic language program is a non-intensive one that exposes students to learning Arabic for 5 hours only per week as opposed to 20 hours in the Arabic Language Intensive Program.

Students' ages ranged from 19 to 29, and all of them were from America. At the beginning of the semester, students were asked in class about their most preferred styles for learning vocabulary. Their answers showed that they used flash cards, dictionaries, and Google translation in acquiring new vocabulary. However, those who used Google translation complained that most of the time, words were not translated accurately, leading to acquiring the word in a flawed way. In addition, students said that they wanted to learn vocabulary to assist them while reading sources written in Arabic, speaking the language properly, and communicating with native speakers in real-life situations.

### ***C- Instruments***

Three instruments were constructed for answering the research questions of this study. A pre-test was administered to both groups in order to assess their vocabulary knowledge concerning the target words prior to conducting the experiment, a post-test was given to them in order to measure students' progress after the treatment, and finally a questionnaire with open-ended questions was given at the end of the study to inspect students' reactions to the software. First, the pre-test was in the form of a list embracing the target words. Students were asked in this test to choose the words which they knew then translate them into English and put them in sentences. Second, the post-test embraced the pre-test, but also included multiple-choice questions to assess both vocabulary recognition and usage. In fact, the study needed to include the pre-test in the post-test in order to measure the Nation (2001) framework from the perspective of vocabulary gain. Finally, the questionnaire with open-ended questions concentrated on knowing students' attitude toward the software.

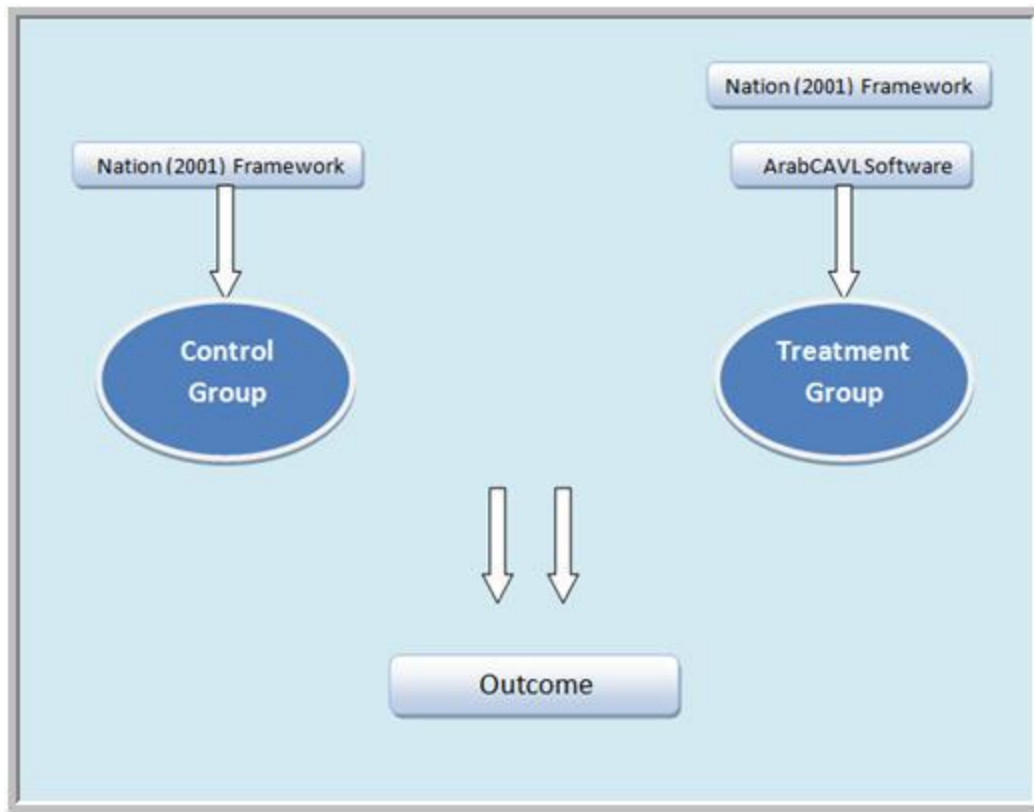


### Selected target words

These are the fifty target words from lesson one in El Ketab book, part two taking into consideration that the number of these words is expanded since each lexicon is taught with some of its morphological forms:

أول	انقطع	قَدَّم	مُهَم	آخر
صاحب	محيط	قام	وقع	مشهور
خلال	كامل	شعب	صفة	بَلَّغ
قطع	مُسْتَشْرِق	منظر	زمن	سَجَّل
طبعة	رحل	طَبَعَ	تراث	عصر
قرن	حفظ	بلد	قافلة	رحلة
علوم	عظيم	سوق	أقام	علم
امتدّ	سنة هجرية	استكشف	رحالة	بلدة
خليفة	معلومات	سنة ميلادية	نشر	حال
مُتْرَجِم	ترجم	نظر	طويل	قصد

## ***D- Procedure***



## ***E- Software Implemented***

The software implemented in this study is called "ArabCAVL" based on the Nation (2001) framework. It includes four modes: Study, Recognition for Comprehension, Practice, and Recall using L1. The Nation (2001) framework recommended introducing word knowledge first deliberately, but reinforcing this knowledge through repetitive exposure leads to deeper knowledge. Accordingly, word knowledge is first introduced explicitly to students using the Study Mode, and then enhanced to increase its knowledge through multiple retrievals using Recognition for Comprehension, Practice, and Recall using L1 modes.

Through this study, the software is intended to embrace the following aspects:

- Increase students' exposure to target vocabulary for a longer period of time since they are enrolled in a non-intensive program, as mentioned earlier.

- Assist students by providing an environment where they can study in spite of place and time restrictions, taking into consideration their pace of learning.
- Motivate students while studying, as it was proved from the previously mentioned literature review that using computer in studying increases students' motivation.

It is worth mentioning also that students had access to the Study Mode, Recognition for Comprehension Mode and Recall using L1 Mode both online and offline. However, the Practice Mode was accessible only online for monitoring students' progress. The software was available online through the internet and offline through the compact disk. These means were taken into consideration by the researcher for guaranteeing successful access to the software regardless of any struggles that might hinder students from using it.

### I- Study Mode (Word Notice)

The screenshot displays the word 'أَوَّل' (Awal) in a blue box at the top. Below it, a red box with a mouse cursor and the text 'Click Here' points to a small icon. To the left, a yellow box contains the English translation: 'January is the first month of the year'. Below the icon, four Arabic sentences are listed, each with a small icon next to it. The first sentence is 'شهر يناير **أَوَّل** شهر في السنة' (January is the first month of the year). The second is 'جَلَسْتُ في **أَوَّل** الصف' (I sat in the first of the class). The third is 'كانت رحلتي **الأولى** إلى أمريكا جميلة جداً' (My first trip to America was very beautiful). The fourth is 'ذهبت إلى مصر في **أوائل** شهر مارس' (I went to Egypt in the first of the month of March). The fifth sentence is 'كانت **أوائل** السنة جميلة جداً لأنني سافرت إلى أهلي في مصر' (The first of the year was very beautiful because I traveled to my family in Egypt).

This explicit word knowledge activity which was conducted inside the classroom under teacher supervision introduced target words in sentences with different semantics and different morphological forms (refer to step 4 in means of applying ArabCAVL software on the treatment group). In addition, an English translation of each sentence was shown once the student clicks on an icon next to the Arabic sentence as shown above.

In this activity, students will notice target words through getting exposed to them deliberately in class. The activity can also be retrieved for an unrestricted number of times either through the CD or the internet. The translation feature was hidden in order to encourage students to see words in context first before seeing the translation. This is expected to encourage students to try and understand the meaning by themselves first, not relying on the translation only. In fact, this feature was added as a facilitator for sentences comprehension only.

Moreover, target words were highlighted in a different color to assist students in focusing only on them. A fundamental concern here is presenting the combination of word morphological forms and meanings together in different contexts. This combination is expected to assist students in word memorization. By practicing this mode, students become more familiar with form, meaning, and usage of the target words. Furthermore, students were asked in class to give the meaning of each sentence which embraced the target words. If they didn't know the correct meaning of the sentence, the researcher simply clicked on the translation to show them the correct meaning on the big screen using the projector.

The three questions that arise now are: Why the target words were introduced in sentences with different semantics and different morphological forms? Why the translation feature was added? Why this activity was introduced first in class using the projector?

First, introducing target words in the aforementioned way has proved to be successful in word knowledge and comprehension. Groot (2000) in his study showed that introducing new target words in contexts allowed students to produce words effectively and understand the words in discourse (as cited in Zapata and Sagarra, 2007). (Laufer, Meara, & Nation, 2005) through their suggested ten best ideas in learning vocabulary reported that teaching words in contexts is much easier than introducing words in a list. In addition, they said that through introducing words in contexts, students can know what the word means and how it is used correctly in the sentence. Tozcu and Coady (2004) also in their study introduced words in the form of a list as the student can view the meaning of a certain word with sample sentences. In addition, grammatical functions are essential in knowing the role of each word in a sentence, so without knowing the grammatical function, an unguaranteed composition of a meaningful sentence could take place (Nation, 2001). Accordingly, embracing target words in sentences facilitates how the sentence is grammatically constructed.

Second, the translation feature was added in this activity supporting Christensen et al., 2007; Laufer, Meara, & Nation, 2005 indicating that translation can't be deserted since it was approved by many

studies that it is effective in vocabulary acquisition as the student can compare his/her understanding with the native speakers' own comprehension. Also Ma and Kelly (2006) and Tozcu and Coady (2004) used the translation feature in each of "New Lexis" and "WUFUN" software applications for enhancing students' understanding regarding new target words. Nation (2001) mentioned the importance of linking the word to a meaning and the essential need of teaching the word effectively through providing information about the word; accordingly, the hidden translation feature was provided as an additional aid for the students who want to check their correct comprehension of the sentence. Here the translation option is important at the early stages in order to avoid building faulty knowledge of word comprehension to avoid the possible risks of implanting these words in the long term memory. Aside from that, the researcher wanted to add the native speaker translation of the sentence without the need to find translation in any other software which could provide misleading information.

Third, the target words were highlighted in the sentences and presented in class through the projector supporting Nation (2001) when he stated that one of the most important signs for showing that the learning process is taking place in its correct path is to see that the learners are paying attention to the word. By presenting target words inside the classroom, students will focus on understanding target words meanings rather than worrying about writing teachers' explanations and copying sentences from the whiteboard.

## II- Recognition for Comprehension Mode (Word Retrieval)

**ابن بطوطة و أطول رحلة في التاريخ**



هو ابو عبد الله محمد اللواتي الذي يُسَمَّى **بِطَوُّطَةَ** ولد سنة ٧٠٣ هـ / ١٣٠٤ م, بدأ **أطول** **رحلة** قام بها **رحلة** في **العصور الوسطى**, **يبلغ** طولها ٧٥ ألف ميل, أي ثلاثة **أضعاف** ما **قطعة** الرحالة إلا **أول**, و **تنقل** في أفريقيا و آسيا و أطراف أوروبا, زار خلالها ٤٤ بلدا, و **استغرقت** رحلاته ٢٩ عاما, تزوج فيها ٢٣ مرة, و أنجب سبعين ولدا و بنتا.

خرج ابن بطوطة من **بلدته** **طنجة** **قاصدا** الحج و عاد إلى فارس بالمغرب و قد **بلغ** عمره الخمسين عاما و

In this activity which was conducted in classroom under teacher supervision, target words were introduced in context and highlighted in a different color as their definitions appear upon clicking on them (refer to step 5 in means of applying ArabCAVL software on the treatment group). Students were asked in class to retrieve the meaning of each word, and by clicking on the target word, they can know if what they retrieved was correct or wrong. Among the goals of this activity was to retrieve target word knowledge while reading. This gave students the chance to see how a word operates on a discourse level. It is also expected that seeing words' definitions one more time is a form of repeated exposure that save students time from the need to go and look up the words then return back to proceed in reading if they are unable to retrieve their meanings. Accordingly, their line of thought will not be disturbed, and they will continue reading smoothly. The question that arises now is why the target words were introduced through reading?

This activity was intended to act as a facilitator for word recognition and usage as it was found that students learned target words successfully through reading by using hyperlinks in different studies such as: (DeRidder, 2002; Gettys, Imhof, & Kautz, 2001; Lomicka, 1998; Wallen, Plas, & Brunken, 2005) (as

cited in Zapata and Sagarra, 2007). Also, Johnson and Heffernan (2006) in their software embedded target vocabulary in reading texts where students can click on each word to view the definition leading to significant results in students' vocabulary acquisition.

### III- Practice Mode (Word Retrieval)

اللاعب هدف \_\_\_\_\_  
● سَجَل ● طَبِع ● انْقَطَع ●  
يوجد \_\_\_\_\_ كبير في مصر اسمه خان الخليلي  
● سوق ● رَحَالَة ● محيط ●  
الشركة نسخة واحدة فقط من الكتاب  
● انْتَقَلَ ● طَبِعَتْ ● وَفَعَتْ ●  
نحن نعيش الآن في عصر \_\_\_\_\_ و الثقافة  
● الفألة ● الحال ● العلم ●

تصحیح  
Your Grade is : 40

This multiple-choice questions activity with the instant grading feature was used by students as an assignment at home, and it was meant to be used as another step for retrieving word knowledge through repetitive exposure (refer to step 7 in means of applying ArabCAVL software on the treatment group).

Through this activity, word knowledge is enhanced through form, meaning, and usage since the student recognizes the word first, then retrieves its meaning by understanding the context to find which word is best suitable grammatically and semantically to complete a meaningful sentence. This activity aimed at enabling students to think about the most suitable word for completing the meaning in terms of sentence level. Once the student completes answering all questions, a grade appears showing both correct and wrong answers. Accordingly, this activity is expected to give students the freedom of practicing more, regardless of time and place restrictions, finding out their mistakes in order to practice the unknown words, providing them with self-confidence while answering because they will not worry about the grades and assessing themselves by knowing how much they are progressing through the grading feature.



Providing the instant feedback feature opposed to the delay feedback is important for avoiding the risk of implanting wrong knowledge in long-term memory. Allowing students to think critically through choosing the most appropriate word that completes the sentence is prominent in understanding how the word is used in context and how the sentence is grammatically structured. The question that arises now is: Why provide the instant feedback feature through multiple-choice questions?

Arvan & Musumeci and 2000; Felix, 2003; Zapata and Sagarra, 2007 support vocabulary acquisition through technology based activities positively due to the immediate feedback feature and the multiple attempts which the student can go through (as cited in Zapata and Sagarra, 2007). Consequently, students have multiple opportunities for enhancing their vocabulary by practicing more. Tozcu and Coady (2004) through their study also showed that practicing leads to both high vocabulary acquisition and autonomous learning. Researchers said that the previously mentioned advantages do not exist in the paper materials because students have to wait for a longer period to receive teachers' feedback.

#### IV-Recall using L1 Mode (Word Retrieval)

Jason was the **last** one in his class, but he always wanted to be the **first**. He lived in a very beautiful **country** which had many small **towns**. He became a very **famous translator** as he **translated** many books from English to Arabic. Aside from that, he **preserved** a rare and ancient translated book **to be seen** by many people. **In reality**, many people were **interested** in this book because it **aimed** at knowing all **aspects**. The **owner** of this book became very famous in the **entire** world for his **knowledge**. The translator **traveled** from Egypt to Turkey and the **trip** was very **long**. All **scientists considered** this book as a very **important** source of **information**. Jason **cut** through the sea in order to go to Turkey. He **undertook** many trips in order to travel through the **entire** world. His mother **moved around** Turkey in order to search for Jason, but she didn't find him. She asked many people about him by giving them his descriptions. Jason's **family** was very worried about him and they were in a very bad **condition**. His mother crossed **different oceans** through her trip in order to find him and by that time she became a great **traveler**. The **time** passed and she **recorded** the highest number of trips in the **middle ages** because she was searching for her son, but at the end she got exhausted and went to a **market** for buying some food. Jason's mother met an **orientalist** in Turkey and asked him if he knew her son. The government **printed** and **published** various **editions** in order to search for Jason. The king **offered** Jason's mother a great **caravan** in order to **explore** the entire country as this country **extended** from the north to the west south. Jason's mother **looked** at the king and told him that her son is very **important** to her. She looked from the palace window and saw a **great view**. She saw Jason with a very great caravan, so she **fell** and ran to him. Finally, Jason took his mother in order to view the Turkish **heritage** and told her about all his trips.

In this activity which was designed by the researcher and conducted in class under teacher supervision, target words were introduced using L1 and highlighted in a different color. Arabic translation of these words pops up once the student clicks on them (refer to step 8 in means of applying ArabCAVL software on the treatment group). Retrieving the word is the second major step which leads to the word being remembered effectively (Nation, 2001), so target words can be recalled by students through unlimited numbers of retrievals.

In fact, the researcher didn't want students to exert effort in understanding the whole text in Arabic, but to the contrary, she aimed to direct their attention to the meaning of the target words, as relating words' meanings to their own language can help them in understanding the word more and reduce their burden in trying to understand the whole text. (Christensen et al., 2007)

This activity was mainly based on the method created before by Robbins Burling (1968, 1978) (as cited in Christensen et al., 2007). In this method, students are asked to read a text written in their native language with the vocabulary of the second language they are aiming to learn (as cited in Christensen et al., 2007).

In fact, Robbins Burling created this method (Diglot) mainly for lowering the affective burden which learners felt when introduced to new language vocabulary. Many researchers as stated previously in the literature review supported Burling's findings regarding meeting students' affective needs such as:

Afarian, 1987; Chen, 1997; Gunderson, 1993; Port-Fox, 1982; Silver, 1997; Sleight, 1982 (as cited in Christensen et al., 2007).

Chen (1997) reported that using the diglot method was more effective and showed significant results than the word-listing method (as cited in Christensen et al., 2007). After using the previously mentioned method, Harmon (2002) found that students acquired 50% of the target words, while Nelson (1995) found that students acquired 63% of the target words, and finally Chen (1997) reported that students acquired 45% of the target words (as cited in Christensen et al.).

Accordingly, to depend entirely on this method is not recommended for acquiring new target words, but rather it is an effective tool for facilitating the process of recalling previously learned words.

### **V- Production Mode (Word Production)**

In this activity, students were asked to produce words and put them into sentences adhering to the Nation (2001) Meaning Focused Output strand which stated that producing words strengthens previously known target words (refer to step 3 in means of applying ArabCAVL software on the treatment group). Since the produced sentences were sent via e-mail, feedback was provided to students online showing their mistakes by explaining the grammatical rules that assist them in constructing the sentence correctly. Through this productive activity, students are meant to remember target words through usage supporting Laufer, Meara, and Nation (2005) when they stressed on the great benefit from producing words either through speaking or writing. In fact, most word knowledge aspects are expected to be reinforced since students will not be able to put words correctly into sentences without knowing their form, meaning, and usage.

## VI-Monitoring

Student Name	Exam Name	Solving Date	Result
kgoodman	Task1	2/17/2010 11:42:46 AM	60
kgoodman	Task1	2/17/2010 11:43:52 AM	70
kgoodman	Task1	2/17/2010 11:45:16 AM	90
kgoodman	Task1	2/17/2010 11:45:27 AM	80
kgoodman	Task1	2/17/2010 11:45:49 AM	90
kgoodman	Task1	2/17/2010 11:45:59 AM	90
kgoodman	Task1	2/17/2010 11:46:08 AM	100
kgoodman	Task1	2/17/2010 10:29:05 PM	60
kgoodman	Task1	2/17/2010 10:29:32 PM	80
kgoodman	Task1	2/17/2010 10:29:54 PM	100

Through the "**Monitoring**" feature, the researcher can monitor all students' grades after using the Practice Mode activity. Students' names, exercise number, solving date and grade appear on the above screen for measuring their progress.

In addition to all the aforementioned activities, the ArabCAVL software embraced two assisting features which are searching and indexing. The searching option was embedded in order to facilitate easy access to target words, and the indexing option was another feature that listed all words alphabetically.

In order to apply the idea of repetition effectively, the four implemented activities were meant to serve the Nation (2001) framework as follows: First through noticing the word by using the Study Mode activity, then retrieving it up to three times, using each of the following: Recognition for Comprehension Mode, Practice Mode, and Recall using L1 Mode.

## ***F- Means of applying ArabCAVL software using the Nation (2001) framework on the Treatment Group***

The scenario followed in the treatment group that used computer-aided vocabulary learning software took seventeen sessions and it was sequenced as follows:

- **Step 1 (1 session):** An introduction was given to students at the beginning of the semester about the importance of vocabulary learning. The researcher asked students orally in class about their most preferred vocabulary learning styles. The main aim from the previously mentioned question was to know which style students depended on more while studying vocabulary. All students' answers were recorded in the researcher's notes. The pre-test was given to students without knowing that it is a pre-test, but knowing that it is part of the methodology used in teaching them the new vocabulary. They were told so in order not to de-motivate them since they would be unfamiliar with these words.
- **Step 2 (10 sessions):** New target words were explained deliberately in class to students with their different morphological forms to show different meanings. Participants were asked in these sessions to produce sentences in class, using some of the morphological forms of these words. This step took the longest time and it was distributed among ten sessions, half an hour each. (**Noticing phase**)
- **Step 3 (Outside Classroom):** Students were asked to write sentences at home regarding each target word with some of its different morphological forms and send them as an assignment through e-mail. Students received feedback through e-mail with corrections by providing the grammatical rules that can assist them in constructing the sentence correctly. (**Generative usage phase**)
- **Step 4 (2 sessions):** Participants were exposed again to the new target words in class with their some of their morphological forms in sentences to show their different meanings in different contexts using the ArabCAVL software. The sentences used in this activity took into consideration the corrections of all students' errors which they did before in their assignments. In other words, this activity was meant to correct students' knowledge regarding different meanings of the same word and how it is structured grammatically in the sentence. Accordingly, an expected deeper knowledge occurs. In this session, students were asked to translate the sentences that embraced the target words in order to ensure their correct understanding of the sentences. It is worth

mentioning also that this activity took 2 sessions of 70 minutes each. [See software **Study Mode** activity (**Noticing and Retrieval phases**)]

- **Step 5 (1 session):** Participants were asked to read the reading text in the El Kitab book, Part two from the software which embraced the new target words in class. In addition, they were asked to define the meanings of the target words while reading using the ArabCAVL software, and then answer the comprehension questions in the book. This activity took place inside the classroom. [See software **Recognition for Comprehension Mode** activity (**Retrieval phase**)]
- **Step 6 (1 session):** Participants were asked to give a presentation in class using the target words. (**Retrieval phase**)
- **Step 7 (Outside Classroom):** Participants were asked to answer the multiple choice questions activity at home regarding the new target words. The researcher wanted to make sure that students acquired words' different meanings correctly after using the ArabCAVL software. [See software **Practice Mode** activity (**Retrieval phase**)]
- **Step 8 (1 session):** Students were given a computerized native language text (with a mouse) covering the target words as an activity inside the classroom using the ArabCAVL software. Students were asked through this activity to start reading the text in two groups then extract the Arabic meaning of all the highlighted English words in the text. Applying this activity in groups allowed students to negotiate target words' meanings and so exchange experiences. [See software **Recall using L1 Mode** activity (**Retrieval phase**)]
- **Step 9 (1 session):** Participants were given a post-test. The main aim from this post-test was to measure students' progress regarding the target words and how much they acquired them correctly.

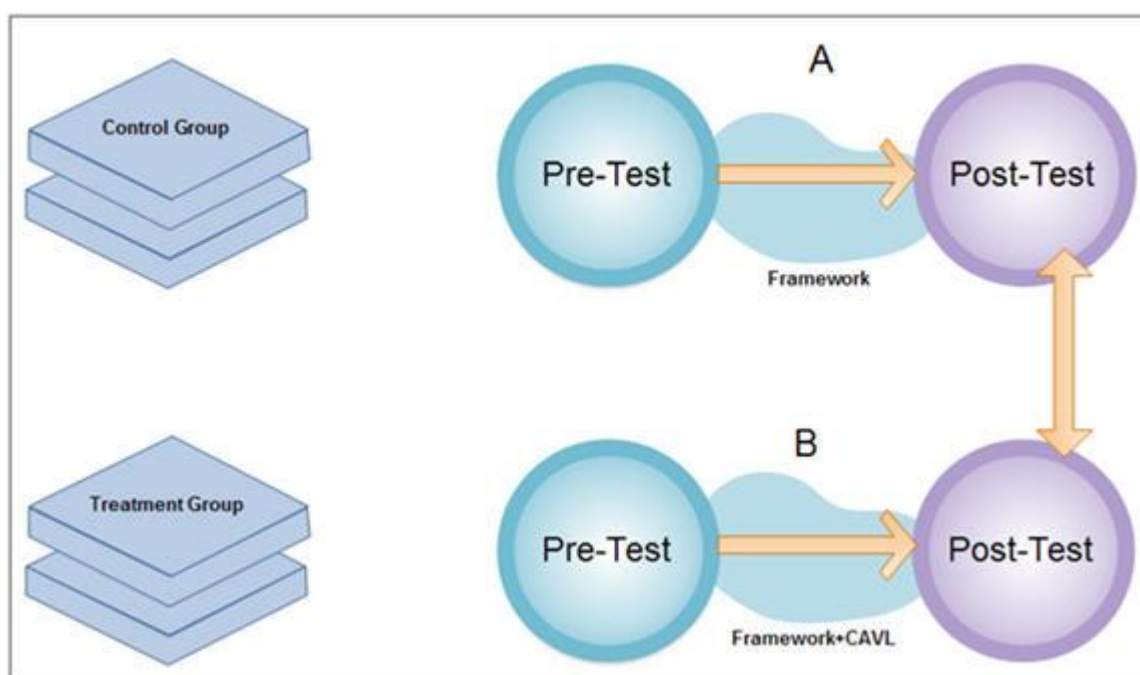
## ***G- Means of applying the Nation (2001) framework on the Control Group***

The scenario followed with the control group in the traditional face-to-face learning took fourteen sessions, and it was exactly the same as the procedures done with the experimental group but without using the ArabCAVL software in steps 4, 5, 7, and 8. In addition, the assignment concerning word production in sentences was submitted in class and not online. Accordingly, target words in the control group were retrieved up to three times using the following activities: word production in sentences, reading comprehension from the textbook, and multiple-choice questions as opposed to five times in the treatment group.

### Results & Discussion

In this section, the researcher will answer the following research questions: Will the chosen Nation (2001) framework enhance AFL learners' recognition and usage of vocabulary? Will ArabCAVL software using the chosen Nation (2001) framework enhance AFL learners' recognition and usage of vocabulary in a blended learning environment? What is students' attitude toward using the ArabCAVL software?

This study is also trying to prove the hypothesis that students who use ArabCAVL software using the Nation (2001) framework will surpass students who use the former framework only in a traditional learning environment.



As previously mentioned, the post-test included the pre-test in addition to multiple choice questions. In fact, the main reason from doing so is to be able to measure students' vocabulary gain through extracting the common target words existing in both the pre-test and post-test for assessing the effect of the Nation (2001) framework. Accordingly, the pre-test will be seen from two different perspectives in order to serve the first two research questions as follows: First, it will be used for measuring the



vocabulary gain after the treatment; second, it will be used as an indicator for making sure that both groups are starting from the same level.

**Notations used in this section are:**

Control Group = Group A

Treatment Group = Group B

D = Differences between pre-tests' and post-tests' results for each group (gain scores)

The researcher used **OpenStat** software for applying each of the ANOVA and ANCOVA tests. This software can be downloaded for free through the following link: <http://statpages.org/miller/openstat/>

The results attained from all the applied tests demonstrate whether or not the final calculated value is statistically significant. "Statistically significant" means that if the result exceeds a certain statistically known value, then the difference is large enough to confirm the effectiveness of the treatment in achieving its goal.

***A- First research question: Will the chosen Nation (2001) framework enhance AFL learners' recognition and usage of vocabulary?***

**1- Dependent t-test for measuring Group A vocabulary gain**

**Reason for using depended t-test with the control group:**

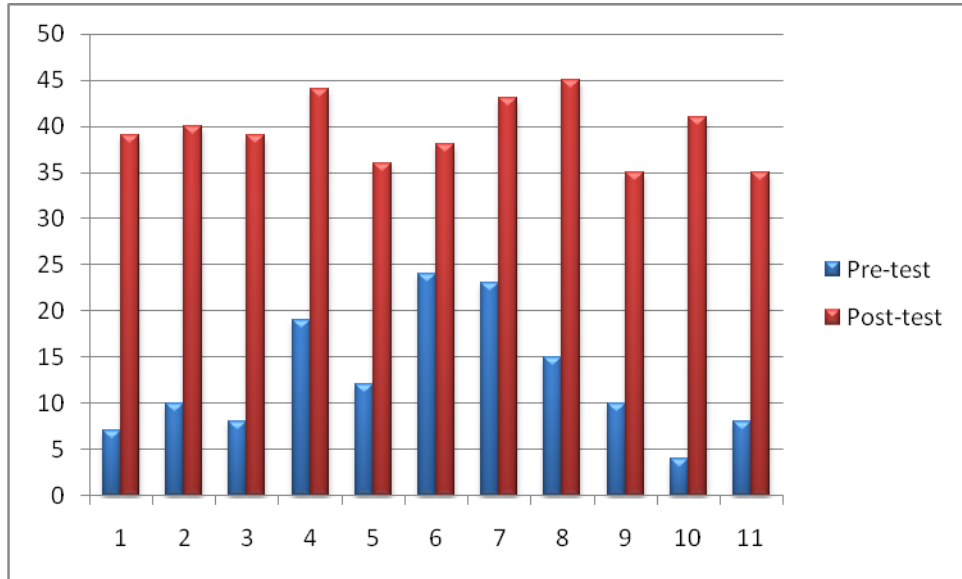
Depended t-test is used for measuring students' vocabulary gain after using the Nation (2001) framework.

Pre-test	Post-test	D	D*D
7	39	32	1024
10	40	30	900
8	39	31	961
19	44	25	625
12	36	24	576
24	38	14	196
23	43	20	400
15	45	30	900
10	35	25	625
4	41	37	1369
8	35	27	729
$\Sigma=140$	$\Sigma=356$	$\Sigma= 295$	$\Sigma= 8305$

The *t* value was calculated and turned out to be **14.18**, which is greater than **1.812461**. This shows that it is statistically significant with alpha 0.05 and df= 10. Accordingly, the first research question regarding the effectiveness of the Nation (2001) framework on vocabulary acquisition turned out to be positive in assisting students in gaining vocabulary successfully.

Pre-Test Min	Pre-Test Max	Post-Test Min	Post-Test Max	Pre-Test Mean	Pre-Test Percentage	Post-Test Mean	Post-Test Percentage
4	24	35	45	12.72	28.26	32.36	71.91

Below is a 2-D column chart diagram showing the difference between the pre-test and post-test regarding vocabulary gain after using the Nation (2001) framework.



**Group A Vocabulary Gain**

***B- Second research question: Will ArabCAVL software using the chosen Nation (2001) framework enhance AFL learners' recognition and usage of vocabulary in a blended learning environment?***

**1- Dependent t-test for measuring Group B vocabulary gain**

**Reason for using depended t-test with the treatment group:**

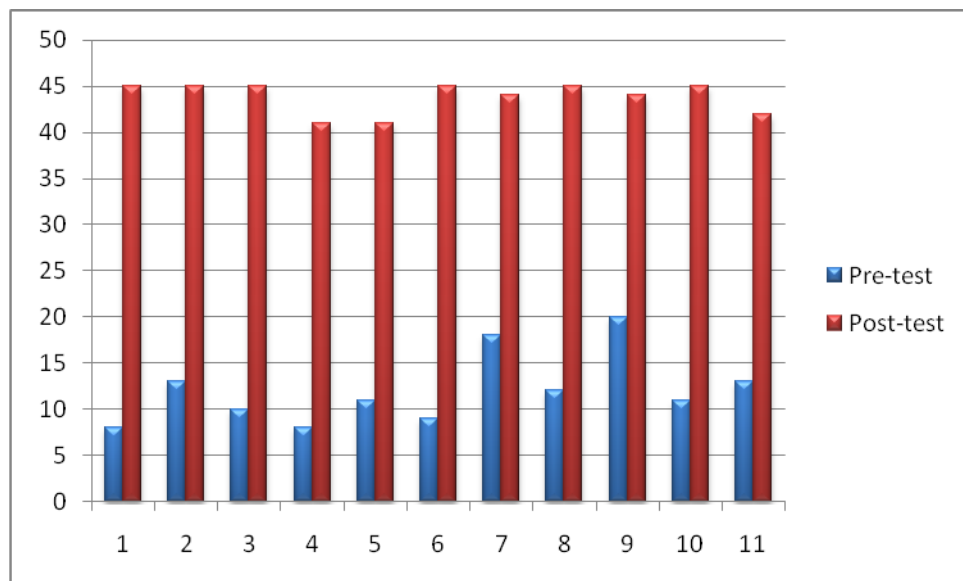
Depended t-test is used for measuring students' vocabulary gain after using the ArabCAVL software using the Nation (2001) framework.

Pre-test	Post-test	D	D*D
8	45	37	1369
13	45	32	1024
10	45	35	1225
8	41	33	1089
11	41	30	900
9	45	36	1296
18	44	26	676
12	45	33	1089
20	44	24	576
11	45	34	1156
13	42	29	841
$\Sigma=133$	$\Sigma= 482$	$\Sigma=349$	$\Sigma=11241$

The  $t$  value was calculated and turned out to be **25.66**, which is greater than **1.812461**. This means that it is statistically significant with alpha 0.05 and  $df= 10$ . Accordingly, the second research question regarding the effectiveness of ArabCAVL software using the Nation (2001) framework on vocabulary acquisition turned out to be positive in assisting students with gaining new vocabulary well.

Pre-Test Min	Pre-Test Max	Post-Test Min	Post-Test Max	Pre-Test Mean	Pre-Test Percentage	Post-Test Mean	Post-Test Percentage
8	20	41	45	12.09	26.86	43.81	97.37

Below is a 2-D column chart diagram showing the difference between pre-test and post-test regarding vocabulary gain after using ArabCAVL software using the Nation (2001) framework.



**Group B Vocabulary Gain**

According to the aforementioned results, both groups' pre-tests are nearly equal, as group A mean value is equal to 12.72 and group B mean value is equal to 12.09, and since the t value of group A vocabulary gain is equal to 14.18 and the t value of group B vocabulary gain is 25.66, the following can be concluded:

First, both groups are starting from the same vocabulary level and that gives more confidence to compare the difference between both groups.

Second, both groups achieved a significant vocabulary gain, but the question that arises now is whether the difference between the two groups is statistically significant to the extent that we can assure the effectiveness of ArabCAVL software on the treatment group (Group B).

Accordingly, three different tests (t test, ANCOVA, and ANOVA) will be applied for measuring the difference between the two groups.

## 2- t-test for comparing Group A with Group B

### Reason for using t test:

The t-test is used for measuring the difference between the two groups to know if the difference is statistically significant or not, taking into consideration that the mean of both groups' pre-tests is nearly equal, as previously indicated.

### Results:

Group A and Group B (Pre-test versus Post-test data):

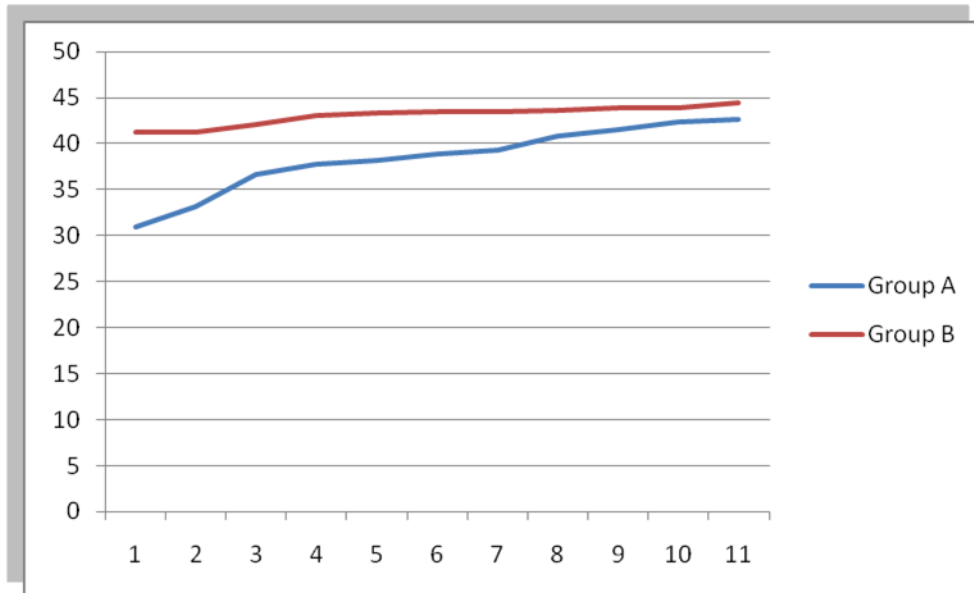
Group	Pre-test	Post-test
A	7	33.17
A	10	39.27
A	8	38.89
A	19	38.13
A	12	36.61
A	24	41.56
A	23	40.80
A	15	42.33
A	10	37.75
A	4	42.71
A	8	30.88
B	8	43.47
B	13	43.66
B	10	43.47
B	8	41.18
B	11	41.18
B	9	43.85
B	18	43.28
B	12	44.42
B	20	42.13
B	11	43.85
B	13	43.09

Group A					Group B				
Sd	Average	Min	Max	Percentage	Sd	Average	Min	Max	Percentage
3.54	38.37	30.88	42.71	85.26	1.02	43.05	41.18	44.42	95.66

Since t-value is equal to 4.25, which is greater than 2.09 with an alpha= 0.05 and df= 20; therefore, the difference is statistically significant and that shows that Group B outperformed Group A.

Accordingly, the result advocates the hypothesis that Group B, exposed to ArabCAVL software using the Nation (2001) framework, will surpass Group A, who uses only the Nation (2001) framework.

Here is a 2D line graph showing the difference between the two groups' post-tests:



**Group A versus Group B**

### 3- ANCOVA test for comparing Group A with Group B after adjusting the mean of both groups' pre-tests

**Reason for using ANCOVA test:**

ANCOVA test is used in order to compare the achievements of both groups and whether the difference is statistically significant or not by eliminating any differences in both groups' pre-tests.

**Results:**

```

Multiple Comparisons Among Group Means

Comparison of Group 1 with Group 2
F = 71.634, probability = 0.000 with degrees of freedom 1 and 19

Test for Each Source of Variance Obtained by Eliminating
from the Regression Model for ANCOVA the Vectors Associated
with Each Fixed Effect.

```

SOURCE	Deg.F.	SS	MS	F	Prob>F
Cov1	1	14.25	14.25	1.992	0.1743
A	1	125.12	125.12	17.494	0.0005
ERROR	19	135.89	7.15		
TOTAL	21	270.60			

```

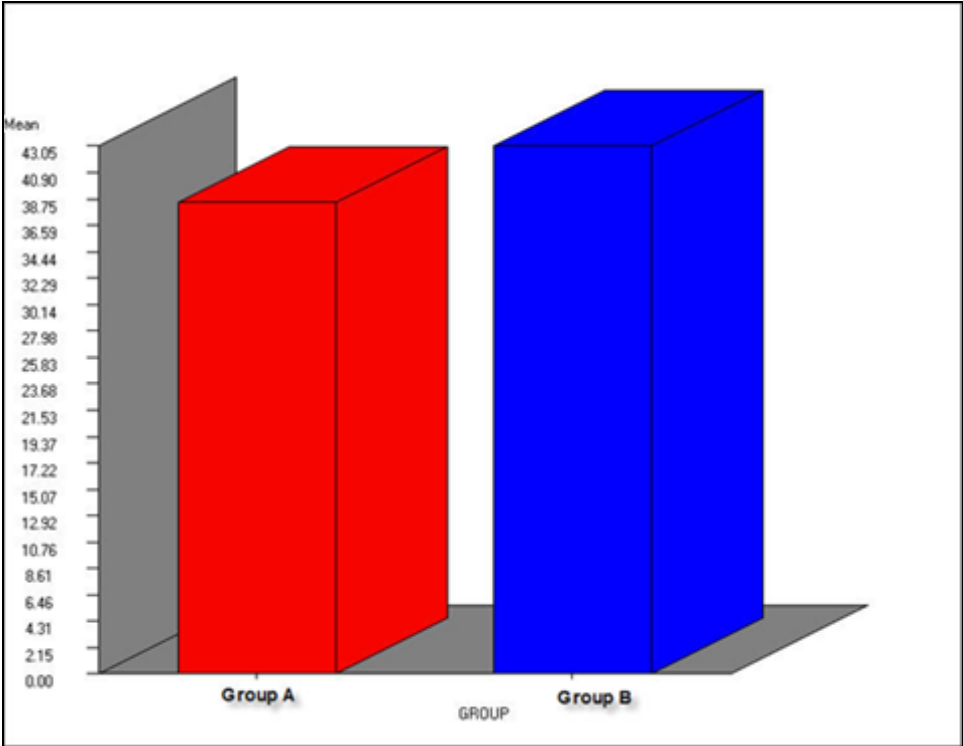
ANALYSIS FOR COVARIATES ONLY
Covariates 1 9.60 9.60 0.735 0.4013

```

From the above result, it is shown that F is 71.634 with df= 1 and 19. Accordingly, the result advocates the previously mentioned hypothesis.



Find below a bar diagram showing the difference between the two groups:



Group A versus Group B

#### 4- ANOVA test for comparing group A with group B

**Reason for using ANOVA test:**

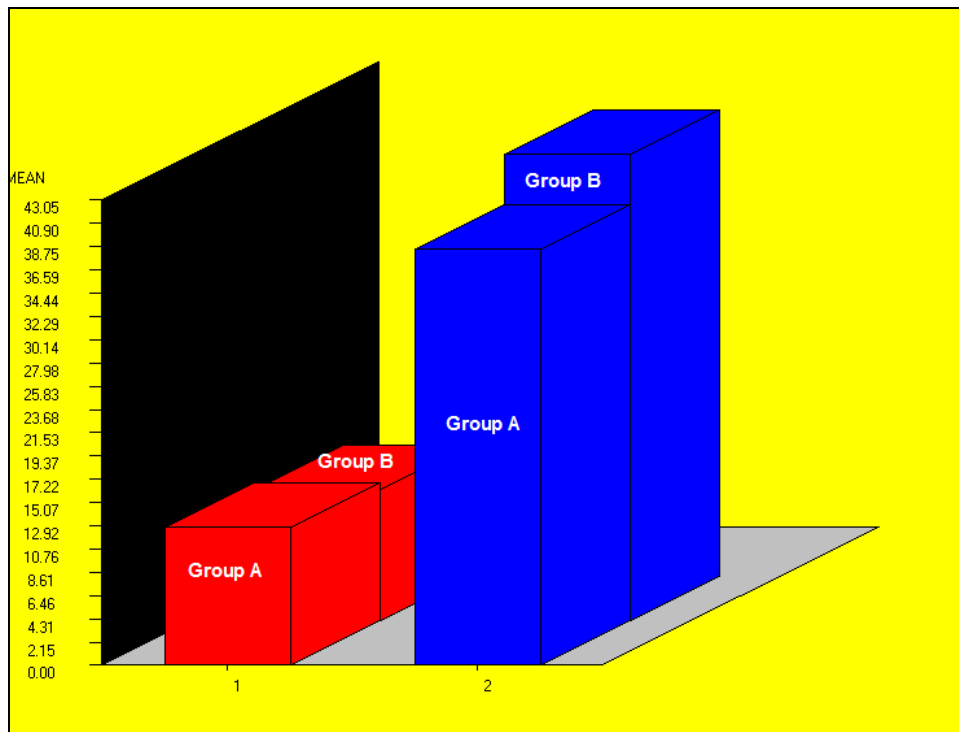
ANOVA test is used in order to compare the achievements of both groups and whether the difference is statistically significant or not.

**Results:**

ANOVA With One Between Subjects and One Within Subjects Treatments					
Source	df	SS	MS	F	Prob.
Between	21	509.663			
Groups (A)	1	44.965	44.965	1.935	0.1795
Subjects w.g.	20	464.698	23.235		
Within Subjects	22	9170.307			
B Treatments	1	8812.054	8812.054	628.249	0.0000
A X B inter.	1	77.725	77.725	5.541	0.0289
B X S w.g.	20	280.527	14.026		
TOTAL	43	9679.970			
Means					
TRT.	B 1	B 2	TOTAL		
A					
1	12.727	38.373	25.550		
2	12.091	43.053	27.572		
TOTAL	12.409	40.713	26.561		
Standard Deviations					
TRT.	B 1	B 2	TOTAL		
A					
1	6.680	3.720	14.145		
2	3.859	1.085	16.085		
TOTAL	5.333	3.590	15.004		

From the above result, it is shown that the difference is statistically significant agreeing with the hypothesis that Goup B, exposed to ArabCAVL software using the Nation (2001) framework, will surpass Group A who uses only the Nation (2001) framework.

Find below a bar diagram showing the difference between the two groups' pre-tests and post-tests:



Group A versus Group B

The above diagram shows the following:

- Both groups are starting equally as the difference is not statistically significant, and that gives us more confidence while comparing the results of the two groups.
- A very high vocabulary gain occurred after introducing the Nation (2001) framework to Group A.
- A very high vocabulary gain occurred after introducing the ArabCAVL software using the Nation (2001) framework on Group B.

Although the two groups showed a significant increase in vocabulary gain, the difference between the two gains is statistically significant showing that Group B, which was exposed to the ArabCAVL software using the Nation (2001) framework, outperformed Group A, which was exposed to the Nation (2001) framework only.

### ***C- Third research question: What is students' attitude toward using the software?***

Open-ended questions and a questionnaire were used for eliciting students' attitude toward using the ArabCAVL software.

#### **1- Open-Ended questions**

Students were asked about the main reason for using the software. Their answers showed that they used it for understanding and learning vocabulary in context, learning grammar, reviewing, practicing, and finally studying for the exam. Find some of the students' answers quoted below:

**"To help understand the vocabulary"**

**"To assist in the learning of vocabulary and grammar in addition to the text book"**

**"Easy to use"**

**"Practice"**

**"Review "**

**"To improve my vocabulary"**

**"To learn the vocabulary in context and study for the exam"**

Accordingly, all their answers support the fact that students' perception toward the software is very important, according to Khan (2000). In addition, knowing students' needs and trying to fulfill them is essential in order to complement what is still missing for facilitating students' learning process. Other advocates (Ilban, Yildirim, & Sapar, 2006) said that by carefully examining the prominent issues which learners consider in learning a new language and exploring as well the potentials and features of web-based instructions, an environment carrying a great weight of potential can be created. Consequently, knowing students' needs and main reasons for using the software in order to build upon their needs and enhance the software in the future is essential.

The second question was concerned with when do students actually use the software, and their answers revealed that 81.8% used it for studying vocabulary for the first time, 81.8% used it for review, and 63.6% used it before the exam. Accordingly, the results show that students used it mainly for studying vocabulary and revision more than just using it before the exam.

The third question was concerned with which activity/activities among the four they used most. Actually their answers showed that they preferred using words in contexts and instant feedback activities over Arabic or English text with mouse over target words. The above shows the students' need to see both the different semantic meanings and the different morphological forms of the same lexicon in different contexts. It is noted that in most situations where students get lists of de-contextualized words and even if these words are introduced in context, they are shown in one single context, leading only to limited knowledge of the word meaning. Accordingly, students will acquire but a single meaning for the word and not all its different semantic meanings. This shows how useful the activity could be as related to vocabulary acquisition while introducing the lexicon with different semantic meanings and different morphological forms through various contexts (Nation, 2001; Zakar, Cobb, & Spada, 2001, as cited in Johnson and Heffernan, 2006). In addition, students' responses regarding the instant feedback show that through using a web-based environment, students can take exams, quizzes and receive instant feedback as well; consequently, students through web-based learning can monitor their progress and assess themselves before sitting for the exams (MacEntee & Lewis, 2004).

The fourth question was concerned with students' opinions regarding whether or not the software was user-friendly. Most students felt comfortable while using the software and they didn't find any difficulties during the learning process. In fact, knowing their answers regarding this question is very important to ensure that the software, which serves as an interactive web-based instruction tool, is adequate enough to be described as an efficient means for delivering vocabulary.

The fifth question was concerned with how they found the interface in navigating through the software, whether it was easy or difficult. In fact, most of the students found the software easy in navigation, but only one said that the interface changed while using the Linux operating system. Accordingly, it is known that different operating systems need different interfaces, so when upgrading the software, adding a recommendation regarding the most appropriate operating systems needed for displaying the application in its best form is essential.

The sixth question was concerned with how the Study Mode which embraced target words with their different morphological forms in various contexts served them in gaining vocabulary. Find some of the students' answers quoted below:

**“It is my favorite part of the software because it showed me how words are used in different forms. “**

**“Better understanding of the way vocabulary is used in different types of sentences. Also to acquire other vocabulary that is used in these sentences.”**

**“I was able to see the words next to each other and how they are changed in form and meaning when conjugated.”**

**“It is very useful because it shows me the word in different meanings and contexts.”**

**“It taught me how the word can be used.”**

**“Practice makes it perfect.”**

**“It showed me how to use the vocabulary in sentences.”**

**“It is helpful to see the different way words are actually used.”**

**“It shows me how to use the vocabulary correctly in sentences.”**

**“This is the best part.”**

**“This activity was my favorite because it helps me understand how words are actually used, and how meanings change according to context.”**

Accordingly, all their answers support the fact that students perceived the Study Mode as being helpful in studying, especially the part that showed them how the word can be used in different morphological forms and different contexts for showing different meanings. Consequently, the aim for using this activity was achieved, and students seemed to be benefiting from it. In fact, the results of this activity show how the Nation (2001) framework succeeded by stressing on the fact that words should be taught deliberately at the beginning with successive repetition. Also, this software was accessible to students at anytime paving them the way to practice for an unlimited number of times until the word is acquired thoroughly.

The seventh question was concerned with how the Recognition for Comprehension Mode which embraced Arabic text with the mouse over target words served them in gaining vocabulary. Find some of the students' answers quoted below:

**“This activity was helpful because it allowed me to read the passage more smoothly and focus on the overall meaning instead of having to pause to look up individual words.”**

**“It allows for faster reading.”**

**“This activity helps me test my memory and helps my ‘guessing from context’ skills.”**

**“It is helpful to highlight what the new vocabulary words are.”**

**“It saved me time because I wouldn't have otherwise to spend time fumbling through a dictionary.”**

**“Reading is hard, so it assist me in reading.”**

**“How the words can be used in context.”**

**“Help me more in understanding the text.”**

**“Like any comprehension section, reading the story with selected vocabulary was useful in helping me to remember how the words are used in practice.”**

**“Good way to familiarize yourself with the words.”**

Accordingly, all their answers support the fact that this activity assisted them in reading and saved them more time, so their understanding of the passage wasn't disturbed and went smoothly. Students also highlighted the advantage they achieved from showing the word in contexts as it assisted them in knowing how the word can actually be used. A student also commented on that activity saying that it assisted her in recalling target words she previously studied by testing her memory through clicking on each word to show the correct meaning after guessing it.

The eighth question was concerned with how the Practice Mode which embraced multiple choice questions with instant feedback served them in gaining vocabulary. Find some of the students' answers quoted below:

**“I love it because of the instant feedback.”**

**“You can see what you did wrong. Also it makes you learn the other vocabulary that is present in the sentence.”**

**“This section was great because it allowed you to try and find out where your mistakes were without the worry of penalty.”**

**“This is good for bringing up quick word recognition and better sense of sentence structure.”**

**“Good for studying.”**

**“I used it for practice.”**

**“It uses extra words from the vocabulary and makes me think critically about what is actually being said in the sentence.”**

**“This activity helps me test myself to see what words I need to study more.”**

**“Good way of testing understanding, but sentences must be longer and have a real semantic meaning.”**

**“This activity is helpful because it shows the word in meaning.”**

Accordingly, all their answers support the fact that the instant feedback assisted them a lot in knowing their errors and eventually working on studying them more. In addition, they became more familiar with

how the sentence is structured using the new target words, so it helped them with learning grammar incidentally as well. This activity gave students more time for practicing without putting any constraints, so giving them more self-confidence. In other words, they can assess their word knowledge as much as they can without the time, place, and grade restrictions.

The ninth question was concerned with how the Recall using L1 Mode with the English text using mouse over target words served them in gaining vocabulary. Find some of the students' answers quoted below:

**"This activity helps because it gives me practice changing my English thoughts to Arabic."**

**"It is ok; maybe use it to introduce new words at the beginning of the lesson."**

**"This activity helps me test my memory of the vocabulary."**

**"I used it for revision for the vocabulary quiz."**

Accordingly, all their answers support the fact that it assisted them in recalling words from their memory and to know how to think like native speakers. One of the students also commented that he can use it easily before the quiz.

The tenth question was concerned with which activity among the four they preferred the most. Find some of the students' answers quoted below:

**"I liked hidden Translation and Instant feedback."**

**"I liked Instant feedback because you have to think more."**

**"I preferred the Arabic text with vocabulary more than the other because it allowed me to visualize the word in context."**

**"I liked Reading and grammar."**

**"I liked Instant feedback."**

**"I liked multiple choice questions with instant feedback."**

**"I liked instant feedback because it shows me right away what words I need to study more."**

**"I liked sentences with new vocabulary in class because they helped in accelerating the course."**

**"I liked the words in different forms and contexts best, because it shows how you can actually use the vocabulary in different ways."**

Accordingly, all their answers support the fact that the Practice Mode assisted them much in knowing their errors and eventually working on studying them more. In addition, words in different contexts with



different semantic meanings and different morphological forms assisted them in knowing how such words are used in expressing ideas. Moreover, they perceived the words with different forms and contexts as an aid for showing them how to structure the sentence properly, and consequently, they perceived it as a way for learning grammar indirectly.

The eleventh question was concerned with how the search option assisted them while using the software. Find some of the students' answers quoted below:

**“Search option made it easier to find words.”**

**“I remember things afterwards.”**

Accordingly, all their answers show that this option facilitated their searching for the words more easily and enhanced their memory due to the easy access of words when they needed them.

The twelfth question was concerned with whether the software assisted them more than the traditional face-to-face learning. Find some of the students' answers quoted below:

**“Yes, because it is more interactive.”**

**“Yes, but flash cards still the best as you can carry them around.”**

**“When face to face is unavailable, the interactive helps the student gain more Arabic on his own.”**

**“It is easier to practice much on your own and the answers with the feedback are quicker.”**

**“Yes variety of uses helps concrete the vocabulary and its use.”**

**“Yes easier to use.”**

**“It gave me examples on how to use vocabulary.”**

**“I like doing it on my own time.”**

**“Yes because it motivated me to study.”**

**“Yes more options.”**

**“It helps me review on my own and lets me know individually what I need to work on.”**

All their answers support the fact that blended learning environment enhances their learning due to its instant feedback, flexibility in studying, interactivity, and motivation. Students' views advocate Campbell et. al (2005) when they stated that both deep learning and desired study outcome is achieved through blended learning environment. Also the results advocate Khan (2000) regarding the benefits which the

web-based instructions provide by being adaptable to different students' characteristics leading to more motivation, and eventually better learning acquisition.

The thirteenth question was concerned with knowing their overall opinion regarding the software. Find some of the students' answers quoted below:

**"It is good and helpful."**

**"The software is excellent and does exactly what it intends to do without all the frills."**

**"Excellent, I appreciate time spent creating the software."**

**"It is very useful. Thanks Rasha!"**

**"I like it ممتاز."**

**"It is good."**

**"It is very good."**

**"It is a good start."**

**"I like using the software a lot."**

**"It is useful, but it shouldn't replace the other exercises we have, especially given the difficulty of finding internet access in Cairo."**

**"I think it is fantastic and it is very useful for studying outside the class."**

Accordingly, all their opinions show that the software was successful in satisfying their needs. In addition, they perceive it, along with the exercises embedded in the text book, as a good supplement for enhancing their vocabulary learning. Consequently, the blended learning environment turned to be exponentially important.

The fourteenth question was concerned with trying to know their suggestions in order to make the software better in the future. Find some of the students' answers quoted below:

**"I think making the instant feedback more complex so it is not just testing vocabulary, but comprehension as well."**

**"I would like some virtual flash cards."**

**"See the exercises that I completed in the instant feedback."**

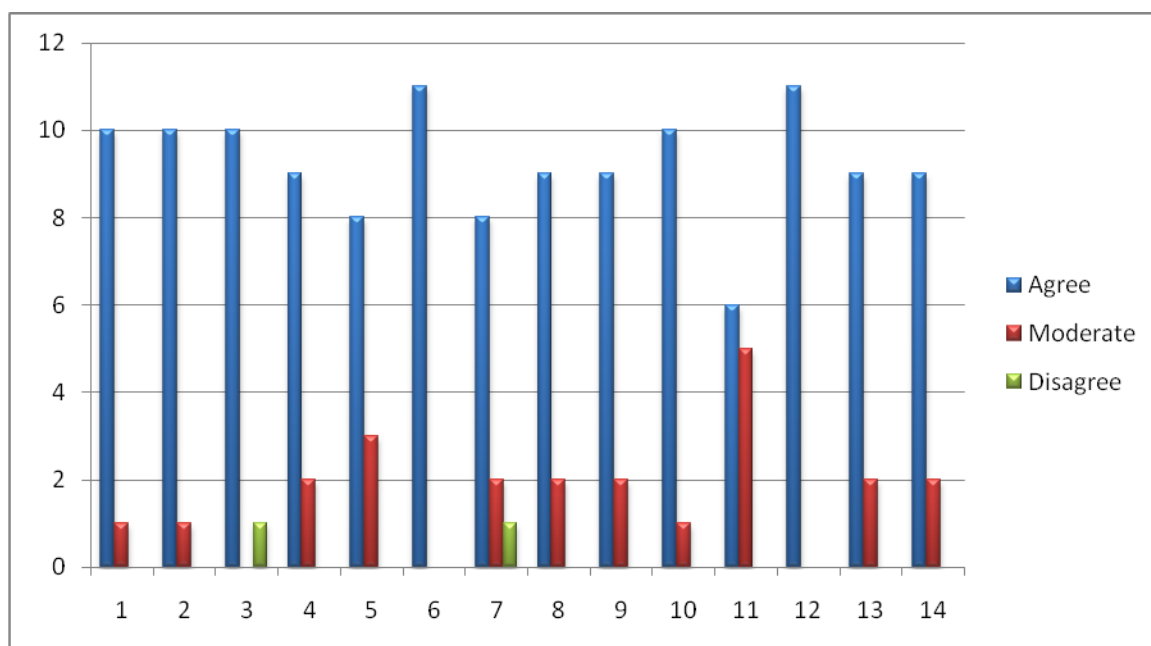
**"Make it harder."**

**"Activity for typing Arabic and then submit our homework that way."**

**“Add listening activity section and possibly oral section where students can read an essay and receive feedback to work on pronunciation.”**

According to the suggestions mentioned above, the researcher thinks that these recommendations are well worth taking into consideration. In fact, the recommendation that sentences should be more challenging led the researcher to conclude that the software could be divided into two or more difficulty levels. Consequently, ambitious students with a higher pace who want to achieve and practice more can use higher levels of difficulty. In addition, the other suggestions are feasible and can be done in a new version.

## 2- Questionnaire



Questionnaire Result

**The above chart shows students’ responses regarding the fourteen questions that aimed to elicit their attitude toward using the software.**

The first question wanted to solicit students’ opinions toward being able to learn more independently after using the ArabCAVL software. In fact, students’ answers show their agreement toward enhancing their autonomous learning skill stating that the software made practice easier.

The second question wanted to ensure the advantages the instant feedback feature provides compared to teacher feedback in serving students while studying vocabulary. The results showed students’

preference toward the instant feedback feature due to its ease of access and immediate response regardless of time and location. In addition, they stated that being able to have immediate feedback encouraged them to proceed in a streamlined process while practicing, and so more achievement occurs. Despite that, one student commented that he can't abandon teachers' feedback since it is very important, especially in communication and giving more explanations. In fact, this opinion advocates the advantages which the blended learning environment provides, showing the disadvantage to depend solely on online teaching.

The third question wanted to know students' opinions of being able to save more time by studying vocabulary using the ArabCAVL software. Actually, students' answers showed agreement with the time-saving advantage which the software provided. In addition, they commented that it saved them time especially from making their own flash cards and enabled them to go through words again in a streamlined process. Only one student said that learning vocabulary takes time at the end.

The fourth question wanted to know if the software served them in recalling words easily. Students stated that being able to go through vocabulary for unlimited numbers of times, made them remember target words more, thus recalling became easier.

The fifth question wanted to know if the software reinforced target word knowledge by clicking on the target words to view the meanings. Most students agreed that recalling became easier after using this activity and word knowledge was enhanced by introducing target words in context and by being able to retrieve their meaning instantly, saving them more time and strengthening their memories.

The sixth question wanted to investigate the usefulness of the repetitive chances provided by the software in helping students practice more using multiple choice questions. In fact, all students agreed that this feature was useful since they would not worry anymore about a grading penalty; but to the contrary, they practice for an unlimited number of times until gaining more self confidence about the target words.

The seventh question wanted to know if the software being accessible anytime and anywhere helped them more in studying. Most students agreed that it definitely served them well since they could access it from any place inside or outside the country. In addition, they can use it in their leisure time, so using it is not bound to any restrictions. However, one student commented that she finds difficulty logging on to the software from her apartment, and the other student still preferred the flash cards more since they are more accessible anytime and anywhere. In fact, all modes were accessible both online through

the internet and offline through the compact disk. The only mode which wasn't available offline is the Practice Mode as the only reason for that was to monitor students' progress. Actually, the researcher wanted to make the software available both online and offline for avoiding any struggles that can hinder students from learning vocabulary through it.

The eighth question was concerned with trying to know if the software helped students in assessing themselves through the embedded grading option provided in the Practice Mode. Most students agreed on its usefulness, commenting that it showed them which words they should stress on while studying by showing their mistakes.

The ninth question concentrated on knowing to what extent the software helped students in remembering the word for a longer period of time. Students stated that introducing words in context was of great help to them leading to them to remember words better. They also commented on the instant feedback feature stating that it encouraged them to practice anytime and anywhere for an unlimited number of times. In fact, this reinforces the Nation's (2001) framework when it stated that introducing words in context leads to deeper word knowledge through multiple repetitions.

The tenth question was concerned with whether or not the software facilitated the process of learning vocabulary compared to the traditional word lists presented in their textbook. Students showed a very high agreement concerning this question stating that repetition made them practice more. One of the students declared that having the ArabCAVL software caused him to ignore the textbook while learning vocabulary, due to the different facilities and features provided by it.

The eleventh question asked if the "search" option facilitated students' access to certain words in a specific lesson or not. Students' answers showed agreement with this question commenting that they can even access the word visually since the target words are emphasized and highlighted in a different color.

The twelfth question concentrated on whether or not the software assisted them in knowing the different meanings of the same word in various contexts. Students' responses showed a very high agreement and preference regarding this question, supporting their opinions mentioned earlier about the Study Mode activity.

The thirteenth question was concerned with whether or not the software helped students in knowing words' different morphological forms. All students agreed on that, indicating that it facilitated the

process of perceiving different word forms in a simple way since each word form is introduced in a separate sentence with its translation. Accordingly, the difference between word form meanings and usages became clear.

The fourteenth question asked if the translation option used in the Study Mode helped them in understanding different words' meanings in different contexts or not. Students highly agreed about the translation option, since it showed them the exact meaning of the sentences by comparing their understanding with native speakers' interpretation.

### Conclusions

The study examined three research questions: the effectiveness of the Nation (2001) framework, the effectiveness of computer-aided vocabulary learning software (ArabCAVL) using the former framework, and finally students' attitudes toward using the software (ArabCAVL).

Regarding first research question, the learning outcome of the Nation (2001) framework in acquiring targeted vocabulary showed a significant increase in students' vocabulary recognition and usage as it proved its effectiveness through explicit teaching. However, the second research question which aimed to employ this framework using computer aided vocabulary software demonstrated that learners can acquire vocabulary better in a blended learning environment and thus have more enhanced recognition and usage of targeted vocabulary. For the third research question, learners' attitudes toward using the software turned out to be positive as the majority of learners reported that they like using the software in studying vocabulary since it facilitated the learning process especially in terms of introducing word knowledge in different contexts, instant feedback, multiple word retrieval, and recognition for comprehension. Furthermore, students stated that the ArabCAVL software made their learning process much easier due to the technology-based features provided by it. This justifies the importance of computer aided language learning as an undetached part of a second language acquisition program.

The interesting part arose when students declared their acquisition of vocabulary as well as grammar through using the ArabCAVL software. In fact, students stated that knowing how the words are correctly used through different contexts made them learn the structures that should precede and follow certain words. For example some words need prepositions (such as: *بِشْتَهْر* -), and focusing on these grammatical aspects made them acquire grammar incidentally. This affirms what Nation (2001) wrote when he stated that grammatical functions are essential in knowing the role of each word in a sentence, so without knowing the grammatical function, an unguaranteed composition of a meaningful sentence could take place. Consequently, we can deduce that students perceived the software as an indirect means for acquiring grammatical rules through recognition and multiple exposures to target words introduced through different contexts. Thus, it is recommended to search for more innovative means that

encourage students in learning grammar incidentally and so lowering the affective burden of memorizing the grammatical rules of Arabic.

To sum up, it is seen that the findings support the results of three types of researches. First: Researches that focus on the effectiveness of deliberate vocabulary teaching. Many studies as mentioned earlier in the literature review agree with the results achieved by the current study proving the effectiveness of deliberate vocabulary teaching through multiple retrievals such as: Mizumoto and Takeuchi (2009) and Fan (2003). In addition, other studies agree with this one from the prospect of adhering to a certain strategy for teaching vocabulary such as: Scafaru et al. (2006) and Atay and Ozbulgan (2007). Moreover, reading being perceived as an aid for both vocabulary and grammar acquisition showed its effective outcomes such as: Rott (2005), Pigada and Shcmitt (2006), and Fan (2003). In fact, this agrees with students' opinions after using Recognition for Comprehension Mode and Study Mode.

Second: Researches concerning computer aided vocabulary teaching. All the aforementioned results concerning the effectiveness of the ArabCAVL software and its superiority over the traditional face-to-face learning agree with the results achieved by different studies as mentioned earlier in the literature review such as: Tozcu and Coady (2004), Johnson and Heffernan (2006), Ma and Kelly (2006), Loucky (2007), Lenders (2008), Christensen et al. (2007), Zapata and Sagarra (2007), and Stockwell (2007).

Third: Researches about blended learning environment. In fact, students' answers in the questionnaire with open-ended questions showed the efficiency of the blended learning environment and its successful effect on students' vocabulary acquisition leading to a better outcome. These findings support different studies as mentioned earlier in the literature review such as: Precel et al. (2009), (Akkoyunlu & Soylu, 2006), (Campbell et. al, 2005), (Gulbahar & Madran, 2009), (Lim and Morris, 2009), (Motteram, 2006), and (Ginns and Ellis, 2009).

All in all, more attention should be given to technology-based activities that are built on a theoretical basis since they proved their effectiveness in blended learning environments. Given that teacher's explanations are facilitated using efficient means of delivery that lead to a better outcome, more computerized activities should be designed taking into consideration students' needs and suggestions.

From all the previously mentioned results, the software is perceived as intrinsically motivating since it worked on lowering the burden of learning vocabulary in the blended learning environment. In fact,



intrinsic motivation is perceived as a very important aspect agreeing with Gass and Selinker (2001) when they stated that motivation has a direct impact on students' language learning leading to faster acquisition. Referring to students' responses in the questionnaire and open-ended questions, we can infer that they are willing to study vocabulary more after they used the ArabCAVL software to the extent that they kept on asking the researcher to add more activities on the internet for practicing more. It is worth mentioning also that the activities implemented in the software were given to students lesson by lesson. But, because students kept asking for more activities concerned with the target words of subsequent lessons prior to taking them, the researcher accelerated the process and implemented all activities for the next lessons as well. Accordingly, it is inferred that students became fond of practicing and studying through the ArabCAVL software leading to an accelerated vocabulary learning process due to the noted motivated spirit among students.

### ***A- Pedagogical Suggestions***

Teaching Vocabulary can be applied both explicitly and implicitly by re-ordering the activities used in the ArabCAVL software as follows:

#### **Implicit to explicit vocabulary teaching activities**

##### **a. First Suggestion:**

The main aim of these implicit to explicit vocabulary teaching sessions is to bring in target words from limited to more extended contexts and encourage their usage gradually starting from being controlled to being more open-ended.

- First Session: Introduce the "Recognition for Comprehension Mode" activity in class by asking students to guess the meaning of each underlined word. Students can then check their guessing through clicking on each word to show its L2 translation. The main aim from this activity is to enhance students' guessing strategy.
- Second Session: Ask students to use the "Study Mode" activity at home for learning different meanings of the same word in different contexts.
- Third Session: Ask students to use the "Practice Mode" activity as an assignment at home for further practice and more word retrieval.

- Fourth Session: Engage all students in playing a game inside the classroom for circulating all the target words. The main aim from this activity is to negotiate words' meanings to fit correctly into the new context provided.
- Fifth Session: Select a topic that attracts students' attention for using the target words in class orally in context. The main aim from this activity is to encourage students to use the target words in class through expressing their opinions and receiving instant feedback from the teacher since this type of activity will involve more than just using vocabulary. Students in this activity are asked to take notes during discussions. This will represent the building blocks for the upcoming written assignment.
- Sixth Session: Ask students to write about the previously mentioned topic at home as an assignment. The main aim of this activity is the generative usage of target word knowledge.

**b. Second Suggestion:**

The main aim of these implicit to explicit vocabulary teaching sessions is to enhance guessing strategy through different activities and multiple retrievals.

- First Session: Play for students a movie that uses the new target words with subtitles and present a transcription of the listening text with the target words highlighted in a different color, then ask them to guess their meaning. Students can check their guessing by clicking on the target words to show the correct word meaning.
- Second Session: Ask students to use the "Study Mode" activity at home for learning the different meanings of the same word in various contexts.
- Third Session: Introduce a "Recognition for Comprehension Mode" activity in class and ask students about the meaning of each word and why they think this is the most appropriate meaning and not the other meanings that were introduced previously in the "Study Mode" activity.
- Fourth Session: Give students a picture and ask them to use target words to make up a story about this picture. Students in this activity will work in pairs and the two who write the best story using the largest number of target words will win. Accordingly, multiple retrievals and more motivation among students lead to expected better outcomes.

## Explicit vocabulary teaching activities

### a. First Suggestion:

The main aim of these explicit vocabulary teaching sessions is to tie form to sound by practicing word knowledge through different activities and multiple retrievals.

- First Session: Ask students to go and listen to the target words at home using the CD with the textbook and look at their meanings. This activity will act as a way for students to get to notice target words audio-visually through listening to the words' pronunciation and look into their meanings.
- Second Session: Ask students inside the classroom to produce a sentence regarding each target word to enhance the generative usage of each word in a controlled activity.
- Third Session: Ask students to use the "Study Mode" activity at home for learning the different meanings of the same word in various contexts.
- Fourth Session: Ask students about the different meanings of each word after being exposed to the "Study Mode" for testing their word knowledge.
- Fifth Session: Ask students to use the "Practice Mode" activity for reinforcing their target word knowledge through multiple retrievals.
- Sixth Session: Give students a quiz to assess them on the different words' meanings and forms.

### b. Second Suggestion:

The main aim of these explicit vocabulary teaching sessions is to encourage students through giving them more self-confidence toward the new language by providing them with authentic materials. These sessions also aimed to assist students in recognizing how the word differs in meaning from one context to another.

- First Session: Ask students to use the "Study Mode" activity at home for learning the different meanings of the same word in various contexts.
- Second Session: Introduce "Recognition for Comprehension Mode" activity to students and ask them about the meaning of each word for verifying their previously acquired word knowledge.
- Third Session: Get an authentic text from a newspaper, magazine, or the internet that embraces target words and ask students to negotiate with each other target words meanings in the given context and how they are different from other meanings presented earlier through the "Recognition for Comprehension Mode" activity.

- Fourth Session: Give students a list of proverbs that embrace the target words and ask them about their overall meaning. The main aim of this activity is to motivate students toward using the target words more by engaging them in L2 culture.
- Fifth Session: Ask students at home to prepare a presentation of a topic related to target words in question. The main aim from this activity is to enhance the generative usage of vocabulary through more retrieval.

### ***B- Limitations***

Even though, the ArabCAVL software can be of importance in second language vocabulary learning, it also has a number of limitations, for example: most activities introduced through the software presented vocabulary items on the level of the sentence and not on the level of an entire text. In addition, the activities that introduced words on the text level weren't authentic and it would have been better to add more authentic texts for giving students more confidence toward the new language.

All subjects who participated in this study were Americans which could affect the possibility to generalize the results reached. Although the study was conducted in the same university in spring 2010, it would have been better if the two groups were in the same university but in different semesters in order to increase the length of the study for knowing the effect of this software over a long period of time, and so trying to know all its pros and cons. Each group should be in different semester for neutralizing any factors that could affect the overall results of the study.

Finally the implemented software was intended to serve this experiment specifically. In other words, the researcher was its author, so the only one who can modify or add any new vocabulary items in it is the researcher. Accordingly, expanding software usage in order to be used by teachers for adding more vocabulary items can be implemented for more widespread usage.

### ***C- Suggestions for Future Research***

Students' answers to the previously mentioned questionnaire with open-ended questions show three different perspectives for using ArabCAVL software in learning vocabulary, grammar and reading comprehension. In fact, both grammar and reading comprehension programs can be designed and tested in parallel with this software to show how effective blending the three programs together can lead to more cohesive outcomes.

Accordingly, the researcher suggests studying the possibility of using ArabCAVL software or other types of software for integrating the following:

- First: Teaching grammar through using software that includes the target vocabulary.
- Second: Teaching reading comprehension texts that include both target vocabulary words and previously explained grammar rules.
- Third: Recycling grammar rules and target vocabulary items through reading comprehension texts all over the semester.

Consequently, circulation of target words and grammar rules during the whole semester through multiple retrievals leads to an expected deeper knowledge in each of the following: vocabulary, grammar, and reading.

There are also, a number of implications to be made for the future, taking into consideration students' suggestions for enhancing this software or develop any other. These suggestions include: adding word order activities for building meaningful sentences, designing vocabulary games for engaging students together inside and outside the class, making the software available on mobile devices for more accessibility, or designing a page for enabling students to share their work with other students. The final suggestion may increase motivation among them and allow for a sharing of experiences. Additionally, they could use pictures and sound aids for deeper word knowledge, add different difficulty levels for the same activity, or add some recommendations to students concerning the words which they need to practice more, such as: generating a report to be given to each one of them at the end of each exercise; adding movies or TV programs with subtitles that include target vocabulary words for enhancing students' word knowledge through various retrieval activities; and finally using authentic materials such as comprehension texts for giving students more self confidence toward L2 .

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## Appendix I

Pre-test

### مفردات الدرس الأول

Know	In a sentence	Translation	الكلمة
			آخر
			أول
			محيط
			شعب
			زمن
			عصر
			طبعة
			رحلة
			سوق
			رحالة
			حال
			خليفة
			طويل
			مهمّ
			مشهور
			صاحب
			كامل
			منظر
			تراث
			قافلة
			قرن
			عظيم
			استكشف
			نشر
			امتد

			نظر
			قَدَم
			وقع
			بَلَّغ
			خلال
			مستشرق
			طبع
			بلد
			علم
			علوم
			سنة هجرية
			سنة ميلادية
			قصد
			ترجم
			انقطع
			قام
			صفة
			سَجَّل
			قطع
			رحل
			زار
			أقام
			عاش
			جبال

## Appendix II

### Post-test

أكتب ترجمة كل كلمة من الكلمات التالية ثم ضعهم في جُمَل :

أول	انقطع	قَدَّمَ	مُهم	آخر
صاحب	محيط	قام	وقع	مشهور
خلال	كامل	شعب	صفة	بَلَّغ
قطع	مُسْتَشْرِق	منظر	زمن	سَجَّل
طبعة	رحل	طَبَعَ	تراث	عصر
قرن	زار	بلد	قافلة	رِحْلَة
علوم	عظيم	سوق	مستكشف	علم
امتدَّ	سنة هجرية	استكشف	رحالة	عاش
خليفة	اعتبر	سنة ميلادية	نشر	حال
مُترجم	ترجم	نظر	طويل	قصد

## إختر الإجابة الصحيحة:

اللاعب هدف \_\_\_\_\_

○ انْقَطَعَ ○ طَبَعَ ○ سَجَّلَ

يوجد \_\_\_\_\_ كبير في مصر اسمه خان الخليلي

○ سوق ○ رحالة ○ محيط

الشركة نسخة واحدة فقط من الكتاب \_\_\_\_\_

○ انْتَقَلَ ○ طَبَعَتْ ○ وَقَعَتْ

نحن نعيش الآن في عصر \_\_\_\_\_ و الثقافة

○ القافلة ○ الحال ○ العلم

الشعب \_\_\_\_\_ لا ينهار أبداً

○ القرن ○ العظيم ○ الخليفة

الطفل يحب أن \_\_\_\_\_ الأشياء الجديدة

○ ينظرُ ○ يرحلُ ○ يستكشفُ

الرجل من مصر أمس \_\_\_\_\_

طَبَعَ ٠ حَفَظَ ٠ رَحَلَ ٠

رقم عشرة \_\_\_\_\_

صفتي ٠ رحلتي ٠ حالي ٠

حان وقت \_\_\_\_\_ لأن الساعة الثانية

البلدة ٠ الطويل ٠ الرحيل ٠

البنيت تقول \_\_\_\_\_

الزمن ٠ الحال ٠ الحقيقة ٠

هذا منظر \_\_\_\_\_ و ليس خيال

حقيقي ٠ شعب ٠ أهل ٠

البنيت بتحضير الطعام \_\_\_\_\_

نظر ٠ قامت ٠ انقطعت ٠

رحل الولد من مصر في \_\_\_\_\_ شهر يناير

أواخر ٠ علم ٠ علوم ٠

\_\_\_\_\_ مصر بالأهرامات

تَسْتَكْشِفُ ٠ تَشْتَهَرُ ٠ تَنْقَطِعُ

هذا الفيلم \_\_\_\_\_ جداً في تاريخ السينما

تُراث ٠ مشهور ٠ قافلة

\_\_\_\_\_ في الخطأ شئ مهم للتعلم

العلم ٠ الأقطاع ٠ الوقوع

في قديم \_\_\_\_\_ كان هناك ملك صالح

الزّمان ٠ الزّمن ٠ الحال

تصل الطائرة \_\_\_\_\_ ساعة

خلال ٠ أوائل ٠ أواخر



## Appendix III

### Open Ended Questions

1. What was your purpose from using the software?
  - \_\_\_\_\_ Studying vocabulary for the first time
  - \_\_\_\_\_ Review
  - \_\_\_\_\_ Before the exam
  - \_\_\_\_\_ Other
  
2. When do you use the software often?
  - \_\_\_\_\_ Studying vocabulary for the first time
  - \_\_\_\_\_ Review
  - \_\_\_\_\_ Before the exam
  - \_\_\_\_\_ Other
  
3. What kind of activities do you use mostly in the software? Arrange them from the mostly used to the least used.
  - \_\_\_\_\_ Words in different forms and sentences with the hidden translation
  - \_\_\_\_\_ Instant Feedback
  - \_\_\_\_\_ Arabic text with mouse over target words
  - \_\_\_\_\_ English text with mouse over target words
  
4. How did you find the software while using it?
  - \_\_\_\_\_ Too difficult
  - \_\_\_\_\_ About right
  - \_\_\_\_\_ Too easy
  
5. Was the interface easy to navigate?



7. How this activity served you in gaining more vocabulary and why?

**ابن بطوطة و أطول رحلة في التاريخ**



هو ابو عبد الله محمد اللواتي الذي يُسَمَّى بِطُوْتَة باسم ابن بطوطة, ولد سنة ٧٠٣ هـ / ١٣٠٤ م, بدأ أطول رحلة قام بها رحالة في العصور الوسطى, يبلغ طولها ٧٥ ألف ميل, أي ثلاثة أضعاف ما قطعة الرحلة الإل أوروبا, و تنقل في أفريقيا و آسيا و أطراف أوروبا, زار خلالها ٤٤ بلدا, و استغرقت رحلته ٢٩ عاما, تزوج فيها ٢٣ مرة, و أنجب سبعين ولدا و بنتا.

خرج ابن بطوطة من بلدته طنجة قاصدا الحج و عاد إلى فارس بالمغرب و قد بلغ عمره الخمسين عاما و

Recognition for Comprehension Mode

8. How this activity served you in gaining more vocabulary and why?



The screenshot shows a practice mode interface for Arabic vocabulary exercises. At the top, there is a navigation bar with five tabs labeled "Exercises 1" through "Exercises 5". Below the navigation bar, there is a grid of four rows of exercises. Each row contains a question in Arabic and three multiple-choice options. The first row has a red 'X' icon on the left, indicating an incorrect answer. The second and third rows have green checkmark icons, indicating correct answers. The fourth row has a red 'X' icon, indicating an incorrect answer. At the bottom center, there is a button labeled "تصحیح" (Correct) and a score indicator "Your Grade is : 40".

اللاعب هدف \_\_\_\_\_

● انقطع ● طبع ● سَجَل

يوجد \_\_\_\_\_ كبير في مصر اسمه خان الخليلي

● سوق ● رحالة ● محيط

الشركة نسخة واحدة فقط من الكتاب \_\_\_\_\_

● انقل ● طبعت ● وقعت

نحن نعيش الآن في عصر \_\_\_\_\_ و الثقافة

● الفالة ● الحال ● العلم

تصحیح  
Your Grade is : 40

Practice Mode

9. How this activity served you in gaining more vocabulary and why?

Jason was the last one in his class, but he always wanted to be the first. He lived in a very beautiful country which had many small towns. He became a very famous translator as he translated many books from English to Arabic. Aside from that, he preserved a rare and ancient translated book to be seen by many people. In reality, many people were interested in this book because it aimed at knowing all aspects. The owner of this book became very famous in the entire world for his knowledge. The translator traveled from Egypt to Turkey and the trip was very long. All scientists considered this book as a very important source of information. Jason cut through the sea in order to go to Turkey. He undertook many trips in order to travel through the entire world. His mother moved around Turkey in order to search for Jason, but she didn't find him. She asked many people about him by giving them his descriptions. Jason's family was very worried about him and they were in a very bad condition. His mother crossed different oceans through her trip in order to find him and by that time she became a great traveler. The time passed and she recorded the highest number of trips in the middle ages because she was searching for her son, but at the end she got exhausted and went to a market for buying some food. Jason's mother met an orientalist in Turkey and asked him if he knew her son. The government printed and published various editions in order to search for Jason. The king offered Jason's mother a great caravan in order to explore the entire country as this country extended from the north to the west south. Jason's mother looked at the king and told him that her son is very important to her. She looked from the palace window and saw a great view. She saw Jason with a very great caravan, so she fell and ran to him. Finally, Jason took his mother in order to view the Turkish heritage and told her about all his trips.

Recall using L1 Mode

10. What activity/ activities that you preferred more among the four? Why?

11. How did the “Search” option embedded in the software help you?

12. Did this software help you more than the traditional face-to-face vocabulary learning?

Why?

13. What is your overall opinion regarding the software?

14. How do you think we can make this software better?

## Questionnaire

Choose “**Yes**” if you totally agree, “**Moderate**” if you agree 50%, and “**No**” if you totally disagree. Answer the “**Why**” question for supporting your choice.

Questions	Yes	Moderate	No	Why?
Did the software enhance your autonomous learning?				
Did the instant feedback feature serve you better in having a quick response than waiting for teacher feedback?				
Did using the software save you more time in studying vocabulary?				
Did using the software serve you in recalling words easily?				
Did using the software enhance your guessing strategy through clicking on target word to view its meaning?				
Did the multiple chances of solving the exercises help you in practicing more?				
Did the software being accessible anytime and anywhere help you more in studying?				
Did the software help you in assessing yourself?				
Did the software help you in implanting the words in your long term memory more?				
Did the software facilitate your vocabulary learning more than being listed in the book?				
Did the software help you when you want to search for the meaning of a certain word in any lesson?				
Did the software help you when you want to know the meaning of the word in different contexts?				
Did the software help you when you want to view the different forms of the word?				
Did the translation option regarding each sentence help you in understanding the word in different contexts and forms easily?				

## About the Researcher

Rasha Essam graduated from the faculty of Computer Science and Information System in 2002 from Ain Shams University. She is working as a technical writer for implementing helps and manuals for different software applications. In addition, she is working as a teacher for teaching Arabic language in the American University in Cairo.

Her research interests are computer aided language learning, blended learning environments, e-learning, and web based learning.

Since the researcher was graduated from Computer Science and Information System, she is concerned with using her experience in that field for facilitating the process of learning Arabic through technology.

Email: [erasha@aucegypt.edu](mailto:erasha@aucegypt.edu)