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Research Article

THE COMPARATIVE EFFECT OF USING PAPER AND MOBILE DICTIONARIES ON IRANIAN EFL LEARNERS' KNOWLEDGE OF RECEPTIVE VOCABULARY LEARNING

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ABSTRACT
In the present study, the effect of using paper and mobile dictionaries on EFL learners' knowledge of vocabulary was investigated. In order to conduct the study, 200 intermediate EFL learners who were studying in Iranian Language Institute (ILI) were selected. After a pretest, they were grouped into one control and two experimental groups. After one month of treatment in which one experimental group used paper dictionary, and the other one used mobile dictionary, while the control group just received the meanings from their teacher, they were tested on their receptive vocabulary knowledge. The results revealed that the experimental group which used mobile dictionary outperformed the other groups. It was concluded that mobile dictionaries have better effects on students' vocabulary learning.

Keywords: *EFL, Vocabulary Knowledge, Mobile Dictionary, Paper Dictionary, Receptive Knowledge*

INTRODUCTION
Background and Purpose
Vocabulary can be described as the basic component of language proficiency which affects language users' speaking, listening, reading, and writing (Adolphs & Schmitt, 2004). Emphasizing such an important role for vocabulary, many theorists and researchers have theoretically and practically focused on different aspects of vocabulary teaching and learning. Celce-Murcia (2001) considers a "central" role for vocabulary in language learning, whether the language is first, second, or foreign. Different tools have been used in the processes of vocabulary teaching and learning. Dictionary is one of those helpful devices. Generally, dictionaries contain an alphabetical list of words. Fromkin *et al.,* (2003) claimed that since 1499 when the first dictionary was printed in England, the role of dictionary in language learning has received much attention (Marckwardt, 1973; Bensoussan *et al.,* 1984; Luppescu & Day, 1993; Hulstijn *et al.,* 1996; Ahmed, 1989; Laufer, 1990 & Narenji, 1998).
Schmitt (2002) mentioned three modes of dictionaries which are monolingual (all in the foreign language), bilingual (foreign language words-first language definitions and vice versa) or bilingualized (monolingual with first language definitions also provided). Generally, dictionaries are either traditional paper types or electronic. According to Nesi (2009) electronic dictionaries can be as dedicated handheld devices, as apps on mobiles, smart phones, and tablet computers or computer software, as a function built into an E-reader as CD-ROMs and DVD-ROMs, typically packaged with a printed dictionary, to be installed on the user's own computer, and as free or paid-for online products.
Nowadays, technology plays a significant role in almost all aspects of our lives. As Liu *et al.,* (2008) put forward, English as a Foreign Language (EFL) is no exception and has been affected by technology. According to Fotovatnia (2012), the use of technology in the history of language teaching and learning may refer to the era of audio-lingual method which was somehow replaced by computers in the 20th century and have been recently supplemented by handy devices (e.g. netbooks, iPads, iPods). Prensky (2007) used the term "digital natives" for today students; similarly Oblinger (2003) used the "net generation" for them.
As Burston (2012) mentioned the appearance of hand-held computer-based devices has led to Mobile-Assisted Language Learning (MALL). Burston (2013) continues that since the mid-1990s, MALL has covered the exploitation of five mobile technologies: pocket electronic dictionaries, personal digital assistants (PDAs), mobile phones, MP3 players, and ultra-portable tablet PCs. Numerous studies have

covered a wide spectrum of learning EFL on mobile devices (Sharples, 2000). Thornton and Houser (2005) claimed that mobile devices can be useful in delivering language learning materials to the learners. On the other hand, paper dictionaries are widely acknowledged to be as valuable and common tools in assessing EFL learners.

So far, an enormous body of research has been on different aspects of paper dictionary application in EFL. For example, Summers (1988) studied the effectiveness of Longman Dictionary of Contemporary English both in reading comprehension and in vocabulary learning.

Considering mobile dictionary and paper dictionaries as two different devices for language learning, the present study aims to investigate receptive vocabulary learning of Iranian EFL learners using paper and mobile dictionaries.

Statement of the Problem

Until the 1980s, grammar was the focus of SLA research. Vocabulary had received little attention and was absent from major books on the syllabus and theory of language teaching (Harley, 1996). Only recently, vocabulary studies have attracted the attention of the researchers (Milton, 2013). One of the consequences of the recent academic interest in vocabulary has been the development of ways for describing and testing vocabulary knowledge which are both principled and systematic. Now, it is becoming possible to measure the contribution of vocabulary knowledge to language development. Researchers (Laufer & Paribakht, 1998; Schmitt, 2000) attempted to show that the distinction between receptive and productive vocabulary knowledge is a key factor in understanding the L_2 vocabulary learning and teaching studies.

Passive (receptive) knowledge enables one to perceive the form of the word and retrieve its meaning. Active (productive) vocabulary knowledge enables one to retrieve the appropriate spoken or written word form of the meaning one wants to express (Laufer & Goldstein, 2004). In the next stage, there is an attempt to relate this vocabulary knowledge to the second/ foreign language learning. The goal for any second/ foreign language learner is to use the language in some way. This may be for speech and everyday casual conversation, or for translation of texts, or for study through the medium of the second/ foreign language.

It has become a general practice in the assessment of language to consider language learning in terms of four separate skills: the receptive skills of reading and listening, and the productive skills of speaking and writing. Researchers try to investigate the issues that may have affect enhancing the four language skills; however, since vocabulary learning or teaching may influence the skills; it has become the canon of many research studies.

Paper and mobile dictionaries are among different vocabulary learning and teaching instruments. Despite the increasing popularity of research on the use of paper dictionaries and especially mobile dictionaries over the last decades, few studies have so far compared the effectiveness of using these two kinds of dictionaries on receptive vocabulary learning of Iranian EFL students; therefore, it seems to be a need to do much more research in this area.

In the present study, the aim of the researcher was to compare the effect of using paper and mobile dictionaries on active and passive vocabulary learning of Iranian EFL learners.

Significance of the Study

Schmitt (2002) believed that expanding the vocabulary knowledge of learners is crucial in any EFL learning context, but it is of paramount importance when such learning takes place in lower levels of English language learning. Teachers need to know the number of words students know receptively and productively, in order to be in a position to assess their vocabulary gains and diagnose the possible gaps. Thus, it is necessary to devise strategies which can fill the gap between students' receptive and productive knowledge.

According to Brown (2001), one of the first studies on the application of mobile phones in language learning was done by the Stanford Learning Lab. The result of this research shows a great potentiality of this technology in vocabulary lessons. Kiernan and Aizawa (2004) studied the possible use of mobiles in task-based learning which resulted in more effective communication of the learners. Dziemianko (2010)

claimed that in recalling the meaning of target items and collocations, students using an electronic dictionary had much better performance than those who used a paper dictionary.

On the other hand, students today are known as 'digital natives" and adopting computer-assisted instruments in addition to the traditional forms of learning instruments could benefit students and motivate them for advanced levels of language learning. Particularly, in case of receptive vocabulary learning that students have greater difficulty in perceiving new coming vocabularies.

Research Question and Hypothesis

The main objective of this study is to compare the effect of paper dictionaries and mobile dictionaries on active and passive vocabulary learning of Iranian EFL learners. Thus, the following question is addressed in this research:

Is there any significant difference between the effects of paper and mobile dictionaries use on the acquisition of passive vocabulary?

Subsequently, in order to investigate the above mentioned research question, the following null hypothesis is addressed:

H0: There is no significant difference between the effects of paper and mobile dictionary use on the acquisition of receptive vocabulary.

Literature Review

Though in past the significance of vocabulary was not acknowledged, nowadays a majority of teachers and students agree that vocabulary acquisition is an essential element in second/foreign language learning. With the wide spread of English as an international language, numerous teaching materials and text books have been developed to meet the diverse needs of language learners. In making decisions on pedagogical matters, knowing the learners' language proficiency and especially their vocabulary knowledge seems to be very important. There is "no consensus as to whether this distinction is dichotomous or whether it constitutes a continuum" (Laufer & Goldstein, 2004). For some, like Melka Teichroew (1991), receptive and productive knowledge are placed on a continuum. According to this theory, receptive knowledge gradually moves towards productive mastery as a result of the learner learning more about the lexical items. This gradual cline from passive to active has been widely accepted by Tréville (1988) and Palmberg (1987, as cited in Meara, 1997).

1. The Central Importance of Vocabulary

It seems almost impossible to overstate the power of words; they literally have changed and will continue to change the course of world history. Perhaps the greatest tools we can give students for succeeding, not only in their education but more generally in life, is a large, rich vocabulary and the skills for using those words. Our ability to function in today's complex social and economic world is exceedingly affected by our language skills and word knowledge. In addition to the vital importance of vocabulary for success in life, a large vocabulary is more specifically predictive and reflective of high levels of reading achievement (Pikulski & Templeton, 2005). The Report of the National Reading Panel (2000), for example, concluded, "The importance of vocabulary knowledge has long been recognized in the development of reading skills".

2. What Does It Mean To Know a Word?

Knowing a word involves a lot of factors. For the ancient Greeks, clearly three elements of word knowledge exists: knowledge of aural and written forms and knowledge of the meaning of the word (Milton, 2013).

According to Hirsh (1992), knowing a word is a very complicated issue and it involves seven things: (1) polysemy, indicating that a word rarely has more than one meaning (e.g. Wood: (1) a piece of a tree, (2) a geographical area with many trees); (2) denotation and connotation (denotation refers to the most basic or specific meaning of the word and connotation is an idea that is suggested by or associated with a word. For example denotation of thin, skinny and slim is the same while the first has a neutral, the second has a negative and the third has a positive connotation.); (3) spelling and pronunciation; (4) part of speech; (5) frequency; (6) usage; and (7) collocation. Other researchers add other additional items like homonymy, homophony, synonymy, etc. As it is evident this is not a simple question and both Nation (1990) and

Hirsh (1992) gave warning against teaching lexical sets as doing so has been found to lead to the students confusing the various words.

3. Receptive and Productive Mastery in Lexical Knowledge Taxonomies

Productive knowledge is usually associated with speaking and writing while receptive knowledge is associated with listening and reading (Laufer & Goldstein, 2004). As simple as the distinction might seem at first, it is more complicated when we consider that "good passive skills often require the reader or the listener to actively anticipate the words that will occur" (Milton, 2009). In other words, while listening and reading, learners also display productive knowledge.

Furthermore, different researchers have proposed different taxonomies of lexical knowledge. In describing these taxonomies, the same terms have been used by researchers for different processes or sub-processes, which in turn mean that it is difficult to define terms such as receptive and productive knowledge.

4. Mobile-Assisted Language Learning (MALL):

Mobile Assisted Language Learning (MALL) describes an approach to language learning that is assisted or enhanced through the use of a handheld mobile device (Chinnery, 2006). MALL is a subset of both Mobile Learning (m-learning) and computer-assisted language learning (CALL). MALL has evolved to support students' language learning with the increased use of mobile technologies such as mobile phones (cell phones), MP3 and MP4 players, PDAs and devices such as the iPhone or iPad. With MALL, students are able to access language learning materials and to communicate with their teachers and peers at anytime, anywhere (Shield *et al.,* 2008).

5. Mobile Assisted Word-Learning (MAWL):

Mobile Assisted Word-Learning (MAWL) is an augmented reality based collaborative social-networking interface for learning new words using a smart phone. MAWL keeps track and saves all textual contexts during reading process along with providing augmented reality-based assistance such as images, translation into native language, synonyms, antonyms, sentence usage etc (Alexandria, 2008).

*6. Affordances and Constraints***:**

Enhancing language learning through MALL affords some dynamics not available through the traditional classroom that the language learner can take advantage of. Some of these affordances are even unique to m-learning compared to regular e-learning. In the same way, there are some constraints to m-learning that limit what can be done in language acquisition through m-learning compared to traditional e-learning or classroom learning (Green *et al.*, 2001).

Among the most noted advantages of MALL is that it provides ubiquitous access to learning anytime at any place. Compared to classroom or e-learning, the user does not need to be sitting in a classroom or at a computer to access learning materials. This enables users to brush up on language skills just before or just after a conversation in the language they are learning. Handheld delivery also affords new dynamics for collaborative learning as users can share the language learning process in small synchronous groups (Nah *et al.,* 2008).

Klopfer *et al.,* (2008) claimed 5 properties of mobile devices which can produce unique educational affordances:

- Portability-the small size and weight of mobile devices means they can be taken to different sites or moved around within a site.
- Social interactivity-data exchange and collaboration with other learners can happen face-to-face.
- Context sensitivity-mobile devices can both gather and respond to real or simulated data unique to the current location, environment and time.
- Connectivity-a shared network can be created by connecting mobile devices to data collection devices, other devices or to a common network.
- Individuality- scaffolding for difficult activities can be customized for individual learners.

The most notable constraints for earlier MALL include poor sound and display quality coupled with very limited devices and download speeds (Nah *et al.,* 2008).

MATERIALS AND METHODS

Owing to the nature of the research question, this study is a quasi –experimental study. Knowledge of receptive vocabulary is the dependent variable and the use of mobile dictionary and paper dictionary are the independent variables of the study.

Participants

The participants of the current study were selected from among about 200 Iranian EFL students. They were all female language learners who studied in intermediate level at Iran Language Institute (ILI) in Rasht. All participants were nearly from the same economic and social backgrounds. The participant's then took part in a KET test to assure the homogeneity of the students' general proficiency. Then the students whose scores fall between 1 SD above and 1SD below the mean were selected as the participants of the study.

Instrumentation

In order to obtain measureable data with which the results of the current study could be statically analyzed, the following instruments were utilized:

a) KET tests: KET, the Key English Test, is aimed at elementary level students. It tests the four skills of reading, writing, listening and speaking and is based on the Waystage specification. Students at this level have probably covered between 180 and 200hours of English. KET tests the language used in everyday situations through a range of different test formats.

b) A vocabulary test was used as pretest and posttest to measure the participants' level of receptive vocabulary knowledge. The test contained five reading texts and 20 vocabulary multiple choice questions. After each text, there were 4 questions to check the passive vocabulary knowledge of participants. In order to design this test three professional test designers helped the researcher. This test was made reliable by a pilot study.

c) Mobile version and paper version of Oxford Learners dictionary were used for the treatment.

Procedure

The task of answering the research null hypothesis of the present study was set by selecting homogenous participants to leave out passive vocabulary knowledge as dependent variables. Therefore, the participants of the study were selected out of a poll of 2oo in Iranian Language Institute (ILI) in Rasht. This study was done in one control and two experimental groups. Before the start of the experiment, the potential participants were asked to take part in the KET Test in order to assure the homogeneity of their general proficiency.

This was an important issue, because it had to be made sure that the selected participants had been homogeneous at the start of the study. Then, the ones whose scores fell between 1 SD above and 1SD below the mean were selected as the participants of the study. They were divided into two experimental groups (n_1=20 n_2 = 20) and one control group (n=20).

The selected participants were given a vocabulary pre-test in order to make sure that they are at the same level of vocabulary knowledge. With this pre-test, receptive vocabulary knowledge of the participants was evaluated.

The current study was carried out during a vocabulary teaching course consisting of 7 sessions which lasted about one month (two days a week, each session 60 minutes). Oxford Learners mobile dictionary 2014 was used to teach a set of 168-word English vocabulary lessons for the first experimental groups; and Oxford learners' dictionary 2005 was applied to teach the same materials for the second experimental group. In the control group the participants were provided with the meaning of new words by the teacher (they did not use any kind of dictionary).

New vocabulary items were presented to the participants in a context such as a reading text or listening text. They were asked to check the meaning of those words in their dictionaries. As previously mentioned, in one experimental group, the participants used paper dictionary and in the other experimental group used mobile dictionary. However, in control group, teacher provided the meaning of new words to participants. At the beginning of each session, the already instructed words were reviewed. The participants answered exercises of each lesson at the end and the teacher checked them in the class.

After the period of treatment which lasted for one month, the participants were tested again through post-tests. The posttests were administered to all three groups at the end of the course. The same procedure as pretest was applied. A written vocabulary test was administrated to check the participants' level of receptive vocabulary knowledge. Three sets of scores were retrieved and were analyzed.

Data Analysis

In order to do the comparison which was actually the answer to the question of the study ANOVA was applied.

RESULTS AND DISCUSSION

The statistical description of post test scores which were obtained from control and experimental groups are presented in this section, in order to compare the overall achievement of participants in experimental groups with their rivals in control group to check whether the treatment has been successful or not.

Table 1: Post Test Scores of Experimental and Control Group

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Control	20	14.5000	1.50438	.33639	13.7959	15.2041	12.00	17.00
Exp1	20	15.3000	1.41793	.31706	14.6364	15.9636	13.00	18.00
Exp2	20	15.4500	1.35627	.30327	14.8152	16.0848	13.00	18.00
Total	60	15.0833	1.46475	.18910	14.7049	15.4617	12.00	18.00

It can be observed in the table above that the mean score which is obtained from the post-test of experimental groups is highly more than the mean of the control group. It should be noted that the experimental groups received two months of treatment, while the control group did not. By looking at the raw scores of the participant, it can be inferred that apart from one or two of them whose scores did not improve from pre-test to post-test, the others have improved for one or two scores minimum. However, as the mean score is not enough for the inference, the table below is presented for more detailed investigation into the results and also discussion on the hypothesis of the study.

Table 2: Statistical Table of ANOVS Test between the Scores of Control and Experimental Groups in Post Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.433	2	5.217	2.560	.0086
Within Groups	116.150	57	2.038		
Total	126.583	59			

What should be considered in the table above is the amount of sig which is “0.008”. This score is significantly less than the predetermined amount of p value which is 0.05. Therefore, it can be concluded that there is a significant difference between the groups. It can be inferred that the treatment has been successful and using mobile and paper dictionaries has a positive impact on improvement receptive vocabulary. The group which received treatment has achieved significantly higher reading comprehension ability than the one which has not.

In order to answer the question of the study a post Hoc test was used to check which dictionary has a more significant impact on participants’ vocabulary learning. In table 3 this difference is showed in details.

Table 3: Statistical Comparison of the Groups

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Control	Exp1	-.80000	.45141	.0217	-1.9346	.3346
	Exp2	-.95000	.45141	.0119	-2.0846	.1846
Exp1	Control	.80000	.45141	.0217	-.3346	1.9346
	Exp2	-.15000	.45141	.0346	-1.2846	.9846
Exp2	Control	.95000	.45141	.0119	-.1846	2.0846
	Exp1	.15000	.45141	.0346	-.9846	1.2846

As can be seen in table 3, the comparison between the control group and experimental groups indicates that the experimental groups are significantly different from the control one as sig for them is lower than predetermined value. As can be seen in the second row comparing the first experimental group with the control one, considering the amount of sig. it can be inferred that there exists a difference between the result of the group which received treatment with paper dictionary and the one which did not. The same findings are presented for the second experimental group which received treatment with mobile dictionary. The sig. for this group is 0.03 which is lower than 0.05. Comparing two experimental groups together, the result shows that the group which used mobile dictionaries was more successful in their vocabulary learning as they could get better scores in their post-tests. This result can be due to convenience of using mobile dictionaries.

Conclusion

As the results revealed (sig=.0086), there is a significant difference between the students who have used mobile dictionaries and those who have used paper dictionaries. Thus, the null hypothesis which claimed: "There is no significant difference between the effects of paper and mobile dictionary use on the acquisition of receptive vocabulary" is rejected and it can be reformulated as: "there is a significant difference between the effect of paper and mobile dictionary use on the acquisition of receptive vocabulary". The results also revealed that those who used mobile dictionary gained better results than those who used paper dictionary. It is probably because of the ease of the usage of mobile dictionary which helps students to use it more conveniently and more quickly.

The result of this study is in line with that of Kiernan and Aizawa (2004) claimed that use of mobile phones as a means of teaching English is effective. In this study learners who used mobile dictionaries were more successful in learning effective vocabulary knowledge. The result of the current research is significant for English teachers as they can encourage their learners to use dictionary apps. As mobile phone is an accessible device in modern world, it is highly convenient and interesting for learners to use mobile dictionaries (Chinnery, 2006).

This study is also significant for learners as they can be aware that they are able to use their mobile devices for learning purposes. Dziemianko (2010) claims that, learners find using mobile dictionaries easy and enjoyable. They can take advantage of the technology they have in hand to improve their language ability. Milton (2003) believed that as vocabulary knowledge is of central importance in success in language learning, finding fun ways to help learners improve vocabulary knowledge seem to be crucially important. The result of current study also showed that use of dictionary whether paper or mobile dictionary can be a very effective way to expand vocabulary knowledge.

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