

The Contribution of Electronic and Paper Dictionaries to Iranian EFL Learner's Vocabulary Learning

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Abstract

The purpose of the present paper was to investigate the contribution of paper dictionaries and electronic dictionaries to EFL learners' vocabulary learning. To do so, four groups of male and female EFL learners were selected. The experimental groups (one male, one female) used only electronic dictionaries while the two control groups (male and female) used only paper dictionaries. The scores of all four groups on a vocabulary test were compared using a two-way ANOVA procedure. Results indicated that although the gender of the participants did not meaningfully influence their vocabulary learning and did not interact with the kind of dictionary the learners used, the contribution of electronic dictionary to vocabulary learning was significantly greater than that of the paper dictionary. The findings of this study can be helpful for instructors, textbook writers, syllabus designers and language learners.

Keywords: *paper-dictionary; electronic-dictionary; hand-held dictionary; dictionary on the CD-ROM, vocabulary learning.*

1. Introduction

Nobody denies the importance of learning an international language. There is also little doubt that without vocabulary, the story of language learning is hardly worth telling. There are numerous books and other resources available in the market advocating the use of various techniques for the development of vocabulary knowledge. Yet, dictionaries are, by far, one of the most useful and immediately available sources learners resort to.

Until recently, the only available dictionary in the market was the traditional paper dictionary which was huge, fragile and limited in the number of vocabulary. Nowadays, these bulky paper dictionaries are being replaced with the small, light, stylish and hi-tech electronic dictionaries with colorful LCD. They include millions of words which can be renewed by linking to the internet free of charge. Modern learners, instead of being bewildered by browsing among papers of an old paper dictionary, just bear the insertion of an unknown word in the special slot through keyboard and then navigate in clear and colorful LCD to find the word's meaning, part of speech, synonym, antonym, as well as its pronunciation and much more.

Generally, dictionaries are classified into paper and electronic dictionaries. The present research was conducted to see if there were any significant differences between the above-mentioned dictionaries in the learning and retrieval of new lexicon. This study is an attempt to assess their advantages and disadvantages in the field of second/foreign language learning. The present study seeks to answer the following questions:

- 1- Is there any significant difference between the effect of electronic dictionaries and paper dictionaries on the learning of new vocabulary in EFL context?

- 2- Is there a significant difference between the effect of the type of dictionary used on the male and female learners' vocabulary learning?

2. Review of the related literature

Dictionaries are a very important language learning tool. Alfonso Rizo-Rodriguez (2004) says that the teaching and learning of English not only can be done through different grammatical studies, but also a large range of dictionaries can be used.

To appreciate how useful dictionaries are, one must acknowledge the role of dictionaries in English vocabulary building. Vocabulary plays an important role in second language acquisition and academic achievement (Taylor, L. 2005). Moreover, it is now increasingly agreed that there is a reciprocal, well-documented relationship between vocabulary knowledge and reading comprehension (Constantinescu, 2007).

Aside from knowing how to use the appropriate reading strategies, Grabe (1991) maintains that “fluent L2 readers need to know about 2,000 to 7,000 words and sometimes even more if they actually want to reach native-like fluency” (Grabe, 1991, as cited in Constantinescu, 2007, p.2). Similarly Groot (2000) argues that “an adequate understanding of academic texts requires a vocabulary of at least 7,000 words.

All vocabulary acquisition activities can be done by the appropriate use of a dictionary. But which kind of dictionary is beneficial?

Different types of dictionaries

There are as many dictionaries in the market as there are subjects of study at universities. In some cases, there are more than one for each subject. So, one can easily find a wide variety of dictionaries in the market. As quoted in *The History of Dictionary*, Britannica Encyclopedia, 2007, P.19, dictionaries range from abridged easy dictionaries, to the unabridged difficult dictionaries. There are dictionaries of biography and history, real and fictitious, general and special, relating to men of all countries, characters and professions; the English Dictionary of National Biography is a great instance of one form of these; dictionaries of bibliography, relating to all books, or to those of some particular kind or country; dictionaries of geography (sometimes called gazetteers) of the whole world, of particular countries, or of small districts, of towns and of villages, of castles, monasteries and other buildings. There are dictionaries of philosophy; of the Bible; of mathematics; of natural history, zoology, botany; of birds, trees, plants and flowers; of chemistry, geology and mineralogy; of architecture, painting and music; of medicine, surgery, anatomy, pathology and physiology; of diplomacy; of law, canon, civil, statutory and criminal; of political and social sciences; of agriculture, rural economy and gardening; of commerce, navigation, horsemanship and the military arts; of mechanics, machines and the manual arts. There are dictionaries of antiquities, of chronology, of dates, of genealogy, of heraldry, of diplomacy, of abbreviations, of useful receipts, of monograms, of anthropology and numerous dictionaries of very many other subjects.

There are special dictionaries for whatever subject imaginable, but can we rely on each one we choose to use? In other words, how do we know which one to choose to give us as much information as we need? Are all dictionaries useful for our purposes? Why are there so many of them? Littman (2006) comments:

As the dictionaries get more difficult, you should also get more information to help you more fully understand the word you are looking up. The ideal dictionary would communicate all the information you need to know to fully understand the usage and use of the very few words and symbols that you have to look up. (Littman, 2006, p. 2)

Generally dictionaries are categorized into two general types of printed and electronic ones. It needs be mentioned that the former manifested in different types such as monolingual, bilingual, bilingualized,

glossary, hyper-reference text and picture dictionary; and the latter is divided into three types: on-line dictionaries on the internet, hand-held ones and those on the CD-ROM. A question relevant to the present study is which one of these is the best and most recommended?

Electronic and paper dictionaries

Being able to make the most of a dictionary requires a comprehensive training. Students should be familiarized with different kinds of dictionaries in the market as well as their advantages and disadvantages. Collecting data pertaining to the form of an electronic dictionary or paper dictionary is a remarkably hard task. According to Cerna (2006), publication of dictionaries is a challenging and time-consuming enterprise with its own peculiar difficulties. The same or similar problems may exist in the preparation of electronic dictionaries.

Before the advent of electronic science and the development of electronic dictionaries, traditional paper-dictionaries were prevailing. Features like shape, size and quality were different but application policies were the same.

As mentioned in Encarta Dictionary on CD-ROM version 2005, from the age of Sumerian, when the first dictionary was used, until recently paper dictionaries have been the only source for vocabulary learning and research works. Special advantages of paper dictionaries have encouraged publishers to continue using them then and now. To name some of the specifications of paper dictionaries, reference can be made to the following:

Advantages of paper dictionaries (henceforth, P-D)

- They are easy to browse; you just flip the papers alphabetically and look the word up.
- They are easy to buy; cheaper than some usual book.
- They are easy to replicate in different size and word volumes.
- They are easy to use; all you require is the power of vision and knowledge of the order of alphabet.
- Concise ones are durable; you can put them in your backpack and carry them everywhere with yourself.
- You can touch them, write on them, and when we pay for them we acquire something very tangible in return.

These features coerce proponents to keep using paper dictionaries. According to the results of a seminar on Localization and Human Technology entitled “making a traditional dictionary into an electronic lexicon”, which was held in Bangalore University, Mysore in Nov. 2001, some of disadvantages of paper dictionaries include the following:

Disadvantages of P-D

- Abridged paper dictionaries are not comprehensive.
- Comprehensive ones are bulky.
- Bulky ones tear off easily.
- Weight makes them difficult to handle.
- Difficult to make them more than bilingual.
- Addition of context is expensive.
- Users must know the exact spelling to refer to.
- After publication, a paper dictionary becomes dated whereas the concerned language is ever-evolving.
- Size restriction hampers the coverage.
- Working on two models at a time is difficult.
- Working with bilingual is also time-consuming for translators.

Electronic dictionaries (E-D) do not have a long history. They have been invented a few years ago but due to their remarkable facilities and particular abilities they have become popular very fast. According to an article in Wikipedia Foundation, Inc., entitled '*electronic dictionary*', it has been pointed out that the first electronic dictionary was released in the Japanese market in 1979 under the name of 'Pocket Electronic Translation Machine'. It was like those of today. Through the 1980s to 1990s paper dictionaries' market was damaged due to the mass production of electronic dictionaries. Beside 10 million copies of paper dictionaries, "Casio" alone sold around 2.8 million e-dictionaries in 2002. Moreover, Casio estimated the total volume of the electronic dictionary market in Korea for 2006 would be more than 1.2 million.

Mass production of electronic dictionaries and human inclination towards convenience has urged students to use electronic dictionaries more than ever before. Based on Li Lan's (2006) investigations in Hong Kong Polytechnic University, more than 70% of students interviewed claimed that they used electronic dictionary more often than the traditional bulky paper products. Li Lan says that the day of paper dictionary has gone!

As for paper dictionaries, Nesi (1998) maintains that good paper-based dictionaries are too fat. That is the reason why students leave them at home, why teachers do not carry one from classroom to classroom; and why all but the most enthusiastic users deal with only one dictionary at a time, rather than pooling the resources of several different volumes. Similarly, Chen-Josephson (2006) says: "When I ask students about their dictionaries, I find that nearly all of them have paper dictionaries -- often bought for them by parents or other relatives -- but few of them use them. When they want or need to know something about a word, they usually look it up on line" (Chen-Josephson, 2006, p. 1). In short, the advantages and disadvantages of E-D are listed below.

Advantages of E-D

- Many volumes get compressed into one electronic dictionary.
- Storage and retrieval become quick and easy.
- They are light, compact and faster than any paper dictionary.
- One can easily update some of the brands by using internet and software.
- To make a large dictionary like OED 44 years (1884 – 1928) have been used, while for converting it into electronic dictionary a 10- year period of time is needed.
- They have certain unique functions, such as *error tolerant input* which helps users to look up words with wrong spelling.
- They have cross-referencing as well as colorful pictures word and spelling games.
- They encourage cooperative attitude among users because a view of the screen is more easily shared than a view of the page.
- You can easily change them from one dictionary to another, for example from law to mechanics.
- They provide users with authentic recorded voice facilities for better pronunciation.
- Psychologically, they are prestigious and stylish.
- They can provide access to large amounts of data, and they are interactive.

Disadvantages of E-D

- Electronic dictionary is fragile; you should take good care of it, you can't put them in your backpack as you do with you paper dictionary.
- you need to prepare extra battery; no power means the electronic dictionary is useless so you have to spend some money every time.
- They are far more expensive than their paper counterpart and so they are subject to theft.
- They cause users to forget alphabetical order gradually.
- They decrease student ability in pronunciation and spelling because machine does this for them.
- LCD can be hard to read in some lighting conditions.

- Working with e-dictionary on computer requires that users have some computer abilities.
- It takes time to learn how to use the functions of an e-dictionary.
- Using internet dictionaries are too costly and time-consuming and computer facilities are not available everywhere.
- Nobody takes responsibility for the accuracy of the information Internet dictionaries provide.
- Both the Web addresses and the page contents are constantly changing.

There are many controversial discussions over the advantages or disadvantages of (P-D) and (E-D) dictionaries. But there is currently a paucity of research as to the role of different dictionaries in vocabulary learning. Therefore, this study is an attempt to investigate the contribution of paper dictionaries and electronic dictionaries to Iranian EFL learners' vocabulary learning.

3. Method

In spite of some claims about the positive effect of traditional paper dictionaries in learning vocabulary, some of the recent research on electronic dictionaries shows that the new generation of dictionaries has something to say. This study is conducted to show the different effect of these two dictionaries on the learning of new words.

Participants

The participants of the present study included 51 male and female students studying English at level 5 in The National Institute of English Language (NIEL) in Qazvin. Three students were excluded from the study, because they couldn't complete their participation in the study. Consequently, 48 participants who had taken part actively in the study formed the participants.

Instruments

Four instruments were used to collect the necessary data in the present study. First of all, a special textbook designed for the students of NIEL was chosen. It was International 5. These students had left behind the Elementary level of learning English successfully and entered the Intermediate level. The textbook has 72 pages and consists of 18 lessons. Each lesson is a short text about one or two pages with some exercises at the end. New vocabulary items are listed at the end of each lesson.

Besides the textbook, a special paper dictionary was chosen. The paper dictionary, chosen in the present study was an Oxford Elementary Dictionary and was at the level of the students' level of proficiency. They were trained how to use the definitions in the dictionary.

The other dictionary used in this study was an equivalent electronic dictionary (E-D) on CD-ROM. Definition of words in this dictionary was not the same as those of the paper dictionary, so that students could not have used the first one. They were trained how to use it or install it on their computers.

Finally, each group of participants was given a vocabulary test at the end of experiment. They were required to read the stem of a multiple choice item which was the definition of a new vocabulary and find the related word among the alternatives. The definitions were chosen from E-D and P-D for Electronic group and paper group, respectively.

Procedures

To accomplish the purpose of the study, a total number of 51 students with the afore-mentioned characteristics were chosen. They were divided into four groups. 3 participants were excluded from the study due to their inadequate cooperation. So, we had four groups of 12 students each. Two groups were male and the two other groups were female. Since all of these students had taken NIEL standard tests, they were supposed to be at the same level of proficiency.

An Oxford Elementary Dictionary as well as an equivalent electronic dictionary on CD-ROM were also chosen. Electronic dictionaries on CD-ROM were given to one group of male and one group of female participants. The other two groups were asked to use a paper dictionary which, in this research, as it was pointed out earlier, was Oxford Elementary Dictionary. The definitions in the electronic dictionary and paper dictionary were different so that electronic dictionary users could not resort to paper dictionary in case they had problem or out of laziness. Before using the dictionaries, students were trained how to use the paper and electronic dictionary. They were taught how to install the (E-D) software on their computers and how to insert unknown words in the special place.

Each group had to take part in a 90-minute class twice a week. Students were required to read each lesson beforehand and look up the definitions of new vocabulary items which were listed at the end of each lesson and write them in their notebooks. The teacher regularly checked to make sure that this was done. At the end of the course, a 30-item multiple choice-vocabulary test was administered to all groups and the data required for the analysis were obtained. To answer the research question, a 'two-way ANOVA' procedure was gone through.

4. Results and Discussions

Having obtained and tabulated the data, some basic computations were done to specify the mean of each group as well as some other relevant pieces of information. The results of the computations are summarized in table 2 in the appendix.

The data thus obtained were then further analyzed and all the necessary calculations were done to make the data ready for application of the ANOVA procedure. Table 3 contains the results of the analyses.

Table.3: Descriptive statistics needed for the two-way ANOVA procedure

Source of variation	d. f.	SS	MS
Dictionary	1	85.33	85.33
Sex	1	6075	6.75
Dictionary × Sex	1	5.33	5.33
Within groups	44	689.84	15.67
total	47	787.25	16.75

The Two-way Analysis of variance yielded the following results, which are summarized in Table 4.

Table 4: results of the two-way ANOVA procedure

Source	SS	d.f.	MS	F	Sig.
Dictionary (A)	85.33	1	85.33	5.44	.16
Sex (B)	6.75	1	6.75	0.43	.23
A × B	5.33	1	5.33	0.34	.41

A comparison between the observed value and the critical value makes it clear that the null hypothesis, predicting no significant relationship between dictionary type and vocabulary learning, is rejected. This means that there is a significant difference between electronic dictionary and paper dictionary in affecting vocabulary learning.

A glance at Table 4 also shows that the sex of participants does not significantly influence their vocabulary learning. Nor does the gender of the participants moderate the effect of dictionary type on the participants' vocabulary learning.

A couple of decades ago, radiograms, slideshows and overheads were among the useful tools in pedagogical situations. Nowadays, these tools have given way to more developed systems such as video projectors, computers and power point software. Beside the technology improvement, human being tendency toward quality and convenience caused inventors to come up with new ideas each time.

The present study shows that newly invented dictionaries on CD-ROM, internet or as hand-held one, have better contributions to vocabulary learning in EFL students. This is somehow due to their high capacity of vocabulary, their speed in looking new word up, their low weight, colorful LCD, stylish character and many others in comparison with paper back dictionaries which are fragile, heavy to handle and time consuming while looking up new words. Moreover electronic dictionaries can be easily up-dated by connecting to the internet, while the paper dictionaries will become out-of-date after publishing.

In the near future, surely today's libraries and books will be replaced with digital ones and users should be able to operate with computer to find their needs among files. Educational centers should provide special programs to improve their students' computer knowledge so that they can make the most of a computer in order to find their need on the internet and work with electronic dictionaries on CD-ROM.

Meanwhile publishers should gradually shift their work from publishing paper books toward digital ones, and this work needs a shift in the abilities and knowledge of their staff.

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