

The Effect of Using the MoodleReader Module on Iranian EFL Learners' Vocabulary Depth and Breadth

Saeed Mehrpour^{1*}, Zahra Montasseri²

^{1*} Associate Professor of TEFL, Department of Foreign Languages and Linguistics, Shiraz University, Iran, smehrpur@rose.shirazu.ac.ir

² Ph.D. Candidate of TEFL, Department of Foreign Languages and Linguistics, Shiraz University, Iran, zmontasseri1992@gmail.com

Abstract

The present study investigated the effects of using the MoodleReader Module on Iranian EFL learners' vocabulary depth and breadth as well as their partial knowledge of vocabulary. The participants of this study, chosen based on their availability, were 30 male and female Iranian EFL learners attending two intact reading comprehension classes. One class was assigned to the treatment group and the other one to the control group. Three tests measuring vocabulary breadth, depth, and partial knowledge of vocabulary were used to collect the data. The tests were administered in both classes at the beginning of the study as pre-tests; then, the treatment group received the MoodleReader as the extensive reading tool, while the control group used the traditional intensive reading program during three and a half months. At the end of the study, the three tests were once again administered to both classes as post-tests. To analyze the collected data, a set of paired and independent samples t-tests was run to compare the performance of the participants in both groups. The findings of the study indicated that the treatment group improved regarding all the three aspects of vocabulary knowledge, i.e., breadth, depth and partial knowledge and the control group improved in terms of vocabulary breadth, but not in terms of vocabulary depth and partial knowledge. The findings indicated that the application of the MoodleReader module affected the development of EFL learners' vocabulary breadth, depth, and partial knowledge.

Keywords: CALL, Partial Knowledge of Vocabulary, The MoodleReader Module, Vocabulary Breadth, Vocabulary Depth

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1. Introduction

Vocabulary, as one remarkable component of language, plays a significant role in second language acquisition (Cameron, 2001) and has been the subject of various speculations because of its centrality in language learning and its salience in the understanding and expression of ideas (Nation, 2001; Read, 1993). In fact, it has been equated with success in all aspects of language learning (Laufer & Goldstein, 2004), because words are the main building blocks of language without which the whole process of verbal communication is impossible (Vermeer, 2001). Furthermore, vocabulary is a prerequisite to language comprehension; meaning that the amount of vocabulary knowledge usually determines the extent to which a text is understood by language learners. However, due to the complexity of defining and measuring vocabulary knowledge exactly, it is difficult to reach a comprehensive description of what is meant by having the knowledge of a word.

Shanker (2009) defines vocabulary knowledge as “the ability to go from the printed form of a word to its meaning” (p.1). In other words, vocabulary knowledge refers to the words known and familiar to the learner; however, knowing a word is not solely the ability to discern it. Vocabulary knowledge has multiple aspects ranging from the lowest degree of knowledge (never having encountered the word before) to the highest degree of perceiving the word (knowing multiple meanings of the word). Paribakht and Wesche (1993) classify vocabulary knowledge into the following stages:

1. A student may have never encountered the word before and is not able to recognize the word,
2. A student may have already heard the word, but is not able to define it,
3. A student recognizes the word based on its context of use or tone of voice, but their understanding of its meaning is obscure,
4. A student understands the meaning of the word in general, but cannot explain its meaning vividly,
5. A student recognizes different meanings of the word and can use it fluently.

A large number of studies have been conducted aiming at classifying vocabulary knowledge (e.g. Chapelle, 1998; Nation, 1990; Qian, 2002). The findings of these studies suggest that vocabulary knowledge is a multi-faceted construct rather than a unidimensional concept. Qian (2002) draws attention to four distinctive categories of vocabulary knowledge: (1) vocabulary size, (2) vocabulary depth, (3) lexical organization, and (4) automaticity of receptive-productive knowledge.

Generally speaking, the studies related to classification of vocabulary knowledge make a distinction between two aspects of vocabulary: vocabulary breadth and vocabulary depth. The former is defined as the size of vocabulary or the number of words each learner knows in the target language (Nation, 2001). The latter is defined as the knowledge of various aspects of a specific word or how well a person knows the word (Read, 1993). It also refers to different levels of vocabulary knowledge such as pronunciation, meaning, spelling, and frequency as well as its morphological, phonological, and syntactic aspects (Qian, 1999).

Another aspect of vocabulary knowledge is partial knowledge of the word. Partial knowledge of vocabulary has roots in fuzzy logic; a term introduced in 1965 by Zadeh, an Iranian scholar of system theory, which refers to a multi-valued logic in which the value of variables can be any degree between one and zero (Zadeh, 1965). Fuzzy logic considers truths to be approximate rather than exact (Yager & Zadeh, 2012). As Sarmad-Saedi (2001) points out, fuzzy logic helps researchers move from dichotomous true-false classic logic of traditional perspective of knowledge to looking at phenomena without drawing a borderline between true and false. Accordingly, as already mentioned in classification of vocabulary knowledge stages, learners' knowledge of a word meaning may have several stages. I.e., if a learner does not remember the meaning of a word, it is not necessarily because of their lack of knowledge, but rather because they might have forgotten some parts of the meaning. In other words, "the knowledge is not absent, but rather partial or sub-threshold" (Yurovsky, Fricker, Yu, & Smith, 2010, p. 15)

Considering the inevitable connection between vocabulary knowledge and reading comprehension discussed above, it is necessary to bring up the most applicable reading techniques. A distinction has been made between two types of reading activities: intensive and extensive reading (Palmer, 1917). Palmer proposed that intensive reading is the process by which the learners "take a text, study it line by line, referring at every moment to our dictionary and our grammar, comparing, analyzing, translating, and retaining every expression that it contains" (Palmer, 1917, p. 111). To put it another way, intensive reading refers to the deliberate, in-class, and focused reading activity which requires the learners to get involved in the comprehension process carefully and in detail (Powell, 2005). Extensive reading, on the other hand, refers to reading large quantities of material for pleasure. The main focus of extensive reading is to grasp the overall meaning of the text rather than a deliberate and detailed analysis of its linguistic features (Palmer, 1917).

Recently, there has been some changes in studies on mode of language learning and teaching in general and ER projects in particular, from a traditional or analogue mode to a computer- or mobile-assisted language learning mode (CALL or MALL). According to Hinkelman (2013), a review of extensive reading studies indicate that they benefit from at least three different designs. First, there are total paper-based designs, in which students read paper books and marks or progresses are jotted down in a notebook. Second, there are internet-based designs where students read e-books instead of paper-based books. A third design is also implemented for ER programs, called blended design, in which learners merge paper and computer-assisted tools for reading, i.e. they read paper books and use an online environment for keeping records. One popular tool for such blended designs was presented by Robb (2009).

Robb (2009) designed and introduced an e-learning program used for language learning called the MoodleReader Module. It is a database of quizzes designed for the graded readers, accessible for both EFL/ESL teachers and learners. The program requires the learners to create an account, read a set of graded readers, and take online quizzes for the books. The questions are chosen randomly from a larger bank of items, with time limitation of 10 to 15 minutes. Whether the students pass the quiz or fail it, the results are available to the teacher for further evaluation. The MoodleReader was first demonstrated online in 2008 in Japan, but little by little it was extended to other countries, including Iran. It has been used in Shiraz University from 2010 as an extensive reading component of reading comprehension courses for undergraduate students of English Language and Literature. The reason behind using MoodleReader as an instrument in the present study is that it facilitates extensive reading programs in that learners are able to take the quizzes at any time and place of their convenience. Students can choose among a wide range of books, genres, publishers, and writers as well as the option for selecting interesting materials. Moreover, the MoodleReader keeps a record of their performance, making evaluation possible and straightforward for the teacher. Finally, since it offers randomized questions to each learner, it minimizes the possibility of cheating.

A number of studies have been conducted on the MoodleReader Module, its use and relationship with reading comprehension (Robb, 2010), however; to the best of the researchers' knowledge, there have been no studies conducted with a focus on the program's influence on students' development of vocabulary depth and breadth as well as their partial knowledge.

As stated before, there have been no studies conducted with a focus on the MoodleReader's influence on EFL students' development of vocabulary depth and breadth as well as their partial knowledge of vocabulary. With regard to the gap in the extant research about the effectiveness of the MoodleReader on the one hand, and the significance of vocabulary depth and breadth as two dimensions of vocabulary knowledge on the other, the current study seeks to evaluate the effects of the MoodleReader Module as an extensive reading tool on Iranian EFL students' improvement of vocabulary depth and breadth. Moreover, the study intends to assess the effects of employing the MoodleReader on the development of partial knowledge of vocabulary in the students.

In order to fulfill the objectives of the study, the following research questions were addressed:

1. Are there any significant differences between students who use the MoodleReader as an extensive reading tool and those who do not in terms of their improvement in vocabulary depth?
2. Are there any significant differences between students who use the MoodleReader as an extensive reading tool and those who do not in terms of their improvement in vocabulary breadth?
3. Are there any significant differences between students who use the MoodleReader as an extensive reading tool and those who do not in terms of their improvement of partial knowledge of vocabulary?

Considering the mentioned gap in the literature, the present study holds significance in that it is the first attempt to investigate the effects of applying MoodleReader Module on Iranian EFL learners' development of vocabulary depth and breadth as well as their improvement of partial knowledge of vocabulary. It also enjoys significance in that the results can help teachers have a better picture of the merits and demerits of MoodleReader Module and whether to incorporate it in their reading classes or not.

2. Literature Review

Within the area of vocabulary learning and teaching, there have been different taxonomies designed for creating frameworks of vocabulary knowledge to define what it means to know different aspects of a word. One of the most famous vocabulary knowledge frameworks is proposed by Richards (1976). He identified seven facets of a word: (1) syntactic, (2) semantic, (3) associations, (4) different meanings, (5) form, (6) function, and (7) derivations. Later, elaborating on Richard's framework, another categorization was suggested by Nation (1990), with eight kinds of word

knowledge: (1) spoken form of a word, (2) written form of a word, (3) grammatical behavior, (4) collocational behavior, (5) frequency of the word, (6) stylistic register constraints, (7) conceptual meaning, (8) associations with other related words. Nation believes that as soon as the learner gets mastery over all these eight levels, he/she knows the word as a native speaker does.

One important point is that in most of the frameworks proposed by the researchers above, two aspects of vocabulary knowledge cannot be eliminated: vocabulary size or breadth, and vocabulary quality, or depth. Many researchers have conducted studies on the two major dimensions of vocabulary knowledge, that is vocabulary depth and breadth. For example, Piran (2010) investigated the effects of intensive and extensive reading on Iranian EFL learners' development of vocabulary depth and breadth. One hundred and twenty participants were divided into two groups, one was taught reading intensively, and the other extensively. The results from the pretests and posttests revealed that both intensive and extensive reading had an influence on vocabulary depth and breadth. Also, Akbarian (2010) in a small-scale study, investigated the comparative development of academic vocabulary and vocabulary depth and breadth. Fifty-seven adult learners were divided into two high and low groups depending on their knowledge of 2000 frequent words of English. The results from multiple regression analysis demonstrated that development in academic vocabulary is bound to improving the vocabulary depth and breadth, suggesting a positive correlation between the aspects of vocabulary knowledge. Fathi, Alipour, and Saeedian (2019) investigated the effect of a mobile language learning application, Memrise, on 59 Iranian EFL learners' vocabulary development. In a quasi-experimental design, the two intact classes were randomly assigned to experimental and control groups, taking recognition test of vocabulary. During 13 weeks, the experimental group practiced vocabulary acquisition by making use of Memrise app, while the participants in the control group learnt new vocabulary items traditionally. The results indicated an improvement in vocabulary knowledge of the participants in the experimental group, revealing the effective role of technological devices, in this case Memrise app, on vocabulary development.

In another study, Ghanbari and Marzban (2014) expanded on the necessity of extensive reading projects by investigating its role on vocabulary retention. They pointed out the need to implement extensive reading in EFL classrooms as well as the strategies and related tasks were explained. Moreover, Ahmadi (2017) examined the effects of extensive and intensive reading programs on vocabulary depth and breadth. To this aim, 35 undergraduate English language teaching and translation students were chosen to participate in the study and were divided into three groups randomly. Two groups experienced extensive form-focused and meaning-

focused reading, and the third group experimented intensive reading and intentional learning. After ten weeks, the participants took the post-test and its comparison to pre-test demonstrated that both incidental and intentional learning through extensive and intensive reading programs influenced development of vocabulary depth and breadth.

However, most of the aforementioned studies reveal positive effects of extensive reading on different aspects of knowledge in a limited context. Hence, Suk (2017) conducted a study with three combined dependent variables, including reading comprehension, reading rate, and vocabulary acquisition. The findings added to the previous confirmed influence of extensive reading on all three areas.

Most recently, Liu and Zhang (2018) synthesized 21 experimental studies conducted on the effect of extensive reading projects in EFL classrooms on vocabulary, comprehension, and grammar. The results of the synthesis showed that in the analyzed studies, extensive reading had influenced vocabulary development. Also, the most suitable length of time to practice such programs is three months (and not more than that); and, to enhance vocabulary knowledge, graded readers are among the best instruments.

As already mentioned, the amount of vocabulary knowledge determines the comprehension of texts to a great extent and there are two major approaches to successful reading practice: intensive and extensive reading (hereafter IR and ER). In addition, both approaches have proved to be effective on vocabulary knowledge improvement and reading comprehension skills (Rashidi & Piran, 2011).

As for the extensive reading, a set of materials have been designed specifically for reading extensively, the most applicable of which is graded readers. Graded readers are a set of books from various genres specifically written for second or foreign language learners. They may be simplified texts, original stories, or books. The important feature of these series is their being “graded” in the sense that they have strict control of vocabulary and grammar. Mostly, the studies related to extensive reading benefit from graded readers as the sole material of the research. Thus, these unimodal materials lack a diversity of forms for the learners. This is the case, while recent teaching approaches emphasize presence of multimodality in language classrooms.

Thanks to the development of technology, one of the programs used for the graded readers series is the MoodleReader Module. It is an open-source learning management program developed by the staff of Kyoto Sangyo University, Japan. It first appeared online in 2008 and was formally

launched by Robb in 2010. It provides the teachers and learners with more than 4500 quizzes for different graded reader series. The learners choose the books of their own interests from a library and read it without using a dictionary. The purpose of the project is to implement the extensive reading approach and build fluency in reading through practice. The learners fit into levels ranging from level 0 to level 9, set by the instructor. When a learner requests to take a quiz, the program chooses ten questions randomly from a large bank of questions, so that no two quizzes can be precisely the same. The project soon became popular in Japan, and spread to other countries, including Iran. The usefulness of MoodleReader and MReader platform is highlighted by Kipling (2018) who asserted that it offers teachers an opportunity to monitor their students; reading process conveniently and gives students a sense of responsibility regarding their own progress. Furthermore, MReader program motivates the learners to gain an awareness of choosing the fitting books in their proficiency level, and inspires them to form the habit of reading for pleasure

Due to the novelty of the program and its probable effects on language learning and teaching, in recent years a number of studies have been conducted on the MoodleReader Module, its effects on incidental vocabulary acquisition (Alavi & Keivanshekouh, 2012), its effects on students' reading comprehension and motivation towards reading in English (Safaie, 2015), and its implementation in classroom settings (Campbell, 2011 & Pennington, 2011). Campbell (2011) for example, conducted a study on how to implement the project in the curriculum of a foreign language faculty in a university in Japan. Pennington (2011) also implemented MoodleReader as a supplementary extensive reading program in his class during a two-year study. His program was able to achieve the following aims: the learners read as much as possible the material that was comprehensible to them; the learners could choose material that they liked in various subject matters; reading was done silently and individually.

In another study, Alavi and Keyvanshekooh (2012) investigated the effects of using the program on Iranian learners' incidental vocabulary acquisition. For this purpose, 38 learners were assigned to experimental (MoodleReader) and control (traditional ER) groups. The results from T-tests indicated that implementing MoodleReader had an impact on experimental group performance regarding incidental vocabulary learning. Similarly, Vaezi and Nilforooshan (2013) investigated the effects of MoodleReader on Iranian EFL learners' evaluation and potency of vocabulary knowledge. To this aim, 60 intermediate students were assigned to control and treatment groups, both receiving extensive reading programs, one through MoodleReader and the other by reading graded readers. The findings of their

study indicated that students in the experimental group outperformed the control group.

Moreover, Safaie (2015) studied the effects of the MoodleReader on Iranian students' reading comprehension and motivation towards reading in English. Her study included 125 BA students of English literature. Intensive and extensive reading were practiced simultaneously during the reading comprehension course. A reading comprehension test and a learning motivation questionnaire were administered. The results revealed that there was no significant difference between reading motivation and reading comprehension performance of those who benefited from MoodleReader and those who did not; however, in terms of the degrees of motivation, the experimental group showed a higher level of reading motivation than the control group.

In a more recent research, Al Damen (2018) explored the effect of MoodleReader on Arab first-year college EFL learners' motivation and autonomy in Oman. In order to investigate its usefulness, data obtained from MoodleReader reading records, questionnaires, and interviews were collected and analyzed. The findings of the study showed that exposure to MoodleReader changed the participants' attitudes and motivation toward using it besides their development in autonomous learning.

Though the number of the studies on extensive reading exceeds, how MoodleReader configures multiple facets of vocabulary knowledge is still under question. As the literature suggests, few studies have been conducted on MoodleReader and its effect on vocabulary knowledge. Thus, this study attempts to investigate the effects of MoodleReader Module on Iranian EFL learners' vocabulary depth and breadth as well as their partial knowledge of vocabulary.

3. Method

3.1. Participants

The participants of this study, ranging in age from 18 to 22, were 30 university students from two available intact classes (15 in each class) of Iranian advanced undergraduate students (both males and females), majoring in English Language and Literature at Shiraz University, Iran. Since the participants were already available in each class, the sampling type was convenience sampling. The participants had enrolled in a reading comprehension course at the time of data collection. One of the groups was considered as the experimental group (N=15), that took the MoodleReader as the treatment, while the other class functioned as the control group (N=15),

receiving instruction through traditional methods. Both classes were held twice a week, each session lasting for 90 minutes for 16 weeks.

3.2. Instruments

The data collection instruments in this study were as follows: (1) the Receptive Vocabulary Levels Test (VLT), which was used to measure learners' vocabulary size, (2) The Word Associate Test (WAT), which was employed to measure the learners' vocabulary depth (3) The Productive VLT, which was utilized as an instrument to measure partial knowledge of vocabulary, (4) and the Extensive Reading Foundation placement test, used to determine the suitable reading level of the students.

3.2.1. Determining the Target Words

There was a possibility that some words in the VLT, PVL, and WAT tests were the same as the words in the participants' textbooks. Therefore, there was a need to decide on the number of words as the target items of the study. Since the teaching materials used in the two classes were not the same, the researcher extracted the words of both books, which were to be learned deliberately in class. These words were then eliminated from the items of the VLT, PVL, and WAT tests to investigate the effect of the MoodleReader on the learners' vocabulary depth and breadth and partial knowledge more directly. The remaining words in the tests were the target items of the study.

3.2.2. Vocabulary Levels Test (VLT)

The Vocabulary Levels Test (VLT) used in this study was the second version of Nation's (1983) VLT which was revised by Schmitt (2001). As mentioned before, the test consists of different levels to estimate size of vocabulary at 2000, 3000, 5000, and 10,000 frequency levels. Moreover, the same test estimates the size of academic vocabulary. The first two levels, i.e. the 2000 and 3000 frequency levels are chosen from high frequency words in English. The 5,000 frequency level is the border between high and low frequency words of English. Finally, the 10,000 word-family level, encompasses low frequency words in English. Moreover, the academic vocabulary section of the test is designed based on the university word list.

The current version of VLT includes 10 clusters of words at each level, and each cluster consists of six words and three definitions, resulting in an overall number of 150 items. The test takers are asked to find three out of six appropriate words on the left that match the definitions on the right. No context clue is offered to participants, so that they use their pure vocabulary knowledge.

Nation (1983) has shown that a score of 12 out of 18 (66.67%) at each vocabulary size level shows that the learner has mastered that level.

According to Nation's scoring criteria, the score of 20 out of 30 can be a sign of mastery over that level.

The reliability coefficients of the test are reported by Schmitt to range from .92 to .96 for different levels. In a more detailed study, Schmitt (2001) reported Cronbach's alpha to be 0.92 for the first level, 0.92 for 3000 frequency level, 0.92 for 5000-word level, 0.95 for 10000, and 0.91 for academic frequency level, respectively, which are acceptable reliability indices. For the present study, the reliability of the test was estimated through data collected from the participants and the obtained index was 0.90 which is quite an acceptable one. According to Pallant (2013), The reliability coefficient of 0.7 and above is acceptable, between 0.7 and 0.4 is moderate, and below 0.4 is poor.

3.2.3. *Productive Vocabulary Level Test (PVLТ)*

As stated earlier, this test, designed by Laufer and Nation (1999), was used to measure the participants' partial knowledge of vocabulary. It necessitates the students to produce or complete the target words instead of merely recognizing them. The test includes four frequency levels: 2000, 3000, 5000, 10,000 as well as a university word list. Each level consists of 18 items, each in the form of a full sentence and a blank, containing 90 items in total. The first two letters of the target word are given in the blank to help the test taker recall the whole word from its context of use, hence testing. This is why this test is used to measure partial knowledge.

Laufer and Nation (1999) reported that the PLVT was valid ($r = .86$), and Roohani and Khalilian (2012) demonstrated its reliability to be 0.93, both of which are acceptable indexes. After the administration of the test in the present study, the reliability of PVLТ was also estimated and the obtained index was 0.87 which is an acceptable index. The validity of the test was also checked by an expert in the field.

3.2.4. *Word Associate Test (WAT)*

Word associate Test, designed by Read (1993), was employed to measure the breadth of vocabulary through word associations and collocations. The WAT items require the test taker to show knowledge of semantic and collocational relationships of each word. Each item contains a target word, which is usually an adjective or a noun. Also, for each item two boxes are allotted. The box on the left includes four words, out of which the test taker is required to choose the suitable synonym(s) of the target word. The box on the right includes four words too, some of which may collocate with the stimulus word. Only four words out of the eight words given in the boxes correct, but they are not evenly spread. Three possibilities of learners'

responses are considered: 1) each box contains two correct answers evenly, 2) the left box contains one correct answer and the right one contains three, 3) the left box contains three correct answers and the right box contains only one.

The relationships between the associates in the left box and the target word is either synonymous or analytic. The words in the right box are all nouns, and the relationship between the associates and the target word is collocational.

To score the test, each correct item is given one point. The highest possible score of this test is 160, since there are 40 target words, each requiring four correct answers. The reliability of the WAT is reported by Read (1993) to be 0.92, by Qian (2002) to be 0.89, and by Kian (2010) to be 0.91 which are all acceptable indexes. The test reliability was also estimated by the researcher based on the results of the test. The obtained index turned out to be 0.91 which is also acceptable. The validity of the test was also checked by an expert in the field.

3.2.5. The Extensive Reading Foundation (ERF) Placement Test

The ERF placement test is a free online placement test used to determine the appropriate reading level of the students. The test consists of three steps: (1) reading a story, (2) answering questions about the story, and (3) answering questions about how easy or difficult the story was. As the test starts, a sentence is provided from a story, and students are asked about how easy or difficult it is. This process is repeated five times, and each time the difficulty of the test varies based on the answers given. Afterwards, a passage appears in three pages followed by nine true-false questions. In the next step, four Likert-type questions about the difficulty of the passage are given to the test-takers. This process is repeated twice more after which the students' ER level is finally determined and reported in a table. This table provides the testees with their reading level and the graded readers which are appropriate for their level. Throughout the whole test, there is a "give up" button which students can hit if they want to quit the test.

The reliability of this placement test was estimated through Cronbach's alpha after the students took the test and the reliability index obtained was 0.81 which is an acceptable index.

3.3. Materials

The materials used in this study were (1) the MoodleReader Module, an online extensive reading program, and (2) two textbooks taught to the experimental and control groups.

3.3.1. *The MoodleReader Module*

In order to use the MoodleReader Module, learners had to create an account in www.moodlereader.org. Then, after reading a book of their choice, they log in and take its quiz. Learners can search the quizzes based on genre, publisher, reading level, etc. From a question bank of 30-50 questions, 10 questions are randomly selected for each quiz-taker. These items have multiple-choice, true-false, who said this, and ordering formats. The learner needs to answer 70% of the questions correctly to pass the quiz. The interval between the two quizzes is set by the teacher from one quiz a day to one every 2,3,4, or more days. Learners are automatically moved to the next reading level if they pass a minimum number of quizzes at their current level.

3.3.2. *Textbooks*

Two textbooks were taught to the members of the treatment and the control groups for intensive reading. The control group studied the third edition of *Active Skills for Reading 3* (Anderson, 2003), which is a part of National Geographic Sources series as their intensive reading coursebook. The book consists of 12 units, each including two chapters, making up 24 chapters. Each chapter has a section devoted to reading skills, a passage, vocabulary skills, and real-life skills. The passages are non-fiction, and mostly talk about natural phenomena. At the end of every three units, there is a review, which includes two main parts: fluency strategy and fluency practice. At the end of the book, a word glossary is provided for learning and practice. The whole book was taught during the semester in the control group.

The treatment group had a different book, *Cover to Cover: Reading Comprehension and Fluency*, by Day and Ono (2010), published by Oxford University Press. This textbook includes 12 units, each consisting of two passages, making up 24 reading texts. Each unit includes a part devoted to two passages, two parts for reading skills, and two parts for vocabulary skills. Also, an alphabetical vocabulary index is provided at the end of the book.

3.4. Procedure

In the first week, VLT, WAT, and PVLТ tests were given to the students in both groups as the pretest of the study. The directions to complete the tests were explained clearly by the researchers, and students were asked not to guess the items they did not know and only answer items whose meaning they were certain of. During the following two weeks, the MoodleReader was introduced in the experimental group in detail by the course instructor, and the students were taught how to use it. To specify their reading level, the learners also took the ERF online placement test by going

to *www.ERfoundation.org*. The result of their placement test was reported to the instructor of the course. Based on the results from the placement test, the instructor set their level in the MoodleReader as soon as they registered, and students started reading their respective graded readers immediately. The students were free to choose books at their level, which best served their interests, from several different publications available at a small library in the department. Reading at least 10 short stories during the course was a requirement to get the set score. Once they finished reading their first 10 books, the program transferred them to the next level automatically. In the meantime, they were allowed to take five quizzes from the lower and five quizzes from the upper reading levels. The experiment lasted about three and a half months, from the beginning up to the end of the semester.

It is worth mentioning that both groups were taking a reading comprehension course, in which they practiced intensive reading traditionally for 32 sessions (each session lasting for 90 minutes). However, only the experimental group used MoodleReader as an extensive reading program and the control group only experienced intensive reading throughout the semester. At the end of the experiment, the same VLT, WAT, and PVLТ tests were once again administered to both groups as post-tests to measure their growth in vocabulary breadth and depth as well as their partial knowledge of vocabulary.

3.5. Data Analysis

In order to compare the performances of the two groups on the pre- and posttests to see if there was any progress within each group, use was made of a set of paired samples t-tests. Furthermore, to compare the performance of the control group with that of the experimental group, three independent samples t-tests were run.

4. Results and Discussion

4.1. Results

After the collection of the data through the instruments described above, the data were analyzed using SPSS 16. Table 1 to Table 4 demonstrate the descriptive statistics of the two groups' scores. Table 1 shows the descriptive statistics for the participants' results in the experimental group.

Table 1

Descriptive Statistics of the Experimental Group's Scores

Group	Tests	Variable	N	Mean	Min.	Max.	Std. Deviation
Experimental	Pre-Test	Breadth	15	67.73	33.00	104.00	17.64
		Depth	15	57.00	31.00	95.00	19.90
		PK	15	31.60	19.00	52.00	8.55
	Post-Test	Breadth	15	86.46	50.00	219.00	43.42
		Depth	15	81.53	42.00	135.00	25.67
		PK	15	41.20	31.00	81.00	12.07

As the table shows, the mean score of the pre-tests of vocabulary breadth (N=15, SD=17.64), depth (N=15, SD=19.90), and partial knowledge of vocabulary (N=15, SD=8.55) for the experimental group are 67.73, 57.00, and 31.60, respectively. The group's mean score of post-tests of vocabulary breadth (N=15, SD=43.42), depth (N=15, SD=25.76), and partial knowledge of vocabulary (N=15, SD=14.51) are 86.46, 81.53, and 54.40, respectively.

Descriptive statistics for the control group was also run and the following table indicates the descriptive statistics of the participants' performance in the control group.

Table 2

Descriptive Statistics of the Control Group's Scores

Group	Tests	Variable	N	Mean	Min.	Max.	Std. Deviation
Control	Pre-Test	Breadth	15	66.33	35.00	91.00	15.59
		Depth	15	57.73	32.00	85.00	17.84
		PK	15	31.06	19.00	48.00	7.99
	Post-Test	Breadth	15	74.13	51.00	99.00	13.67
		Depth	15	58.40	33.00	87.00	17.80
		PK	15	31.33	20.00	50.00	8.55

According to the table, the mean score of pre-tests of vocabulary breadth (N=15, SD=15.59), depth (N=15, SD=17.85), and partial knowledge of vocabulary (N=15, SD=7.99) of the control group are 66.33, 57.73, and 31.06, respectively. Also, the mean score of post-tests of vocabulary breadth (N=15, SD=13.67), depth (N=15, SD=17.80), and partial knowledge of vocabulary (N=15, SD=8.55) of the control group are 74.13, 58.40, and 31.33, respectively. The above two tables show that the experimental and the control group had more or less similar performances on the pre-tests, while the experimental group scored higher than the control group on the post-tests for the three aspects of word knowledge.

In order to assess and compare the results of the pre-tests and post-tests of the experimental group, three paired samples t-tests were run to detect any potential differences in the participants' performance before and after the treatment. The following tables depict the results of the paired t-tests.

Table 3

Paired Samples T-test for the Experimental Group's Pre- and Post-test

Pre-Test=1 Post-Test=2	Mean	Std. Deviation	T	df	Sig. (2-tailed)
Breadth (1)	67.73	17.64	-2.36	14	.033
Breadth (2)	86.46	43.42			
Depth (1)	57.00	19.90	-8.67	14	.000
Depth (2)	81.53	25.67			
PK (1)	31.60	8.55	-5.17	14	.000
PK (2)	41.20	12.07			

As displayed in the above table, there is a statistically significant difference, at the .05 level of significance, between the pretest to posttest scores for vocabulary breadth of the experimental group ($p < .05$, $df = 14$, $t = 2.36$), depth of vocabulary ($p < .05$, $M = 2.45$, $SD = 10.95$, $df = 14$, $t = 8.67$), and partial knowledge of vocabulary ($p < .05$, $M = 9.60$, $SD = 7.18$, $df = 14$, $t = 5.17$). The differences suggest that there was an improvement in the performance of the participants in terms of their vocabulary knowledge before and after the treatment.

In order to spot any potential improvement in the performance of the control group, three paired samples t-tests were also run for vocabulary breadth, depth, and partial knowledge of vocabulary to compare pre- and post-test results. The following table shows the details of the analysis of the data.

Table 4

Paired Samples T-test for the Control Group's Pre- and Posttest

Pre-Test=1 Post-Test=2	Mean	Std. Deviation	T	df	Sig. (2-tailed)
Breadth (1)	66.33	15.59	-3.47	14	.004
Breadth (2)	74.13	13.67			
Depth (1)	57.73	17.84	-1.62	14	.126
Depth (2)	58.40	17.80			
PK (1)	31.06	7.99	-.37	14	.717
PK (2)	31.33	8.55			

According to table 4, a statistically significant difference existed between the participants' performance on the vocabulary breadth pre- and post-tests ($p < .05$, $M = 7.80$, $SD = 8.68$, $df = 14$, $t = 3.47$). That is, the participants in the control group improved their size of vocabulary after the study ($p = .004$). However, the table indicates that there was no statistically significant difference between the participants' performance on vocabulary depth before and after the study ($p > .05$, $M = .66$, $SD = 1.58$, $df = 14$, $t = 1.62$). The table also demonstrates no statistically significant difference in the score of the participants from their pre-test to their post-test of partial knowledge of vocabulary ($p > .05$, $M = .26$, $SD = 2.78$, $df = 14$, $t = .37$). In other words, the control group did not progress in terms of their partial knowledge of vocabulary ($p = .717$).

In order to find out whether the MoodleReader had any impacts on the growth of vocabulary knowledge of the participants in the experimental group compared to that of the control group, the data gathered from both groups were compared. To this end, three independent samples t-tests were run whose results appear in the following table.

The results demonstrated in Table 5 reveal no statistically significant difference between the vocabulary breadth pre-tests of the groups, meaning that, both groups had more or less similar performances before the study began ($p = .82$, $df = 28$, $t = .23$). However, there was no remarkable difference between the performance of the groups after the treatment ($p = .30$, $df = 28$, $t = 1.04$). The findings also reveal no statistically significant difference between the two groups' vocabulary depth ($p > .05$, $df = 28$, $t = .10$); that is, both groups enjoyed similar levels of vocabulary depth before the study began. However, it shows a statistically significant difference between the participants' performance in the experimental and control groups after the treatment ($p < .05$, $df = 28$, $t = 2.86$).

Table 5

Independent Samples T-test for the Experimental and Control Groups' Vocabulary Breadth, Depth, and Partial Knowledge

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
PreBreadth	1.40	6.07	.23	28	.82
PostBreadth	12.33	11.75	1.04	28	.30
PreDepth	-.73	6.90	-.10	28	.91
PostDepth	23.13	8.06	2.86	28	.008
PrePartial	.53	3.02	.17	28	.86
PostPartial	8.9	3.7	2.39	28	.02

The last two independent samples t-tests were run to detect differences in the participants' partial knowledge of vocabulary. According to the above table, before the study began, there was no significant difference between the two groups' partial vocabulary knowledge ($p > .05$, $df=28$, $t=.17$), meaning that both groups had similar partial knowledge of vocabulary at first. The results; however, suggested a statistically significant difference between the performance of the two groups at the end of the study ($p < .05$, $df=28$, $F=2.45$, $t=2.39$).

4.2. Discussion

The analysis of data collected during the study indicated that the experimental group obtained higher scores of vocabulary breadth at the end of the study. The results; however, did not confirm a statistically significant difference between the experimental and the control group's performance on this aspect of vocabulary knowledge. This can mean that although using the MoodleReader added to the size of the experimental group's vocabulary, the control group who did not experience the program also improved their vocabulary breadth. This may be due to the fact that both groups had intensive reading activities during the study, in which new words were acquired intentionally through practice. Learning new vocabulary deliberately throughout the study might have caused the control group to improve their vocabulary size, though lower in mean than the other group, as the statistical analyses showed.

Moreover, the learners had other courses along with this experiment including conversation laboratories in which they practiced oral/aural skills (i.e., speaking and listening), and grammar courses where they might have encountered some new words, which might, in turn, have helped them develop their vocabulary size as well. In general, since both groups had the same courses during the study, they may have been affected similarly by additional materials, though the experimental group indicated a higher mean score for vocabulary size. Consequently, it can be concluded that the effects of the MoodleReader as an extensive reading tool might have caused this slight difference in the findings.

The findings of this part of study are in agreement with studies done by Paribakht and Wesche (1993) who asserted that both intensive and extensive reading can affect EFL learners' vocabulary breadth, specifically in higher proficiency levels. Therefore, it can be suggested that reading both intensively and extensively can be determining operators in the improvement of vocabulary breadth. In other words, traditional reading practices are major sources of acquiring new words, but in this case, the MoodleReader program had a stronger effect on vocabulary size. The results are also in line with findings of Alavi and Keyvanshekooh's (2012) indicating that implementing

MoodleReader had an impact on experimental group performance regarding incidental vocabulary learning. Likewise, another possible explanation for this result could be the motivation that learners would have as a result of reading large quantities of materials in which they had interest and would choose out of a library themselves. This is congruent with findings of Safaei (2015) who revealed the Moodle Reader's key role in promoting Iranian EFL learners' reading motivation.

The findings of the study indicated that at the beginning of the experiment, both groups had rather similar performances on vocabulary depth test, since there was no significant difference between them. However, after the study, the experimental group had increased its vocabulary depth considerably while the control group did not show much progress. This could be indicative of the fact that the application of the MoodleReader was effective on EFL learners' development of vocabulary depth. That is to say, extensive reading helped learners master other dimensions of a previously known word. The results support Ahmadi's (2017) findings on the impact of extensive reading and incidental vocabulary learning on development of depth and breadth of vocabulary. The findings are also in agreement with Vaezi and Nilforooshan's (2013) study who argued that incidental vocabulary learning through ER programs help students attain a deeper knowledge of vocabulary.

One plausible explanation for this is that reading a large quantity of comprehensible materials provides the learners with various uses of a word in different contexts, accompanied by multiple collocational patterns, denotative or connotative meanings, morphological and syntactic properties, and the register with which a word is associated (Paribakht & Wesche, 1993). In fact, the repeated exposure to interconnections of a word rather than knowledge of its literal meaning leads to an in-depth knowledge of vocabulary. Thus, extensive reading paves the way to the development of knowledge of various aspects of a specific word.

On the other hand, the control group that already had intensive reading during the study did not improve much with respect to vocabulary depth. This is probably due to the deliberate learning of new words in intensive reading programs, in which the learners encounter a specific word in different contexts of use in several vocabulary exercises following each reading passage, but not as much exposure as extensive reading provides. Thus, various aspects of a word cannot be practiced and acquired as it occurs in ER programs. This is while Nation and Wang (1999) suggested that at least ten repetitions of a word are needed to learn its multiple aspects. Such being the case, the observed increase in vocabulary depth of the experimental

group could be attributed to learning word facets incidentally through repeated exposure, which cannot be found in intensive reading.

The data concerning partial knowledge of vocabulary showed that the two groups were not significantly different at the beginning of the study. However, the experimental group experienced notable changes at the end of the treatment. On the contrary, the control group demonstrated no remarkable development in terms of partial knowledge of vocabulary at the end of the study, which could be indicative of the fact that intensive reading did not have a large impact on increasing partial knowledge of vocabulary. These results provide confirmatory evidence that the application of the MoodleReader as an extensive reading tool was effective on the development of the students' partial knowledge of vocabulary. The results are also in agreement with Yurovsky et al's (2010) declaration of influence of repeated exposure to new words to go through stages of partial knowledge rather than moving from known to unknown straightforward. These results are in line with prior studies that have noted the importance of partial knowledge of vocabulary when giving hints and blurred directions to the correct answer (Shore & Durso, 1990). The results are also consistent with data obtained by Schwanenflugel, Stahl, and McFalls (1997) who examined the effects of story reading on the growth of partially known words. The findings of their study indicated a great shift in partial knowledge of the words.

A likely explanation is that the experimental group read a lot of materials during the study in which a great deal of new vocabulary was met and repeated. Some words were probably known, and the unknown ones could be understood fully or partially from the context, rather than being looked up in a dictionary. As a result, the dichotomy of all-or-nothing understanding of a word vanishes and fuzzy values between these two sharp edges would appear, which can lead to various degrees of partial knowledge of vocabulary (Yager & Zadeh, 2012).

In addition, the performance of the participants in the experimental group was not perfect on the test of partial knowledge of vocabulary, yet they gained a significant higher mean score. That is to say, the participants did not remember the exact form of the word in items of the respective test, but they completed it with some misspellings in some cases. Since this misspelling and inexact knowledge of the form of the words is indicative of the fact that the learners had at least some degree of knowledge of the item and that the word was probably not totally unknown to them, such items were given perfect scores and considered by the rater as "known". Such scoring procedure was practiced because partial knowledge is preferred over a total lack of knowledge. Another possible explanation could be that extensive reading required the learners to read for pleasure, rather than encourage them to focus on the details of words and grammatical structures. Therefore, it is

possible that learners gain a lot of partial rather than precise knowledge of vocabulary, which is why they performed better yet less accurately on their test of partial knowledge.

Based on the results of this study, there is ample support for the claim that the application of the MoodleReader Module can help develop Iranian EFL learners' vocabulary depth and breadth as well as their partial knowledge of vocabulary. Therefore, vocabulary must be taught and practiced with respect to every aspect of a word, rather than breadth alone. Attention must also be paid to vocabulary depth including synonyms, antonyms, collocations, registers, and morphological properties, as well as partial knowledge of vocabulary which contrasts the binary all-or-nothing knowledge of the words. It may be the case that these vocabulary facets be developed through the application of extensive reading programs in EFL classrooms.

This evidence corroborates the ideas of Smolin and Lawless (2005), who suggested that introducing technology into the syllabus of a course provides the learners with a comfortable and familiar atmosphere that will promote their comprehension and develop their learning and performance. The significance of ICT in education is also confirmed by Yusuf (2005) who asserted that technology precipitates, augments, and strengthens skills; promotes learners' motivation and engagement; makes learning process more efficient and productive; and provides opportunities for individualized instruction. Information and Computer Technology, he maintained, "is a powerful tool for the development of quality teaching and learning; it is a catalyst for radical change for preparing the students for future" (Yusuf, 2005, p.320).

Yet, implementing MoodleReader in this study made the researchers face some obstacles. First of all, there were some books presented by the MoodleReader which were not available in the small library at the department. To tackle this problem, the electronic versions of some short stories were downloaded so that the students could have access to them. Another problem was lack of familiarity with the platform as it took a few sessions before students became fully capable of performing their tasks. Also, in some cases, the quizzes were problematic, or due to low speed of the internet, the participants would fail to take them properly. To deal with this problem, the instructor would immediately ask the administrator of the MoodleReader to remove the result of the quiz out of the record. Another problem was related to the variety of the publishers offering the same book in the same level. Sometimes the students would read a book of a publisher, but the exam would give questions from another publisher.

In general, combining automated and non-automated sides of ER program, as also revealed by Hinkelman (2013), is beneficial for both students and teachers in terms of vocabulary knowledge. This could be significant for teachers to employ computer-assisted programs for their promising and positive effects in EFL classrooms.

5. Conclusion and Implications

According to the results of the present study, it can be concluded that reading techniques can influence language learning in general, and vocabulary acquisition in particular. Given the findings of the present study, one can conclude that both intensive and extensive reading were found to be effective on vocabulary learning; however, extensive reading seems to be more influential. After all, ER programs bring about incidental vocabulary acquisition through repeated exposure to vocabulary items, improving vocabulary growth. Incidental vocabulary learning strategies like guessing from context include some benefits such as improving the learners' knowledge of semantic, syntactic, collocational patterns, morphological properties, register, and spelling of the words, that is, knowledge of vocabulary depth. Furthermore, this incidental attention to words helps learners improve their partial knowledge unintentionally.

It can also be concluded that different aspects of vocabulary knowledge including breadth, depth, and partial knowledge of the word can be developed throughout reading practice specifically by the integration of electronic sources such as MoodleReader module and extensive reading.

The results of this study can have implications for EFL learners, teachers, and material developers. First of all, so far various methods of teaching and learning vocabulary have been developed and practiced in many EFL classes of which some of the most recent ones seem to be more practical; therefore, it is recommended that teachers keep up with the latest resources to select the most appropriate and effective approaches to teach vocabulary suitably, like extensive reading and graded readers. Moreover, employing different techniques of reading, both intensive and extensive, due to their considerable influences on vocabulary growth is plausible.

Another implication of the current study is the need for an incidental approach toward vocabulary acquisition, in which learners encounter a good deal of new words in contexts, and an appropriate system of exposure to the target words again and again until they are acquired. Moreover, learners should be aware of the fact that vocabulary breadth and depth are equally important in learning how to use words. So, instead of relying only on the literal meaning of a word, they have to know other aspects of it as well, including synonyms, polysemy, collocations, pronunciation, spelling, etc. It

is therefore recommended that learners be instructed to focus on multiple facets of a word when learning it. Also, it is suggested that material developers allocate some activities in the textbooks that draw learners' attention to vocabulary depth besides vocabulary size.

The present study suffered from a number of limitations. The first shortcoming was related to the small sample of the study. As already mentioned, the number of the participants in each group was 15, building up 30 participants in total. This limited number of members in each group might affect the generalizability of results of the study. Moreover, the participants were all advanced EFL learners, while the same treatment may have resulted in different findings if other levels of proficiency were also taken into account. Such limitations make the findings difficult to generalize. As stated earlier, the materials used for intensive reading in the two classes were different. Although both books were in the same level, the words included in each were different. In order to overcome this limitation to some extent, as mentioned before, the target words of both books were extracted and removed from the items in the three tests of vocabulary knowledge.

References

- Ahmadi, S. R. M. (2017). The impact of incidental and intentional L2 vocabulary learning on depths and breadth Dimensions of vocabulary knowledge. *World Journal of English Language*, 7(1), 50-60.
- Akbarian, I. H. (2010). The relationship between vocabulary size and depth for ESP/EAP learners. *System*, 38(3), 391-401.
- Al Damen, T. M. (2018, August). The Effectiveness of M-reader in Promoting Extensive Reading among Arab EFL Learners. In *Arab World English Journal (AWEJ) Proceedings of 1st MEC TESOL Conference*.
- Alavi, S., & Keyvanshekouh, A. (2012). Using the MoodleReader as an extensive reading tool and its effect on Iranian EFL students' incidental vocabulary learning. *English Language Teaching*, 5(6), 135-145.
- Cameron, L. (2001). *Teaching languages to young learners*. Stuttgart: Ernst Klett Sprachen.
- Campbell, D. (2011). An activity using the Moodle database module in a blended learning environment to practice all four English skills with Japanese university students. Obihiro University Archives of Knowledge. Retrieved January, 2016, 26 from <http://ir.obihiro.ac.jp/dspace/handle/10322/3112>.
- Chapelle, C.A. (1998). Construct definition and validity inquiry in SLA research. In Bachman, L.F. and Cohen, A.D. (Eds.), *Interfaces*

- between second language acquisition and language testing research* (pp. 32-70). Cambridge: Cambridge University Press.
- Day, R. R., & Ono, L. (2010). *Cover to cover: Reading comprehension and fluency*. Oxford: Oxford University Press.
- Fathi, J., Alipour, F., & Saedian, A. (2019). Enhancing Vocabulary Learning and Self-regulation via a Mobile Application: An Investigation of the Memrise App. *Journal of Modern Research in English Language Studies*, 5(1), 0-0.
- Ghanbari, M., & Marzban, A. (2014). Effect of extensive reading on incidental vocabulary retention. *Procedia-Social and Behavioral Sciences*, 116, 3854-3858.
- Hinkelman, D. (2013). Blending technologies in extensive reading: MoodleReader in a Japanese university EFL program. In *Extensive reading world congress proceedings* (pp. 91-100).
- Kipling, L. (2018). MReader for extensive reading. *The Language Teacher*, 42(6), 26-30.
- Laufer, B., & Goldstein, Z. (2004). Testing vocabulary knowledge: Size, strength, and computer adaptiveness. *Language Learning*, 54(3), 399-436.
- Laufer, B., & Nation, P. (1999). A vocabulary-size test of controlled productive ability. *Language Testing*, 16(1), 33-51.
- Liu, J., & Zhang, J. (2018). The Effects of Extensive Reading on English Vocabulary Learning: A Meta-analysis. *English Language Teaching*, 11(6), 1-15.
- Nation, I. S. P. (1990). *Teaching and learning vocabulary*. New York: Newbury House.
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- Nation, P., & Wang, K., M. (1999). Graded readers and vocabulary. *Reading in a Foreign Language*, 12(2), 355-380.
- Palmer, H. E. (1917). *The scientific study and teaching of languages*. London: Harrap. (Reissued in 1968 by Oxford University Press).
- Paribakht, T. S., & Wesche, M. B. (1993). Reading comprehension and second language development in a comprehension-based ESL program. *TESL Canada Journal*, 11(1), 09-29.
- Pennington, W. (2011). Using the MoodleReader Module to Facilitate an Extensive Reading Program. *Maebashi Kyoai Gakuen College*, 11, 41-51.
- Piran, M. (2010). *The effects of extensive and intensive reading on Iranian EFL learners' vocabulary size and depth*. Unpublished MA thesis, Shiraz University, Iran.
- Powell, S. (2005). Extensive reading and its role in Japanese high schools. *The Reading Matrix*, 5(2), 28-42.

- Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *Canadian Modern Language Review*, 56, 282-307.
- Qian, D.D. (2002). Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. *Language Learning*, 52(3), 513–536.
- Rashidi, N., & Piran, M. (2011). The effect of extensive and intensive reading on Iranian EFL learners' vocabulary size and depth. *Journal of Language Teaching and Research*, 2(2), 471-482.
- Read, J. (1993). The development of a new measure of L2 vocabulary knowledge. *Language Testing*, 10(3), 355-371.
- Richards, J.C. (1976). The role of vocabulary teaching. *TESOL Quarterly*, 10, 77–89.
- Robb, T. (2009). The reader quiz model for extensive reading. In M. Thomas (Ed.), *Selected proceedings of the thirteenth annual JALT CALL SIG conference* (pp. 109-116). Tokyo: Japan Association for Language Teaching.
- Robb, T. (2010). A digital solution for extensive reading. In R. R. Day (Ed.) *Bringing extensive reading into the classroom* (pp. 105–110). Oxford: Oxford University Press.
- Safaie, P. (2015). *Extensive reading with the MoodleReader: Its effect on Iranian students' reading comprehension, motivation and attitudes towards English reading*. Unpublished MA thesis, Shiraz University, Iran.
- Sarmad-Saedi, S. (2001). Karborde manteqe fazi dar tasmingiriye modiran [The application of fuzzy logic in managers' decision-making]. *Avalin Majalleye Mohandesiye Sanaye dar Iran*, 64, pp. 37-41.
- Schmitt, N. (2001). *Researching vocabulary: A vocabulary research manual*. London: Palgrave Macmillan.
- Schwanenflugel, P. J., Stahl, S. A., & Mcfalls, E. L. (1997). Partial word knowledge and vocabulary growth during reading comprehension. *Journal of Literacy Research*, 29(4), 531-553.
- Shanker, W. (2009). Reading comprehension development. *Cockrum*, 46, 161-162.
- Shore, W. J., & Durso, F. T. (1990). Partial knowledge in vocabulary acquisition: General constraints and specific detail. *Journal of Educational Psychology*, 82(2), 315-335.
- Smolin, L. I., & Lawless, K. A. (2003). Becoming literate in the technological age: New responsibilities and tools for teachers. *The Reading Teacher*, 56(6), 570-577.

- Suk, N. (2017). The effects of extensive reading on reading comprehension, reading rate, and vocabulary acquisition. *Reading Research Quarterly*, 52(1), 73-89.
- Vaezi, R., & Nilforooshan, S. (2013). The effect of using Moodle Reader as an extensive reading tool on learners' awareness of affective dimensions of deep vocabulary knowledge. *Mediterranean Journal of Social Sciences*, 4(1), 353-360.
- Vermeer, A. (2001). Breadth and depth of vocabulary in relation to L1/L2 acquisition and frequency of input. *Applied Psycholinguistics*, 22(2), 217-234.
- Yager, R. R., & Zadeh, L. A. (Eds.). (2012). *An introduction to fuzzy logic applications in intelligent systems* (Vol. 165). Springer Science & Business Media.
- Yurovsky, D., Fricker, D., Yu, C., & Smith, L. B. (2010). The active role of partial knowledge in cross-situational word learning. In *Proceedings of the 32nd annual conference of the cognitive science society* (pp. 2609-2614).
- Yusuf, M. O. (2005). Information and Communication Technology and Education: Analyzing the Nigerian National Policy for Information Technology. *International Education Journal*, 6(3), 316-321.
- Zadeh, L. A. (1965). Fuzzy sets. *Information and Control*, 8(3), 338-353.

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