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The Effect of Explicit, Implicit, and Modified-Implicit Instruction on EFL Learners' Vocabulary Learning and Retention

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ABSTRACT

The present study examined the effect of different vocabulary instruction methods on EFL learners' vocabulary learning and retention. Elementary and advanced EFL learners (N = 120), selected through convenience sampling, were randomly assigned to three conditions (i.e., six groups for the two levels). The learners in the explicit group received vocabulary awareness-raising and pushed output activities. The implicit group was exposed to input flooding, while the modified-implicit group received the pushed output activity and input flooding. The vocabulary learning of the participants was measured using teacher-developed vocabulary tests. The results indicated that learners receiving explicit as well as modified-implicit activities outperformed those exposed to implicit instruction on vocabulary tests. This implies that awareness-raising as well as pushed output activities help learners notice, learn vocabulary better, and retain them longer. Several implications for teachers, materials developers, and syllabus designers on including pushed output activities with more involvement, and areas for further research are discussed.

Keywords: explicit instruction; implicit instruction; modified-implicit instruction; feedback; vocabulary learning; vocabulary retention

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Introduction

Vocabulary knowledge plays an important role in second or foreign language learning. It is vital in language acquisition and in reading comprehension (Akbarian & Farrokhi, 2021; Nation, 2001). Words are vehicles for expressing the meaning; “without vocabulary nothing can be conveyed” (Wilkins, 1972, p. 111). Empirical studies have indicated that vocabulary has a strong relationship with reading, listening, writing, and grammar (Akbarian et al., 2017; Schmitt, 2010).

It is generally agreed that a large portion of vocabulary is learned through reading. During early stages of learning, learners’ vocabulary knowledge contributes to their reading ability; however, when their reading proficiency improves, they learn words incidentally through reading. When readers come across a word several times, they make inferences about their meaning and when they check the accuracy of their inferences in a dictionary, they learn the meaning of the checked words. The probability of learning the meaning of the word and its retention increases through extensive reading as learners encounter the same words several times in different texts. This is in line with Nation (2001), who argues that learners need to come across an unknown word at least eight to 10 times to learn it. Despite the fact that reading can promote vocabulary learning, vocabulary acquisition is not an easy task, as learners need to focus on pronunciation, meaning, collocation, spelling, and other aspects of word knowledge. Laufer (1997) notes that factors, such as the presence of foreign phonemes, phonotactic irregularity, incongruency in sound-script relationship, idiomaticity, and one form with several meanings, make vocabulary learning more difficult. Furthermore, various other factors, such as culture, exposure, frequency, and proficiency level, play a role in remembering and retrieving vocabulary (e.g., Akbarian, Farajollahi, & Jiménez Catalán, 2020). This could be the reason why long-term retention of the meaning of the newly learned words is one of the greatest challenges of L2 learners (Laufer & Osimo, 1991).

Vocabulary acquisition has extensively been investigated since the late 1980s. However, there is still an ongoing controversy on the best method of teaching vocabulary. Discussions concerning the role of explicit and implicit vocabulary teaching and the superiority of explicit (intentional) method or implicit (incidental) method abound. According to N. Ellis (1994), implicit learning, which refers to the “acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes place naturally, simply and without conscious operation”, is better than the explicit learning. In contrast, explicit learning or “more conscious operation where the individual makes and tests hypotheses in a search for structure” (p. 1) is more effective in vocabulary learning. In implicit instruction, a learning environment is created which is ‘enriched’ with the target feature, but explicit attention on the part of students is not drawn to it (R. Ellis, 2009a) whereas in explicit instruction, learners need to develop metalinguistic awareness of a certain linguistic feature through deduction or induction. Consequently, explicit instruction entails direct intervention (DeKeyser, 1995).

In foreign language learning, where input is not adequate for vocabulary learning to happen, there is a need for a systematic approach to vocabulary teaching that helps language learners acquire and retain different aspects of vocabulary knowledge (Akbarian, 2010). Yet, there is one such attempt in the literature.

Hulstijn and Laufer (2001) proposed a hypothesis relating to the effective teaching of vocabulary; they argued that learning vocabulary is affected by learners’ involvement in processing unfamiliar words. More specifically, more involvement on the part of learners will lead to better vocabulary retention. The involvement construct they proposed includes motivational and cognitive dimensions and consists of three elements: need, search, and evaluation. The *need* element is non-cognitive in nature and relates to a learner’s need to use a word in a context. Need can be moderate or strong. The second element, *search*, is the actual attempt to find what a certain word means or how it can be expressed in L2. Finally, *evaluation* is the process of analyzing the accuracy

of a word used in the context. It includes comparing a certain word with others and/or comparing its meaning with the other meanings of the same word in an attempt to assess the proper use of the intended word in a given context. According to Hulstijn and Laufer, how long a particular word is retained depends on the extent of learners' involvement when processing it.

Although many studies have examined implicit and explicit teaching (Goo et al., 2015; Hulstijn, 2015), very few have compared implicit as well as explicit vocabulary acquisition through a reading task (Pellicer-Sánchez, 2016) in a foreign language context in a single study (Hung & Chen, 2018; Lee et al., 2015). Therefore, the present study seeks to compare the effectiveness of the vocabulary instruction methods above and implicit vocabulary learning plus an output task, referred to as the modified-implicit method.

Literature Review

Implicit vocabulary learning, also called incidental vocabulary learning, takes place as the mind is involved in another activity. In implicit learning, vocabulary is acquired incidentally, as a by-product of another activity, such as reading a text or listening to music, when the learners process the input (Hulstijn et al., 1996; Yoshii & Flaitz, 2002). For example, Yoshii and Flaitz (2002) investigated the impact of different annotations (text-only, picture-only, and a combination of the two) on L2 implicit vocabulary acquisition with 151 adult ESL learners, who were asked to read a story for comprehension. The learners were then tested on their recognition and production of the target vocabulary. The results showed that the performance of the combination group on all the tests was significantly better than that of the other groups.

Explicit vocabulary learning takes place when memorizing a series of facts making high loads on working memory (R. Ellis, 2009a). Consequently, it is a conscious process through which knowledge (symbolic in nature as it is characterized in explicit form) is gained (R. Ellis, 2009b). According to Dornyei (2009), explicit learning happens when learners consciously and deliberately attempt to master some materials or solve a problem; implicit learning, which involves acquiring skills and knowledge without conscious awareness, happens automatically and with no conscious attempt to learn.

Many studies have examined explicit and implicit vocabulary learning. In a study by Schmitt (2013), Dutch students tried to guess the meaning of unknown French vocabulary from sentences and then they checked the meaning of the words they had guessed through a word list before memorizing them. They acquired the same amount of lexis (around 50 percent of the target words on a delayed receptive test after two weeks) as those provided with a translation before memorization. This suggests that incidental learning of vocabulary, followed by explicit instruction, can be equally effective to an explicit instruction.

Lexical items can be taught directly and indirectly, requiring vocabulary instruction to be added to reading classes; words necessary for comprehension of a certain text should be taught directly as part of the lesson (National Reading Panel, 2000). The evidence for this comes from Paribakht and Wesche (1993) who compared learning vocabulary in two conditions: 'Reading only' (eight texts) and 'Reading plus' (four texts with different vocabulary exercises). Results showed that 'Reading only' condition led to only smaller results, whereas 'Reading plus' condition produced higher word gains. The results support the importance of explicit instruction along with implicit one.

To integrate explicit and implicit instruction, Soleimani and Mahmoudabadi (2014) examined the role of interactive output tasks in improving vocabulary knowledge of EFL learners, verifying the hypothesis that learners' vocabulary gains would be higher when taught in input-output vocabulary instruction in comparison to the input-only instruction. That is, the students provided with output as well as input tasks had a significantly better performance than those in the input-only group in the vocabulary posttest. This finding was observed in both overall vocabulary test and the productive part of the test. Similar findings are reported in previous studies (R. Ellis & He, 1999; De la Fuente, 2002; Jalilifar & Amin, 2008; Kwon, 2006; Sarani et al., 2013), which emphasized the importance of output in developing L2 vocabulary knowledge and considered output essential for the acquisition of productive vocabulary. Output is thus related to explicit vocabulary instruction. These studies for the most part investigated the short-term effects of various vocabulary instructions.

On the other hand, Waring and Takaki (2003) reported on higher gains and retention for recognition than recall of vocabulary, following implicit instruction. Their findings suggested that implicit vocabulary learning from reading is more probable to partially result in mastery of words, and that vocabulary recall will tend more to be forgotten.

Dole, Sloan, and Trathen (1995) examined the relatively long-term impact of explicit vocabulary instruction on word gains. They selected 10th grade students for an 'alternative' vocabulary instruction, and instructed them on how to choose the relevant words, learn them deeply, and discuss them. These participants outperformed students taught with the conventional vocabulary methods. Obviously, the addition of explicit vocabulary instruction proved efficient in increasing the vocabulary knowledge of learners; it also lasted longer.

Based on the literature review on the effectiveness of implicit vs. explicit vocabulary instruction and their effect on learners' vocabulary retention, we can conclude that most of the time, it is the type and purpose of learning which determine the effectiveness of one method over the other. Each method of vocabulary instruction has some advantages. Therefore, a combination of these two methods might lead to higher rates of vocabulary learning and retention. In addition, as noted earlier, although there are several studies on the effectiveness of implicit and explicit vocabulary instruction, the findings differ based on the study group and context. As a result, research concerning the superiority of each instruction type has not been conclusive yet. Hence, the current study aims to investigate the effect of explicit, implicit, and modified-implicit vocabulary instruction on vocabulary knowledge of EFL Learners through addressing the following research questions (RQs):

- 1) Is there any statistically significant difference in the effect of explicit, implicit, and modified-implicit instruction on vocabulary learning of elementary and advanced EFL learners?
- 2) Is there any statistically significant difference in the effect of explicit, implicit, and modified-implicit instruction on vocabulary retention of elementary and advanced EFL learners?

Method

Participants

Participants, 120 Iranian male EFL learners (60 elementary and 60 advanced, based on their performance on Oxford Placement Test) were selected through convenience sampling from various language schools in Saveh, Iran. The participants in each proficiency level were then randomly assigned to different experimental groups with 20 students in each group (i.e., six

groups). Thus, three elementary and three advanced classes were formed. Their age ranged from 10 to 27.

Materials and Instruments

The Oxford Placement Test A (OPT) (Lesley et al., 2005) was administered to group the participants into elementary and advanced levels. The test consists of three sections: Listening (20 items), Reading (20 items), and Language Use (30 items), and takes 50 minutes to administer. Next, all the learners were required to write a short expository text about any topic they wished using six target words (i.e., *stomach*, *extra*, *accumulate*, *consume*, *obesity*, and *metabolism*, used by the advanced students and *boring*, *amazing*, *spend*, *meet*, *stressed*, and *hobby*, used by the elementary students). These words were unfamiliar to the participants at each level, as assured by checking a list of words prior to administration. This task served as part of the treatment which is the pushed output activity, intended for explicit instruction. Then, five reading passages, which included these words, were selected. The reading passages required the participants to choose the best title out of four options to ascertain that they had comprehended the passages. These words were replaced with **six pseudo-words** (i.e., *adair*, *haque*, *bance*, *channing*, *degate*, and *laudor*) which were phonologically plausible in English and, thus, looked like English words.

Following the treatment, two post-tests were administered. Post-test 1, administered a day after the treatment, was a matching and unscrambling task with six paragraphs related to the topic of the reading but each with a missing word. In addition, a list with six pseudo-words, which were scrambled, was provided. Learners were to unscramble the letters of these pseudo-words and fill in the blanks with the right word, indicating that they remembered the form and meaning of the word. For the six words, there were six paragraphs, each with one of the words. Post-test 2 was similar to post-test 1, except that it was administered one month after the treatment and that the order of the items was changed.

The reliability of the tests was checked through Cronbach's alpha, which yielded .81 and .89 for the advanced and elementary receptive tests, and .75 and .78 for the advanced and elementary productive tests, respectively. As for validity, a considerable amount of related literature was reviewed in the development of the tests. Apart from that, a panel (i.e., with two experts in the field and two experienced English language teachers) was consistently consulted before, during, and after the development of the tests in order to ascertain their validity for the purpose of the study.

There are many aspects to receptive and productive vocabulary knowledge. However, due to practicality reasons, the majority of scholars opt to address some part(s) of it (see Nation, 2001; Webb, 2005, 2007). For instance, Webb (2005) asked participants in his study to write the Japanese translation of 'locomotive' next to the target nonsense word 'masco' to measure their productive vocabulary knowledge. "The aim of this test was to determine whether the learners could link the L2 form of the target words with their L1 meanings" (p. 40). Likewise, this study has addressed the main feature of receptive and productive knowledge, which involves going from the meaning to the word form and vice versa, as in Webb (2005) who asked learners to translate 'gendarme' into English (going from meaning to form). In our tests, we provided the context for the target pseudo-words. Therefore, when the participants read a sentence, they understood what word they had to provide in the blank. They just had to choose between the options as well as unscramble the pseudo-word, realizing the intended meaning. In other words, they had to go from meaning to form or from form to meaning.

After post-test 2, a month after the treatment, the learners were interviewed. The purpose of the interview was to provide more insight into the learners' vocabulary knowledge acquired during the treatment. In this interview, the learners were first presented with a paragraph containing the six pseudo-words. Then, they were asked to read the paragraph and underline the words they had worked with during the treatment. Through this procedure, learners were tested on their ability to recognize the words, related to receptive knowledge. Then, they were asked to talk about anything they knew or could remember about each word.

Procedures

Out of 284 EFL learners available, 60 elementary and 60 advanced level students were selected, based on their performance on OPT. The participants scoring 45 or above were placed into advanced level and those scoring 30 or below were placed into elementary level. The learners in each level were further randomly divided into three groups with 20 participants each, as there were three treatment conditions. As such, we had Elementary Group 1 (EG1), Elementary Group 2 (EG2), Elementary Group 3 (EG3), Advanced Group 1 (AG1), Advanced Group 2 (AG2), and Advanced Group 3 (AG3).

The learners in EG1 and AG1 (i.e., explicit instruction condition) received vocabulary awareness-raising activities and pushed output (in the form of a generative writing task) after pre-teaching the words. They tried to learn the pseudo-words using pictures, gestures, and/or definitions. They were then asked to repeat each word chorally for three times. The words were finally written on the board to help the learners see how they were spelled. After reading the passage and recognizing their meaning, the learners were required to find each pre-taught word in the text. This helped them to recognize the word in a sentence and place the word in the context. Metalinguistic aspects of words, such as the function and part of speech, were discussed. The participants in EG2 and AG2 (i.e., implicit instruction condition) read five passages; input flooding provides the learners with many examples of a particular language structure or item and makes them aware of the appearance of the target feature. It occurs when learners are exposed to multiple instances of a certain target structure, usually considered a focus-on-form intervention. The presumption is that being frequently exposed to that particular target form in the input will make it more conspicuous, and thus, learners' attention will be drawn to that specific form (Hernandez, 2018). The learners in EG3 and AG3 (i.e., modified-implicit instruction condition) received the same five passages to read; these were the materials to fulfill the requirements of input flooding technique plus the pushed output activity in the form of the same generative writing task, which helped the learners see how those words were used in context. The passage topics were similar. The learners were not allowed to use their dictionaries, but could consult the passages and/or ask the teacher to provide a quick definition or translation of the words they could not understand.

The treatment took six sessions within three weeks, two sessions in each week. Each session lasted for 90 minutes. In session one, the learners in EG1 and AG1 received only one of the five passages with one of the six pseudo-words (see above) whereas those in EG2 and AG2 as well as EG3 and AG3 received five passages each with the same pseudo-word, five times of occurrence of each word in the passages. In this meaning-based task, the learners had to choose the best title out of four options provided at the beginning of each passage. The passages served as models in which the targeted words were used. Then, the participants in EG2, AG2, EG3, and AG3 were asked to choose the words they thought they had seen in the passage from a list of 16 words (the six pseudo-words used in the passage and 10 distractors, i.e., non-target words). All the groups were also required to take a vocabulary multiple-choice test with the six pseudo-words. Reading passages and test papers were collected at the end of the first session. In session two, the passages were given back to the learners. The teacher (i.e., the third researcher) gave instructions on the writing task in which the learners had to write a paragraph using the pseudo-word as well as the

other non-target words. The learners did not have to use their dictionaries, but could consult the passage and/or ask the teacher to provide a quick definition or translation of the words they could not understand. The learners' writing tasks and passages were collected at the end.

The procedure above was followed for the remaining four sessions of treatment. The learners received post-test 1 one day after the treatment, and post-test 2 and the interview one month after the treatment.

Data Analysis

Familiarity with each pseudo-word was assessed using the adapted version of the Vocabulary Knowledge Scale (VKS) (Paribakht & Wesche, 1993, as used in Joe, 1995). Moreover, Kruskal-Wallis test, a non-parametric analysis, was run to answer the research questions.

Results

RQ1 aimed to examine the differences in the effect of explicit, implicit, and modified-implicit instruction on vocabulary learning of language learners. The means for the elementary learners in the explicit, implicit, and modified-implicit conditions on the receptive immediate post-test were 5.80, 2.95, and 5.45 out of 6, respectively. The outcome of the Kruskal-Wallis test showed that there was a statistically significant difference between the three groups ($\chi^2 = 43.274$, $df = 2$, $p = .000 < .05$). Pairwise comparisons showed a significant difference between the performance of the elementary learners in the modified-implicit and the implicit conditions (Table 1). The learners in the modified-implicit condition outperformed learners in the implicit condition. The elementary learners in the explicit condition also performed better than the learners in the implicit condition on the receptive post-test. However, there was no significant difference between the performance of the learners in the explicit and modified-implicit groups.

Table 1
Pairwise Comparisons of the Elementary Learners

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	-32.55	5.24	-6.212	.00	.00
Explicit-Modified	6.45	5.24	1.23	.21	.65
Implicit-Modified	-26.10	5.24	-4.98	.00	.00

As to the advanced learners, their means in the explicit, implicit, and modified-implicit conditions on the immediate post-test were 5.90, 3.95, and 5.70 out of 6, respectively, with the Kruskal-Wallis test results showing a statistically significant difference at least between two of the groups ($\chi^2 = 41.32$, $df = 2$, $p = .000 < .05$). Pairwise comparisons revealed a significant difference between the performance of the advanced learners in the modified-implicit and the implicit groups (Table 2). More specifically, the learners in the modified-implicit group performed better than the learners in the implicit group did. Furthermore, the advanced learners in the explicit group significantly performed better than the learners in the implicit group did on the post-test.

No significant difference was found between the performance of the learners in the explicit and modified-implicit groups.

Table 2
Pairwise Comparisons of the Advanced Learners

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	29.75	5.00	5.94	.00	.00
Explicit-Modified	-4.30	5.00	-.85	.39	1.00
Implicit-Modified	25.45	5.00	5.08	.00	.00

Also, the mean scores of the elementary learners on the productive immediate post-test across the explicit, implicit, and modified-implicit conditions were 10.65, 2.95, and 7.55, with a statistically significant difference between the three groups ($\chi^2 = 48.03$, $df = 2$, $p = .000 < .05$). More specifically, the modified-implicit group outperformed the implicit group. In addition, the explicit group significantly performed better than the implicit group on the productive post-test. Finally, there was a significant difference between the performance of the learners in the explicit and modified-implicit groups. That is, the mean rank difference found between the two groups, i.e., 17.45, turned out to be statistically significant (Table 3).

Table 3
Pairwise Comparisons of the Elementary Learners Regarding the Productive Test

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	-37.97	5.48	-6.92	.00	.00
Explicit-Modified	17.45	5.48	3.18	.00	.00
Implicit-Modified	-20.52	5.48	-3.74	.00	.00

As for the advanced learners, the respective mean scores across the explicit, implicit, and modified conditions on the productive immediate post-test were 10.85, 6.90, and 9.75. Kruskal-Wallis test showed a statistically significant difference at least between two groups ($\chi^2 = 32.14$, $df = 2$, $p = .000 < .05$) (Tables 4). The modified-implicit group outperformed the implicit group. Furthermore, the advanced learners in the explicit group had a significant performance over the implicit one on the productive post-test. However, there was no significant difference between the performance of the explicit and modified-implicit groups.

Table 4
Pairwise Comparisons of the Advanced Learners Regarding the Productive Test

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	30.30	5.46	5.54	.00	.00
Explicit-Modified	-9.60	5.46	-1.75	.07	.23
Implicit-Modified	20.70	5.46	3.78	.00	.00

RQ2 aimed to detect differences in the effect of explicit, implicit, and modified-implicit instruction on the retention of vocabulary knowledge among elementary and advanced EFL learners. The mean scores of the elementary learners in the three groups on the delayed post-test were 4.85, 1.65, and 4.85, respectively. Kruskal-Wallis test indicated a statistically significant difference at least between two groups ($\chi^2 = 42.89$, $df = 2$, $p = .000 < .05$); the modified-implicit group outperformed the implicit group. Furthermore, the explicit group performed higher than the implicit group on the delayed post-test. However, the mean rank difference found between the explicit and modified-implicit groups, i.e., .67, turned out to be statistically insignificant (Table 5).

Table 5
Pairwise Comparisons of the Elementary Learners Regarding the Delayed Post-test

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	-.30	5.28	-5.73	.00	.00
Explicit-Modified	.67	5.28	.12	.89	1.00
Implicit-Modified	-29.62	5.28	-5.60	.00	.00

As for the advanced learners, the mean scores in the explicit, implicit, and modified-implicit groups on the receptive delayed post-test were 5.50, 3.50, and 5.60, respectively. Kruskal-Wallis test illustrated a statistically significant difference at least between two groups ($\chi^2 = 40.81$, $df = 2$, $p = .000 < .05$). Pairwise comparisons showed a significant difference between the performance of the advanced learners in the modified-implicit and the implicit groups (Table 6), with the modified-implicit group outperforming the implicit group. The explicit group performed better than the implicit group on the receptive delayed post-test. However, there was no significant difference between the performance of the explicit and modified-implicit groups.

Table 6
Pairwise Comparisons of the Advanced Learners Regarding the Receptive Delayed Post-test

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	31.72	5.29	5.99	.00	.00
Explicit-Modified	5.77	5.29	1.09	.27	.82
Implicit-Modified	25.95	5.29	4.90	.00	.00

The participants' retention of the learned words was tested weeks after the treatment through the adapted version of the Vocabulary Knowledge Scale (VKS) (Paribakht & Wesche, 1993, as used in Joe, 1995), which required them to specify how much of the target words they remembered. Therefore, the mean rating of the elementary learners in the explicit, implicit, and modified-implicit groups in the interview was 2.99, 2.25, and 2.99, respectively. Kruskal-Wallis test indicated a statistically significant difference at least between two groups ($\chi^2 = 28.84$, $df = 2$, $p = .000 < .05$); the learners in the modified-implicit group outperformed their counterparts in the implicit group. Furthermore, the elementary learners in the explicit group also significantly performed better than the learners in the implicit group did on the test. However, the mean rank difference found between the explicit and modified-implicit groups, i.e., .15, turned out to be statistically insignificant (Table 7).

Table 7
Pairwise Comparisons of the Elementary Learners Group Regarding the Interview

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	-25.57	5.48	-4.66	.00	.00
Explicit-Modified	.15	5.48	.02	.97	1.00
Implicit-Modified	-25.42	5.48	-4.63	.00	.00

The mean rating of the advanced learners in the explicit, implicit, and modified-implicit groups in the interview was 4.24, 2.85, and 4.20, respectively, with Kruskal-Wallis test showing a statistically significant difference at least between two groups ($\chi^2 = 38.70$, $df = 2$, $p = .000 < .05$). Pairwise comparisons (Table 8) showed a significant difference between the performance of the advanced learners in the modified-implicit and the implicit groups; the learners in the modified-implicit group outperformed their counterparts in the implicit group. Results indicated that the explicit group significantly outperformed the implicit group in the interview as well. Yet, there was no significant difference between the performance of the learners in the explicit and modified-implicit groups.

Table 8
Pairwise Comparisons of the Advanced Learners Regarding the Interview

	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Explicit-Implicit	30.42	5.50	5.52	.00	.00
Explicit-Modified	-1.60	5.50	-.29	.77	1.00
Implicit-Modified	28.82	5.50	5.23	.00	.00

Discussion

This study investigated the effectiveness of explicit, implicit, and modified-implicit instruction on enhancing EFL learners' vocabulary learning and retention. The discussion is divided by research question to make it easier to follow.

The first research question (RQ1)

RQ1 investigated whether the three vocabulary methods would improve vocabulary learning of Iranian EFL learners. Our data suggested that both the modified-implicit and explicit groups outperformed the implicit group in elementary and advanced levels; however, regarding the productive immediate post-test in elementary level, the modified-implicit group outperformed both implicit and explicit groups. The receptive test included unscrambled pseudo-words. The students only had to put the correct pseudo-words in the blanks. However, in the productive test, the pseudo-words were scrambled. Therefore, the students first had to produce the pseudo-words and then put them correctly in the blanks.

Our findings correspond with the results of previous investigations (Ford-Connors & Paratore, 2015; N. Ellis & Laporte, 1997; Hulstijn & DeKeyser 1997; Spada, 1997; Vadasy et al., 2015). Particularly, meta-analysis results of 49 experimental and quasi-experimental studies on the efficacy of L2 instruction indicated that explicit instruction is more effective than the implicit one (Norris & Ortega, 2000). Thus, as Laufer (2005) observes, there are good reasons to believe that an explicit attention is a requirement in learning words. Learners comprehending the overall message tend not to attend to the individual words' specific meanings. In addition, we cannot often rely on guessing from context, especially when 98 percent of the words in the discourse is not known. Furthermore, learners may not deeply process the words they have easily guessed from context, and thus may not remember them. Besides, new words need to be encountered again relatively quickly to be remembered. Thus, learners have to read 1–2 graded readers in a week to meet the words 10 times in reading to learn their meaning. This does not simply happen for a typical learner.

Part of the favorable results in the explicit group in this study should be attributed to the pre-teaching of the vocabulary items. Vocabulary pre-instruction in reading lessons, part of explicit vocabulary instruction in the present research, can significantly affect learning outcomes (Brett, Rothlein, & Hurley, 1996; Carney et al., 1984). At the very least, fewer unfamiliar concepts will remain in the text for reading; the learners will face fewer unknown words, which can reduce their cognitive load. This finding is similar to the findings of Stahl and Fairbanks (1986) who noticed a

strong effect of vocabulary pre-teaching on comprehension of readings including taught words, as observed in a meta-analysis of first language investigations of the impact of vocabulary pre-instruction on comprehension.

More support for explicit vocabulary instruction comes from language-focused learning, similar to traditional vocabulary teaching that attends to lexis explicitly. Explicit teaching and learning is useful as many aspects of lexical knowledge can be brought to the attention of the learners (Schmitt, 2008). Learners should first pay attention to a certain feature they are to learn in order for learning to happen. By bringing a certain linguistic item or feature to the learners' attention, they notice and thereby acquire linguistic forms more easily (Schmidt, 1990, 2012).

The findings indicated that learners in the modified-implicit group, who were required to produce language in the form of writing, referred to as 'pushed out', outperformed learners in the implicit group. Compared with the explicit group, the modified group performed equally well. As a result, modified-implicit instruction was also effective in teaching lexical items to elementary and advanced learners. This finding is in line with previous studies (DeKeyser, 2008; De la Fuente, 2002; Dole et al. 1995; R. Ellis & He, 1999; Jalilifar & Amin, 2008; Joe, 1995; Kwon, 2006; Lucas et al., 2018; Norris & Ortega, 2000; Sarani et al., 2013; Schmitt, 2010; Soleimani & Mahmoudabadi, 2014; Swain, 1985; Tomesen & Aarnoutse, 1998; White et al., 1990). They indicated the superiority of modified-implicit treatment over implicit vocabulary instruction.

The superiority of modified-implicit treatment can be related to the Comprehensible Output Hypothesis. According to Swain (1993), "language production provides the opportunity for meaningful practice of one's linguistic resources permitting the development of automaticity in their use" (p. 159). Highlighting the role of production, Laufer (1998) stated, "if not pushed to use [L2] words, they may never be activated; therefore, [they] remain in passive vocabulary only" (p. 267). R. Ellis, Loewen, and Erlam (2006) also noted that negotiation might lead to acquiring new words productively because the learners find the opportunity to utilize them and to receive feedback from other speakers. Consequently, learners will better comprehend and produce L2 words due to pushed output. More evidence in support of encouraging learners to produce output comes from experimental studies supporting the idea that when an element of pushed output is incorporated to the teaching and learning process, more learning can be expected on the part of the learners. (cf. Keck et al., 2006; Norris & Ortega, 2000).

Accordingly, Hill and Laufer (2003) noted that the most effective way to enhance incidental learning is through strengthening it by intentional learning tasks. They noted that post-reading tasks, explicitly focusing on target words, resulted in better vocabulary learning compared to comprehension questions that require the learners to know the meaning of the target words. This is relevant to the present study, in which the pushed output in the form of writing tasks established a solid basis for promoting receptive and productive vocabulary.

Involvement load hypothesis can also partly explain the superiority of the modified-implicit group for more involvement over the implicit group. In Kim's (2008) study, a higher task involvement load resulted in better short- and long-term learning of vocabulary. Approximately similar results were obtained in the present study because of identical involvement load on the two tasks for two L2 proficiencies.

The second research question (RQ2)

RQ2 aimed to study whether there is any significant difference in the effect of explicit, implicit, and modified-implicit instruction on vocabulary retention of Iranian elementary and advanced EFL learners. The findings showed that, similar to short-term learning, the learners in the explicit

and modified-implicit conditions retained more words than the learners in the implicit condition on the delayed post-test. Therefore, our finding corresponds with the outcomes of a number of empirical investigations, which have highlighted the positive effects of explicit instruction on long-term vocabulary learning (N. Ellis & Laporte, 1997; Hulstijn & DeKeyser, 1997; Norris & Ortega, 2000; Spada, 1997).

Though research findings show that noticeable development can result from implicit exposure, explicit vocabulary instruction almost always culminates in better results, with longer retention and better productive mastery levels (Schmitt, 2008, Loftus-Rattan et al., 2016). Smith (2004) showed that target words, explicitly worked on, were recalled well as receptive, and still rather well as productive, vocabulary knowledge (80–90, 50–59 percent, respectively). Our results, obtained from the delayed post-test and the interview data (see Tables 5, 6, 7, & 8) support Smith. Apparently, the explicit attention in the explicit group and pushed output as well as involvement load hypothesis in the modified-implicit group provided a positive, significant source of variance compared to implicit learning, which amounted to much less vocabulary retention in the implicit group.

The findings of the present study further verified the results obtained by Joe (1995) who showed that attending to new words, retrieving, and especially using those words in new contexts (output) were all effective in word retention. In much the same vein, Laufer (2005) highlighted the key role of language output in implicit learning, i.e., modified-implicit instruction in the present study. Output promotes noticing, which will in turn promote learning and retention.

Conclusion

Vocabulary is learnt as a by-product of reading. However, it is usually gradual and error-prone, though somewhat inefficient process (Laufer, 2005; Read, 2004). As a result, if we aim to increase the vocabulary repertoire of the learners through reading, we had better focus on form-focused tasks, which draw learners' attention toward the targeted vocabulary (e.g., Hulstijn, 2001; Laufer, 2005; Nation, 2001; Read, 2004; Schmitt, 2008, 2010). This procedure was pursued in both explicit and modified-implicit instructions in the form of awareness-raising activities and pushed output in the present study.

Our findings indicated that explicit vocabulary instruction helps language learners notice the words, and thus results in better vocabulary gains. As a result, teachers are recommended to incorporate activities which can make students pay conscious attention to target words in order to be able to know how to use as well as retain them in the long run. Based on our findings, teachers are encouraged to teach vocabulary explicitly in different ways helping learners notice and retain new words better. Furthermore, teachers, owing to the effectiveness of modified-implicit instruction, are advised to include a pushed output activity in their lesson plans so that enough involvement load is induced on the part of the learners, which can lead to more vocabulary gains. Materials developers are also recommended to incorporate explicit vocabulary learning in the textbooks they author. This is more essential for reading books in which the primary goal is usually to improve learners' reading skills, so there is more probability for such books to ignore such activities.

Like any other study, this research has limitations. Therefore, to add more validity and reliability to the findings of the current study, further research is needed to address the effectiveness of the three instructional methods on all, or more, aspects of vocabulary knowledge, not limited to only some.

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