Examining the Effect of Post-reading Word-focused Activities on Iranian EFL Learners' Improvement of Vocabulary Learning

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Citation
Ashrafian, M. (2025). Examining the Effect of Post-reading Word-focused Activities on Iranian EFL Learners' Improvement of Vocabulary Learning. *International Journal of Language and Translation Research*, *5*(2), pp. 47-62.

Available online

Keywords:
Post-reading Activities, Vocabulary Acquisition, Word-focused Instruction

Abstract

This study aimed to investigate the effects of post-reading word-focused activities on the vocabulary development of Iranian EFL learners. Sixty female learners were homogenized using the Oxford Placement Test (OPT) and randomly assigned to three experimental groups, namely sentence writing, gap filling, and composition writing, and one control group, with 15 learners in each. A vocabulary pre-test was administered prior to the treatment. Over six sessions, participants read texts with glossed target words and answered comprehension questions. Each experimental group performed a specific vocabulary-focused activity. A post-test was conducted at the end of the treatment, followed by a delayed post-test two weeks later. The results indicated that composition writing, gap filling, and sentence writing activities each had significant effects on both short-term and long-term vocabulary learning. Additionally, the traditional method of vocabulary instruction also yielded significant results. Moreover, significant differences were found among the four instructional methods in terms of their impact on short-term vocabulary learning, with composition writing being the most effective. However, no significant differences were observed among the groups in terms of long-term vocabulary retention.

بررسی تاثیر فعالیت های کلمه محور پس از خواندن بر یادگیری واژگان زبان آموزان ایرانی

هدف از انجام این مطالعه بررسی تاثیر فعالیت هاي کلمه محور پس از خواندن ، بر بهبود یادگیري واژگان زبان آموزان ایرانی است. پس از یکسان سازي و انتخاب شصت شرکت کننده خانم به وسیله آزمون OPT، پیش آزمون لغت جهت ارزیابی دانش واژگان آنها گرفته میشود.سپس شرکت کنندگان به چهار گروه جمله نویسی،پر کردن جاي خالی،انشا نویسی و کنترل تقسیم میشوند که هر گروه شامل پانزده شرکت کننده می باشد. پس از یک تست واژگان (پیش آزمون) , در طول شش جلسه ابتدا از آنها خواسته شد متنی را که کلمات مورد نظر در حاشیه مشخص شده اند بخوانند و به پنج سوال درک مطلب پاسخ دهند . براي هرگروه یک فعالیت خاص در نظر گرفته شده بود.در جلسه ي آخر , پس آزمون گرفته شد و بعد از گذشت دو هفته آزمون تاخیري برگزار شد. نتایج نشان دادند که نوشتن انشا ، فعالیت پر کردن جاي خالی و همچنین فعالیت جمله نویسی ، هر یک تأثیر مهمی در یادگیري کوتاه مدت و بلند مدت واژگان فراگیران دارند. علاوه براین ، روش سنتی آموزش واژگان تأثیر بسزایی در یادگیري واژگان زبان آموزان دارد.همچنین ، تفاوتهاي چشمگیري بین تأثیرات نوشتن انشا، پر کردن جاي خالی ، جمله نویسی و آموزش واژگان به روش سنتی در یادگیري واژگان زبان آموزان وجود دارد.نهایتا ، هیچ تفاوت قابل توجهی بین تأثیرات نوشتن انشا ، پر کردن جاي خالی ، جمله نویسی و آموزش واژگان سنتی در یادگیري طولانی مدت واژگان زبان آموزان وجود ندارد.

واژگان کلیدی: فعالیت‌های پس از خواندن، اکتساب واژگان، آموزش متمرکز بر واژه

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P-ISSN: 2750-0594
E-ISSN:2750-0608

Introduction

According to Allen (1983), communication may break down when speakers lack the appropriate vocabulary. As a result, in recent years, there has been a growing tendency to place more responsibility on learners for their own learning. To this end, learner-centered activities have been designed to support vocabulary acquisition. Although teacher explanations may help learners understand new words, they are often insufficient for long-term retention. Vocabulary learning tends to be more effective when learners engage in relevant activities. Thus, there is a need for approaches that actively engage learners with new vocabulary and encourage its use in various contexts (Sadeghi & Sharifi, 2013).

Numerous studies have shown that word-focused activities contribute to word learning better than being exposed merely to input (Laufer, 2003). These activities include gap-fill activities, translation, and sentence writing using target words, among others (Laufer, 2009). However, such activities can also be used as post-task form-focused teaching (Spada & Lightbown, 2008). Laufer (2005) emphasizes the value of explicit word-focused activities as an effective means of enhancing vocabulary learning. She argues that repeated practice can help activate passive vocabulary and reinforce it through follow-up, meaning-oriented tasks. Schmitt (2008) also suggests that fully engaging in word-focused activities leads to better retention than merely completing meaning-based tasks.

Despite the fact that prior research suggests that word-focused activities are beneficial for vocabulary learning, not all activities may be beneficial equally for acquiring words. Therefore, this study aims to examine the effects of three specific post-reading, word-focused activities, including sentence writing, gap-filling and composition writing on learners' vocabulary acquisition. So, in order to conduct the current study, the following research questions were formulated:

RQ1: Does Composition Writing Activity have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

RQ2: Does Gap Filling Activity have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

RQ3: Does Sentence Writing Activity have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

RQ4: Does traditional method of teaching vocabulary have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

RQ5: Are there any significant differences among the effects of Composition Writing, Gap Filling, Sentence Writing, and Control group on Iranian EFL learners' short-term vocabulary learning?

RQ6: Are there any significant differences among the effects of Composition Writing, Gap Filling, Sentence Writing, and Control group on Iranian EFL learners' long-term vocabulary learning?

Method

Participants

There were initially 80 participants at a similar level of proficiency. All participants had completed American English File 5, an upper intermediate textbook. After homogenization, 60 participants were selected and divided into three experimental groups: Sentence-Writing, Gap-Filling, and Composition-Writing. There was also one control group. Each group consisted of 15 participants.

Materials

Reading Comprehension Texts

The reading comprehension texts were adapted from Complete IETLS Bands 4-5, an official Cambridge IELTS preparation book. One text was used in each session, totaling six texts. Eight target vocabulary items were selected per session, resulting in 48 words in total. These words consist of two adjectives, three verbs and three nouns.

Sentence Writing Activity

In the sentence writing activity, participants were required to produce one grammatically correct and meaningful sentence for each of the eight target vocabulary items. Each sentence was expected to contain a minimum of six words, ensuring that the target word was used within a clear and appropriate context. To support learners in completing the task accurately, the meanings of the target words were provided in a glossary. Participants were allowed to refer to this list as needed, which helped them focus on the correct usage and deeper understanding of each vocabulary item.

Gap-fill Activity

In the gap-fill activity, participants were asked to complete a short summary by filling in eight blanks with the target vocabulary items provided. The summary was approximately 100 words in length and was designed to offer meaningful contexts for using each word. Learners received a list of the eight target words and were expected to insert them in appropriate places within the passage. This activity aimed to help students reinforce their understanding of word meanings and improve their ability to apply new vocabulary in context-based situations.

Composition Writing Activity

In the composition writing activity, learners were instructed to write a short essay in response to a specific prompt. The composition was limited to approximately 100 words and focused on a particular topic provided by the instructor. Unlike the other vocabulary tasks, this activity did not explicitly require the use of the target vocabulary items, nor did it draw attention to them during the task. The main objective was to encourage learners to express their ideas freely and engage in extended writing, which could potentially lead to incidental use and deeper internalization of

newly encountered words (Yang et al., 2017).

Instruments

Oxford Placement Test (OPT)

The Oxford Placement Test (OPT) was used to ensure that the participants had similar proficiency levels (Edward, 2013). The OPT includes 50 multiple-choice questions that assess students' knowledge of grammar and vocabulary from elementary to intermediate levels, a reading passage followed by 10 graded comprehension questions, and an optional essay writing task assessing productive language ability. The test was designed to be completed within 45 minutes.

Vocabulary Test as Pre-test/Post-test

Both the pre-test and post-test consisted of 48 vocabulary items designed to assess participants' lexical knowledge. Vocabulary development in this study was regarded as "how well different lexical items are mastered in relation to ability to use the words in comprehension and production" (Henriksen, 1999, p. 307). The Vocabulary Knowledge Scale (VKS; Paribakht and Weshche, 1993) was used to measure learners' knowledge of target items before and after the intervention. The Vocabulary Knowledge Scale includes five categories. The categories indicate five levels of vocabulary knowledge by incorporating both learners' self-perceived knowledge and actual performance: Levels range from 1 (unfamiliar) to 5 (grammatically and semantically appropriate use in a sentence). Self-reported scores were adjusted based on performance: for example, if a synonym or sentence was incorrect, a lower score was assigned (Kim, 2011).

Paribakht and Weshche (1993) confirmed the concurrent validity of VKS using general proficiency and vocabulary breadth measures. For quantitative analysis, the five levels were collapsed into two categories—"known" and "unknown"—as supported by descriptive statistics and prior validation.

Data Analysis

To address the research questions, a combination of statistical techniques was employed, including repeated measures ANOVA, one-way analysis of covariance (ANCOVA), and non-parametric ANCOVA where appropriate. Prior to conducting the analyses, the assumption of normality was tested and confirmed, ensuring the suitability of parametric procedures.

Results

Exploring First Research Question

Does composition writing activity have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

A repeated measures ANOVA was run to compare the composition writing group's means on pre-test, post-test and delayed post-test. The results of Mauchly's test of sphericity was not

significant (W = .797, p › .05), indicating that the assumption of sphericity was met.

Descriptive statistics showed a significant increase in mean scores from pre-test (M = 76) to post-test (M = 128.40), with a partial decline at delayed post-test (M = 111.33).

The results (F (2, 28) = 751.29, p < .05, pη^2 = .982[1] representing a large effect size) indicated that there were significant differences among the composition writing group's means on pre-test, post-test and delayed post-test of vocabulary. Thus, the first null-hypothesis **was rejected**.

Table 1

Tests of Within-Subjects Effects; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Composition Writing Group)

	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Vocabulary	Sphericity Assumed	21427.378	2	10713.689	751.294	.000	.982
	Greenhouse-Geisser	21427.378	1.663	12883.859	751.294	.000	.982
	Huynh-Feldt	21427.378	1.860	11520.011	751.294	.000	.982
	Lower-bound	21427.378	1.000	21427.378	751.294	.000	.982
Error (Vocabulary)	Sphericity Assumed	399.289	28	14.260			
	Greenhouse-Geisser	399.289	23.284	17.149			
	Huynh-Feldt	399.289	26.040	15.334			
	Lower-bound	399.289	14.000	28.521			

Post-hoc comparisons revealed that the post-test score (M = 128.40) was significantly higher than both the pre-test (M = 76; MD = 52.40, p < .05) and the delayed post-test (M = 111.33; MD = 17.06, p < .05). Additionally, the delayed post-test score was significantly higher than the pre-test (MD = 35.33, p < .05).

Table 2

Post-Hoc Comparison Tests; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Composition Writing Group)

(I) Vocabulary	(J) Vocabulary	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Post-test	Pre-test	52.400*	1.023	.000	50.207	54.593
	Delayed	17.067*	1.523	.000	13.801	20.333
Delayed	Pre-test	35.333*	1.530	.000	32.053	38.614

*The mean difference is significant at the .05 level.

Exploring Second Research Question

Does gap filling activity have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

A repeated measures ANOVA was run to compare the gap filling group's means on pre-test, post-test and delayed post-test. Mauchly's test (W = .922, p › .05) indicated that the assumption of sphericity was met.

Descriptive statistics showed a significant increase in mean scores from pre-test (M = 75.40) to post-test (M = 124.66), with a partial decline at delayed post-test (M =108.73).

Table 3 displays the results of repeated measures ANOVA. The results (F (2, 28) = 1504.83, $p < .05$, $p\eta^2 = .991$ representing a large effect size) indicated that there were significant differences among the gap filling group's means on pre-test, post-test and delayed post-test of vocabulary. Thus, the second null-hypothesis was rejected.

Table 3

Tests of Within-Subjects Effects; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Gap Filling Group)

	Source	Type III Sum of Squares	df	Mean Square	F	Sig. Partial Eta Squared
Vocabulary	Sphericity Assumed	18960.933	2	9480.467	1504.836.000	.991
	Greenhouse-Geisser	18960.933	1.984	9554.910	1504.836.000	.991
	Huynh-Feldt	18960.933	2.000	9480.467	1504.836.000	.991
	Lower-bound	18960.933	1.000	18960.933	1504.836.000	.991
	Sphericity	176.400	28	6.300		

	Assumed				
	Greenhouse-Geisser	176.400	27.782	6.349	
Error (Vocabulary)	Huynh-Feldt	176.400	28.000	6.300	
	Lower-bound	176.400	14.000	12.600	

Post-hoc comparisons revealed that the post-test score (M = 124.66) was significantly higher than both the pre-test (M = 75.40; MD = 49.26, p < .05) and the delayed post-test (M = 108.73; MD = 15.93, p < .05). Additionally, the delayed post-test score was significantly higher than the pre-test (MD = 33.33, p < .05).

Table 4

Post-Hoc Comparison Tests; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Gap Filling Group)

(I) Vocabulary	(J) Vocabulary	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
	Pre-test	49.267*	.907	.000	47.320	51.213
Post-test	Delayed	15.933*	.886	.000	14.033	17.834
Delayed	Pre-test	33.333*	.955	.000	31.286	35.381

*The mean difference is significant at the .05 level.

Exploring Third Research Question

Does sentence writing activity have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

A repeated measures ANOVA was run to compare the sentence writing group's means on pre-test, post-test and delayed post-test. Mauchly's test (W = .842, p › .05) indicated that the assumption of sphericity was met.

Descriptive statistics showed a significant increase in mean scores from pre-test (M = 75.13) to post-test (M = 123.46), with a partial decline at delayed post-test (M =107.66).

Table 5 displays the results of repeated measures ANOVA. The results (F (2, 28) = 1051.97, p < .05, pη2 = .987 representing a large effect size) indicated that there were significant differences between the sentence writing group's means on pre-test, post-test and delayed post-test of vocabulary. Thus, the third null-hypothesis was rejected.

Table 5

Tests of Within-Subjects Effects; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Sentence Writing Group)

	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Vocabulary	Sphericity Assumed	18220.844	2	9110.422	1051.973.000		.987
	Greenhouse-Geisser	18220.844	1.728	10546.552	1051.973.000		.987
	Huynh-Feldt	18220.844	1.949	9350.345	1051.973.000		.987
	Lower-bound	18220.844	1.000	18220.844	1051.973.000		.987
Error (Vocabulary)	Sphericity Assumed	242.489	28	8.660			
	Greenhouse-Geisser	242.489	24.187	10.025			
	Huynh-Feldt	242.489	27.282	8.888			
	Lower-bound	242.489	14.000	17.321			

Post-hoc comparisons showed that the post-test score (M = 123.46) was significantly higher than both the pre-test (M = 75.13; MD = 48.33, $p < .05$) and the delayed post-test (M = 107.66; MD = 15.80, $p < .05$). Additionally, the delayed post-test score remained significantly above the pre-test (MD = 32.53, $p < .05$).

Table 6

Post-Hoc Comparison Tests; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Sentence Writing Group)

(I) Vocabulary	(J) Vocabulary	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Post-test	Pre-test	48.333*	1.166	.000	45.833	50.833
	Delayed	15.800*	.835	.000	14.009	17.591
Delayed	Pre-test	32.533*	1.187	.000	29.988	35.079

*The mean difference is significant at the .05 level.

Exploring Fourth Research Question

Does traditional method of teaching vocabulary have any significant effect on Iranian EFL learners' short-term (i.e. Pre-test to Immediate Post-test) and long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

A repeated measures ANOVA was run to compare the control group's means on pre-test, post-test and delayed post-test. The significant results of Mauchly's test (Mauchly's W = .470, $p < .05$) indicated that the assumption of sphericity was violated. The Greenhouse-Geisser results were reported to correct for the violation of the sphericity assumption.

Descriptive statistics showed a significant increase in mean scores from pre-test (M = 76.66) to post-test (M = 110.60), with a partial decline at delayed post-test (M =104.13).

Table 7 displays the results of repeated measures ANOVA. The results (F (1.30, 18.291) = 301.10, $p < .05$, $p\eta 2 = .956$ representing a large effect size) indicated that there were significant differences between the control group's means on pre-test, post-test and delayed post-test of vocabulary. Thus, the fourth null-hypothesis was rejected.

Table 7

Tests of Within-Subjects Effects; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Control Group)

	Source	Type III Sum of Squares	df	Mean Square	FSig. Partial Eta Squared
Vocabulary	Sphericity Assumed	9738.533	2	4869.267	301.103.000 .956
	Greenhouse-Geisser	9738.533	1.307	7452.183	301.103.000 .956
	Huynh-Feldt	9738.533	1.387	7022.659	301.103.000 .956
	Lower-bound	9738.533	1.000	9738.533	301.103.000 .956
Error (Vocabulary)	Sphericity Assumed	452.800	28	16.171	
	Greenhouse-Geisser	452.800	18.295	24.750	
	Huynh-Feldt	452.800	19.414	23.323	
	Lower-bound	452.800	14.000	32.343	

Post-hoc comparisons indicated that the post-test score (M = 110.60) was significantly higher than both the pre-test (M = 76.66; MD = 33.93, $p < .05$) and the delayed post-test (M = 104.13; MD = 6.46, $p < .05$). Furthermore, the delayed post-test score remained significantly above the pre-test (MD = 27.46, $p < .05$).

Table 8

Post-Hoc Comparison Tests; Pre-test, Post-test, and Delayed Post-test of Vocabulary (Control Group)

(I) Vocabulary	(J) Vocabulary	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Post-test	Pre-test	33.933*	1.876	.000	29.910	37.957
	Delayed	6.467*	.894	.000	4.550	8.383
Delayed	Pre-test	27.467*	1.467	.000	24.321	30.612

*The mean difference is significant at the .05 level.

Exploring Fifth Research Question

Are there any significant differences among the effects of composition writing, gap filling, sentence writing and traditional vocabulary teaching on Iranian EFL learners' short term (i.e. Pre-test) and long-term (i.e. Immediate Post-test to) vocabulary learning?

The researcher tried to answer the fifth research question through one-way analysis of covariance (one-way ANCOVA); however, the assumptions of linearity and homogeneity of regression slopes were violated. That was why a non-parametric ANCOVA was run to compare the four groups' means on post-tests of vocabulary controlling for the effect of pre-test in order to probe the fifth research question.

The results of descriptive statistics showed that composition writing group (M = 128.35, SE = 1.02) had the highest mean on post-test of vocabulary learning after controlling for the effect of pre-test. This was followed by the gap filling (M = 124.76, SE = 1.02), sentence writing (M = 123.62, SE = 1.02) and control (M = 110.62, SE = 1.03) groups.

Table 9 displays the results of non-parametric ANCOVA. The results ($F(3, 56) = 33.81$, $p < .05$) indicated that there were significant differences between the four groups' means on post-test of vocabulary learning after controlling for the effect of pre-test. Thus, the fifth null-hypothesis was rejected.

Table 9

Nonparametric Analysis of Covariance; Posttest of Vocabulary by Groups with Pretest

F	df1	df2	p-value
33.816	3	56	.000

Table 10 displays the results of post-hoc comparison tests. Based on these results and the descriptive statistics, it can be concluded that;

A: There was not any significant difference between composition writing (M = 128.35) and

gap filling (M = 124.76) groups' means on post-test of vocabulary after controlling for the effect of pre-test (t (56) = 1.85, p > .05).

B: The composition writing (M = 128.35) significantly outperformed the sentence writing group (M = 123.62) on post-test of vocabulary after controlling for the effect of pre-test (t (56) = 3.03, p < .05).

C: The composition writing (M = 128.35) significantly outperformed the control group (M = 110.39) on post-test of vocabulary after controlling for the effect of pre-test (t (56) = 9.46, p < .05).

Table 10

Post-Hoc Comparisons; Post-test of Vocabulary by Groups with Pre-test

Comparison	t	DF	P Value
Composition Writing vs. Gap Filling	1.858	56	.068
Composition Writing vs. Sentence Writing	3.031	56	.004
Composition Writing vs. Control	9.466	56	.000
Gap Filling vs. Sentence Writing	1.173	56	.246
Gap Filling vs. Control	7.607	56	.000
Sentence Writing vs. Control	6.434	56	.000

D: There was not any significant difference between gap filling (M = 124.76) and sentence writing (M = 123.62) groups' means on post-test of vocabulary after controlling for the effect of pre-test (t (56) = 1.17, p > .05).

E: The gap filling group (M = 124.76) significantly outperformed the control group (M = 110.39) on post-test of vocabulary after controlling for the effect of pre-test (t (56) = 7.60, p < .05).

F: The sentence writing group (M = 123.62) significantly outperformed the control group (M = 110.39) on post-test of vocabulary after controlling for the effect of pre-test (t (56) = 6.43, p < .05).

Exploring Sixth Research Question

Are there any significant differences among the effects of composition writing, gap filling, sentence writing and traditional vocabulary teaching on Iranian EFL learners' long-term (i.e. Immediate Post-test to Delayed Post-test) vocabulary learning?

The parametric one-way ANCOVA was run to compare the four groups' means on delayed post-test of vocabulary learning after controlling for the effect of post-test (immediate post-test). Besides the assumption of normality which was discussed earlier, parametric one-way ANCOVA has three more assumptions. First, the significant results of the linearity test (F (1, 34) = 51.45, p < .05, $\eta 2$ = .699 representing a large effect size) indicated that there was a linear relationship between delayed post-test and immediate post-test of vocabulary learning.

Second, the non-significant interaction between covariate (immediate post-test) and independent variable (types of treatments) (F (F (3, 52) = .619, p > .05, pη2 = .037 representing a weak effect size) indicated that the assumption of homogeneity of regression slopes was retained.

And finally, the significant results of the Levene's test (F (3, 56) = 8.82, p < .05) indicated that the assumption of homogeneity of variances was violated. Following the recommendation of Tabachnick and Fidell (2014), due to the violation of the homogeneity of variances assumption, the results of the ANCOVA (Table 12) and post-hoc comparisons (Table 13) were interpreted at a more stringent significance level (α = .01).

Table 11 displays the descriptive statistics for the four groups on the delayed post-test of vocabulary after controlling for the effect of immediate post-test. The results showed that composition writing group (M = 109.48, SE = 1) had the highest mean on delayed post-test of vocabulary, while the gap filling (M = 107.92, SE = .82), sentence writing (M = 107.19, SE = .78) and control (M = 107.26, SE = 1.34) had almost the same means on delayed post-test of vocabulary after controlling for the effect of immediate post-test.

Table 11

Descriptive Statistics; Delayed Post-test of Vocabulary by Groups with Post-test

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Composition	109.483[a]	1.009	107.461	111.505
Gap Filling	107.927[a]	.821	106.282	109.572
Sentence Writing	107.196[a]	.788	105.617	108.775
Control	107.261[a]	1.344	104.568	109.954

a. Covariates appearing in the model are evaluated at the following values: Post-test = 121.78.

Table 12 displays the main results of one-way ANCOVA. The results (F (3, 55) = 1.27, p > .01[1], $p\eta^2$ = .065 representing a moderate effect size) indicated that there were not any significant differences between the four groups' means on delayed post-test of vocabulary learning after controlling for the effect of immediate post-test. Thus, the sixth null-hypothesis was supported.

Table 12

Tests of Between-Subjects Effects; Delayed Post-test of Vocabulary by Groups with Post-test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Post-test	71.816	1	71.816	8.069	.006	.128
Group	33.934	3	11.311	1.271	.293	.065
Error	489.517	55	8.900			
Total	700370.000	60				

Table 13 displays the results of post-hoc comparison tests. Based on these results, and the descriptive statistics displayed in Table 14 it can be concluded that;

A: There was not any significant difference between composition writing (M = 109.48) and gap filling (M = 107.92) groups' means on delayed post-test of vocabulary after controlling for the effect of immediate post-test (MD = 1.55, p > .05).

B: There was not any significant difference between composition writing (M = 109.48) and sentence (M = 107.1992) groups' means on delayed post-test of vocabulary after controlling for the effect of immediate post-test (MD = 2.28, p > .05).

C: There was not any significant difference between composition writing (M = 109.48) and control (M = 107.26) groups' means on delayed post-test of vocabulary after controlling for the effect of immediate post-test (MD = 2.22, p > .05).

Table 13

Post-Hoc Comparison Tests; Delayed Post-test of Vocabulary by Groups with Post-test

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Composition	Gap Filling	1.556	1.150	.181	-.748	3.860
	Sentence Writing	2.287	1.193	.060	-.103	4.677
	Control	2.222	2.063	.286	-1.913	6.357
Gap Filling	Sentence Writing	.731	1.096	.507	-1.465	2.927
	Control	.666	1.762	.707	-2.865	4.197
Control	Sentence Writing	.065	1.671	.969	-3.283	3.413

D: There was not any significant difference between gap filling (M = 107.92) and sentence writing (M = 107.19) groups' means on delayed post-test of vocabulary after controlling for the effect of immediate post-test (MD = .731, p > .05).

E: There was not any significant difference between gap filling (M = 107.92) and control (M = 107.26) groups' means on delayed post-test of vocabulary after controlling for the effect of immediate post-test (MD = .666, p > .05).

F: There was not any significant difference between sentence writing (M = 107.19) and control (M = 107.26) groups' means on delayed post-test of vocabulary after controlling for the effect of immediate post-test (MD = .065, p > .05).

Discussion

The findings of the present study support Nation's (1990) perspective that vocabulary is best acquired through exposure to language input rather than through intentional memorization. The results are also in line with what Dupuy and Krashen (1993), who argued that vocabulary learning is enhanced when learners engage in additional word-focused activities, such as looking up unfamiliar words or creating word lists. They emphasized the distinction between passive reading and active vocabulary engagement.

The findings also align with Sadeghi and Sharifi (2013), who highlighted the crucial role of vocabulary in language learning and emphasized teachers' responsibility in providing opportunities for vocabulary development.

However, the findings of the current study contrast with those of Yang (2017) who investigated the impact of post-reading word-focused activities on vocabulary learning, with a focus on the mediating role of working memory. In Yang's study, 81 university learners were divided into three experimental groups and one control group. Findings showed that on the immediate post-test, the sentence-writing group performed the best, followed by gap-fill, comprehension-only, and control groups. On the delayed post-test, both sentence-writing and gap-fill groups outperformed the others. In contrast, the present study found no significant difference in learners' vocabulary gains between the immediate and delayed post-tests.

Conclusion

This study investigated the effects of post-reading word-focused activities on Iranian EFL learners' vocabulary development. The findings revealed that all three instructional activities—composition writing, gap filling, and sentence writing—as well as the traditional method, had significant effects on both short-term and long-term vocabulary learning.

Among the groups, the composition writing activity had the most significant impact on learners' vocabulary gains in the post-test, followed by gap filling, sentence writing, and the control group. However, no significant differences were found among the groups in the delayed post-test, suggesting that while these activities support short-term vocabulary acquisition, their long-term effects may converge over time.

These findings highlight the importance of providing learners with opportunities not only to encounter new vocabulary but also to engage actively with words in meaningful contexts (Thornbury, 2002). Teachers should go beyond presenting new vocabulary and facilitate activities that promote retention and recall. Writing-based activities, particularly composition writing following reading tasks, appear to be especially effective in fostering deeper vocabulary learning.

Although composition writing showed the most notable results, the contributions of gap filling, sentence writing, and traditional vocabulary instruction should not be underestimated. These activities collectively offer practical means for enhancing both acquisition and retention of vocabulary among EFL learners.

Theoretical and Pedagogical Implications

This study explored the effect of post-reading word-focused activities on Iranian EFL learners' vocabulary learning. Such studies have important implications for education and the psychology of language learning. The findings may contribute to English teaching theory and be valuable for learners, teachers, materials developers, and curriculum designers.

For Learners: The study has clear implications for learners. Laufer (2005) highlights the role of explicit form-focused activities and repetition in retrieving passive vocabulary knowledge. Schmitt (2008) states that word-focused tasks enhance retention more than meaning-focused ones. This supports the role of repetition in better vocabulary learning. Altman (1977) notes that active word searching improves memorization. Hulstijn et al. (1996) emphasize the importance of task-related vocabulary use. Newton (1995) and Ellis & He (1999) link vocabulary retention to speaking and collaborative problem-solving tasks.

For Teachers: Teachers can use post-reading activities to improve learners' vocabulary. Materials developers and curriculum designers should include word-focused tasks to support vocabulary acquisition.

For Curriculum Developers: Curricula should include various word-focused activities, as language components are interconnected. Materials must reflect similarities and differences in such tasks when designing textbooks.

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