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Effects of Incidental and Explicit Tasks on the Use of Vocabulary in EFL Learners' Writing

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The present study aimed at investigating the effects of the two tasks (narrow reading [NR] and sentence production [SP]) on EFL learners' use of the target vocabulary items in writing, in order to provide substantial evidence of the controversial issue concerning which task (incidental or explicit) for vocabulary learning and use is more effective in EFL context. For this study, 154 college students (137 males and 17 females) were classified into three groups (NR, SP, and control groups), and they were asked to take pre- and post- vocabulary tests and three writing tasks. The results of the study were 1) the NR task was effective in the use of the target words in writing in terms of all three measures (the use of target word families in writing, the LFP ration, and the vocabulary tests), and so was the SP task in two measures except the LFP ratio; and 2) the NR group outperformed the SP group in the target vocabulary tests, though both groups failed to reveal any significant differences in the other two measures. Theoretical and pedagogical relevance of the findings is addressed.

[narrow reading/ sentence production/ incidental tasks/ explicit tasks]

I. INTRODUCTION

With a general consensus of a crucial role of vocabulary learning in L2 acquisition, many researchers and practitioners have presented a good many of ideas for effective vocabulary learning with strong theoretical backgrounds (Laufer, 2003; Nation, 2001;

Schmitt, 2010; Schmitt & Carter, 2000). Another common consent among them is that there are more needs of further research for a clear picture in ESL/EFL learners' vocabulary acquisition because a certain learning method, even if it was beneficial, could bring about different results depending upon multifarious factors such as learning activities, language proficiency, affective states, and learning contexts, to name a few (Choi, 2017).

Vocabulary knowledge is defined as not just knowing a word meaning, but producing the word in writing or speech, including understanding its various usages (Laufer & Paribakht, 1998). That is, when it comes to acquisition of vocabulary knowledge, vocabulary use should be placed on the top priority of vocabulary teaching and learning for L2 learners' productive mastery of words; otherwise, vocabulary knowledge "may never be activated and therefore remain in passive vocabulary only" (Laufer, 1998, p. 267).

One of the most controversial issues in relation to vocabulary learning in recent years is whether or not an incidental vocabulary learning is more effective on learners' vocabulary use than other explicit word-focused tasks. Some researchers suggest that it is necessary to provide learners with incidental vocabulary learning context (Coady, 1997; Krashen, 1989; Schmitt & McCarthy, 1997); and the most frequently reported task associated with incidental learning of vocabulary is narrow reading (NR). The NR task is believed to help L2 learners retain new vocabulary knowledge through repetitive exposure to the same topic-related reading materials, and even further expand their vocabulary richness from experiencing the diversified use of the vocabulary, which signifies a potential contribution of NR from recognizing an unfamiliar word to well producing the word in writing or speech (Kang, 2015; Laufer, 1998; Schmitt & Cater, 2000).

On the other hand, others take a negative stance on NR, contending that it has its own limitations in terms of efficiency and effectiveness of L2 vocabulary learning and its use, particularly in EFL context (Cho & Krashen, 1994; Horst, Cobb, & Meara, 1998; Waring & Takaki, 2003). In other words, considering it is very restrictive for EFL learners to engage in authentic learning contexts, NR, which needs a generous amount of time and extensive reading materials, may not be an ideal method for vocabulary learning (Hu, 2008). Thereby, explicit word-focused tasks are suggested as a realistic alternative to NR (Laufer, 2009). For example, a sentence production (SP) task asks learners to perform a more demanding work that completes a sentence with a target word, leading to better recall of the target word than a reading activity only. According to Hulstijn and Laufer (2001) in support of word-focused vocabulary learning, SP tasks encourage L2 learners to improve their receptive as well as productive vocabulary knowledge (Laufer, 2003; Kim, 2008; Pichette, de Serres, & LaFontaine, 2012; Yang, Shintani, Li, & Zhang, 2017).

Notwithstanding a plethora of research findings on L2 learners' vocabulary knowledge in use, there has still been inconclusive debate on the effectiveness of different types of tasks, in terms of incidental or explicit nature of tasks. Furthermore, few empirical studies

investigated the effects of incidental or explicit tasks on learners' vocabulary use in writing in EFL context.

Amid the long-standing debate, follow-up research should be conducted for a clearer picture over the controversial issue concerning which task—incidental or explicit—for vocabulary learning is more effective in EFL context. Accordingly, the current study aims at examining the effects of the two different reading tasks—narrow reading and sentence production—on EFL learners' use of the target vocabulary in their writing, and then ascertaining a better task to help them use the target vocabulary more frequently when writing. For these purposes of the study, the following research questions were posed:

1) Are the two tasks effective in the use of target vocabulary in EFL learners' writing?
2) Which task contributes more to the use of target vocabulary in EFL learners' writing?

II. LITERATURE REVIEW

1. Narrow Reading in L2 Vocabulary Use

In recent years, more and more systematic and practical approaches to improve learners' lexical quality in writing are being required in ESL/EFL contexts (Celce-Murcia, 2001). There has existed a scholarly consensus that reading tasks play a crucial role in acquiring vocabulary (Nation, 2005; Read, 2004). In line with the belief, new light has been shed on narrow reading (NR) as a way of promoting L2 learners' vocabulary knowledge, particularly productive use in writing. NR is defined as a series of reading about the same topic. In detail, repetitive exposure to the reading materials with one common topic increases L2 learners' encounter with topic-related words, helps them incidentally notice the words, retains the particular words in their memory (Krashen, 2004), and consequently facilitates their use of the words in a sentence (Kang, 2015).

The advantages of NR demonstrated by Krashen (1981) are as follows: a) Learners become familiar with the topic, and have much better background knowledge for future passages on that topic; and b) NR has to do with the mechanics of vocabulary distribution, that is, key words in topic-related texts tend to frequently occur, easing lexical burden on learners. Shaffer (2005) also acknowledges the value of NR, suggesting that teachers may provide learners with more chances to read a set of articles on the same topics with a narrow subject area. Moreover, Kang's (2019) research provided supporting evidence of positive effects of NR on vocabulary use by investigating the relative effectiveness of two

types of post-reading tasks (NR and SP) for improving English learners' vocabulary use in writing. She reported that the NR group along with the sentence production group produced higher-level of target vocabulary in their writing than the control group, which implies that repetitive exposure to thematically related words through NR is very useful for enhancing EFL learners' vocabulary use in writing.

There are, however, some studies that failed to reveal a strong support for the role of NR in vocabulary learning. According to Laufer (2003), though reading has general advantages for vocabulary learning including noticing words and reinforcing the memory of words, it has several drawbacks, too. First, it is less time-efficient than explicit form-focused word activities for vocabulary learning because it takes EFL learners a huge amount of time to notice and memorize topic-related vocabulary, and even it is very hard to access to enough and proper reading materials in their EFL learning environments. Another drawback is that new words noticed by reading alone are not easily established as familiar words in learners' lexical knowledge. Laufer (2003, 2005) gives empirical evidence over a minor role that reading plays in the increase of productive vocabulary knowledge through three experiments with three tasks: completing sentences, writing original sentences, and writing compositions. It was found that the three word-focused tasks were more conducive to building vocabulary knowledge than a reading activity, implying that reading alone might not be the best source of vocabulary acquisition.

2. Sentence Production in L2 Vocabulary Use

In accordance with the Task Involvement Load Hypothesis (Hulstijn & Laufer, 2001), the more demanding vocabulary tasks are, the higher retention of words they bring about. It can be interpreted that producing a word in a sentence is a better way to recall the word than simply noticing it in only a reading context. Laufer's (1998, 2003, 2005) studies show strong supports for the usefulness of sentence production (SP); namely, SP tasks help improve L2 learners' productive and receptive vocabulary knowledge (Hulstijn & Laufer, 2001; Kim, 2008; Laufer, 2003; Pichette, de Serres & LaFontaine, 2012; Yang et al., 2017). Schmitt (2008), in addition, proposes that word-focused activities such as gap filling with target words, L1-L2/L2-L1 translation, SP with target words, and reading with dictionary use (Laufer, 2009) lead to better effect on recalling of new words than meaning-focused reading tasks.

There are a growing number of comparative studies on L2 vocabulary learning that have presented the positive effects of productive vocabulary tasks comparing reading activities for acquiring new words (Hulstijn & Laufer, 2001; Kim, 2008; Laufer, 2003; Pichette, de Serres & LaFontaine, 2012). They show that the word-focused writing tasks including SP lead to higher recall of the target words than reading tasks. Hyun and Kim (2016) also

investigated the effects of different types of tasks on vocabulary learning based on the task involvement load hypothesis with the four tasks: reading comprehension, gap-filling, sentence writing, and gap-filling with dictionary use. They found that the writing task yielded the highest scores and concluded that a more demanding task seems to help L2 learners learn and recall words more effectively. One year later, Yang et al. (2017) conducted a study with a similar research design to investigate the effects of three different post-reading word-focused tasks: sentence production, gap fill, and reading tasks. It was found that the SP group significantly outperformed the other groups on the post-vocabulary test. It suggested that SP might be more effective than reading-focused activities in vocabulary learning.

3. Vocabulary Use in Writing

Vocabulary knowledge has been recognized as a major priority in language acquisition, constantly arousing a lot of researchers and practitioners' interest in vocabulary learning and teaching in second language (L2) (Celce-Murcia, 2001). A host of researchers have tried to examine the role of vocabulary knowledge and verify its effects on L2 learners' language acquisition and development. Considering neglect of vocabulary learning could cause substantial difficulties in L2 learners' production, the importance of vocabulary learning has been placed on top with regards to language acquisition (Hedge, 2000). Nation (1990) states his views on vocabulary acquisition that knowing a word involves not only an awareness of a meaning but also knowledge of various lexical features of the word, such as its grammatical behavior, collocations, register constraints, and even different meanings. He also adds that productive use of vocabulary, in speech and/or in writing, helps learners master those aspects of a word, leading to depth of word knowledge, a prerequisite for vocabulary learning and use (Nation, 2001).

Over the last several decades, the role of vocabulary knowledge, particularly, in writing has come to the fore. Producing words provides learners with great opportunities to reinforce their vocabulary knowledge by applying contextually appropriate words to a wide variety of contexts. Sugawara (1992) also gave the supporting evidence on the production of vocabulary that producing new words in a writing context had a very positive effect on increasing learners' self-confidence in the later use of the words and was beneficial to the improvement of both receptive and productive vocabulary knowledge as well. Such an essential role of production in acquiring vocabulary knowledge was reasserted by studies that addressed the negative impact of lack of vocabulary knowledge on writing (Leki & Carson, 1994; Raimes, 1985; Uzawa & Cumming, 1989). Therefore, vocabulary use in writing is likely to be very crucial in facilitating vocabulary learning (Barcroft, 2006; Yang et al., 2017) in that writing in context helps learners build up and

consolidate their vocabulary knowledge, which ultimately results in second/foreign language development (Muncie, 2002).

In addition, Lee and Muncie (2006) demonstrate that ESL/EFL learners' vocabulary use is one of the major indicators to determine the overall quality of their writing (Astika, 1993; Lee, 2003; Santos, 1988). Since writing quality is closely related to how much various and sophisticated vocabulary learners can use in their compositions, the measurement of lexical richness and sophistication in their writing is very fundamental to judge writing quality and also useful for examining how much their vocabulary knowledge develops through a certain process of writing tasks.

4. The Lexical Frequency Profile in Writing

L2 learners' vocabulary knowledge in writing can be measured by analyzing the words used in their compositions. The four measurements: lexical originality, lexical density, lexical sophistication, and lexical variation often had been used in order to measure learners' productive vocabulary knowledge in writing and/or speech. However, as the measurements had revealed some shortcomings and limitations with regards to the reliability and validity of their standard, Laufer and Nation (1995) developed a new measurement of lexical richness, known as the Lexical Frequency Profile (LFP), which gauges words or target words used in learners' writing according to the different frequencies of words, which are classified as the first 1000 most frequent words (1K), the second 1000 most frequent words (2K), Academic Word List (AWL) words (Coxhead, 2002), and off-list words (words beyond the most frequent 2000 words and the AWL).

To date, the LFP has been most widely recognized as an analytic tool to measure the quality of vocabulary in writing (Cobb, 2002; Kang, 2019; Laufer, 1998; Laufer & Nation, 1995; Lee, 2003; Zheng, 2012). Muncie (2002) adopted the LFP to his study that investigated the effects of process-based writing on EFL students' vocabulary development, and reported that the measurement offered "a detailed picture of lexical sophistication" (p. 227). The study found that while there had been no significant difference between the LFPs of the writings (a timed-composition, the first draft, and the final draft), the LFPs of the revisions showed a higher percentage of more sophisticated vocabulary than those of the other writings. Through the analysis of different frequency of words used in the students' writings, using the LFP, he could conclude that process writing could be a useful means of helping students expand their vocabulary knowledge.

The LFP can also be used as a reliable indicator of ESL/EFL advanced learners' vocabulary knowledge if it shows a high percentage of the two categories (AWL and off-list words) in their writings (Laufer, 1998; Zheng, 2012). Conclusively, the LFP appears to be effective enough to measure learners' overall proficiency of vocabulary

knowledge depending on whether they can produce high- or low-frequency words, and the LFP data is a valuable source for the vocabulary teaching/learning.

III. RESEARCH DESIGN

1. Participants

The participants of the current study consisted of 154 Korean EFL college students (137 males and 17 females). All of the students enrolled in *College English* as a mandatory course in 2020 that was required for the first-year students in the college. The English course was run for two hours every week in the face-to-face setting. The students were from the intact 9 classes taught by one of the researchers. Each class was composed of 17 to 22 students, and their ages ranged from 20 to 22. The students' English proficiency level could be deemed as intermediate-high based on their TOEIC scores (715 on average). The students from nine classes were randomly divided into three groups of three classes each—the NR group (n = 53), the SP group (n = 51), and the control group (n = 50)—considering the balance in number for the study purposes.

2. Instruments

1) Target Words

To assess the participants' vocabulary use in writing in the three different settings, 30 target words were selected from the main reading text related to smartphone use that the three groups had to read mandatorily in class. When selecting the words, it was also checked that they were found in three additional reading texts the NR groups read in their reading activity. Accordingly, the words chosen for the present study were used in common in the four texts in total. The frequency of the target words was measured based on the measurement of lexical richness by Laufer and Nation (1995) as in Table 1.

TABLE 1

Target Words According to Frequency

Frequency	No.	Target words
Below 1,000 (1K)	2	cause, effect
1,000 – 2,000 (2K)	7	anxiety, damage, excessive, interfere, risk, stretch, thumb
Academic Word List (AWL)	7	affect, contribute, depression, device, exposure, injury, research
Off-list	14	cognitive, diabetes, distract, germ, obesity, physical, posture, repetitive, spine, straighten, strain, symptom, tendon texting

2) Vocabulary Tests

In order to measure the participants' development of lexical competence in terms of productive vocabulary use, pre- and post-vocabulary tests were administered before and after the treatment. The test was a type of a sentence completion test like a gap-fill activity, in which each gap was started with an initial letter and they were asked to complete the words, filling out the rest of the letters, based on the sentence meaning. The test format was used to ease L2 learners' burden they might have when carrying out a productive vocabulary test. The two tests were made of 30 sentences with one target word item each to be filled in a sentence. In the two tests, the number of the test items were the same for comparison, whereas the words were presented in different order to prevent from practice effect, if any. The participants were given 20 minutes to finish up the tests each.

3) Reading Texts

For all the groups, a main text, titled *Smartphone Dangers*, was chosen for their reading activity, and then three additional reading texts with the same topic as the main text were chosen for the treatment activity of the NR group. All the texts were obtained from the Internet. They were carefully selected considering content similarity, the total number of tokens, and the target words selected from the main reading text. Table 2 shows the basic information of the reading texts.

TABLE 2

Reading Texts

	Topic	No. of Tokens	Readability
Main Text	Smartphone Dangers: Could Your Cell Phone Be Bad for Your Health?	809	67.787
NR Text 1	12 Ways Your Cell Phone Harms Your Health	817	68.185
NR Text 2	This Is How Your Cell Phone Is Affecting Your Health	814	65.086
NR Text 3	12 Ways Your Phone Is Ruining Your Health	822	64.474

Note. Readability was measured using Flesch Reading Ease (0-100): the higher the number, the easier to understand the text.

4) Writing Tests

Pre- and post-writing tests were implemented to analyze the participants' vocabulary use in writing before and after the treatment. They were given the topic of *Bad Effects of Smartphone Use on Our Health*, closely related to the topic of the reading texts, and wrote about one-page essay. Actually, the topic and direction for the two writings was provided in

their native language to avoid their misunderstanding that might cause unwanted effects on their writing performance. For each test 30 minutes were given to them, and any sorts of dictionaries or reference materials were not allowed to use. Plus, they were informed that the results of each test would be included in their final grades to enhance their motivation.

3. Procedures

In the first week of the course, a pre-vocabulary test was carried out for 20 minutes to measure the students' competence of vocabulary use. The next week, they took a pre-writing test about smart phone use for 30 minutes. After a week later, before the treatment, all three groups were given the main reading text along with a sheet of glossary of the target words, and then they were asked to read the text for 20 minutes. After they finished reading, a comprehension check-up activity was followed to help them understand what the text was about for 5 minutes. Then the main reading text and handout were collected by the instructor.

From the following week, for three consecutive weeks, the NR group students were given a new reading text with the glossary of the target words and went through the reading and comprehension session as they did with the main reading text. While carrying out the task, they were expected to be exposed to the target words repeatedly in topic-related reading contexts. Unlike the NR group, the SP group students were assigned to write sentences using the target words, 10 target words (a third of the 30 target words) in each week. The words were provided along with their English definition next to them as a glossary. The task was administered for 20 minutes per week.

In case of the control group, the students were engaged in the traditional reading class, in which they were guided to perform reading and comprehension activities with different reading materials from their textbook for three weeks. They were not led to conduct any tasks related to the treatment of the two experimental groups.

Lastly, a week later, the students of all three groups took two post-tests (post-vocabulary and post-writing tests) in order to assess how much their vocabulary knowledge was improved and how frequently they used the target words in their writing after the treatment. The two post-tests were implemented under the equal conditions to those of the pre-tests. Table 3 summarizes the whole procedure of the current study.

TABLE 3

Procedure of the Study

Week	NR Group	SP Group	Control Group
1		Pre-vocabulary test (20 min.)	
2		Pre-writing test (30 min.)	
3	NR task 1 (25 min.)	SP task 1 (20 min.)	Traditional reading class
4	NR task 2 (25 min.)	SP task 1 (20 min.)	Traditional reading class
5	NR task 3 (25 min.)	SP task 1 (20 min.)	Traditional reading class
6		Post-writing test (30 min.)	
7		Post-vocabulary test (20 min.)	

4. Scoring and Data Analyses

To examine the participants' productive vocabulary knowledge, pre- and post-vocabulary tests with the 30 target words each were administered. For each word, three different point system was applied based on discussion of the two researchers: one point for an exactly correct answer, 0.5 point for a partly correct answer including errors such as inflections, third-person singular verbs, or plural nouns, and 0 point for an incorrect answer. Plus, the answers including errors of spellings or word families were counted as an incorrect one, based on the definition of productive vocabulary knowledge by Nation (1990), the knowledge which is the ability to produce a word correctly with understanding a variety of lexical features of a word (Laufer & Nation, 1993; Faerch, Haastrup, & Phillipsson, 1984).

The vocabulary tests and the frequency of word use in writing in terms of word families and the LFP ratio were submitted to analyses using *t*-tests and ANOVAs with post-hoc analyses to answer the two research questions. The significance level was set at .05. Effect sizes to measure the effects of the statistical results of *t*-tests were estimated using Cohen's *d*, with the values of small = 0.2, medium = 0.5, and large = 0. 8 (Cohen, 1988).

IV. RESULTS AND DISCUSSION

In order to investigate the effects of the two incidental and explicit tasks (narrow reading and sentence production each) on the use of the target vocabulary items in EFL learners' writing, statistical analyses were carried out on the results of the number of total word families and target word families, LFP ratio (K1 + K2 and AWL + Off-list), and the target vocabulary tests before and after the treatment in the three groups (narrow reading [NR] group, sentence production [SP] group, and control group).

First, the participants of the current study used more word families in total in post-writing than in pre-writing, regardless of the group variable, and the within group

differences were analyzed using paired *t*-tests as in Table 4. It stands to reason that as the number of words increased in the post-writing, so the total word families increased.

The crucial point to be mentioned is that the two experimental groups used more target word families in the post-writing with relatively large Cohen's *d* effect sizes, whereas the control group failed to demonstrate significant differences in the use of the target word families between the pre- and post-writings. Each of the two experimental conditions was beneficial for learners' productive use of the target words in writing, which corresponds with the previous studies that supported the advantage of incidental input-related task (narrow reading) in writing (Kang, 2019; Schmitt & Carter, 2000) and active vocabulary gain through explicit forced-output task (sentence production) (Hulstijn & Laufer, 2001; Kang, 2019; Kim, 2008; Laufer, 2003; Pichette, de Serres & LaFontaine, 2012; Yang et al., 2017).

TABLE 4

Differences in the Word Families in Pre- and Post-writings in Three Groups

Group	N	Word Families	Writing	*M* (*SD*)	*t*	*p*	Cohen's *d*
Narrow Reading	53	Total word families	Pre	89.74(27.66)	-7.925	.000**	-.56
			Post	105.83(30.04)			
		Target word families	Pre	4.23(3.22)	-4.726	.000**	-.71
			Post	6.72(3.84)			
Sentence Production	51	Total word families	Pre	89.88(24.78)	-4.593	.000**	-.36
			Post	99.00(26.43)			
		Target word families	Pre	4.25(3.33)	-4.982	.000**	-.70
			Post	6.84(4.07)			
Control Group	50	Total word families	Pre	91.96(23.76)	-3.253	.002**	-.38
			Post	100.20(20.11)			
		Target word families	Pre	4.38(3.36)	-1.944	.058	-.27
			Post	5.18(2.64)			

**$p < .01$

Some of the examples are below that show how the students in the two experimental groups conveyed the message more effectively and appropriately using the target words in their post-writing. The next two examples show simple exchange of the words from *back* to *spine* and from *thing* to *device*, which implies that they grasped the exact usage of the target words in writing after the treatment.

After using my phone I have experienced neck pain and back pain. →
Using my phone can cause multiple problems: turtle neck, bent thumbs, twisted **spine**…

Smartphone is a most important thing in the world. →
Smartphone is a **device** that most of people have in the world.

In the next examples, the writers' intention was boiled down into one word each. Using the

target words, they appeared to be successful in conveying their message more briefly but more precisely and powerfully.

Using smartphone can cause your eyes to be very tired. →
Using a smartphone only **damage** our eyes.

Back has been too bent during using cell-phone. →
With fixed **posture**, we use the cell-phone for a long time.

The final example shows how additional information using the target vocabulary items can render the message to be conveyed clearer and more concrete.

Smartphone's blue light brings eye pain. →
Repetitive exposure of these harmful lights may bring eye pain.

In order to determine the significance of between group differences, one-way ANOVA was performed. The results demonstrated statistically significant group differences in the category of target word families as in Table 5, and post-hoc analyses revealed both the NR group and the SP group outperformed the control group in the use of target word families in writing (NR: p = .048, SP: p = .032) without any significant differences between the two experimental groups. Encountering the target vocabulary items whether incidentally or explicitly proved to be facilitative in their productive use in a subsequent composition exercise. This outcome is a bit different from Kang (2019) in which narrow reading was more effective than sentence production in vocabulary use in writing, though both were significantly different from the control group. It is highly plausible that other variables might come in such as the participants' English writing proficiency, target words selected, and/or writing topics, which need to be investigated in further studies.

When it comes to the use of target word families in writing, it can be safely said that both types of treatment might be conducive to the learners' more frequent use of target vocabulary items in writing. Exposure to the target words, whether incidentally or explicitly, is highly likely to give opportunities for the learners to activate and consolidate their vocabulary knowledge to be used productively in writing, which may ultimately contribute to the development of second/foreign language (Muncie, 2002).

TABLE 5

ANOVA Results of Pre- and Post-writings in the Word Families

Writing	Word Families	*df*	*F*	*p*
Pre	Total word families	2	.111	.895
	Target word families	2	.028	.972
Post	Total word families	2	1.008	.367
	Target word families	2	4.129	.018*

*$p < .05$

Next, based on the classification of the target vocabulary items according to their different frequencies of words, known as the Lexical Frequency Profile (LFP), paired *t*-tests were administered to see if there were any differences within groups regarding the LFP ratio. As shown in Table 6, the NR group learners used less easy words and more difficult words in writing after the treatment (Kang, 2019). Concretely speaking, among the above 2K (low-frequency) target words (21 words in total), 7 words (*diabetes, germ, injury, research, straighten, strain,* and *symptom*) were newly included and 6 words (*depression, distract, obesity, posture, repetitive,* and *spine*) were doubled in use in the NR group's post-writing. It can be interpreted that repetitive exposure to the reading materials with the same topic increased the NR group students' encounter with topic-related low-frequency target words, facilitated incidental noticing and retaining of the words (Krashen, 2004), and ultimately enhanced their level of productive vocabulary use in subsequent composition (Kang, 2015; Laufer, 1998).

On the other hand, both the SP group and the control group failed to reach any significant differences in the frequency of their using easy and difficult words in pre- and post-writings. One-time encounter with the academic and/or topic-specific target words appears to be not enough for them to store the words in the inventory of productive vocabulary to be recalled and used in writing. Kang (2019) reported, however, that the SP group along with the NR group also revealed a rise in the use of words beyond the 2K level in writing, which led her to ascertain that the output-based explicit task exerted positive influence in vocabulary learning and use (Laufer, 2003).

TABLE 6

Differences in LFP Ratio in Pre- and Post-writings in Three Groups

Group	N	LFT Ratio	Writing	*M* (*SD*)	*t*	*p*	Cohen's *d*
Narrow Reading	53	Below 2K (K1 + K2)	Pre	89.30(2.87)	2.123	.039*	.29
			Post	88.43(3.15)			
		Above 2K (AWL + Offlist)	Pre	10.70(2.87)	-2.121	.039*	-.29
			Post	11.57(3.15)			

Sentence Production	51	Below 2K (K1 + K2)	Pre Post	87.87(3.60) 87.38(3.46)	.996	.324	.14
		Above 2K (AWL + Offlist)	Pre Post	12.13(3.60) 12.62(3.46)	-.995	.324	-.14
Control Group	50	Below 2K (K1 + K2)	Pre Post	88.35(3.40) 87.51(3.54)	1.444	.156	.25
		Above 2K (AWL + Offlist)	Pre Post	11.65(3.40) 12.50(3.54)	-1.439	.157	-.25

$^{*}p < .05$

In accordance with one-way ANOVA analyses to determine the significance of the between-group differences of the frequency of the LFP ratio (below and above 2K) in the pre- and post-writings, any significant results were not found (F = 2.536, p = .083; F = 1.480, p = .231, respectively). That is, the mean differences of the use of high- and low-frequency words between the three groups were ignorable, implying that the participants used those words at almost similar level, irrespective of treatment condition. Unlike Kang's (2019) study, performed with high school students (aged 16-17) whose vocabulary knowledge and writing ability are possibly lower and who present strong possibility of development through treatment, the participants in the current study (college students) must have had more abundant vocabulary stored in their memory and used it in writing, which signifies that it might be hard to expect remarkable improvement after a short-term treatment. Further research needs to investigate any differences among EFL learners' vocabulary use in writing depending upon age, language proficiency, and their career of English education, in particular.

Finally, additional statistical analyses were run to examine whether the two different types of treatment exerted an impact on the participants' overall gain of vocabulary knowledge. In the target vocabulary item tests, the two experimental groups achieved significantly higher scores in the post-test with relatively large Cohen's *d* effect sizes as in Table 7. The result confirms that this improvement might be attributed to their experience of being engaged in the tasks, incidental or explicit.

Along with the treatment effect of the two task groups, however, the control group also showed a significant increase in their vocabulary knowledge probably because of the reading texts they had read during the course. The texts were about world's health and medicine research, and some of the target vocabulary were included in them such as *affect*, *diabetes*, *effect*, *obesity*, *physical*, and *research*. Overall, this result might be interpreted with some caution that exposure to the target vocabulary by the experimental design, whether incidentally or explicitly, or included accidentally in the texts they had read was highly likely to contribute to the betterment of EFL learners' vocabulary knowledge.

TABLE 7

Differences in Pre- and Post-Tests of Target Vocabulary in Three Groups

Group	N	Test	*M* (*SD*)	*t*	*p*	Cohen's *d*
Narrow Reading	53	Pre Post	7.321(3.245) 9.925(3.680)	-6.386	.000**	-.76
Sentence Production	51	Pre Post	6.853(3.483) 9.373(3016)	-7.421	.000**	-.78
Control Group	50	Pre Post	5.944(2.722) 8.00(2.960)	-5.891	.000**	-.73

**$p < .01$

One-way ANOVA was performed to check between group differences in the pre- and post-test of the learners' target vocabulary knowledge. As shown in Table 8, no significant difference was found in the pre-test, which implies target vocabulary knowledge of the three groups were homogeneous before the treatment. In contrast, the three groups differed significantly in the results of the post-test after the treatment: The NR group outperformed the control group ($p = .012$) and no differences were found between the NR group and the SP group ($p = 1.000$) and between the SP group and the control group ($p = .123$) based on the post-hoc analyses. That is, the NR group clearly showed better performance in the vocabulary test than the control group, while the SP group was not significantly better than the control group, though there was no significant difference between the SP group and the NR group. It seems reasonable to suggest that NR could play more facilitative role in a continuous process from recognition through repetitive exposure to target vocabulary items in reading to proper production of them in writing (Kang, 2015; Laufer, 1998, 2003; Schmitt & Cater, 2000).

TABLE 8

ANOVA Results of Pre- and Post-tests of Target Vocabulary

Test	*df*	*F*	*p*
Pre	2	2.318	.102
Post	2	4.434	.014*

*$p < .05$

V. CONCLUSION

In order to provide substantial evidence of the controversial issue concerning which task—incidental or explicit—for vocabulary learning and use is more effective in EFL context, the current study investigated the effects of the two tasks—narrow reading (incidental) and sentence production (explicit)—on EFL learners' use of the target

vocabulary items in writing. The results from the study is summarized based on the research questions posed.

First, concerning the effectiveness of the two tasks in the use of the target words in writing, the NR task proved to be effective after the treatment in the use of the target vocabulary items in writing according to the results of within-group differences from the analysis categories of the use of target word families in writing, the LFP ratio, and the vocabulary test. It can be interpreted that learners may notice words and reinforce memory of the words better through repetitive exposure to frequently occurring words in the texts used in the NR task (Laufer, 2003); and that, furthermore, the task appears to help the increase of productive vocabulary knowledge that can be readily engaged in writing (Kang, 2019), which is contrary to Laufer's (2003, 2005) claim that reading alone might not be the best source of vocabulary acquisition. Also, the SP task achieved positive results in the two categories except the LFP ratio. It goes well with prior research findings that productive vocabulary tasks including sentence production might facilitate higher recall of the target words in writing (Hulstijn & Laufer, 2001; Kim, 2008; Laufer, 2003; Pichette, de Serres, & LaFontaine, 2012; Yang et al., 2017).

Next, the answer to the question of which task contributes more to the use of target vocabulary in writing would tentatively be the NR task on the basis of the analyses of between-group differences in that the NR group outperform the SP group in the target vocabulary tests, though both groups failed to reveal any significant differences in the use of target word families in writing and the LFP ratio. It would probably stem from that repeated exposure to topic-related academic and low-frequency words through narrow reading may be more effective than the sentence production task performed through practice of the target words in isolation, in order to encourage learners to store the words as receptive word knowledge and use them productively in writing if needed (Kang, 2015, 2019; Schmitt & Carter, 2000).

It is quite demanding for a teacher to help learners to build up lexical knowledge ranging from noticing an unfamiliar word to using the words properly in production. Remembering the results of the present study, the teacher may give an attempt to engage the two tasks in her language class to reinforce the memory of words and promote their use in writing. However, there are some drawbacks in narrow reading that it is less time-efficient and it is not easy to graft new words onto learners' lexical knowledge to be used productively when needed (Laufer, 2003), and in sentence production that the task is mostly performed in sentence level and the more the words are to be taught, the less exposure is expected to them. Accordingly, the teacher has to take these drawbacks of the tasks into account when adopting the tasks in class to enhance learners' vocabulary acquisition and use.

In conclusion, the current study made an attempt, with limited number of participants studying English in a tertiary context, to testify the effectiveness of the incidental and

explicit tasks in the use of vocabulary in writing. As a few studies are not enough to ascertain the issues under investigation (Grabe, 2009), more evidence is highly welcome gleaned with different approach including qualitative investigation from participants of different age and proficiency level.

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Examples: English
Applicable language: English
Applicable Level: Tertiary

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