

Research Article**Lexical Elaboration and Typographical Enhancement: Their Discrete and Combined Impact on Incidental Vocabulary Learning***Amir Hossein SOHBATI¹  Mohsen BOROUMAND²  Farzaneh KHAKZAD ESFAHLAN³ **Abstract**

The present study examined two input modification techniques, namely lexical elaboration (LE) and typographical enhancement (TE), and the combination of these two (LE & TE) to seek the difference among them as far as incidental vocabulary learning through reading is concerned. Ninety-six Iranian EFL students whose reading proficiency was at intermediate level were divided into four groups and respectively read texts which were (a) lexically elaborated, (b) typographically enhanced, (c) both lexically elaborated and typographically enhanced, or (d) unmodified baseline. Right after reading, their incidental vocabulary learning was assessed by means of a modified version of Paribakht and Wesche's (1997) Vocabulary Knowledge Scale (VKS). Results of the ANOVA demonstrated a significant difference among the four groups. In order to pinpoint where the differences exactly lay, a multiple comparison was done through the application of a post-hoc Scheffe Test. The results suggested that students performed significantly better on a text that had undergone both modification techniques (i.e. double-treatment). However, lexical elaboration alone did not have a statistically significant effect on incidental vocabulary learning through reading. More interestingly, there was no significant difference between the double-treatment and typographical enhancement groups although their mean scores were different.

Keywords: Input modification, lexical elaboration, typographical enhancement, incidental vocabulary learning**1. INTRODUCTION**

In the field of second/foreign language acquisition, there is a consensus that vocabulary learning occurs more efficiently through *context* (İlter, 2019; Krashen, 1989; Pigada & Schmitt, 2006; Shokouhi & Askari, 2010). There are also studies that suggest *incidental* learning from the context plays a prominent role in L2 vocabulary acquisition (Hulstijn, 2013; Webb, 2008). However, despite this constructive interaction between context and vocabulary learning, Kim (2006) asserts, "not all contexts are intrinsically reader friendly" (p. 342). He maintains that most written materials do not include sufficient clues to help the learner infer meaning. Likewise, the existing clues are not often saliently marked in the text; therefore, readers may fail to notice such clues and thereby, due to these deficiencies, they would not learn the meaning of the unfamiliar words encountered in the text. Considering these shortcomings and the fact that many language learners feel apprehensive or reluctant when facing the overwhelming task of vocabulary learning, making some modifications in the written input may prove to be a practical way to enhance text comprehensibility and vocabulary acquisition.

As far as comprehensibility of input is concerned, a good number of studies have addressed its indispensable connection with learning a second language in general and learning L2 vocabulary in particular. Kim (2006) cites Krashen and Terell (1983) as the pioneers who proclaimed this view by saying that "acquisition depends crucially on the input being comprehensible. And comprehensibility

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is dependent directly on the ability to recognize the meaning of key elements in the utterance. Thus, acquisition will not take place without comprehension of vocabulary” (p. 343).

Nevertheless, a tough challenge that L2 learners have to deal with is that a big proportion of the authentic texts are not intrinsically comprehensible for them. In other words, if we consider the L2 texts as the context for vocabulary acquisition, majorly the ones that have been enriched or modified for pedagogical purposes (*Pregnant* according to Mondria & Wit-de Boer, 1991) can facilitate vocabulary learning. Regarding text modification, two popular techniques have been widely used by researchers: *Simplification* and *elaboration*. As simplification normally entails complete removal of unfamiliar lexis and/or syntactic structures, it has been proven counterproductive in many L2 learning contexts. On the other hand, elaboration intends to keep the text essentially as intact as possible by simply providing high-frequency definitions for the low-frequency unknown words immediately after their occurrence in the text (Brewer, 2008).

Input enhancement is another notion that goes under the rubric of text modification. This type of modification technique, likewise, attempts to make linguistic elements of interest salient to the learner’s attention in order to make the target features noticed and ultimately enhance the comprehensibility and acquirability of the input. Input enhancement can be implemented in two contexts. Occurring in a textual context, it takes the form of *typographical* (visual) enhancement. Bolding, italicizing, and underlining are examples of this kind of modification. Likewise, when input enhancement is applied to an oral context, it is formulated as *intonational* (acoustical) enhancement that can be manifested in the form of a slow speech rate, vocal emphasis on keywords, repetition, etc. Since the focus of the present study was on written input, enhancement was examined in the form of typographical modification in the textual context.

1.1. Theoretical Framework of Lexical Knowledge

The notion of lexical knowledge, or the understanding of what it means to know a word, lies at the heart of vocabulary learning research. Multiple scholars have been trying to build valid frameworks to define and measure this complex construct objectively. Richards (1976), initially, developed a framework that considered vocabulary knowledge a multi-faceted construct, which encompassed such features as syntactic, semantic, and pragmatic knowledge of the word in addition to its meaning. Despite its relative comprehensiveness, Richards’s (1976) framework did not embrace the receptive and productive aspects of vocabulary knowledge that were highlighted later by other researchers.

It was Nation (1990, 2001), for example, who developed an analytical classification that differentiated receptive (i.e. passive) and productive (i.e. active) knowledge of vocabulary. Accordingly, the ability to use a word is a complex process and different from understanding its meaning. The latter, as Nation (1990) asserts, applies to only a small proportion of what native speakers know about a given word. He further added to the proposed aspects of vocabulary knowledge by supplementing three major categories of meaning, form, and use in both receptive and productive forms of knowledge and eventually, by building on his framework, designed the Vocabulary Size Test.

Paribakht and Wesche (1993) developed a somewhat similar approach to examine the nature of lexical knowledge. They proposed a framework called ‘Vocabulary Knowledge Scale’ (VKS) which was initially used to measure the vocabulary knowledge of students in an ESL program. They modified this scale in the following years, and its optimized versions (Paribakht & Wesche, 1997; Wesche & Paribakht, 1996) were introduced and used in miscellaneous studies later (See e.g. Pulido, 2004; Rott & Williams, 2003). Through VKS, the learners self-report their knowledge of each vocabulary item by choosing (and completing) a statement from a five-leveled scale that ranges from not having encountered the word before (level 1) to being able to use the word item in a sentence (Level 5). Since this framework has been used successfully in multiple studies producing valid measures of learners’ vocabulary knowledge, a shortened three-leveled version of it, the same as the

one adapted and used by [Folse \(2006, p. 281\)](#), was utilized in the current study, too, in order to gauge the learners' vocabulary learning through reading.

1.2. Incidental vs. Intentional Vocabulary Learning

In a broad educational sense, incidental learning happens when there is no explicit intention to learn a particular construct, or when the primary goal is to learn something other than the target skill, etc. In more specific terms, incidental vocabulary learning signifies the concomitant lexical acquisition from a task which is not deliberately aimed at vocabulary learning such as comprehending the main idea of a text or communicating a message ([Laufer, 2003](#)). However, it is worth noting that incidental here does not imply neglecting the words while doing an activity. Rather, as [Laufer \(2003\)](#) maintains, learners “may attend to the words (for example, using them in sentences, or looking them up in the dictionary), but they do not deliberately try to commit these words to memory” (p. 574).

To put it succinctly, the studies that explore incidental vocabulary learning require learners to perform a task without informing them beforehand that their recollection of meaning will be assessed afterwards. Conversely, in intentional vocabulary learning, learners are well aware of the forthcoming test on their vocabulary knowledge.

In line with the arguments above, multiple studies have examined vocabulary learning as a by-product of reading where the unfamiliar items are encountered in a textual context (e.g. [Ponmiah, 2011](#); [Vidal 2010](#); [Webb, 2008](#)). The significance of textual context (i.e. reading text) had initially been highlighted by [Krashen \(1989\)](#) who counts it as a type of comprehensible input that enables the L2 learners to comprehend language and enrich their vocabulary repertoire. Nonetheless, despite these theories and findings, some researchers (e.g. [Frantzen, 2003](#)) have indicated that sole reliance on the reading context can be insufficient and that ambiguous contexts will not be helpful for inferring the meaning of unfamiliar vocabulary. It is argued that while reading context may contain the meaning, it does not necessarily reveal it to the readers. Moreover, if the correct meaning of the word is not congruent with learners' knowledge of the world, or if the learners assume they have grasped the message, contextual clues are ignored. [Laufer \(2003\)](#) goes one step further by stating that some reading contexts can even mislead the learners. To exemplify, she mentions the sentence “people were drinking, singing, laughing, brawling” (p. 571), and asserts that majority of the readers wrongly equate ‘brawling’ with ‘having a good time’. With regard to these problems, and in order to rectify input deficiencies, such modification techniques as lexical elaboration and visual enhancement have been proposed by several scholars.

1.3. Input Modification and L2 Vocabulary Acquisition

Input modification theory which is realized in such techniques as lexical elaboration and typographical enhancement, is grounded on the belief that mere exposure to linguistic features is not sufficient for language acquisition, or at least mastery, to take place. Various studies have supported this theory by showing that L2 learners, although exposed to certain features, can fail to recognize them in naturalistic input and as a result, the input does not become intake.

To illustrate, [Zahar, Cobb, and Spada \(2001\)](#) examined the influence of contextual richness and exposure frequency on L2 vocabulary acquisition through reading. Referring to the results of their study, they argued that vocabulary learning does not occur solely through exposure to the written input and recommended that either direct vocabulary instruction or instructionally modified texts be provided to this end. Likewise, [Moradian and Adel \(2011\)](#) compared the results of exposure to explicitly elaborated, implicitly elaborated, and unelaborated texts to see if these variations play a part in readers' vocabulary learning. Particularly, they enquired into implicit and explicit elaborative devices to find out if they can serve as autonomy enhancing tools that would help L2 learners recognize the meaning of the unfamiliar words without the aid of dictionary or instructor. The results of their study clearly indicated that explicit elaboration had a more influential role on L2 vocabulary acquisition. [Choi \(2016\)](#) also investigated the impact of typographical enhancement specifically on the

learning of collocations. Two versions of a text were given to the participants, one with typographically enhanced collocations and the other in baseline form without any enhancement or modification. Based on the results of the post-reading collocation test, the group that read typographically enhanced texts outperformed the other group. Therefore, the results of this study, too, support the theories that underscore the significance of textual modification on learning.

Conversely, there are several studies that demonstrate neutral or contradictory results, and some others point to the inefficacy of input modification tools in making a significant difference as far as the learning of desired linguistic features are concerned. Kim (2006), for instance, investigated Korean students' English vocabulary learning through reading by using lexical elaboration and typographical enhancement techniques. He applied and examined these devices both separately and combined. The results revealed that neither of the input modification techniques alone could assist the participating learners in recognizing the meaning of the unfamiliar vocabulary. However, when combined, they proved to facilitate meaning recognition of target vocabulary items.

In another study, Petchko (2011) investigated the impact of written input enhancement on incidental vocabulary learning of a group of intermediate EFL students from miscellaneous language backgrounds. The experimental group were exposed to twelve nonsense words that were visually enhanced in the given text while the control group read the same text but in its baseline unmodified form. The results of the post-test which had measured learners' noticing, recognition and recall of the meaning, indicated no significant variation between the groups. Moreover, after interviewing the participating students, the researcher found out that both groups had noticed most of the target word items regardless of them being enhanced or not. More recently, Gutiérrez, Serrano and García (2019) investigated the influence of typographical enhancement and word frequency on the vocabulary acquisition of Spanish L2 learners during reading tasks. To this end, the target words which were typed in bold appeared with a frequency of one, five or ten times in the text. Another version of the same text was also read by the participants where the target items had remained unmodified. Students sat a pre-test on word form and meaning recognition before doing the reading task. The post-tests were also conducted two times, once immediately after and once two weeks after the reading activities were done. According to the results, frequency of appearance significantly contributed to the recognition of form (i.e. spelling) and meaning. However, typographical enhancement (i.e. words in bold) only improved form recognition, and even that occurred in the immediate post-test, leaving no long-term gains. As it was observed above, although multiple studies have examined the role of input modification techniques on the acquisition of lexical forms and meanings, the findings are far from consistent. Therefore, further research needs to be done in order to draw a reliable conclusion in this regard.

1.4. Purpose of the Study

The present study intended to explore the effects of lexical elaboration, typographical input enhancement, and their combination on incidental vocabulary learning through reading. Concerning lexical elaboration, definitions or high-frequency synonyms of the target words (i.e. unfamiliar vocabulary items) were added immediately after their occurrence in the text between commas, and as for typographical enhancement, the target words were written in bold. Overall, the following combinations were examined:

1. Lexically elaborated text with no typographical enhancement (+LE -TE)
2. Typographically enhanced text with no lexical elaboration (+TE -LE)
3. Both lexically elaborated and typographically enhanced text (Double treatment +TE +LE)
4. The original baseline text with no modification (-TE -LE)

1.5. Research Questions

1. Does lexical elaboration have a statistically significant effect on incidental vocabulary learning through reading?
2. Does typographical enhancement have a statistically significant effect on incidental vocabulary learning through reading?
3. Does the combination of both lexical elaboration and typographical enhancement (i.e. double treatment) have a statistically significant effect on incidental vocabulary learning through reading?
4. Which type of input modification is more effective for incidental vocabulary learning through reading? Lexical elaboration, typographical enhancement, or a combination of both?

2. METHOD

2.1. Participants

A total of 176 male and female undergraduate students majoring in English language teaching (ELT) at Islamic Azad University of Khalkhal were initially invited to sit the reading proficiency test. The participating students were in the first to fourth years of their studies, their ages ranging from 19 to 25. Based on their scores, 142 students whose scores stood in the 18-23 band (out 30) were funneled into the next selection stage. This score range aligns with the *high-intermediate* level band which is set by Educational Testing Service (ETS) for the TOEFL test. In the next stage, the homogeneity test was administered, and 96 students whose scores fell within one standard deviation above or below the mean score were ultimately chosen for this study. They were then randomly assigned to four groups, each consisting of 24 participants.

2.2. Instrumentation

2.2.1. Reading passage

The participants read a one-page short story with roughly 400 words that contained 12 target words. The passage was taken from [Yoshii's \(2006\)](#) and with regard to the intended group, it either was left unmodified or underwent modification by being lexically elaborated and/or typographically enhanced. In the lexically elaborated text, brief definitions or synonyms of the target vocabulary were provided between commas immediately after the words' appearance. As for the typographically enhanced text, the TWs were simply typed in bold. In sum, the following four text types were designed and given to the relevant groups:

Text 1: Lexically elaborated with no typographical enhancement [+LE -TE]

Text 2: Typographically enhanced, without any lexical elaboration. [-LE + TE]

Text 3: Both typographically enhanced and lexically elaborated. [+LE +TE]

Text 4: Neither typographically enhanced nor lexically elaborated (i.e. unmodified baseline text) [-LE - TE]

2.2.2. Target words

Fifteen low-frequency TWs available in the passage that were perceived to be unfamiliar to the participants were selected. To make sure that the words were completely unknown to the groups, one week prior to the initiation of the study, the vocabulary checklist test was administered. Out of the 15 target words, three came to be known by some of the participants. Therefore, they were eliminated and there remained 12 absolutely-unknown words. These vocabulary items were selected as the final target words. It is worth noting here that some previous studies have examined various parts of speech of the target words. However, the current research focused exclusively on TWs' verb forms to constrain the variables influencing the result of the study.

2.3. Testing Materials

2.3.1. *Proficiency test:* A reading part of an English proficiency test of TOEFL (Adopted from Phillips, 2005) was used to measure the reading proficiency of the initially invited 176 students. The 60-minute test contained 3 passages and 30 items (each item weighed 1 point), and 142 students whose scores fell in the 18-23 band (out 30) were selected. This score range is in accordance with the *high-intermediate* level band which is set by Educational Testing Service (ETS) for the TOEFL test.

2.3.2. *Test of homogeneity:* To ascertain the participants' homogeneity, another reading part of TOEFL (Adopted from Phillips, 2005) was given to the 142 students who had previously been selected. Similarly, it consisted of 3 passages and 30 questions. Eventually, based on the results, 96 students whose scores were within one standard deviation above or below the mean were selected as the participants of this study.

2.3.3. *Vocabulary checklist:* As a pretest, a vocabulary checklist was used to ensure that all the selected target words were unknown to the participating students. They were given a list of twenty-five vocabulary items (15 TWs and 10 distractors) and were asked to indicate whether they knew the meaning of the words or not. For the items that were checked as 'known', the students had to provide an English synonym/definition or a Persian equivalent. As mentioned earlier, twelve words that turned to be absolutely unfamiliar were identified and selected for the study. A similar method for target vocabulary (TW) selection (i.e. vocabulary checklist) had been used successfully in a number of previous studies producing valid results (e.g. Folse, 2006; Kim, 2006).

2.3.4. *Post-test:* A modified three-leveled version of Paribakht and Wesche's (1997) Vocabulary Knowledge Scale (VKS), the same as the one used by Folse (2006), was completed as a post-test by the participants (Table 1). According to Paribakht, (2005), the VKS "has been shown to be sensitive enough to pick up incremental gains in the initial stages of learning particular words"(p.708).

Scoring of this scale granted one point if a correct meaning was provided (in form of a valid English synonym, definition, or alternatively translation in L1). Also, the students could score one more point if they could use the given TW in meaningful example sentence. In sum, each item would receive a score of 0, 1, or 2 (See Table 1).

Table 1. Vocabulary Knowledge Scale (Folse, 2006; Adapted from Paribakht and Wesche, 1997)

Score	Category
0	1. I don't know the meaning of this word.
1	2. I know the meaning of this word. It means _____
2	3*. I can use this word in a meaningful sentence. Write your sentence here: _____

(*An answer to #3 requires an answer to #2 as well)

2.4. Procedure

During the reading session, the participants, who had been randomly assigned to four groups, were asked to read the passage under the following four conditions: Group A read the lexically elaborated version of the text in which the definitions or synonyms of the unfamiliar words were presented between commas immediately after the TWs. The target items were not typographically enhanced in group A's text. Reversely, group B read the typographically enhanced version with no lexical elaboration. The TWs were simply typed in bold. Group C's passage was both lexically elaborated and typographically enhanced; and finally, group D (i.e. control group) inferred the meanings of TWs without the aid of textual modification. That is, their text was neither lexically elaborated nor typographically enhanced.

It is worth mentioning that in order to create optimal conditions for incidental vocabulary learning, the students were not informed beforehand that their vocabulary learning would be assessed. Rather, immediately after the reading session, they received the VKS post-test. At the beginning of the

reading session, the groups were simply instructed to read their designated texts and answer the comprehension questions.

2.5. Data analysis

After the necessary data were obtained from the post-test scores, they were tabulated in various forms. The means and standard deviations of all groups were computed and compared. Then a one-way analysis of variance (ANOVA) was applied to measure the differences among the four groups. Likewise, by using the Scheffe test, the results were compared to pinpoint precisely where the differences lay. Overall, to fulfill the objectives of this study the following statistical analyses were done;

Analysis 1. A descriptive report on means, standard deviations, and standard error of the four groups in the vocabulary post-test.

Analysis 2. One-way ANOVA to conclude if the differences among the groups were significant or not.

Analysis 3. Scheffe test for multiple inter-group comparisons to see where the differences exactly lay.

3. RESULTS

Analysis 1. The descriptive statistics of the four groups obtained from the vocabulary post-test are presented in Table 2. As it depicts, the participants who read the text with both lexically elaborated and typographically enhanced target words have the highest mean for incidental vocabulary learning (Mean = 16.54). Those who read the typographically enhanced text are the second in rank (Mean = 13.83) standing right above those who read the lexically elaborated text (Mean = 13.04). Finally, the ones who read the baseline text with no lexical elaboration or typographical enhancement (i.e. control group) are at the bottom (Mean = 10.33).

Table 2. Descriptive statistics of the four groups in vocabulary post-test

Group	N	Mean	SD	Std. error	95% confidence interval for mean	
					Lower Bound	Upper Bound
A. (+LE)	24	13.0417	5.17081	1.05549	10.8582	15.2251
B. (+TE)	24	13.8333	4.97530	1.01558	11.7324	15.9342
C. (+LE +TE)	24	16.5417	3.86713	.78938	14.9087	18.1746
D. Control group	24	10.3333	3.87485	.79095	8.6971	11.9695
Total	96	13.4375	4.96686	.50693	12.4311	14.4439

Analysis 2. In order to determine if the differences among the groups were significant or not, a one-way ANOVA was applied on the collected data. According to the results illustrated in Table 3, the differences are significant (Sig .000).

Table 3. ANOVA on vocabulary post-test results

	Sum of squares	df	Mean Square	F	Sig
Between G	470.042	3	156.681	7.694	.000
Within G	1873.583	92	20.365		
Total	2343.625	95			

Analysis 3. A Scheffe test was also used to see where the differences exactly lay (Table 4). It was found that group C (+LE +TE) was significantly different from groups A (+LE) and D (i.e. Control group), but there was no significant difference between groups A (+LE) and B (+TE) at .05 level of significance although their means had a gap. Group A's performance was not different from group D's either, but the difference between groups B and D was significant.

Table 4. Scheffe test for multiple comparisons

(I) group	(J) group	Mean Difference (I - J)	Std. Error	Sig	95% confidence interval	
					Lower Bound	Upper Bound
1	2	-.79167	1.30272	.929	-4.2004	2.6171
	3	-3.50000*	1.30272	.042	-6.9087	-.0913
	4	2.70833	1.30272	.168	-.7004	6.1171
2	1	.79167	1.30272	.929	-2.6171	4.2004
	3	-2.70833	1.30272	.168	-6.1171	.7004
	4	3.50000*	1.30272	.042	.0913	6.9087
3	1	3.50000*	1.30272	.042	.0913	6.9087
	2	2.70833	1.30272	.168	-.7004	6.1171
	4	6.20833*	1.30272	.000	2.7996	9.6171
4	1	-.70833	1.30272	.168	-6.1171	.7004
	2	-3.50000*	1.30272	.042	-6.9087	-.0913
	3	-6.20833*	1.30272	.000	-9.6171	-2.7996

*The mean difference at the .05 level, 1=Lexical elaboration (group A), 2=Typographical enhancement (group B), 3=Lexical elaboration and typographical enhancement double treatment (group C), 4= Unmodified baseline (control group).

4. DISCUSSION

As the findings of this study indicate, textual input modification techniques of lexical elaboration and typographical enhancement have an interactive and reciprocal influence on vocabulary learning. Initially, it seemed that group A (+LE) whose mean score was 13.0417 (Table 2), had a clear advantage over group D (i.e. control group) regarding the chances of learning vocabulary because they were exposed to the synonyms or definitions of the target words while reading. Nevertheless, this difference according to the Scheffe test results is not significant. In other words, as far as vocabulary learning through reading is concerned, lexical elaboration is not statistically more effective than regular lexical inferencing from unmodified text.

Similarly, the TWs in group B's (+TE) text were typographically different from those in group D's who read an unenhanced baseline text. As previous researchers (e.g. Bishop, 2004; Kim 2006) have found, when L2 learners read a text where target words are enhanced, they often give a second look at those items, which in turn can provide a better opportunity for deeper vocabulary leaning. Therefore, it is not a surprise that group B's mean score was higher than group D's. The results of Scheffe test also confirm that this difference is significant at $p < .05$

As for group C (+LE +TE), the target words were both typographically enhanced and lexically elaborated. This group scored significantly higher than the readers of the unmodified baseline text (group D). This indicates that, these two textual modification techniques, when accompanying each other, would have a profound effect on vocabulary learning. As the data in Table 4 revealed, the difference between the groups C and D was significant at $p < .05$. However, although the difference of mean scores between groups C and B was great, too, the results of the Scheffe Test showed that this difference was not significant. Therefore, there was not a significant difference between groups C and B as far as the effect of textual modification on incidental vocabulary learning is concerned. That said, group C was highly different from groups A and D as it obtained the top rank mean score among the groups.

These results are in line with those of Kim's (2006) which substantiate the fact that typographical enhancement makes target words perceptually salient that in turn can make learners notice neighboring words as well. Attention to the neighboring words is important due to the fact that they may include elaborations of the TWs. As a result, typographical enhancement can potentially form a transparent link between the TW items and their lexical elaborations (i.e. meaning).

Moreover, as it was demonstrated in Table 2, either of these two types of modification, even when used alone, were still more effective than the unmodified input as they yielded higher mean scores (although in the case of lexical elaboration, its effectiveness was not great from a statistical standpoint). More interestingly, typographical enhancement happened to be more effective than lexical elaboration although their mean scores were not so much different (Group A's mean = 13.04, group B's mean = 13.83). This can be justified in the sense that in typographical enhanced texts, students focus on the enhanced unknown linguistic features, and according to (Laufer, 2003), this attention getting procedure paves the way for the second stage where L2 readers try to make their utmost effort to successfully guess the meaning of the unfamiliar words. In addition to that, when L2 readers are required to read a text, they normally pay more attention to the main ideas than the new words. Therefore, typographically enhanced texts help L2 readers process the target words more deeply which would in turn boost their comprehension and encourage them to spot and decipher more of the unknown words.

The findings of the present research can also be corroborated through Involvement Load Hypothesis proposed by Hulstijn and Laufer (2001). According to this hypothesis, a typical reading task entails two cognitive processes, namely 'search' and 'evaluation'. In the search phase, the reader attempts to find the meaning of the unknown words, and during evaluation, the reader applies his/her guesses in the context to see if they fit meaningfully. According to Hulstijn and Laufer (2001), the combination of these factors can promote vocabulary learning. They also maintain that when new lexical items are processed more elaborately, that is, when more attention is paid to the words' meaning, spelling, grammatical category, pronunciation, etc., Involvement Load is boosted and a higher level of learning takes place. Obviously, the modification technique of typographical enhancement applied in the current study has had a significant effect on drawing the learners' attention to the TW features. This in turn has made the cognitive processes of search and evaluation, which are embodied in the lexically elaborated items, more fruitful. The results of this study clearly verify the interaction between the two modification techniques and how they are instigating the vocabulary learning processes.

5. CONCLUSION

Limitations in L2 vocabulary knowledge can deprive the learners from communicating and expressing ideas in the target language effectively. Moreover, many researchers in the field of L2 teaching/learning proclaim that reading is the major source for vocabulary development. However, as various studies have indicated, reading alone is unlikely to facilitate vocabulary acquisition. Accordingly, modifying the written input and providing L2 learners with comprehensible input plays a pivotal role in building lexical knowledge. As the results of the present study show, two techniques of written input modification, namely lexical elaboration and typographical enhancement, can boost vocabulary learning of L2 learners while exposing them to native like features that are absent in other forms of modification (e.g. input simplification). Although an alleged flaw of textual elaboration is increasing the length and linguistic complexity of the input, it conveniently neutralizes this drawback by multiplying opportunities for dealing with the text information, which in turn can improve the comprehensibility of the input that is an indispensable prerequisite for language learning.

Moreover, unknown words are not noticed in the text sometimes or learners may simply assume that they know them while, in fact, they do not. Similarly, the contextual information can happen to be ambiguous or misleading for the learners. Therefore, as a response to such deficiencies, the combination of the two types of input modification, with regard to the results of this study, proves to be an ideal technique for vocabulary acquisition through reading.

Clearly, current trends in L2 instruction place an unprecedented emphasis on using unmodified authentic material, and becoming a competent L2 user means being able to interact and

comprehend such ‘untampered’ material. Therefore, although comprehensibility-enhancing techniques should be recognized, caution should be exercised when they are chosen and applied so that the essential natural features of the baseline input are maintained. To this end, lexical elaboration and typographical enhancement represent optimal modification techniques that take the natural features of the input away to the least possible extent. Due to this prominent advantage, these techniques should be prioritized in the L2 teaching curricula, especially for the preparation of the reading materials. It seems necessary that EFL reading material developers reconsider the widely held belief that linguistic simplification is the only viable way of modifying input. Apart from the advantage of preserving the natural features of the baseline text, lexical elaboration and typographical enhancement can be used conveniently because adding definitions/synonyms or modifying unknown words visually would not need much time and effort on the part of the teachers or text designer; yet, they can yield significantly positive effects on L2 vocabulary acquisition as was observed in this study. Perhaps, further studies can investigate how information technology can be harnessed to make these techniques even more convenient and efficient. Interactive versions of modified reading texts, rich in multimedia enhancement may prove to have positive effects beyond the findings of this study. Hence, it creates a reasonable line of research for more investigation. As a final remark, it is worth noting that the present study, like any other of its sort, suffered from certain limitations that inevitably impose restrictions on the interpretation and generalization of its results. For instance, such variables as age and gender were not controlled; hence, the results may differ across various age groups or among males and females. Moreover, since this study was conducted on the high-intermediate EFL learners, its results cannot be generalized to other levels.

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