

The Comparison of the Involvement Load Hypothesis or the Technical Feature Analysis Theoretically and Experimentally

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Abstract

L2 vocabulary acquisition is of much importance to L2 learners and has long been the hot topic in the field of applied linguistics. Stimulated by the Technical Feature Analysis (TFA) and the Involvement Load Hypothesis (ILH) A large body of research has attempted to find the relative efficacy of various tasks in facilitating L2 vocabulary acquisition. The present study attempts to compare the relative efficacy of various tasks in facilitating L2 vocabulary acquisition based on the the Involvement Load Hypothesis (ILH) and Technical Feature Analysis (TFA) theoretically and experimentally.

Keywords

The Involvement Load Hypothesis, The Technical Feature Analysis, Task Types, Second Language Acquisition.

1. Introduction

The importance of vocabulary for Second Language Acquisition (SLA) could not be doubted. Many studies have shown that vocabulary is an important predictor for both reading comprehension and L2 development (Nation 2001; Pulido 2007; 2009). The question of how vocabulary is learned or what processes are involved has been the focus of much theoretical discussion over the period (Laufer & Hulstijn 2001; Nation & Webb 2011). There has been one debate with regards to the distinction between incidental learning and intentional learning. The definition of incidental vocabulary learning is learning vocabulary with no deliberate intention or when learners' attention is on learning something else whilst intentional vocabulary learning refers to learning with conscious intention and awareness (Laufer 2001). L1 learners acquire most of their vocabulary incidentally (Nagy et al. 1987; Nagy et al. 1985; Sternberg 1987). However, there have been uncertainties about the extent to which incidental learning contributes to L2 vocabulary acquisition. L1 learners encounter words frequently in a variety of contexts and this extensive exposure helps them acquire the words effectively. Such exposure opportunities do not exist for L2 learners. L2 learners, particularly those with low to intermediate levels of proficiency, may not benefit from incidental learning the same way as L1 learners will (Hu & Nassaji 2012; Laufer & Hulstijn 2001; Laufer 2001; 2006; Nassaji 2003; 2004; Hu & Nassaji 2012; Schmidt 1990), and for that matter, may need opportunities for both incidental and intentional learning. In the same respect, a number of L2 researchers have also argued that L2 learners need not only pay deliberate attention to the target word but also to deeply process its different aspects in order to learn them effectively (Hu & Nassaji 2012; Laufer & Hulstijn 2001; Laufer 2001; Nassaji 2003; 2004; Hu & Nassaji 2012; Schmidt 1990). This is what has been referred to as "elaborate processing", and has been emphasized to be essential for L2 vocabulary learning (Ellis 1994; Laufer & Hulstijn 2001; Laufer 2001; 2006; Pulido 2009; Schmidt 1990).

The concept of elaborate processing was originally introduced by Craik & Lockhart (1972) in their "depth of processing" model. The depth of processing model suggests that the degree to

which new information is retained and stored in long-term memory depends on how the information is processed. In this model, elaboration is the key to learning and retention of vocabulary. In their revised version, Craik & Lockhart (1990) further expanded those ideas by highlighting at least two stages for effective learning: an input analysis stage whereby sensory features, such as orthographic and phonological features of word forms are analyzed, and a retrieval stage in which semantic and conceptual features are retrieved with deeper analysis (Eckerth & Tavakoli 2012). In this model, not only are initial attention, noticing and processing of words essential, but also their subsequent retrieval and consolidation of the semantic encoding of the word features in memory are also critical for learning. There are two frameworks that have attempted to operationalize the construct of elaborate processing for L2 vocabulary learning: the Involvement Load Hypothesis (Laufer & Hulstijn 2001) and the Technical Feature Analysis (Nation & Webb 2011). Stimulated by the Technical Feature Analysis (TFA) and the Involvement Load Hypothesis (ILH) in particular, a large body of research has attempted to find the relative efficacy of various tasks in facilitating L2 vocabulary acquisition. The present study attempts to compare the relative efficacy of various tasks in facilitating L2 vocabulary acquisition based on the the Involvement Load Hypothesis (ILH) and Technical Feature Analysis (TFA) theoretically and experimentally.

2. The Theoretical Comparison of the ILH and the TFA

2.1. The Theoretical Foundations of the Involvement Load Hypothesis (ILH)

Laufer & Hulstijn (2001) put forward the Involvement Load Hypothesis (ILH), which has a great influence in the field of vocabulary processing. Its basic idea is that different tasks make learners carry out different levels of cognitive processing of vocabulary, so the acquisition effect is different. The degree of cognitive processing is expressed by involvement load, which is measured by three components: need, search and evaluation. If an involvement load component is absent (-), the involvement load index is 0; if an involvement load component is moderately present (+), the involvement load index is 1; if an involvement load component is strong (+ +), the involvement load index is 2. The three components are different in intensity. Need refers to the motivation of learners to finish vocabulary tasks. Need is assumed to be either moderate (scoring 1) or strong (scoring 2). If learners are forced to complete the task, need is considered moderate (scoring 1). If learners complete the task voluntarily, need is considered strong (scoring 2). Search refers to the attempt of the learners to find meanings of the words. Search is assumed to be absent (scoring 0) or present (scoring 1). If search is imposed externally by the teacher (e.g., the teacher wants the learner to find the meaning of the word), search is considered present (scoring 1). Moreover, when search is self-motivated or imposed by learners (e.g., when reading texts, you need to find the meaning of words in the dictionary), search is also considered present (scoring 1). If the meanings of these words have already been provided, search is considered absent (scoring 0). In terms of evaluation, if there are no comparisons in the task, evaluation is considered absent (scoring 0). If learners need to compare the specific meaning of a word with other meanings, evaluation is considered moderate (scoring 1). If they need to evaluate whether the meaning of a word is suitable for a specific context, then evaluation is considered strong (scoring 2). The ILH believes that the extent to which vocabulary task helps second language learners acquire new target words depends on the extent to which the task promotes each of the above indexes. It indicates that the greater the involvement load in a given task, the better the vocabulary learning and memory. The greater the involvement load, the more conducive the task is to vocabulary acquisition. The ILH has attracted a lot of empirical research in the academic field, which has been supported by most researches, and has equally been questioned or critiqued. For example, Folse (2006) found that under the same time, high involvement load did not produce the expected results. Keating (2008)

also found that, excluding the influence of time on tasks, the prediction ability of involvement load decreased or even disappeared. Therefore, researchers gradually exposed the limitations of the ILH.

2.2. The Theoretical Foundations of the Technical Feature Analysis (TFA)

The ILH was supported partly but not fully. Some researchers tried to develop other theoretical framework to better account for task type effects on EFL vocabulary acquisition. A theoretical framework, the Technical Feature Analysis (TFA), was proposed by Nation & Web (2011). The ILH is composed of three indexes, need, search and evaluation. In order to supplement the inadequacies of the ILH, the TFA was proposed to introduce more indexes for operating deep processing than those included in the ILH indexes. The TFA is basically a revision of the earlier vocabulary learning framework, which suggests that vocabulary learning consists of three parts: attention, retrieval and generation (Nation 2001). It adds two additional components (i.e., motivation and memory). According to Nation (2001), the earlier systems did not allow quantification of refined features. Therefore, the framework of the TFA includes specific indexes, which not only increases the number of refined parameters, but also proposes criteria for evaluating each index.

The TFA forms a framework of five indexes, including motivation, noticing, retrieval, generation and retention, and 18 scoring criteria. If the task doesn't meet the scoring standard (-), the index is 0 and if the task meets the scoring standard (+), the index is 1. The total score is 18. Motivation is related to whether vocabulary activities have clear learning objectives and learning motivation. Noticing concentrates on whether the task focuses on the target vocabulary or it improves the awareness of new words learning and whether it involves negotiation. This happens when learners have to look up a word in a dictionary, deliberately study a word, guess from the context, or explain a word (Nation 2001). Retrieval includes receptive retrieval and productive retrieval involving recollection rather than recognition, and whether there are multiple retrievals or intervals between each interval. According to Baddeley (1990), retrieval can be enhanced by repetition. Generation can be divided into receptive process and productive process (Nation 2001). Receptive generation refers to the encounter of a word when listening to or reading a strange context, while productive generation refers to the use of words in a new context. Retention mainly refers to whether vocabulary learning ensures the successful connection between form and meaning or it involves instantiation, imaging or avoids interference. A paucity of researchers have made a preliminary explanation of the indexes of the TFA and have made some research on the comparison of the relative effectiveness of the ILH and the TFA in accounting for task type effects on EFL vocabulary acquisition. Table 1 shows the detailed information of TFA.

3. The Experimental Comparison of the ILH and the TFA

3.1. Studies Regarding the Involvement Load Hypothesis (ILH)

The ILH was proposed by Laufer & Hulstijn (2001). They explained the involvement load index involved in two tasks: one task was to let learners make sentences with a series of new words given by the teacher. They explained that the task did not cause a search because it provided meaning. However, because learners needed to evaluate the applicability of words in context, there was a moderate need and a strong evaluation. In terms of overall involvement load, they assumed that the index of the task was 3 [1 (need) + 0 (search) + 2 (evaluation)]. The second task was to let learners read the text and answer the questions according to the meaning of the words provided in the blanks. Here, the task involved neither evaluation nor search, but a moderate need. They thought that the overall index of the task was 1 [1 (need) + 0 (search) + 0 (evaluation)]. In terms of vocabulary acquisition, the first task was more effective than the

second one, which confirmed the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition.

Table 1. The Technical Feature Analysis (adopted from Nation & Webb, 2011)

Criteria	Scores	
Motivation		
Is there a clear vocabulary learning goal?	0	1
Does the activity motivate learning?	0	1
Do the learners select the words?	0	1
Noticing		
Does the activity focus attention on the target words?	0	1
Does the activity raise the awareness of new vocabulary learning?	0	1
Does the activity involve negotiation?	0	1
Retrieval		
Does the activity involve retrieval of the word?	0	1
Is it productive retrieval?	0	1
Is it recall?	0	1
Are there multiple retrievals of each word?	0	1
Is there spacing between retrievals?	0	1
Generation		
Does the activity involve generative use?	0	1
Is it productive?	0	1
Is there a marked change that involves the use of other words?	0	1
Retention		
Does the activity ensure successful linking of form and meaning?	0	1
Does the activity involve instantiation?	0	1
Does the activity involve imaging?	0	1
Does the activity avoid interference?	0	1
Score		18

Many studies have tested the validity of the ILH and found some evidence to prove its effectiveness in accounting for task type effects on EFL vocabulary acquisition (Laufer & Hulstijn 2001; Keating 2008; Kim 2008; Hu & Nassaji 2012; Ahour & Dogolsara 2015; Wang & Zhen 2014). Laufer & Hulstijn (2001) studied the effect of task-induced involvement load on the acquisition of 10 English words from adult EFL learners. They designed an experiment with three tasks (reading comprehension, comprehension plus gap filling, and composition) involving different involvement load indexes. Then they measured the effects of each task on target word acquisition. The results showed that EFL learning was related to task-induced involvement load and the tasks with higher involvement load could lead to better EFL vocabulary learning. In addition to the impact of task types, the role of time in tasks was also studied (Folse 2006; Keating 2008; Kim 2008). The basic idea behind this principle is that the more time you spend on something, the more likely you are to become good at it (Nation & Webb 2011). Kim (2008) conducted an experiment by partially replicating the research of Laufer & Hulstijn (2001) to investigate whether the different levels of task induced involvement load have different effects on the initial learning and retention of the target words of the second language learners. There were three tasks in his search, including reading only (the lowest involvement load index), reading plus filling-in (the moderate involvement load index) and reading plus writing (the highest involvement load index). The vocabulary knowledge posttests

in this research consisted of the immediate posttest and the delayed posttest. Although there was no significant difference between reading only and reading plus filling-in in the immediate posttest, reading plus writing outperformed reading only and reading plus filling-in in the immediate and delayed posttests. Moreover, the tasks with higher involvement load index all outperformed the tasks with lower involvement load index in the delayed posttest. These results confirmed the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition. It could sum up that tasks with higher involvement load could lead to better EFL vocabulary acquisition. Hu & Nassaji (2012) also studied the effect of task-induced involvement load on Chinese English learners' vocabulary reasoning strategies and vocabulary memory. Ahour & Dogolsara (2015) further examined the effectiveness of the ILH in accounting for task effects on EFL vocabulary acquisition. They made a research on whether two tasks (multiple-choice and sentence-writing) had different effects on EFL vocabulary acquisition. The participants were randomly divided into two groups, with one group learning vocabulary through the sentence-writing task and the other group learning the multiple-choice task. The statistical results showed that the sentence-writing task outperformed the multiple-choice task in facilitating EFL vocabulary task, which also confirmed the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition and proved that the tasks with higher involvement load could lead to better EFL vocabulary acquisition. Wang & Zhen (2014) investigated the effects of different tasks of English listening training on EFL vocabulary acquisition. This study intended to find out whether learners could acquire vocabulary incidentally while listening and further to explore the effects of different tasks with different involvement load. The results showed that learners could incidentally acquire vocabulary through listening practice and they performed better in receptive vocabulary acquisition than in the productive acquisition. Besides, tasks with higher involvement load usually led to better incidental vocabulary acquisition.

In order to expand the scope of the above study, the researchers also examined the effects of tasks with the same involvement load index and different combinations of three components in the ILH (i.e. need, search and evaluation) to see whether these tasks have different effects on EFL vocabulary acquisition (Laufer 2003; Kim 2008). Laufer (2003) conducted an experiment in which 90 English learners from Arab countries were asked to complete three tasks with the same involvement load index and their vocabulary acquisition was tested after each task. There were significant differences among the task comparisons in the delayed posttest, suggesting that the relative effectiveness of the three components in the ILH in accounting for task type effects on EFL vocabulary acquisition may be different. Kim (2008) also studied two tasks (composition and making sentence) involving the same involvement load index to see whether or not they would have different effects on the initial learning and on the retention of new words. The results of this study showed that tasks with the same involvement load index were equally beneficial to vocabulary learning. Kim called for more researchers to investigate the effectiveness of each component in the ILH in accounting for task type effects on EFL vocabulary acquisition.

While acknowledging the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition, some studies also exposed its limitations, claiming that some amendments needed to be made. They also found that, the task-induced involvement load was not necessarily the only factor determining the relative effectiveness of the task (Folse 2006; Hu & Nassaji 2012; Laufer 2003; Bao & Wu 2019). Folse (2006) realized that under the same time, high involvement load did not produce the expected results. Keating (2008) also found that, excluding the influence of time on tasks, the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition weakened or even disappeared. Hu & Nassaji (2012) concluded that the focus of tasks also had an impact on vocabulary acquisition. Laufer (2003) pointed out that tasks with the same involvement load may have different effects on second

language learners. Time and learners' foreign language proficiency must be taken into account in the formulation of the ILH. Also, in the study of Bao & Wu (2019), input and output tasks were used to test the effectiveness of the ILH. Input tasks included matching and definition, with output tasks including choice and combining. The four tasks have the same involvement load. However, the definition task outperformed other tasks in facilitating EFL vocabulary acquisition. Although the matching and the combining led to the same effect in this research, the choice outperformed matching and combining tasks to a small extent at the low proficiency level. Thus, the ILH could merely be partially confirmed.

The researchers also examined the effects of other factors on EFL vocabulary acquisition (Huang 2004; Gu & Song 2010; Bao 2015; Bao & Wang 2013; Bao & Li 2017). Huang (2004) explored the effects of reading tasks on Chinese students' vocabulary memory. The purpose of this study was to test the effectiveness of the ILH by comparing three reading tasks, including multiple-choices about target words, filling in blanks with target words and making sentences with target words. The results showed that the ILH was not completely correct, and some amendment should be made on the quantitative indexes of the ILH. The effects of time and learners' vocabulary knowledge on EFL vocabulary acquisition must be taken into consideration in the formulation of the involvement load. Gu & Song (2010) examined the effects of the preset involvement load of task and vocabulary acquisition strategies on EFL vocabulary acquisition. Five tasks were chosen in this research, including reading comprehension plus multiple choices, reading comprehension plus translation, reading comprehension with glosses plus sentence-making, reading comprehension plus sentence-making and reading comprehension plus composition. The results showed that the size of involvement load had no significant effect on initial vocabulary learning and vocabulary retention and appropriate vocabulary acquisition strategies were useful in EFL vocabulary acquisition. The ILH wasn't fully confirmed in this research. Bao (2015) also studied the effects of context cues and word contact frequency on EFL vocabulary acquisition. The researchers also explored the effects of pre-vocabulary, time and glosses on EFL vocabulary acquisition. Bao & Wang (2013) investigated whether the pre-vocabulary and time have effects on EFL vocabulary acquisition. 90 English learners from two previous vocabulary levels were randomly assigned to three tasks, including multiple choices, filling in blanks and making sentences. The vocabulary knowledge posttest consisted of the immediate posttest and delayed posttest. The significant main effect of tasks was not affected by the pre-vocabulary, but was strongly restricted by time. Each paired task only had significant medium or above effect in immediate posttest. It can be found in this research that EFL vocabulary acquisition was no conditional on pre-vocabulary, but on time. Moreover, Bao & Li (2017) found that output tasks and glosses independently affected vocabulary acquisition. In this study, a 2×3 between-subjects experimental design was employed to examine the effects of output task and glossing on the immediate vocabulary acquisition of EFL learners. Output tasks included sentence combining and blank filling and glossing had three levels, including English-Chinese, English-only and Chinese-only glossing. It was found that output tasks and glossing could contribute to vocabulary acquisition separately. It is easy to sum up that a large number of quantitative and qualitative studies have been carried out to test the effectiveness of the ILH, but only limited evidence was found for it.

3.2. Studies Regarding the Technical Feature Analysis (TFA)

A paucity of scholars have conducted preliminary researches on the TFA (Hu & Nassaji 2016; Gohar et al 2018). Hu & Nassaji (2016) conducted a qualitative study on the TFA, and compared the index of the ILH and the TFA for different tasks. Hu & Nassaji (2016) also conducted experiments in the same year. Four reading tasks were used in their study, including reading a text with multiple-choice item (an index of 3 in the ILH versus an index of 6 in the TFA), reading

a text and choosing definitions (an index of 3 in the ILH versus an index of 6 in the TFA), reading plus filling in blanks (an index of 2 in the ILH versus an index of 7 in the TFA) and reading and rewording sentences (an index of 3 in the ILH versus an index of 6 in the TFA). The results indicated that choosing definitions had the best performance followed by filling in blanks, multiple-choice item and rewording respectively. The results suggested that, of the two frameworks, namely the ILH and the TFA, the TFA could better explain the relative effectiveness of tasks in facilitating EFL vocabulary acquisition. This was, for example, evidenced by the findings that tasks that scored higher by the TFA (i.e., filling in blanks) led to better during-task performance than other tasks (i.e., multiple choice). Among the tasks, rewording with a productive component led to the best word retention in the posttest, suggesting that generation played an important role on vocabulary acquisition. These findings also suggested that form-focusedness may be a significant factor contributing to the learning of a new word. Based on the experiment of Hu & Nassaji (2016), Gohar et.al (2018) added a control group to their experiment. Three tasks were conducted in this study with one control group. Participants in the first task were allotted five minutes to read the target words alphabetically arranged with their definitions (in L1) and an example sentence. Then they had ten minutes to write one sentence for each word. The ILH states that this task induces an involvement load index of 3 (1+0+2). The TFA induces the motivation of 2, noticing of 2, retrieval of 0, generation of 2, and retention of 1 leading to a low TFA as 7 out of 18 scores. This task brings about a high involvement load index of the ILH but a low index of the TFA. Participants in the second task were assigned to write a composition (e.g., a letter to someone) using the given target words. Like the previous task, the participants had five minutes to read the target words with their definitions (in L1) and example sentences. The need is moderate since the researcher asked them to write the composition, search is absent since the glosses were prepared, and evaluation is strong since the target words needed to be used in a connected discourse with other words in their lexical repertoire. Hence, the ILH imposes a high involvement load index of 3 (1+0+2). The TFA, however, yields a motivation of 2, noticing of 2, retrieval of 0, generation of 3, and retention of 2, giving a moderate index as 9 out of 18 scores. In other words, this task induces a high index of the ILH but a moderate index of the TFA. Participants in the third task as the reading comprehension task were required to read the reading passage and answer the provided comprehension questions. Therefore, the ILH imposes the low involvement Load index of 1 (1+0+2) and the TFA imposes the low index of 3 on the learners. The results of this study were that the TFA was more satisfactory. Therefore, teachers and administrators can resort to the value components of the TFA in preparing their vocabulary tasks pedagogically. Moreover, in addition to motivation, noticing, and retrieval components in tasks, it can be claimed that retention and generation can play more important roles in word tasks. The using and producing of new and unfamiliar words in larger and new context are more contributory to vocabulary enhancement.

4. Conclusion

Many studies have been conducted to investigate the effects of task type and other factors on EFL vocabulary acquisition so as to find evidence for or against the effectiveness of the ILH. A couple of studies have made efforts to compare the relative effectiveness of the ILH and the TFA in accounting for task type effects on EFL vocabulary acquisition, with some interesting findings. There are, however, several limitations to this line of research.

To start with, there is a paucity of research regarding the relative effectiveness of the ILH and the TFA in accounting for task type effects on EFL vocabulary acquisition. Specifically, some studies have tested the effectiveness of the ILH, and found some evidence to prove the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition (Laufer

& Hulstijn 2001; Keating 2008; Kim 2008; Hu & Nassaji 2012) and some scholars have conducted preliminary research regarding the relative effectiveness of the ILH and the TFA in accounting for the task type effects on L2 vocabulary acquisition (Nation & Web 2011; Hu & Nassaji 2016; Gohar et al. 2018). As a result, much more research should be conducted to get a better understanding of how tasks contribute to L2 vocabulary learning.

Furthermore, there are some problems with task completion. Among the studies regarding the effectiveness of the ILH in accounting for the task type effects on EFL vocabulary acquisition, most of them put the task comparisons based on the task completion. However, there were some problems with task completion in the studies regarding the comparison of the ILH and the TFA, taking the research of Hu & Nassaji (2016) as an example. In their study, it could be concluded that the participants did not make good performance in the tasks based on the results of the descriptive statistics of the during-task performance per condition. In this study, task completion was not fully implemented by participants, that is to say, treatment fidelity was insufficient and the effects of task type on EFL vocabulary acquisition could be confounded with lack of treatment fidelity. Consequently, the following research regarding the comparison of the ILH and the TFA should guarantee the task fidelity.

Thirdly, the choice of task design is limited. Among the studies regarding the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition, most of them compared the effects of different tasks with varied or the same involvement load index on EFL vocabulary acquisition. For example, Laufer & Hulstijn (2001) studied the effect of involvement load with three tasks (reading comprehension, comprehension plus gap filling, and composition), involving different index of involvement load. Kim (2008) also studied two tasks (composition and making sentence) involving the same involvement load index to see whether they would have the same effects on initial learning and on the retention of new words. However, most studies regarding the comparison of the ILH and the TFA were limited in the choice of task design, taking the research of Hu & Nassaji (2016) as an example. In their study, four reading tasks were conducted in this research, including reading a text with multiple-choice items (an index of 3 in the ILH versus an index of 6 in the TFA), reading a text and choosing definitions (an index of 3 in the ILH versus an index of 6 in the TFA), reading plus filling in the blanks (an index of 2 in the ILH versus an index of 7 in the TFA), and reading and rewording the sentences (an index of 3 in the ILH versus an index of 6 in the TFA). The indexes of the ILH and the TFA in three tasks were exactly the same. As a result, more task designs with different indexes in the ILH and the TFA should be employed in order to better understand the relative efficacy of the ILH and the TFA in accounting for task type effects on EFL vocabulary acquisition in the following studies.

Fourthly, both immediate and delayed posttests should be included so as to better understand whether or not and how task effects vary across time. Among the studies regarding the effectiveness of the ILH in accounting for the task type effects on EFL vocabulary acquisition, most of them consisted of the immediate posttest and the delayed posttest. For instance, the research of Bao & Wang (2013) included both the immediate posttest and the delayed posttest and concluded that, EFL vocabulary acquisition was not conditional on the pre-vocabulary, but on time. However, most studies regarding the comparison of the ILH and the TFA merely included the delayed posttest, taking the research of Hu & Nassaji (2016) as an example. In their study, the procedures of the study consisted of the pretest, the four reading tasks and a delayed posttest of the target words after the interval of one week, lacking the immediate posttest of the target words and the comparison between the results of the immediate posttest and the delayed posttest. As a result, the following studies should include the immediate posttest and the delayed posttest so as to better understand whether or not and how task effects vary across time.

Fifthly, when comparing the relative effectiveness of the ILH and the TFA, previous research failed to consider different dimensions of L2 vocabulary knowledge. Among the studies regarding the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition, majority put emphasis on task type effects on wording form recognition and passive word meaning recall. For example, Elgort et al. (2016) discussed the effects of word writing and guessing meaning from given text on EFL vocabulary acquisition in terms of word form recognition and passive word meaning recall. However, most studies regarding the comparison of the ILH and the TFA failed to consider different dimensions of L2 vocabulary knowledge, taking the research of Hu & Nassaji (2016) as an example. In their study, the posttest merely included the passive meaning recall of the target words. It was still unknown whether or not these findings could be generalized in the following studies. As a result, these studies should consider different dimensions of L2 vocabulary knowledge.

Finally, when comparing the relative effectiveness of the ILH and the TFA, previous research failed to consider whether or not task effects might be moderated by other factors such as L2 proficiency and or L2 vocabulary knowledge. Among the studies regarding the effectiveness of the ILH in accounting for task type effects on EFL vocabulary acquisition, some studies focused on the effects of other factors on EFL vocabulary acquisition. For example, Laufer (2003) pointed out that tasks with the same involvement load might have different effects on EFL learners at different EFL proficiency levels and time and vocabulary proficiency must be taken into account in the testing of the ILH. However, most studies regarding the comparison of the ILH and the TFA failed to consider whether or not task effects might be moderated by other factors, taking the research of Gohar et al. (2018) as another example. In their study, the vocabulary proficiency of the participants was approximate, which means that the research didn't consider the matter that task effects might be moderated by vocabulary proficiency. Consequently, the researchers should take into account the possibility that the task effects might be moderated by other factors when comparing the relative effectiveness of the ILH and the TFA in the following research.

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