A Study on the Effects of Task-Induced Involvement Load on Incidental Vocabulary Acquisition by Non-English Major Students in Heilongjiang University of Technology

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Abstract: Power load forecasting is very important for power dispatching. Accurate load forecasting is of great significance for saving energy, reducing generating cost and improving social and economic benefits. In order to accurately predict the power load, based on BP neural network theory, combined with the advantages of Clementine in dealing with big data and preventing overfitting, a neural network prediction model for large data is constructed.

1. Introduction

1.1 Research background

Vocabulary, a basic material of language, plays a central role in second language acquisition (Zimmerman, 1997). However, for many years, vocabulary study has not obtained enough attention. With the advance of second language acquisition research, some researchers reached conclusions that vocabulary acquisition is crucial in successful second language acquisition. As Wikin said, "Without grammar, little can be conveyed; without vocabulary, nothing can be conveyed." (1972, p.111) With the development of research in second language learning and teaching, some researchers paid attention to second language vocabulary learning. After the stage, the emphasis moved from structural learning to vocabulary learning. And researchers shifted the focus from what second language learners acquire to how second language learners acquire. Thus studying the process of vocabulary learning has been an increasingly interested topic recently. Through the comparison of the numerous studies of vocabulary learning, Laufer & Hulstijin (2001) found that some tasks help to vocabulary learning, such as attention to the target word, motivation to learn, searching for the meaning of the words by dictionary and knowing the use of the word. Based on the Depth of Processing Theory, Laufer & Hulstijin (2001) proposed Task-induced Involvement Load Hypothesis to explain the effect of different tasks in vocabulary learning.

In recent years, a lot of researchers focus on incidental vocabulary acquisition. The term, incidental vocabulary acquisition (IVA), was advocated at first in the field of second foreign language as the by-product of reading (Krashen, 1989). Some researchers noticed the first language acquisition of children from natural context in normal reading. They believed incidental learning still took place in school. Incidental learning is characterized as unorganized, unstructured and unintentional. For second language vocabulary incidental learning, some researchers claimed the large number of vocabulary development without explanation should be incidental acquisition took place through listening and reading during normal language activities. Other researchers also believed incidental acquisition was available through reading and listening. Krashen (1994) pointed out it is natural acquisition to comprehend what we read. Although the studies of incidental vocabulary acquisition have attracted interest from many researchers and learners, difficulties still exist in achieving large number of vocabulary for variety of factors.

1.2 The purpose and significance of the study

Many students feel concerned with the difficult of vocabulary learning in Heilongjiang University of Technology, especially the non-English major students. They are interested in how to deal with the formidable task of learning the vast number of words. They are inclined to easily forget learnt words even though great efforts and time are spent on memorizing those words. There are many investigations on vocabulary learning strategies (Schmidt, 2000; Hulstijin, 1997; Coady, 1997a). The research which is keen on incidental learning is recently showed by a research on vocabulary acquisition from context (Swanborn & de Glopper, 2002; Coady, 1997b; Prince, 1996), which contains rigorous theoretical and empirical interest in the relationship between incidental vocabulary learning and reading. Laufer & Hulstijin claim that "the more effective task required a deeper level of processing of the new words than the other task" (2001, p. 542). This paper draws the conclusion of the Involvement Load Hypothesis that the effectiveness in incidental vocabulary acquisition depended on the task-induced involvement load in learning process. Laufer & Hulstijin believed that involvement load could be influenced by three factors: need, search and evaluation (Laufer & Hulstijin, 2001). They believed teachers or material designers could induce students' processing depth by target words via designing tasks varying in involvement load. It is expected second language researchers could find a more effective way, by observing, evaluating, designing or influencing three factors from the involvement load in language activities to acquire enough vocabulary. During past few years, many researchers (Laufer & Hulstijin, 2001; Folse, 2006; Gai, 2003) have testified the theory through experiments. But how to find out a most effective way to support the hypothesis is still unclear.

The current study tries to explore the theory and inspire second language teachers to design reading task for students to enhance their incidental vocabulary acquisition through reading. In the present study, different reading tasks are designed to induce different degree of involvement load by influencing the three factors of the hypothesis. Though some researchers have tested the Involvement Load Hypothesis, most of researchers just analyzed the retention in delayed vocabulary test. And few of them analyzed the relation among vocabulary learning strategies, vocabulary size and incidental vocabulary acquisition. Besides the analysis of incidental vocabulary acquisition in delayed vocabulary test, the retention in immediate vocabulary test was also analyzed. The present study also collected the data of participants' vocabulary learning strategies and vocabulary size by a vocabulary learning strategy questionnaire and a vocabulary size test. The analysis illustrated the relation among vocabulary learning strategies, vocabulary size and incidental vocabulary acquisition in the conclusion in the end of the paper. The subjects of present study are the students of non-English majors in Heilongjiang University of Technology. The result of present study benefits for them to improve their second language vocabulary acquisition, which was vital to their second language learning.

2. Research Design

2.1 Problems

The present study tried to analyze the relations among the vocabulary learning strategies, vocabulary size and vocabulary acquisition in task-based reading activity. This paper mainly explores the following three questions:

1. Is higher involved load more effective for the initial second language vocabulary retention than lower involved load in the tasks?

2. Is higher involved load more effective for the delayed second language vocabulary retention than lower involved load in the tasks?

3. Do vocabulary sizes and vocabulary learning strategies as variables exert impact on incidental vocabulary acquisition?

The space of time between immediate test and delayed test are no more than two weeks. Laufer & Hulstijin (2001) claimed that they hoped other researchers could consider different space time as a

variable. So the present study chose ten days as a space time and chose non-English major students who possessed low level English knowledge as participants.

2.2 Participants

The participants in the experiment are non-English major freshmen of three natural and parallel classes selected randomly in Heilongjiang University of Technology. They all have learned English for 7 years.

Three groups are balanced in English level, ability, proficiency and age. All the participants were asked to finish vocabulary learning strategies questionnaires, vocabulary size test, immediate vocabulary test and delayed vocabulary test.

Another group of participants are non-English major freshmen of two parallel classes selected randomly in Heilongjiang University of Technology, too. In order to make sure the target words were unknown for all the participants, these students from the other two parallel classed joined the vocabulary test for target words. They were also balanced in English level, ability, proficiency and age. They were asked to finish reading comprehension with one question and mark unknown words they met in the reading material. Through the test, seven target words were selected according to the data of the vocabulary test.

2.3 Instruments

(1). Reading materials

One passage from CET-4 was selected as reading material used in experiment. The subject of the reading material is "Healthy Diet", which is familiar to all the participants. The essay is not academic, either. All the target words used in the experiment were identified from the reading material. The essay was selected as reading material on the basis on the following reasons:

1. Some researchers found that 95% vocabulary coverage would be the least condition of understanding the whole passage. To make sure reading barrier will not exist, some difficult words for the participants have been given Chinese explanations.

2. The subject of the essay is "Healthy Diet", which is popular for all the participants. For the topic familiarity is at the same level for all the students, the reading material could make sure all the students have general understanding for the text. The topic familiarity will not be an intervening factor in the experiment.

3. Some participants could guess the target words' meanings through the words with the similar morphology or the same etyma, several words were replaced by nonsensical words.

(2). The target words

Before the experiment, a survey for target words was finished by two parallel classes consist 53 students in the same grade. These two classes did not join the experiment later. The reading material was given and the students were asked to finish the reading comprehension to check the understanding of the reading material. In order to make sure the students not to discuss the result with each other, the survey was asked to be finished in ten minutes. In the survey, students were asked to answer two problems except five reading comprehension questions. And Question 2 was leveled by five different degrees answers.

Question 1: Have you ever read this article?

A. Yes B. No

Question 2: What do you think about the difficulty of the article?

A. It is very easy for me to understand the text.

B. It is easy for me to understand most of the text.

C. It is not easy for me to understand the text.

D. The text is difficult. I can comprehend a small part of the text.

E. The text is difficult. I cannot understand the text at all

At the same time, students were asked to label the unknown words for them.

According to the survey, all the students have not read the article before the test and most students (92%) thought the article was not too difficult to understand. And six words with the highest

frequency students labeled were chosen as target words. Other unknown words with low frequency were given comment or replaced by the easy words the participants knew. In the end, seven words were picked up as target words. The gross list was attached to the text and every target word was given its part of speech and Chinese meaning as followed

1. Dietitian n. 饮食学家, 营养学家
2. nutrient-dense a. 营养丰富的
3. Potation n. 饮料
4. Spice n. 调味品, 香料, 情趣
5. Sustain vt. 支持，维持
6. Carbohydrates n. 碳水化合物
7. Spark VI. 闪烁, 冒火花

(3). Tasks

In the present study, three tasks induced different degree of involvement load were asked to be finished by three groups of participants. All the tasks were carried out in normal study time in the classroom. Three teachers supplied the assistance.

Task one: Reading comprehension.

In this task, students were asked to read the text and work out the following five reading comprehension questions. The target words were highlighted printing in bold in the text. Also, the target words with their Chinese meanings were glossed at the end of the text but the target words were irrelevant to the task. Task one induced moderate need, for the need was imposed by the teacher and the task. The students did not have the desire to comprehend the text on their own initiative. Search was absent because the words were glossed with Chinese meaning in the text. The students did not need to look up the words in dictionaries or turn to teacher for help. Evaluation was absent because every target word had been given suitable meaning in the text directly. The students did not need to assess the words meanings in the special context. According to Laufer and Hulstijn (2001), moderate need could be symbolized as "+". The involvement load was 1. Search in task one was absent so the search here could be symbolized as "-" and the involvement load was 0. Evaluation was absent either so evaluation in task one could be symbolized as "-". The involvement load was 0. The involvement index of Task one was 1 (Need + search + evaluation =1+0+0 = 1).

Task two: Reading comprehension and filling the blanks

Participants were asked to finish reading comprehension questions with the same text used in Task one. Differ from Task one, besides reading comprehension, participants also needed to fill the blanks with target words. The target words were highlighted printing in bold. Also, the target words with their Chinese meanings were glossed at the end of the text but words were irrelevant to the task. Task Two induced moderate need, for the need was imposed by the teacher and the task. The students did not have the desire to comprehend the text on their own initiative. Search was absent because the words were glossed in Chinese meaning. The students did not need to look up the words in dictionaries or turn to teacher for help. Evaluation was moderate for every target word would be assessed to fill in the suitable blank in the exercise. That meant students had to evaluate target words in order to put them in the appropriate blanks. The participants needed to evaluate the meaning of target words. According to Laufer and Hulstijn (2001), moderate need could be symbolized as "+". The involvement load was 1. Search in task two was absent so the search here could be symbolized as "-" and the involvement load was 0. Evaluation was moderate so evaluation in task two could be symbolized as "+". The involvement index of task two was 2 (Need +search + evaluation =1+0+1 = 2).

Task three: Reading comprehension and writing original sentences

In this task, students finished reading comprehension questions with the text as same as the ones used in Task One. After reading comprehension, students also were asked to write seven original sentences with seven target words. Target words were glossed with their Chinese meanings at the end of the text. The target words were highlighted printing in bold. Also, the target words with their Chinese meanings were glossed at the end of the text but words are irrelevant to the task. Task Three

induced moderate need, for the need was imposed by the teacher and the task. The students did not have the desire to comprehend the text on their own initiative. Search was absent for the words with Chinese meaning were glossed. Evaluation was strong for every target word would be assessed to write original sentences. That meant students had to evaluate the meaning of target words and use these target words to express their understanding of the words. According to Laufer and Hulstijn, moderate need could be symbolized as "+". The involvement load was 1. Search in task two was absent so the search here could be symbolized as "-" and the involvement load was 0. Evaluation was strong, so evaluation in task three could be symbolized as "++". The involvement index of task three was 3 (Need +search + evaluation =1+0+2 = 3).

(4). Tests

A. Immediate Test

All the students were asked to finish immediate vocabulary test as soon as they finished the tasks. Immediate vocabulary test is designed to measure the retention of the target words in short time. Each paper contains seven questions of target words. The answers of the questions can show the students' retention situation by four choices. Every question supplies situations for students. That is

A. I think I have never seen this word before.

B. I have seen this word before, but I do not know its meaning.

C. I am aware of this word when I see it in a sentence, but I will not use it in spoken or written English. The meaning of the word is. (Student is supposed to give its meaning in Chinese or its English synonym)

D. I can write an original sentence with this sentence. For instance, the sentence is

Here is an example

(5). Spark

(   ) A. I think I have never seen this word before.

(   ) B. I have seen this word before, but I do not know its meaning.

(√   ) C. I am aware of this word when I see it in a sentence, but I will not use it in spoken or written English. The meaning of the word is ___冒火花____. (Student is supposed to give its meaning in Chinese or its English synonym)

(   ) D. I can write an original sentence with this sentence. For instance, the sentence is

And if one chooses the last option, the student should answer the third one. According to the paper, we can learn that if the student chooses the first one, the retention of target word is worst. Instead, if the student chooses the last one, wring original sentences, it is shown that he got the best retention of the target word. The data showed the retention in short time.

B. Vocabulary size test

Vocabulary size test paper came from Paul Nation's vocabulary size test (Nation, 1990). The vocabulary size test is delivered after the tasks. The paper for test comes from Nation's Vocabulary 4000 Level Test. Nation's Vocabulary Test was widely used by second language researchers throughout the world. Its validity and reliability have been tested.

The test was delivered by the participants three weeks after the Delayed Test. Students finished the vocabulary size test without time limitation in one day. Most students finished the test within 20 minutes.

(6). Questionnaire

The questionnaire was used by many researchers in their papers. There are 78 questions in the questionnaire were required to finished by students. The questionnaires were delivered after the delayed test. All the participants took part in the questionnaire during regular class time. And three teachers instructed the students to do the questionnaires.

The vocabulary strategy questionnaire is developed through of Schmitt's questionnaire (1997). Schmitt's questionnaire is used to deal with vocabulary learning strategies. It is highly used and praised by researchers in the Second language acquisition study field. There are seventy-eight items in the vocabulary strategy questionnaire. To every statement, the answers are rate on a scale from A to E.

A = never or almost never true of me
B = usually not true for me
C = somewhat true of me
D = always or almost true of me
E = usually true for me

According to the questionnaire, the participants' vocabulary strategies could be analyzed. The calculating method adopted the 5-point Likert scale for average value of vocabulary learning strategy. The participants were classified as High Frequency Users, Regular Frequency Users, Medium Frequency Users, Low Frequency Users and Users never use vocabulary learning strategy.

2.4 Procedures of the experiment

All the procedures of the experiment were listed as follow:

Step one: The participants chosen from three classes were asked to finish a survey about the vocabulary learning strategies.

Step Two: Without knowing any details about the experiment, all the students were asked to finish three different tasks with the same reading material at the same time. Group one was asked to finish reading comprehension. Group two was asked to finish reading comprehension and filling blanks with target words. Group three was asked to finish reading comprehension and writing original sentences with target words.

Tab. 1 Details of Tasks for Three Groups

Group	Number of Participants	Description of Tasks	Target Words List
G 1	23	Reading Comprehension	Given
G 2	23	Reading Comprehension and Filling Blanks	Given
G 3	22	Reading Comprehension and Writing Original Sentence	Given

Step Three: All the papers were collected at once after students accomplished the tasks and immediate vocabulary tests were followed. Ten days later, delayed vocabulary test were hold.

Step Four: All the participants were asked to join the vocabulary size test.

Step Five: Data treatment and result analysis.

2.5 Scoring

The test papers were scored by teachers of Foreign Language Department in Heilongjiang University of Technology. Immediate Vocabulary Test and Delayed Vocabulary Test were carried out. The score was given according to the following Tab2:

Tab. 2 Point Scale for Immediate Test and Delayed Test

Choice	Details	Score
A	I do not think I am familiar with the word.	0
B	I have seen this word before but I do not know the meaning of this word.	1
C	I know this word if I see it in a sentence though I do not know how to use it in spoken English and written English. The word means (English Synonym or Chinese Translation)	2
D	I can write an original sentence with it. (write original sentence)	3

A participant will get 1 score if he chooses B. And if the participant chooses C and give the right English synonym or Chinese translation, he will get 2 scores. But if the participant chooses C with wrong meaning, he will get 1 score either. If the participant can write original sentence, he can get 3 scores. Participant will get zero if he chooses A.

2.6 Data analysis

All the data was analyzed through SPSS 16.0. The data were put into the computer precisely. And the result of the data will be showed in the next chapter. Measurement data were present by $\overline{X}$ ±s. Measurement data were compared with one-way analysis of variance among all the three groups and differences between groups were compared with LSD. Pearson correlation analysis was conducted to analyze the data of Immediate Vocabulary Test and Delayed Vocabulary Test. All data were analyzed by software SPSS16.0. If P <0.05, the result was considered as a statistically significance.

3. Results and Discussion

3.1 Results and discussion for Question 1

Question 1: Is higher involved load more effective for the initial L2 vocabulary retention than lower involved load in the tasks?

In order to compare the effect of the three different tasks on incidental vocabulary acquisition, I compare the achievements of the three groups in the immediate vocabulary test and results were displayed in Table 3.

Tab. 3.Scores of Three Groups in Immediate Vocabulary Test

Group	Number	Task	Involvement Load	Mean	Standard Deviation
G 1	23	Reading Comprehension	1	21.39	4.439
G 2	23	Reading Comprehension and Filling Blanks	2	24.43	4.273
G 3	22	Reading Comprehension and Writing Original Sentence	3	26.41	2.987
Total	68			24.04	4.423

Table 3 shows the scores and involvement load of three groups in Immediate Test. The number of participants in G1 is 23. The number of participants in G2 is 23. The number of participants in G3 is 22. In Task One which induced involvement load is 1, Group One's mean score in Immediate Test is 21.39. Standard Deviation of G1 in Immediate Vocabulary Test is 4.439. In Task Two which induced involvement load is 2, Group Two's mean score in Immediate Vocabulary Test is 24.43. Standard Deviation of G2 in Immediate Vocabulary Test is 4.273. In Task Three which induced involvement load is 3, Group Three's mean score in Immediate Test is 26.41. Standard Deviation of G3 in Immediate Vocabulary Test is 2.987. The total mean score of three groups in Immediate Vocabulary Test is 24.04 and the total Standard Deviation in Immediate Vocabulary Test is 4.423. The score of Immediate Test of Three Groups were statistically analyzed by One-Way ANOVA. The difference had no statistical significance (F=0.819, P=0.665). The retention of three groups in Immediate Vocabulary Test is equal. (R1=R2=R3)

3.2 Results and discussion for Question 2

Question 2: Is higher involved load more effective for the delayed L2 vocabulary retention than lower involved load in the tasks?

Tab. 4 Scores of Three Groups in Delayed Vocabulary Test

Group	Number	Task	Involvement Load	Mean	Standard Deviation
G 1	23	Reading Comprehension	1	20.57	2.905
G 2	23	Reading Comprehension and Filling Blanks	2	23.09	4.122
G 3	22	Reading Comprehension and Writing Original Sentence	3	26.00	4.287
Total	68			23.18	4.367

Delayed Tests of three groups were delivered after 10 days of Immediate Test. Table 4 shows the scores and involvement load of three groups in Delayed Vocabulary Test. The number of participants in G1 is 23. The number of participants in G2 is 23. The number of participants in G3 is 22. In Task One which induced involvement load is 1, Group One's mean score in Delayed Vocabulary Test is 20.57. Standard Deviation of G1 in Delayed Vocabulary Test is 2.905. In Task Two which induced involvement load is 2, Group Two's mean score in Delayed Vocabulary Test is 23.09. Standard Deviation of G2 in Delayed Vocabulary Test is 4.122. In Task Three which induced involvement load is 3, Group Three's mean score in Delayed Vocabulary Test is 26.00. Standard Deviation of G3 in Delayed Vocabulary Test is 4.287. The total mean score of three groups in Delayed Vocabulary Test is 23.08 and the total Standard Deviation in Delayed Vocabulary Test is 4.367. The score of Delayed Vocabulary Test of Three Groups were statistically analyzed by One-Way ANOVA. The difference had statistical significance (F =11.426, P=0.000＜0.05).

For the difference of Immediate Test and Delayed Test can be seen obviously, the data was represented in column chart in figure1.
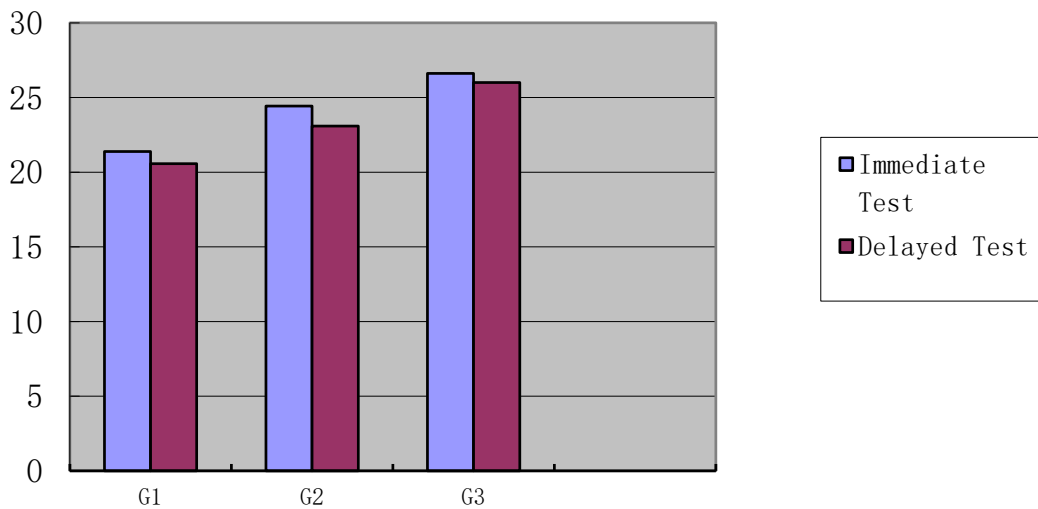

Fig. 1 Scores of Three Groups in Two Tests

According to Laufer and Hulstijn (2001), other factors being equal, it will be retained better that words are processed with higher involvement load. Other factors being equal, it will be more effective for vocabulary retention than tasks with a lower involvement load that teacher/researcher designed tasks with a higher involvement load. For the difference among three groups in Delayed Vocabulary Test had statistical significance (F =11.426, P=0.000＜0.05), the present study analyzed the data further. The results of this analysis are showed in the Table 5.

Tab. 5 Differences Value among Three Groups in Delayed Vocabulary Test

(I) Group	(J) Group	Average Deviation (I-J)	Standard Error	P	95% Confidence Interval	
					Lower Bound	Upper Bound
G1	G2	-2.522	1.125	0.028	-4.77	-0.28
	G3	-5.435	1.137	0.000	-7.71	-3.16
G2	G1	2.522	1.125	0.028	0.28	4.77
	G3	-2.913	1.137	0.013	-5.18	-0.64
G3	G1	5.435	1.137	0.000	3.16	7.71
	G2	2.913	1.137	0.013	0.64	5.18

According to the result presented in Table 5, there is statistical significance between G1 and G2 in Delayed Vocabulary Test. (P = 0.028, P＜0.05) There is statistical significance between G1 and G3

in Delayed Vocabulary Test. (P = 0.000, P<0.05) There is statistical significance between G2 and G3 in Delayed Vocabulary Test. (P = 0.013, P<0.05) The retention of three groups in Delayed Vocabulary Test is R1<R2<R3. The retention of target words of G1 is worst, and the retention of G3 is best.

Though Laufer and Hulstijn proposed the Involvement Load Hypothesis, they try to play a driving role in theoretical thinking and empirical research in second language vocabulary learning by presenting involvement with motivational and cognitive dimensions: Need, Search and Evaluation. But these three factors are difficult to control in practice. Researchers can design different reading tasks involved different degree of load in second language learning/teaching. But the learners "need" and "search" are difficult to observer or lead. Although all the target words were listed at the end of the text, participants may not consult in to the words list. For some students are able to guess the meaning of target words without consulting the words list. Some participants have been used the skill to get the whole idea of the text without stuck in unknown words.

3.3 Results and discussion for Question 3

Question 3: Do vocabulary size and vocabulary learning strategies as variables exert impact on incidental vocabulary acquisition?

For the difference value of Immediate Test and Delayed Test stand for the retention of target words, so the data is analyzed (Tab.6). Pearson correlation analysis was conducted to analyze the data of vocabulary size, vocabulary learning strategy and difference vale of two tests. Results show that there was no correlation between difference value and vocabulary size（P = 0.972 > 0.05）and there was no correlation between difference value and vocabulary learning strategy （P = 0.190 > 0.05）.

Tab. 6 Relationship between Vocabulary size, Vocabulary Learning Strategy and Retention

Variable	**Difference Value of Two Tests**	
	Pearson Correlation	**P**
vocabulary size	-0.004	0.972
vocabulary learning strategy	0.161	0.190

For further study of the relationship between vocabulary size and retention (Tab. 7), the vocabulary size data was analyzed in detail. When the participant's vocabulary size <2500, the result showed that there was no correlation between difference value and vocabulary size (P =0.712 > 0.005). While the participant's vocabulary size ≥2500, the result showed that there was no correlation between difference value and vocabulary size (P = 0.603 > 0.005)

When the participant's vocabulary size <3000, the result showed that there was no correlation between difference value and vocabulary size (P = 0.696> 0.005). While the participant's vocabulary size ≥3000, the result showed that there was no correlation between difference value and vocabulary size (P = 0.521> 0.005).

Tab. 7 Relationship between Retention and Vocabulary size

Variable	Difference Value of Two Tests	
	Pearson Correlation	P
Vocabulary size<2500	-0.052	0.712
Vocabulary size≥2500	-0.141	0.603
Vocabulary size<3000	-0.053	0.696
Vocabulary size≥3000	0.206	0.521

According to the result, the analysis showed that though enough vocabulary size helped learners to understand the meaning of the text. But the vocabulary size did not influence on incidental vocabulary acquisition.

For the further study of the relationship between vocabulary learning strategies and retention, the vocabulary learning strategies data was analyzed in detail. The calculating method of the 5-point Likert scale for average value of vocabulary learning strategy was adopted.

Learners whose average value is 5 to 4.5 were classified as High Frequency Users. Learners of 4.4 to 3.5 were classified as Regular Frequency Users. And learners of 2.5-3.4 were classified as Medium Frequency Users. Learners of 1.5-2.4 were classified as Low Frequency Users. At last, learners whose average value below 1.5 do not use vocabulary learning strategy. Participants' application of vocabulary learning strategy was present in Table 8. Medium Frequency Users, the most of all participants, occupies 61.8%. Regular Frequency Users are 25, which occupies 36.8%. There is only one Low Frequency User. High frequency user and do not use strategy leaner is not exist.

Tab. 8 Vocabulary Learning Strategies of Participants

Level	Number	Constituent Ratio (%)
High	0	0
Regular	25	36.8
Medium	42	61.8
Low	1	1.5
Never	0	0

In Table 9, for Regular Frequency Users, there was no correlation between difference value and vocabulary learning strategies. (P=0.354>0.05). For Medium Frequency Users, there was no correlation between difference value and vocabulary learning strategies. (P=0.824>0.05).

Tab. 9 Relation between Difference Value of Two Tests and Vocabulary Learning Strategies

Variable	Difference Value of Two Tests	
	Pearson Correlation	P
Regular Frequency Users	-0.193	0.354
Medium Frequency Users	0.035	0.824

Cohen and Aphek (1981) found that most students simply tried to memorize the words they did not know. Ahmed (1989) described different types of learners and found that most took notes on vocabulary, or write notes in the margins of their books. O'Malley et al. found that repetition was the most commonly mentioned strategy. And whether the strategies can be used well or not will rely on many variables, such as proficiency level, task, learner characteristics.

That may explain why the questionnaire reflect media vocabulary users occupy 61.8% and regular frequency users occupies 36.8%, but there was no correlation between difference value and vocabulary learning strategy. We concluded that though vocabulary learning strategy has great influence on vocabulary learning, (here it refers to intentional vocabulary acquisition), however, in the present study the exposure to the target words for participants is not big enough. Participants were asked to hand in their paper as soon as they finished in case intentional

4. Conclusion

4.1 Major findings

The present study demonstrates that incidental vocabulary acquisition under task-induced involvement load condition is possible for the non-English major students in Heilongjiang University of Technology. To present the result more directly, the result of the present study is displayed soon.

Tab. 10 Retention of Three Tasks in Immediate Vocabulary test and Delayed Vocabulary Test

Group	Description of Tasks	Target Words	Involvement Load	Retention
G1	Reading Comprehension	Given	1	Immediate Test: $R_1=R_2=R_3$
G2	Reading Comprehension and Filling Blanks	Given	2	
G3	Reading Comprehension and Writing Original Sentence	Given	3	Delayed Test: $R_1< R_2< R_3$

The results of present study show that incidental vocabulary acquisition occurs during reading. Through analyzing the data, the results partially approved the Involvement Load Hypothesis that words that are processed with higher involvement load will be retained better than words that are processed with lower involvement load.

In Immediate Vocabulary Test, there was no significant difference among the retention of target words of three groups. Maybe because the time between reading tasks and Immediate Vocabulary Test is too short, most participants had impression on target words. Though there was no significant difference among three groups, Group one's mean score is lowest and Group Three's is highest. There was significant difference among three groups.

In Delayed Vocabulary Test, Group one gained worst retention for target words and Group 3 gained best retention. The assumptions were proved in present study. Among the three components of involvement load proposed by Laufer & Hulstijin, strong evaluation (Group 3: Reading Comprehension and Writing Original Sentence) best predicts the effect of a task on vocabulary acquisition, in that, participants in the present study benefited the most from the sentence writing task. Finally, no matter how effective a task is in promoting immediate retention, rehearsal is needed to consolidate the knowledge because "new information will seldom leave a long lasting trace in memory if it is not frequently reactivated" (Hulstijin, 2001, p. 286).

All the participants were asked to test their vocabulary size and finish the vocabulary learning questionnaires. The data was analyzed in present study. According to the analysis, there was no correlation between difference value and vocabulary size and there was no correlation between difference value and vocabulary learning strategy. Though vocabulary size is important for understanding the text, but the incidental vocabulary acquisition will not be gained definitely. The retention of target words in the present study is influenced by the exposures to the target words. Participants who possess larger vocabulary size just could understand the text easier, but they might not acquire the target words better than other, for all the target words were unknown ones for participants. According to the data of participants' application of vocabulary learning strategies in Table 10. Media Frequency Users is the most of all participants, which occupies 61.8%. Regular Frequency Users are 25, which occupies 36.8%. There is only one Low Frequency User. High frequency user and do not use strategy leaner is not existing. However, participants learned about some vocabulary learning strategies, the application of vocabulary learning strategies was not ideal. Most participants rarely use vocabulary learning strategies. In the present study, another reason for this result is that there was not enough time or tool for participants to use the vocabulary learning strategies, such as looking up a word in dictionary.

4.2 Implications

The present study shows that incidental vocabulary acquisition can be gained through designing different reading tasks induced various degrees of involvement load. Incidental learning, as a supplementary to traditional methods, Involvement Load Hypothesis aims to enhance the effectiveness of learning word incidentally through designing different reading tasks. Teachers and material designers may deign tasks induced more involvement load to enhance the incidental vocabulary acquisition. Also, increasing the time and exposure of the target words may enhance the vocabulary learning. Teachers could give students more original writing tasks. Compared with

common tasks of filling the blanks with target words, writing original sentences which induce more involvement can be more effective for acquiring the words. Also, teachers may introduce more vocabulary learning strategies in class and train the learners to use these vocabulary learning strategies. Though most second language learners learn about some vocabulary learning strategies, most learners cannot put these strategies into practice.

4.3 Limitations

There are limitations of the present study and some points should be considered in the future.

The number of participants is not large enough and a limited amount of target words that have investigated. More large scale studies are needed to reconfirm the present results with varied materials and target words.

The present study has exam, ined the delayed effect only after ten days. To examine how long lasting the task-induced involvement load effect on the retention of the target words, a long time period study is further needed, for example, one month at least after the immediate test.

The time learners spend in reading has not been considered as a variable in the present study. Differ in individuals, participants may have different reading habits or skills which influenced their reading speed. In the experiment, all the test papers were asked to hand in as soon as they finished.

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