The Effect of Input Enhancement on Vocabulary Incidental Acquisition in Junior High School English Reading Instruction

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Abstract: *English vocabulary incidental acquisition has been of interest to scholars and English teachers. Through reading the literature, the author found that the current research on the effect of input enhancement on English vocabulary incidental acquisition mainly focuses on annotation effect. There is little research on other enhancement modes, such as bold words, underline words and italic words. And the effects of incidental vocabulary acquisition on different parts of speech are also worth exploring. Through experimental research, the authors found that: (1) Bold words can enhance junior high school students' English vocabulary incidental acquisition and retention. (2) The acquisition effect of Verbs is the best and the acquisition effect of Adjectives is the worst. It is proposed that teachers can use input enhancement method such as bold words to promote students' English vocabulary incidental acquisition in their regular English teaching. In addition, teachers should frequently require students to review the acquired vocabulary to avoid forgetting.*

Keywords: *English vocabulary incidental acquisition; input enhancement; bold words; junior high school English reading teaching; different parts of speech*

1. Introduction

Vocabulary is very important for foreign language learning. Gass and Selinker (2001) stated that the acquisition of language can be largely reduced to the acquisition of vocabulary. According to Ren and Liu (2020), English vocabulary acquisition can be divided into two categories: intentional acquisition and incidental acquisition. Intentional acquisition refers to learners focusing on target vocabulary and depositing it into long-term memory through the use of mnemonic strategies. (Hulstijn, 2001; Schmidt, 1994) Incidental acquisition refers to the fact that learners do not intentionally memorise words, but focus their attention on listening, speaking, reading and writing, and incidentally learn the English vocabulary in the process of completing the learning tasks. (Cao & Song, 2014) According to Huckin and Coady (1999), incidental acquisition is the main way for second language learners to expand their English vocabulary. Therefore, how to improve students' incidental vocabulary acquisition is a key question for the language learners. Sharwood (1991) proposed Input Enhancement, of which textual enhancement is one of the input enhancement techniques. The author found that the current research on the effect of input enhancement on English vocabulary incidental acquisition mainly focuses on annotation effect, there is little research on other enhancement modes, such as bold words, underline words and italic words. And There are few researches on ontology features of second language acquisition, such as the parts of speech. What are the different effectiveness of English vocabulary incidental acquisition on different parts of speech remain to be tested. (Miao, 2013) So the purpose of this study is to test the effect of bold words on the incidental acquisition of vocabulary and the different effectiveness of English vocabulary incidental acquisition on different parts of speech. Through experimental research, the authors found that: (1) Bold words can enhance junior high school students' English vocabulary incidental acquisition and retention. (2)The acquisition effect of Verbs is the best and the acquisition effect of Adjectives is the worst. It is proposed that teachers can use input enhancement method such as bold words to promote students' English vocabulary incidental acquisition in their regular English teaching. In addition, teachers should frequently require students to review the acquired vocabulary to avoid forgetting.

2. Literature review

By conducting a review of literature, it is possible to summarize the shortcomings of the existing

literature and uncover what needs to be focused on and explored in this paper.

2.1 Related research on reading and incidental vocabulary acquisition

Nagy et al. (1985) proposed the hypothesis of incidental vocabulary acquisition. The hypothesis suggests that free reading is the main source of vocabulary acquisition. On the basis of Nagy's study, other scholars have also put forward their views on reading and incidental vocabulary acquisition. Paribakht and Wesche (1999) stated that incidental vocabulary acquisition occurs naturally when learners attempt to understand the meaning of raw words in context. And Wesche and Paribakht (1999) state that incidental vocabulary acquisition is the result of comprehending the meaning of reading passages, which is classified as unconscious rather than intentional. In conclusion, we can find that reading contributes a lot to the incidental vocabulary acquisition, so this study mainly relies on reading.

2.2 Related research on input enhancement and incidental vocabulary acquisition

Input enhancement is a way of modifying the original input text with the aim of increasing the prominence of the target word in the input text so as to draw the learner's attention to it. (Kim, 2003) Common input enhancement methods include underline words, italics words, bold words, and annotation. (Nation, 2001). Many studies (Kim, 2006; Rott, 2007) found that the enhanced form of foreign language vocabulary can arouse language learner's interests, so that learners would have more impressions. Jacobs, Dufon and Hong (1994), Hulstijn, Hollander and Greidanus (1996) and Yoshii (2006) compared the effects of annotation and no annotation on lexical incidental acquisition. In addition, Shook (1994) conducted a study to test the effects of capitalization and bold words on the acquisition of Spanish tense. Current research on input enhancement mainly discusses the effect of annotation on the incidental vocabulary acquisition, while other modes are less discussed, and it is important to explore more modes to improve learners' noticing of vocabulary without affecting the completion of the main tasks to promote the English vocabulary incidental acquisition, so this paper focuses on the effect of bold words on the incidental acquisition of English vocabulary in junior high school reading teaching.

2.3 Related research on different parts of speech and incidental vocabulary acquisition

There are few researches on ontology features of second language acquisition, such as the parts of speech. What are the different effectiveness of English vocabulary incidental acquisition on different parts of speech remain to be tested. (Miao, 2013) Therefore, further statistics of English vocabulary incidental acquisition between different parts of speech also need to be explored.

2.4 Summary of related research

Through combing the literature, we find out that the research on input enhancement and incidental vocabulary acquisition mainly focus on the effect of annotation, and there is little research on other enhancement modes, such as bold words, underline words and italic words. Although Shook (1994) conducts a study to explore the effects of bold words on the acquisition of Spanish tense and relative nouns, the language acquired in the study is Spanish, and whether it can be applied to English is still worth exploring. When it comes to the research on different parts of speech, it is also necessary to test the English vocabulary incidental acquisition between different parts of speech. So this paper will test the effect of bold words on the incidental acquisition of vocabulary and the different effectiveness of English vocabulary incidental acquisition on different parts of speech.

3. Research design

An experimental study will be designed to answer the research questions. The more details are as follows.

3.1 Research questions

The research intends to answer the following two questions:

(1)What are the effects of bold words on English vocabulary incidental acquisition and retention in reading teaching for junior high School students?

(2)What are the different effectiveness of English vocabulary incidental acquisition on different parts of speech?

3.2 Research Subjects

The subjects of the experiment were two randomly selected eighth grade classes in the middle school in Wuhan, Hubei Province, China. Class nine was randomly chosen as the control class,which has a total of 47 students, including 24 boys and 23 girls; Class eleven was randomly chosen as the experimental class, which has a total of 47 students, including 23 boys and 24 girls. Their average age is 15. All of them have learned English about 8 years. And there is no significant difference in the English proficiency of the students in the two classes.(P=0.448>0.05)

3.3 Reading material and target words

The reading material selected for the experiment was an article from the fifth unit of the eighth grade of the English textbook of the People's Education Press edition, which has about 450 words. The more details are in the following. (see Table1)

Table 1: The basic information of the teaching material

Title	The Storm Brought People Closer Together
Topic	Natural disaster; Human cooperation
Discourse type	Narration
Main idea	The article tells the story of how the neighbors in the village worked together to successfully resist the disaster when the storm came.

When it comes to target words, Nation (2001) stated that when the number of new words in a segment exceeds 5% of the total amount of words, it may hamper the comprehension of the segment. There are 400 words in total in *The Storm Brought People Closer Together*. So the new words should be controlled within 20. In order to make sure that the students did not recognize the words marked in the article before reading, the experimenter randomly selected 30 students in a parallel class that did not participate in the experiment to read the article and asked them to mark the words they did not recognize, and then picked the 20 raw words from the article that the students marked most frequently as the target words. According to parts of speech, twenty target words are divided into five adjectives, five nouns, five verbs, and five adverbs. (see Table 2)

Table 2: The target words

Target words
Adjectives: strange/ asleep/ fallen/ icy/ neighbor
Nouns: alarm/ area/ wood/ flashlight/ match
Verbs: light/ report/ beat/ rise/ kid
Adverbs: suddenly/ heavily/ completely/ apart/ together

3.4 Research instruments

The research instruments used in this study were test papers and Vocabulary Knowledge Scale. All of them have been further explained in the following.

(1) The Wuhan Unified Joint Midterm Examination English test paper was used for the pre-test. The English test paper was designed by all the English teaching and research experts in Wuhan City, with questions of reasonable and moderate difficulty, detailed and clear answers, and consistent marking standards. The validity and reliability of the test paper are tested to make the results more valid and reliable. The value of Cronbach's Alpha is 0.830 and the value of Kaiser-Meyer-Olkin is 0.863, which are both above 0.80. The test paper is full of 120 points.

(2) Vocabulary Knowledge Scale

The researchers conducted two tests in order to test the research questions. After students finished reading and various reading activities, the immediate test was performed immediately. A delayed test was conducted one week later. The content of the delayed test was the same as that of the immediate test, but the experimenter adjusted the order of the target words.

The Vocabulary Knowledge Scale (Paribakht & Wesche, 1997) will be adopted in this study. (See Figure 1) The Vocabulary Knowledge Scale includes five levels, with ranging from complete unfamiliarity to complete familiarity.

I. I don't remember having seen this word before.

II. I have seen this word before, but I don't know what it means

III. I have seen this word before, and I think it means_____. (synonym or translation)

IV. I know this word. It means_____. (synonym or translation)

V. I can use this word in a sentence: _____. (write a sentence.)

(If you do this section, please also do Section IV.)

Figure 1: The Vocabulary Knowledge Scale Elicitation Scale—Self-Report Categories (Paribakht & Wesche, 1997)

The entire Vocabulary Knowledge Scale (20 target words) had a total score of 100 points. The experimenter used immediate test and delayed test to test the students' acquisition and retention of the target words. And the experimenter also used the Vocabulary Knowledge Scale to test the different effectiveness of English vocabulary incidental acquisition on different parts of speech. The experimenter used both immediate and delayed test scores from the control class for the analyses. This is because the reading material of the control class is not treated in any way and can most directly respond to the relationship between incidental vocabulary acquisition and different parts of speech. Each part of speech in the paper has 5 words and has a total score of 25 points.

3.5 Research process

The research process mainly include three tests: the pre-test, the immediate test and the delayed test.

3.5.1 The pre-test

A pre-test would be used in this study to check whether experimental class and control class have similar English level. The experimenter used the Wuhan Unified Joint Midterm Examination English test paper to test participants' English level. If the English level gap between two classes is too large, the data collected would lose validity. Therefore, the English level of experimental class and control class should be similar.

3.5.2 The immediate test

The experimenter conducted a 45-minute reading lesson in the experimental and control classes, both of which were taught using PWP teaching method and both of which had same instructional activities. The experimenter gave students in the experimental class reading materials with the bold target words and students in the control class reading materials with the target words untreated. When the experimenter taught, target words were not particularly emphasized. After the reading lesson, the Vocabulary Knowledge Scale were immediately distributed to the students to answer. The papers were retrieved fifteen minutes later, with five points for each question, to record the grades of the two classes. The experimenter used SPSS 27.0 to collect and analyze the data.

3.5.3 The delayed test

One week later, another delayed test was administered to students in both classes. The content of the test was the same as the immediate test, but the researcher adjusted the order of the vocabulary words in order to reduce the students' memory traces of the original questions and answers. Since there was no prior notification to the students, some of them did not take the delayed test on time, and the results were calculated according to the actual number of participants. (46 in the control class and 45 in the experimental class). The experimenter used SPSS 27.0 to collect and analyze the data.

4. Research results and discussion

Through the experiment, the experimenter collected a lot of data. These data need to be analyzed and discussed. The more details are as follows.

4.1 Research results

The research results are analyzed as follows.

4.1.1 Results of the pre-test

The experimenter used SPSS 27.0 to carry out descriptive statistics and independent samples t-test on the scores of the pre-test, as shown in Table 3, the average score of the control class is 77.99, and the average score of the experimental class is 74.60. The English scores of the two classes are similar. P value = 0.448>0.05. There is no significant difference in the English proficiency of the students in the two classes.

Table 3: Descriptive statistics and Independent samples T-test of pre-test scores of two classes

| | Class | N | Mean | Std.Deviation | Std.Error Mean | t-test for Equality of Means | | |
						Sig.(2 tailed)	Mean Difference	Std.Error Difference
Scores	Control class	47	77.9894	19.81531	2.89036	.448	3.39362	4.45296
	Experimental class	47	74.5957	23.22308	3.38743			

4.1.2 Results of the effects of bold words on English vocabulary incidental acquisition in reading teaching for junior high School students

The data obtained from the immediate vocabulary test in both classes were statistically analyzed using SPSS 27.0 and the results are shown in Tables 4 and 5.

Table 4: Descriptive statistics of immediate test scores of two classes

	Class	N	Maximum	Minimum	Mean	Std.Deviation	Std.Error Mean
Scores	Control class	47	100	20	68.2979	14.45670	2.10873
	Experimental class	47	100	45	79.4681	14.26588	2.08089

In the immediate test, the mean score of the experimental class's performance was significantly higher at 79.47 than the mean score of the control class's performance at 68.30. The English vocabulary incidental acquisition effect of experimental class is better than that of control class.

Table 5: Independent samples T-test of immediate test scores of two classes

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | F | Sig. | t | df | Sig.(2 tailed) | Mean Difference | Std.Error Difference | 95% Confidence Interval of the Difference | |
									Lower	Upper
Scores	Equal variances assumed	.251	.618	-3.770	92	<.001	-11.17021	2.96257	-17.05414	-5.28629
	Equal variances not assumed			-3.770	91.984	<.001	-11.17021	2.96257	-17.05415	-5.28627

The statistics in Table 5 show that the independent samples t-test has a p-value <0.001, indicating that there is an extremely significant difference between the scores of the two class. Thus, the use of bold words as an input enhancement has a significant effect on the incidental acquisition of vocabulary by the students in the immediate quiz.

4.1.3 Results of the effects of bold words on English vocabulary retention in reading teaching for junior high School students

Table 6: Descriptive statistics of delayed test scores of two classes

	Class	N	Maximum	Minimum	Mean	Std.Deviation	Std.Error Mean
Scores	Control class	46	90	20	59.0217	18.24584	2.69020
	Experimental class	45	90	45	70.8889	13.11180	1.95459

The statistical results in Table 6 show that in the delayed test, the mean score of the experimental

class's performance was significantly higher at 70.89 than the mean score of the control class's performance at 59.02. The retention of English vocabulary after acquisition in the experimental class is better than that in the control class

Table 7: Independent samples T-test of delayed test scores of two classes

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.(2 tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Scores	Equal variances assumed	2.069	.154	-3.556	89	<.001	-11.86715	3.33710	-18.49790	-5.23640
	Equal variances not assumed			-3.569	81.751	<.001	-11.86715	3.32530	-18.48253	-5.25177

The statistical results in Table 7 show that the independent samples t-test has a p-value <0.001, indicating that there is an extremely significant difference between the scores of the two class. Therefore, the use of bold words as an input enhancement in the delayed test is more helpful for students' retention after vocabulary acquisition.

4.1.4 Results of the effects of incidental vocabulary acquisition on different parts of speech

The immediate and delayed test of the control class are organized in order to investigate what are the different effectiveness of English vocabulary incidental acquisition on different parts of speech. The detailed results are in Table 8.

From Table 8, we can find that the average score of Verbs is the highest (19.569) and the average score of Adjectives is the lowest (13.362) in immediate test. And in the delayed test, the average score of Verbs is the highest (17.241) and the average score of Adjectives is the lowest (12.414) Therefore, The acquisition effect of Verbs is the best and the acquisition effect of Adjectives is the worst.

Table 8: Scores in Immediate test and Delayed test with Different Parts of Speech

Parts of Speech	Immediate test score		Delayed test score	
	Mean	Std. Derivation	Mean	Std. Derivation
Verb	19.569	10.039	17.241	9.089
Noun	18.6255	8.788	15.5927	8.832
Adverb	16.7414	9.279	13.774	8.702
Adjective	13.362	9.021	12.414	8.288

4.2 Discussion

After analyzing the data, the research results need to discussed to answer the research questions.

4.2.1 Discussion of the effects of bold words on English vocabulary incidental acquisition and retention in reading teaching for junior high School students

The results from the immediate test experiment show that the use of bold words as an input enrichment method enhances students' incidental acquisition of vocabulary. Blackening the target words gave students more opportunities to focus on the target words, thus enabling them to infer the meanings of the vocabulary words from the context, and to devote more "attention" to determine the meanings of the vocabulary words when the teacher explained the text. As a result, the cognitive input in the reading process is greater and the level of information processing is deeper. So teachers can use input enhancement method such as bold words to promote students' English vocabulary incidental acquisition in their regular English teaching.

Two issues can be illustrated from the results of the delayed test. First, the use of bold words as an input enhancement can promote students' retention after vocabulary acquisition. Students will have a deeper impression of the target word after blackening it, and thus the rate of forgetting will be slower. Second, both classes showed a decrease in the delayed test scores compared to the immediate test scores.

Teachers should require students to review the acquired the English vocabulary to minimize forgetting.

4.2.2 Discussion of the effects of incidental vocabulary acquisition on different parts of speech

The research shows that the acquisition effect of Verbs is the best and the acquisition effect of Adjectives is the worst. The reasons that can support the findings may be: Firstly, the subject of a sentence is usually a noun and the predicate is usually a verb. (Liu, 2020) When students read the article, the subject and predicate are supposed to be paid more attention. Because the subject and predicate are the core components of the sentence. Second, adverbs and adjectives mainly serve as intensifiers and modifiers. The students can infer the meaning of the whole sentence even if they don't understand the meaning of adverbs and adjectives.

5. Conclusion

English vocabulary is of vital significance in language learning. The experimenter conducted a study to test the effect of bold words on the incidental acquisition of vocabulary and the different effectiveness of English vocabulary incidental acquisition on different parts of speech. Form the study, the major findings are presented as follows.

First, the use of bold words as an input enhancement method can enhance students' incidental acquisition and retention of English vocabulary in junior high school reading teaching. Input enhancement can arouse learners' attention to target words. But the effect of input enhancement need review regularly to maintain.

Second, the acquisition effect of Verbs is the best and the acquisition effect of Adjectives is the worst. And the reason may be that students pay different attention to different sentence components.

Teachers can use bold words to promote students' incidental vocabulary acquisition and enhance students' retention after acquisition. For example, when preparing teaching materials, teachers can blacken the target words that students need to focus on, so as to draw students' attention to the English vocabulary. Teachers can also try other input enhancement methods, such as underline words and italic words. Using enhancement methods can not only draw students' attention to the target vocabulary, but also allow them to process the words at a deeper level and improve their memorization. In addition, teachers should often require students to review the acquired English vocabulary, and students can review on the basis of the discourse to minimize forgetting.

References

[1] Cao, J. X. , & Song, J. (2014). The influence of different annotation methods on vocabulary incidental acquisition. Journal of Foreign Language, 1, 117-120.

[2] Gass, S., & Selinker, L. (2001). Second Language Acquisition: An Introductory Course. London: Lawrence Erlbaum Associates.

[3] Hulstijn, J. (2001). Intentional and incidental second language vocabulary learning: A reappraisal of elaboration, rehearsal, and automaticity. In Robinson. P (Eds). Cognition and Second Language Instruction (pp.258-286). Cambridge: Cambridge University Press.

[4] Hulstijn, J. H., M. Hollander & T. Greidanus. (1996). Incidental vocabulary learning by advanced foreign language students: The influence of marginal glosses, dictionary use, and reoccurrence of unknown words. The Modern Language Journal, 80, 327-339.

[5] Jacobs, G. M. , P. Dufon & F. C. Hong. (1994). L1 and L2 vocabulary glosses in L2 reading passages: Their effectiveness for increasing comprehension and vocabulary knowledge. Journal of Research in Reading, 17, 19-28.

[6] Kim, Y. (2003). Effects of input elaboration and enhancement on second language vocabulary acquisition through reading by Korean learners of English. Doctoral dissertation, University of Haiwaii.

[7] Kim, Y. (2006). Effects of input elaboration on vocabulary acquisition through reading by Korean learners of English as a foreign language. TESOL Quarterly, 23, 41- 372.

[8] Liu, Y. (2020). The input inventory increased significantly and tasks for non-english major students the effect of incidental vocabulary acquisition. Master's dissertation, AnHui university.

[9] Miao L. X. (2013). Research on second language vocabulary incidental acquisition in China: Current situation and development. Foreign Languages (05),86-92.

[10] Nagy, W. , Herman, P. & R. Anderson. (1985). Learning Words from Context. Reading Research Quarterly, 2, 233-253.

[11] Nation, P. (2001). Learning Vocabulary in Another Language. Cambridge: Cambridge University Press.

[12] Paribakht, T. S. ,& Wesche, M. (1997). Vocabulary Enhancement Activities and Reading for Meaning in Second Language Vocabulary Acquisition. In Coady, J. & Huckin, T. (Eds.), Second language vocabulary acquisition . Cambridge: Cambridge University Press.

[13] Paribakht, T. S., & M. B. Wesche. (1999). Reading and "Incidental" L2 Vocabulary Acquisition: An Introspective Study of Lexical Inferencing. Studies in Second Language Acquisition, 21, 195-224.

[14] Ren, H. L., & Liu, Y. L. (2020). A study on the effect of equal input tasks on incidental vocabulary acquisition. Foreign Languages in China, 2, 67-73.

[15] Rott, S. (2007). The effect of frequency of input-enhancements on word learning and text comprehension. Language Learning, 2, 160-190.

[16] Schmidt, R. W. (1994). Deconstructing consciousness in search of useful definitions for applied linguistics. AILA Review , 11, 11-26.

[17] Shook, D. (1994). FL/L2 reading, grammatical information, and the input to intake phenomenon. Applied Linguistics, 2, 57-93.

[18] Wesche, M., & Paribakht, T. S. (1999). Incidental L2 vocabulary acquisition: Theory, current research, and instructional implications. Studies in Second Language Acquisition, 21, 175-335.

[19] Yoshii, M. (2006). L1 and L2 glosses: Their effects on incidental vocabulary learning. Language Learning and Technology, 10, 85-101.