Effects of Word Presentation Modes on EFL Vocabulary Learning

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Abstract

This research, using Latin Square Design experiment, aims to examine the effects of different presentation modes on EFL students' vocabulary learning and retention. 141 Chinese freshmen of undergraduates were divided into three groups and participated in an experiment. Materials consisted of reading comprehension and Nation's Vocabulary Levels Test for pretests and the posttests were composed of instant vocabulary test, delayed vocabulary test 1 (Word Association Test), and test 2 (Vocabulary Knowledge Levels Test designed by Wesche and Paribakht). Results indicated that there were no significant differences between the effects of the three modes (vocabulary list, picture mode and incidental context) on students' vocabulary learning and short-term recall, and that the three modes significantly affected students' long-term vocabulary retention with the differences between receptive vocabulary knowledge and productive one. In addition, their effects on the acquisition of words with different parts of speech were not always the same. All in all, picture mode had most significant positive effect on vocabulary recall and production/output, but there was no significant difference between vocabulary list and accidental context. Reasons for the results were explained from the perspectives of modal theory, condition limitations for L2 learning and advantage of context for picture presentation. Finally, implications for L2 vocabulary teaching were also discussed.

Key words: EFL vocabulary teaching; Presentation modes; EFL vocabulary retention; Modal theory

INTRODUCTION

It is obvious that vocabulary knowledge is of great significance for learners' language ability. Without grammar, we can not express ourselves freely; but without vocabulary, we can not express anything (Wilkins, 1972, p.48; Zhang, 2009). In EFL learning, however, it has been a universal fact that learners are not able to increase their vocabulary size efficiently or produce words and expressions flexibly. Hence scholars within and outside china have made large amount of researches on vocabulary acquisition. On the one hand, they focused on incidental vocabulary acquisition from the perspective of students' after-class autonomous vocabulary acquisition; on the other hand, they discussed about how to combine the method, opportunity, type, amount, frequency and order of classroom vocabulary input with the reception mode, degree and psychic reaction of L2 learners so as to exert the best acquisition effect (Zhang, 2006, p.24). In the context of EFL classroom, presentation phase proves to be an important one that determines whether vocabulary teaching will be successful or not. In this case the presentation of vocabulary means the process of introducing the target words by any means and show them to learners, which involves the spelling, pronunciation, meaning, collocation, syntactic and register characteristics of words. This research intends to compare the effects of different presentation modes in EFL vocabulary teaching.

1. LITERATURE REVIEW

Researches on presentation mode of vocabulary started in the 1960s. They mainly involved the presentation modes such as vocabulary list, semantic field, pictures, comic and animation and incidental context. In addition, comparative experiments were employed on most occasions and different conclusions were usually arrived at. Tinkham (1997) found that word presentation via means of semantic field was not favorable for vocabulary acquisition while Crow and Quigley (1985) believed that such presentation was more favorable for the retension of words than vocabulary list. Mondria and Wit-de-Boer (1991) deemed that context presentation was not of help to the memorization of words. Zeng (2007) compared incidental context with no context and pointed out that words acquired in the context were better kept than words that were learnt without context. He (1998) found that different presentation modes produced different effects on vocabulary learning and recall. In other words, vocabulary list and semantic field presentation were more effective for vocabulary memorization than context one while words presented in the context were better kept than those via vocabulary list and semantic field. Kroll and Tokowwicz (2005) studied picture presentation and found that this mode was good for vocabulary acquisition. Zhao (2007) pointed out that as far as long-term memorization of words was concerned, pictures and cartoons were less effective than pure texts.

The above empirical researches all employed comparison between experiment groups and controlled groups and it was impossible to avoid the individual differences between participants and the within-effect brought about by the learning environments, and the potential factors such as 'Hawthorne effect' possibly existed, which might lead to the differences between experiment results. Hence this research employed Latin Square Design experiment and compared the effects of three presentation modes, such as vocabulary list, pictures/cartoon/image presentation and incidental context, on EFL vocabulary learning and memorization.

The questions to be answered in this research covered the following three:

(1) Do the list method, picture method and context method affect the overall vocabulary acquisition and the learning of vocabularies with different parts of speech in different ways?

(2) Do the three presentations have different effects upon the overall vocabulary memorization or memorization of vocabularies with different parts of speech?

(3) Do the three presentations have the same effects upon the acquisition of both receptive and productive vocabulary knowledge?

2. METHODS

Latin Square Design is a sort of technology that balances experiment order so as to decrease the effect of experiment order on experiments. It is used where the researcher desires to control the variation between groups in an experiment. Hence there were less errors in such experiments than in those with unit groups at random and it was also more accurate. Latin Square Design can effectively remove the interference factors and avoid the unfair interference in participants caused by the traditional experiment group and controlled group. It has been widely used outside China but seldom within China.

Presentation of vocabulary list (*list method*) means to list the target words one by one and provide written definition so that learners will attend to the spelling, part of speech, meaning and collocation of these words. In addition, it supplies contexts at the level of sentences by means of examples to direct learners to extract words. Picture/cartoon/image presentation (*picture method*) aims to present the target words with pictures, cartoons or images so that learners will attend to the spelling, parts of speech and meanings of the words and use more such materials to activate the schema in learners' brains and repeatedly extract words. Incidental context presentation (*context method*) is based on the 'vocabulary consolidation acquisition' in incidental acquisition theory and allows learners to attend to the target words in completing the reading comprehension items and guess the meanings of words according to the contexts so as to acquire the target words.

2.1 Participants

Participants in this research involved 141 freshmen of undergraduates from a provincial university in Hubei province, China. They had learnt English for about 10 years and were randomly divided into three groups. There were no significant differences between their reading ability and vocabulary one (P=.221>.05; P=.764>.05), as results of reading comprehension test and vocabulary test indicated.

2.2 Materials

The reading materials for the pretest was four descriptions and narrations chosen from the previous year's national TEM4 (Test for English Majors-Band 4), the types of writing were exactly the same as those of reading materials for experiments. Vocabulary test was Nation's (1983) Vocabulary Levels Test (VLT), which had been widely used and proved to be of high reliability and validity (Read 1993; Schmitt & Meara 1997).

The target words were chosen from the three passages in book one and book two in *Advanced English* which had been the textbooks for Chinese English majors. The difficulty level and length of the passages were appropriate for the participants, consisting of descriptions

and narrations. Each of the passages provided reading comprehension items related to the target words (five items in all, including obtaining the main idea, details, categorization, inference and word-meaning match) used in the word presentation with incidental context. All the reading comprehension items were pre-tested and repeatedly revised to ensure the reliability and validity (The reliability coefficient and validity coefficient were respectively 0.90 and 0.89).

Vocabulary test for instant test and delayed test 1 referred to the 'Word Association Test' (http:// www. forumeducation.net/), including 30 multiple choice (12 target words and 18 distracters), and each item had 5 options. The test was revised according to the suggestions proposed by native speakers of English and pre-tested to ensure its reliability and validity (The reliability coefficient and validity coefficient were respectively 0.89 and 0.87).

Delayed test 2 employed Vocabulary Knowledge Levels Test designed by Wesche & Paribakht (1996), aiming to test the receptive as well as the productive knowledge of the target words.

2.3 Procedures

27 words were pre-chosen from the above mentioned narrations and descriptions, and the participants were urged to give the meanings and parts of speech of the words and make sentences with the words. If participants knew the multiple meanings and usage of a word, they gave the part of speech and meaning of each entry and made a sentence, the word would be ultimately removed. Finally, according to participants' answers and based on the fact that none of the participants' knew them, the following 12 target words (4 for each passage) were determined (*bazaar*, *bob*, *douse*, *disintegrate*, *generator*, *kimono*, *lurch*, *muted*, *preoccupation*, *scud*, *sepulchral*, *sumptuous*). 4 words as a group respectively provided the definitions and example sentences to be used for the vocabulary list or list method, pictures or cartoons/images for picture method and reading questions that directed students to attend to the target words for context method. Latin Square Design was used for the experiment. As for the details, see Table 1.

In order to avoid the incoherence of teaching, participants from the three groups were presented words by the circulation order of list method, picture method and context method within 60 minutes and each method lasted about 20 minutes. In the process of word learning, participants could only take notes on their scratch paper which would be handed in before the class ended. Participants were not allowed to consult their dictionaries. After the 60 minutes' word learning, instant test was given. A week later delayed test 1 was given. The target words were the same for both instant test and delayed test, but to decrease the negative influence of carry-over effect,

distracters were all replaced. In addition, the presentation order of the target words and the association angle for delayed test were not the same as those for the instant test. 4 weeks later, delayed test 2 was given.

Table 1
Latin Square Design Experiment

Group	Target words and presentation methods		
	scud; generator; douse; disintegrate;	bob; kimono; lurch; preoccupation;	bazaar; sepulchral; muted; sumptuous
Group one	list method	picture method	context method
Group two	picture method	context method	list method
Group three	context method	list method	picture method

3. RESULTS

Results for instant test, delayed test 1 and 2 were analyzed via One-Way ANOVA. Firstly, learning results for the three presentations were compared to validate in an all-around way whether the three groups obtained the same results. Secondly, effects of the three presentations were compared to see how they respectively affected nouns, verbs and adjectives learning and memorization. The following would discuss about the results in details.

3.1 Instant Test

3.1.1 Overall Comparison

One-way ANOVA was made for the results of instant test for the three groups (Table 2). From the table, it could be seen that there were no significant differences between the effects of the three presentations on participants' target word learning (P=.957, .637,195 >.05).

Table 2
Descriptive Statistics for Overall Comparison Between Three Presentations in Instant Test

Group	M (SD)			F (Sig.)
Group 1	3.38 (.82)	3.38 (.74)	3.43 (.85)	.044(.957)
Group 2	3.70 (.55)	3.68 (.56)	3.60 (.61)	.453 (.637)
Group 3	3.70 (.66)	3.51 (.69)	3.45 (.77)	1.655(.195)

It should be noted that participants acquired the words in reading when they were presented via context method. To test the differences between vocabulary acquisitions that were possibly caused by topics or difficulty level, the last was a word-meaning match item after the reading of each passage. Homogeneity test of variance indicated that the Levene Statistic was .479, and P value for ANOVA test was .769, indicating that there were no significant differences between the contexts for the incidental acquisition of the target words provided by the three passages in terms of topic familiarity or difficulty level.

3.1.2 Comparison Between Effects on Acquisition of Words With Different Parts of Speech

Results for One-Way ANOVA were indicated in Table 3, from which it could be seen that P value was .976 for noun group, .701 for verb group and .087 for adjective group, denoting that there were no significant differences for the learning results of the target words with different parts of speech presented in three different ways (Table 3).

Table 3
Descriptive Statistics for Effects of Three Presentations on Learning of Words With Different Parts of Speech in Instant Test

Parts of speech	M (SD)			F (Sig.)
Nouns	3.60 (.50)	3.60 (.54)	3.62 (.57)	.025(.976)
Verbs	4.43 (.71)	4.30 (.72)	4.36 (.76)	.356 (.701)
Adjectives	2.77 (.52)	2.68 (.56)	2.49 (.75)	2.485(.087)

3.2 Delayed Test 1

3.2.1 Overall Comparison

One-Way ANOVA analysis for delayed test 1 indicated that P value was .001, .005 and .000 respectively, denoting that there were significant differences between the three groups for their vocabulary memorization when words were presented in three different ways (Table 4). Descriptive statistics and Post hoc multiple comparisons revealed that the three presentations respectively affected the participants from the three groups in different ways for their vocabulary memorization. In group one, picture method was better than context one (P=.001<.05; M (SD): 2.51>1.62), and there were no significant differences between the effects of picture method and list method (P=.097>.05), and also list method and context one (P=.202>.05). In group two, the effect of list method was significantly better than context one (P=.006<.05; M (SD): 2.77>2.06); there were no significant differences between list method and picture one (P=.080>.05), and also picture method and context one (P=.615>.05). In group three, picture method was significantly more effective than list and context ones (P=.000, .002<.05; M (SD): 3.23>2.19, 3.23>2.49) and there were no significant differences between list method and context one (P=.354>.05).

Table 4
Descriptive Statistics for Overall Comparison Between Three Presentations in Delayed Test 1

Group	M (SD)			F (Sig.)
Group 1	2.02 (1.22)	2.51 (1.14)	1.62 (.87)	7.928(.001)
Group 2	2.27 (1.71)	2.28 (1.06)	2.06 (1.07)	5.581 (.005)
Group 3	2.19 (1.12)	3.23 (.94)	2.49 (.93)	13.608(.000)

3.2.2 Comparison Between Effects on Acquisition of Words With Different Parts of Speech

From Table 5, it could be seen that there were significant differences between the effects of three presentations on participants' learning of verbs and adjectives but not of nouns (Table 5; P=.000,.003<.05; P=.968>.05). Descriptive statistics and Post hoc multiple comparisons revealed that for verbs learning, picture method was significantly more effective than the list and context methods (P=.003, .000<.05; M (SD): 3.64>2.77; 3.64>2.40), but there was no significant difference between list method and context one (P=.346>.05). For adjectives learning, list method and picture method were better than context one (P=.028, .005<.05; M (SD): 1.36>.87; 1.47>.87) and there was no significant difference between list method and picture one (P=.841>.05).

Table 5
Descriptive Statistics for Effects of Three Presentations on Learning of Words with Different Parts of Speech in Delayed Test 1

Part of speech	M (SD)			F (Sig.)
Nouns	2.85 (.96)	2.89 (.89)	2.89 (.96)	.032(.968)
Verbs	2.77 (1.71)	3.64 (1.17)	2.40 (1.10)	13.144 (.000)
Adjectives	1.36 (.97)	1.47 (.88)	.87 (.77)	6.189(.003)

3.3 Delayed Test 2

3.3.1 Overall Comparison

For delayed test 2 result, One-Way ANOVA test indicated that P value was respectively .377, .006 and .000 for the three groups, indicating the significant differences between the effects of the three presentations on learning of target words for both group two and group three, but not group one. (Table 6). Descriptive statistics and Post hoc multiple comparisons revealed that in group two, the effect of picture method was significantly superior to the other two methods (P=.031,.014<.05; M(SD): 9.87>8.19; 9.87>8.00). In group three, picture method was significantly more effective than the list and context methods (P=.000,.000<.05; M (SD): 9.26>6.17, 9.26>5.51).

Table 6
Descriptive Statistics for Overall Comparison Between Three Presentations in Delayed Test 2

Group	M (SD)			F (Sig.)
Group 1	6.94 (3.57)	7.62 (3.77)	6.60 (3.46)	.981(.377)
Group 2	8.19 (3.08)	9.87 (3.06)	8.00 (3.01)	5.359 (.006)
Group 3	6.17 (2.84)	9.26 (3.89)	5.51 (2.32)	19.704(.000)

3.3.2 Comparison Between Effects on Acquisition of Words With Different Parts of Speech

From Table 7, it could be seen that there were significant differences between the effects of the three presentations on participants' acquisition of the productive knowledge of nouns, verbs and adjectives (Table 7; P=.001, .011, .000<.05). Descriptive statistics and Post hoc multiple comparisons indicated that for noun learning, picture

method had better effect than list method and context one (P=.011, .002<.05; M (SD): 10.79>8.85, 10.79>8.51) but there were no differences between list method and context one (P=.867>.05). As far as verb learning was concerned, picture method was better than context one (P=.011<.05; M (SD): 9.40>7.36), and there were no significant differences between list method and context one (P=.505>.05). For adjective learning, however, picture method was more effective than the other two methods (P=.000, .000<.05; M (SD): 6.55>4.30, 6.55>4.23) and there were no differences between list method and context one (P=.993>.05).

Table 7
Descriptive Statistics for Effects of Three Presentations on Learning of Words with Different Parts of Speech in Delayed Test 2

Part of speech	M (SD)			F (Sig.)
Nouns	8.85 (3.39)	10.79 (2.81)	8.51 (3.02)	7.446(.001)
Verbs	8.15 (3.63)	9.40 (3.46)	7.36 (2.57)	4.708 (.011)
Adjectives	4.30 (2.44)	6.55 (2.70)	4.23 (2.57)	12.384(.000)

4. DISCUSSION

4.1 Different Effects of Three Modes Presentation on Vocabulary Learning and Retention

From the above analysis and discussion it can be concluded that there were no significant differences between the effects of the three presentations such as list method, picture method and context method on learners' EFL vocabulary learning and short memorization, indicating the equal effects of the three methods in attracting students' attention on EFL vocabularies, since 'short memory means the range of learners' attention' (Gu, 2007, p.8). In other words, the three types of presentations had the same effects on learners' short memorization of vocabulary.

In delayed test 1, there were both differences as well as similarities between the effects of the three presentations on the three groups' vocabulary learning. Picture method had obvious advantages over context one. As for learning of the words with three different parts of speech, picture method had significant better effect on verb learning than list and context methods. For adjective learning, picture and list methods had significant better effect than context one. As far as noun learning was concerned, there were no significant differences between the effects of the three presentations. Nouns consist of concrete and abstract ones. Bilingual researches indicated that concrete nouns were acquired more easily than abstract ones (Altarriba & Bauer, 2004; Duthie et al. 2008; Farley, 2012), for which Farley (2012) proposed some explanations from the perspective of dual-coding theory. Concrete nouns have rich visual imagery and when learning them, learners

simultaneously store up the visual imagery and the lexical information of concrete words in their brains. Both the visual imagery and the lexical information work when concrete words are extracted later. In other words, in the process of concrete word learning, no matter whether the relevant picture is presented, the visual imagery of concrete words will be stored up in learners' brains together with the lexical information. Abstract words, however, lack their own visual imagery. Among the three nouns in this experiment, there were three concrete words (*bazaar*, *kimono*, *generator*) and only one abstract one (*preoccupation*), thus the effect of picture method was not significant.

Result for delayed test 2 was about the same as that of delayed test 1. For two of the groups the effect of picture method was significantly better than those of the list and context ones. For the learning of the words with three different parts of speech, picture method had also better effect than the other two methods (Although result for verb learning indicated no significant differences between picture method and the list one, P=.178>.05, very close to the significant level). Comparatively speaking, result for delayed test 2 proved to be of great significance for vocabulary teaching either from the perspective of test time (four weeks later after the teaching interference) or test difficulty (including the productive knowledge of vocabulary).

4.2 Reasons for the Results

4.2.1 Modal Theory

Gu (2007, p.3) discussed about multimodal learning and believed that as one of the factors that affected learning, modal referred to the means via which man, with the help of their sense organs, interacted with the outside environments such as people, objects and animals. After he had examined young children's learning, Gu pointed out that the experiential learning was effective and efficient via interaction with visual and video materials and turned out to be the crucial learning method for language learning. Weyers (1999, p.347) found that when activated by visual and video materials, learners could significantly improve their own ability of understanding the target language. Zhang (2009, p.15) summed up various roles of multi-modals in language teaching, including, repair, consolidation, attracting learners' attention and expressing their feelings, etc. which made it possible for the relevant information to be easily understood and accepted by learners and avoid ambiguous and indefinite understanding.

Compared with the pure written description, the intuitive imagery, picture, audio and video could more vividly present relevant information, in particular the contents that are beyond description. The picture method in this research had no significant advantages with regard to the learning of the receptive knowledge of concrete words but proved to be superior regarding the productive

knowledge of concrete words simply because picture could present the visual imagery form that written definition could not present or activate. The visual imagery that is closely related to concrete nouns are merely static objects while the use of vocabulary often involves the actual usage of objects. In this experiment when the word 'generator' was presented via picture method, an English video about the operation principles of generators was played. Compared with the written definition (a generator is a machine which produces electricity), the video not only allowed the learners to clearly see the appearance of a generator, but also become aware of its operation principles, which without doubt promoted the correct and flexible output of the word 'generator'. In addition, pictures also made up for the information imagery such as collocations missed in adjectives' written definition and extended meanings so as to improve learners' production ability of adjectives. For example, in this research the adjective 'muted' was defined as 'muted colors are soft and gentle, not bright and strong' in written English, but in reality 'muted' could also describe sound and music, etc. Picture method respectively provided the contrast pictures of 'soft color' and 'strong color' and the audio material of 'soft music' and 'loud music', improved learners' ability of understanding and using the word 'muted', which in a sense explained why there were no significant differences between the effects of list method and context one with respect to the obtaining of the receptive knowledge of adjectives while picture method turned out to be significantly better than list method regarding the acquisition of their productive knowledge.

4.2.2 Condition Limitations for L2 Learning

Picture method helps overcome the two limitations in L2 vocabulary teaching. *Firstly*, limitation from teachers. As EFL teachers in general were non-native speakers of English, there might be something wrong with the oral explanations themselves provided by the teachers in vocabulary teaching so that they became one part of the L2 input with low quality (Zhang & Wu, 2003, p.375). At the very beginning such input was doomed to being one of the resources for L1 transfer and even errors for L2 learners in the use of EFL vocabulary (Zhang & Wu, 2003, p.376). If picture resources were used, there was no need for teachers to completely depend upon the language, which might decrease teachers' L2 input with low quality as well as learners' errors in their L2 acquisition.

Secondly, limitation from learners. L2 learners have already created a conceptual system that was closely related to L1 vocabulary system which will automatically build a bridge connected with the understanding of L2 vocabulary by means of translation (Zhang & Wu, 2003, p.380). There are two disadvantages to understand L2 with the help of L1. On the one hand, the response is slow. The original match of symbol-concept becomes from 'L2 symbol' to 'L1 symbol' and to 'thing or concept that L1

symbol refers to'. On the other hand, spelling-meaning match may be wrong or incomplete. In teaching practice, the researcher compared the different teaching effects of the definition and picture presentations on the word 'wavy' and found that students in general would merely associate the definition (a. wavy hair grows in waves; b. a wavy line is smoothly curved) with 'curly hair' or 'the zigzag scratch left on the ground of a courtyard by broom' with the help of the context in the passage. Picture presentation, however, could help students tell the differences between 'wavy hair' and 'ringlet or kinky hair' and know that besides curly hair, 'wavy' could be used to describe the steps like water waves, flags that waved with the wind, the winding lines on the knitted scarf and also ornaments with winding lines and made of glass, wood and iron. In other words, picture method could effectively help L2 learners decrease their dependence on L1 and acquire the target words accurately, concretely and in an all-around way.

4.2.3 Advantage of Context for Picture Method

Herman and Dole once distinguished between teaching context and natural context and pointed out that it was efficient to teach vocabulary in teaching context. The point was that after all such man-made virtual context did not conform to the authentic principles of language, and in a sense prevented students' from becoming autonomous learners of vocabulary. In addition, natural context could activate students' known stored knowledge and help promote the internalization and absorption of vocabulary knowledge, but it took too much time (Lu, 2001, p.32). The list and context methods in this research were equal to teaching context and natural one. Picture method in a sense could overcome the disadvantages of the context absence of list method and the inefficiency of context method and help learners create authentic context and quickly acquire vocabulary via large amount of vivid and concrete objects. There was no doubt that it was a great challenge to look for appropriate picture resources. Nevertheless, scholars have already proposed the creation of virtual context, or to create systematic virtual reality in the context of EFL learning via plentiful video materials, construct video data and provide supplemental teaching materials in the virtual context of target language for the compiling of teaching materials so as to promote the teaching of target language (Liu, 2008, p.70).

CONCLUSION

This study discussed about the effects of word presentation modes in the context of classroom via Latin Square Design Experiment. Results revealed that there were no significant differences between the effects of list method, picture/animation/imagery method and incidental context upon vocabulary learning and short term memorization. Effect of the three presentations on long term memorization lied in the differences between

receptive and productive knowledge acquisition, and also acquisition of words with different parts of speech. All in all, however, picture method had significant effect on vocabulary memorization and production while there were no significant differences between list method and context method.

There might be some implications for the above results. Although list method was doubted, it was of great value due to its accurate explanation, authoritative instances and high efficient transmission. Picture/cartoon/image method broke through the limitation of pure text presentation and greatly improved the effect of vocabulary teaching. L2 target words in general come from textbooks, which highlights the importance of incidental context presentation and has elicited continuous attention on how to make the most out of the context provided by texts so as to promote the research of vocabulary acquisition. In vocabulary teaching, teachers should not only teach students learning strategies, but also appropriately choose the above methods so as to help students take in, store up and consolidate the target words and realize the transition of passive vocabulary (receptive vocabulary) to active vocabulary (productive vocabulary).

There are also certain limitations for this research. For example, the passages chosen merely included narrations and descriptions, and the parts of speech for target words were not evenly distributed, which need to be improved in future relevant researches.

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