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Effects of Two Vocabulary Instructional Methods: Contrasting and Separating Orthographically Similar Words

Ziqian Zhou[1,a,†] , Yiting Zhuang[1,b,*,†]

[1]*Faculty of Humanities and Social Sciences, BNU-HKBU United International College, 2000 Jintong Road, Zhuhai, Guangdong, 519087, China*
a. q030025139@mail.uic.edu.cn, b. q030025142@mail.uic.edu.cn
**corresponding author*
[†]*These authors contributed equally.*

Abstract: While Chinese EFL learners memorize vocabulary items, they may encounter some words that are similar in semantics, orthography, phonology, and so forth. Studies have conducted research on whether the similarity of vocabulary would facilitate or hinder students' learning outcomes. While most scholars found that learners can perform better when they memorize similar lexis than learning unrelated sets, i.e., dissimilar words. This research compares two ways of giving students instructions about orthographically similar English vocabulary. A total of 52 university junior students participated in this study. Pre-test, immediate, and delayed post-test were conducted for examining students' learning outcomes. Results demonstrated that instructions with a highlight on contrasting the nuances of orthographically similar words impede students' retention performance compared with those in the control group who were instructed without emphasizing the similarity and nuances of the words. Although the result may not generalize to all EFL contexts, it provides significant pedagogical implications to teachers and other educational practitioners. It is suggested that emphasizing the nuances of orthographically similar words is less effective for students' vocabulary learning than without the emphasis. Students should be encouraged to explore and find out the similarity and nuances of orthographically similar words by themselves rather than being told by teachers.

Keywords: similar vocabulary, EFL, vocabulary learning, retention, instruction

1. Introduction

The study of vocabulary composes an important part of the learning of a second language since students' limited load of vocabulary will influence their language abilities in reading, listening, speaking, and writing [1]. While learning and memorizing new vocabulary items, students may encounter some words that are similar either in semantics, phonology, orthography, or other aspects. Baxter et al. considered the similarity between vocabulary items as a double-edged sword for students learning a second language (L2), meaning that the similarity could either facilitate or confuse language learners [2]. Thus, it is crucial for teachers to design their instructions for teaching vocabulary to minimize the sub-effects and take the biggest advantage of the similarity between words. For designers of second language learning materials, it is important to introduce similar items with appropriate instructions. Therefore, the research question is 'Which instructional strategy is

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more effective to teach orthographically similar vocabulary, by teaching the similar words in pairs or separately?'

This paper investigates the effects of different vocabulary instruction methods on memorizing orthographically similar words. In the experiment, students are invited to learn orthographically similar vocabulary items under two kinds of instructions, one of which is designed with an emphasis on the contrast of the nuances between similar words and the other instruction avoids showing students the similarity but separated those pairs of similar words. Pedagogical implications suggest language teachers assign tasks for students to learn orthographically similar words but without giving explicit instructions. Rather, students should be encouraged to explore the similarities and nuances between words by themselves and thus facilitate their learning outcomes.

2. Literature Review

EFL learners may make errors in their vocabulary retention when they come across similar vocabulary items. The similarity of words can sharpen the boundaries between vocabulary items in students' perception, their comprehension of lexical representations, i.e., mental representation at the word level, is imprecise at the beginning [2]. Moreover, Laufer mentioned the definition of "synforms" which represents the similar forms of vocabulary that are categorized by phonologic, graphic, and morphological characteristics, resulting in learners' confusion during vocabulary learning [3].

Many scholars then conducted experiments on whether the variables, such as orthographical and semantic similarity would affect the retention of English vocabulary and explored the pedagogical implications as well. It has been widely approved by research that similarity between words can either help or impede students' learning outcomes [2-8]. Some mention that if students study many similar words at one time, they will find that many features of the words are almost the same, which influences the outcomes of memorization and identification [7,9].

2.1. Semantic Similarity

Studies focusing on semantically similar words have reached conflicting results [2]. Some studies found semantic similarity of words will also increase the difficulty of memorizing [8, 10-12]. For instance, Erten and Tekin proved that students' vocabulary learning may be hindered if they were required to memorize new words in semantic sets, compared to those in semantically unrelated groups [10]. Studying synonyms, antonyms, and hyponyms makes students confused, as they need to make more effort and devote additional time to memorize [10]. While other research found opposite results, which indicated that the similarity of semantics could be even facilitatory. For example, Tinkham [8] found that compared with unassociated words, memorizing words that are associated with a theme, i.e., words that usually co-occur, could promote students' learning outcomes.

2.2. Orthographical Similarity

Contemporary research on students' learning of orthographically similar words also shows different results. While Llach found orthographic synforms as a reason for confusing learners, Lally et al. discovered that anagram words, which are similar words composed of the same letters but different orders, could be remembered more precisely than dissimilar ones [5-6]. Baxter et al. found that participants who contrasted orthographically similar words recalled more of those words on delayed tests [2]. Based on their research, it is concluded that contrasting underspecified representations increases language learners' concentration on the information of lexis and enables them to contrast the underspecified representations, which could serve as a mechanism of students' learning that draws attention to the information of relevant lexis. Hence, it will enable language learners to identify the representations lexis of similar words, which is conducive to their learning. However, according to

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the very recent statement by Baxter et al., research on how within-language similarity influences second-language learning is still lacking [2].

3. Method

3.1. Participants

The participants were Year-3 university students at BNU-HKBU United International College. Most of the participants are from the English Language and Literature Studies (ELLS) Programme and they have got an IELTS band score of 6-7, indicating that their English proficiency is from B2 to C1, which is assessed by the Common European Framework of Reference (CEFR). The participants' first language (L1) is either Chinese or Cantonese and their second language (L2) is English.

3.2. Experiment Design

The experiment consisted of 4 sections, including a vocabulary pretest, an instruction on the vocabulary, an immediate test, and a delayed test after 10 days. All the tests were designed to be the same in which the questions of words are randomly sequenced as multiple choices with a correct option, a deceptive option, and the option 'I don't know'. The vocabulary test is composed of 30 words. The words in the test were also the words in the instruction for the participants to learn, which were selected from the book *Conquering confusing words in English* in which Sun (2010) complied the most orthographically similar words that students may be confused with. In this research experiment, the only independent variable is the way of instruction to participants between the experimental group and the control group. The dependent variable, students' retention of the words, is reflected by the score of participants' immediate and delayed post-test. The sample quiz can be accessed from Appendix 1.

3.3. Procedures

First, the students in each group were required to finish a pre-test as an evaluation of their background knowledge of the words. Then, both groups were instructed on the target words with Chinese translation. Each pair of orthographically similar words in the experimental group was taught together on one page of PowerPoint with an emphasis on nuance *(see Appendix 2)*. The words for the control group are the same ones as those presented in the experimental group, but they were shown in a random order rather than in pairs, without highlighting the similarity and nuance *(see Appendix 3)*. After the instruction, students in both groups were also given a vocabulary list for 3-minute free memorization. While for the experimental group, the words were shown in pairs *(see Appendix 4)*, and for the control group, words were in a random sequence *(see Appendix 5)*. Right after memorizing those words, participants in both two groups were required to do the immediate test, in which the questions were the same as those in the pre-test. After 10 days, students were required to finish a delayed post-test for checking their long-term retention. All the tests were designed to be the same, including 30 multiple-choice questions for 30 target words, namely, 15 pairs of orthographically similar words.

4. Results

To minimize the influence of the extraneous variables, the authors eliminated the data from 8 students so that the left 44 samples were all from students in undergraduate Year 3.

According to a student's T-test of the participants' score of pre-test, (Table 1), it is found that there is no significant difference in the background knowledge about the 30 words between the two groups

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of students. The experiment group has a mean score of 20.250 out of 30 and the mean score of the control group was 19.091.

Table 1: The Score of the Experimental Group.

	Average	St. D
Pre-test	20.250	4.839
Immediate	26.833	2.854
Delayed	25.167	3.595

Table 2: The Score of the Control Group.

	Average	St. D
Pre-test	19.091	5.291
Immediate	27.273	2.394
Delayed	25.682	2.378

Table 3 displays the results of three student's T-tests. The first student's T-test checks the difference in prior knowledge between the two groups of the thirty target words, and the result shows that there is no significant difference between the two groups. The second student's T-test examines students' short-term learning outcomes by calculating the growth of scores from the pre-test to the immediate post-test. As shown in Table 1 and Table 2, the mean of the immediate post-test in the experimental group was 26.833 while the mean of those in the control group was 27.273. Regarding the short-term learning outcome of each person, Table 3 demonstrated a student's T-test examining the difference between the two groups. The result of the T-test shows that there is an 87 percent of confidence to prove the significant difference between the experimental group (M=26.833, SD=2.854) and the control group (M=27.273, SD=2.394) for their short-term learning outcome, t=1.1747, p=.1232. Students in the control group performed better than students in the experimental group. For learning outcome of long-term retention is reflected in the scale of increment in scores between the pre-test and the delayed post-test. As shown in Table 3, there is 90 percent confidence affirming a significant difference between the experimental group (M=25.167, SD=3.595) and the control group (M=25.682, SD=2.378) for their long-term retention, t=1.3211, p=.0967. Students in the control group had longer vocabulary retention compared to those in the experimental group.

Table 3: Test Content and Result.

Test Content	Student T-test	Degree of Freedom	P-value
Difference of Background Knowledge Between Experiment and Control group	0.7762	44	0.4418
Difference of Short-term Memory Between Experiment and Control group	1.1747	44	0.1232
Difference of Long-term Retention Between Experiment and Control group	1.3211	44	0.0967

5. Discussion

Both the immediate and delayed post-test have shown that participants in the control improved more than the students in the experimental group, which indicates that students who learn orthographically similar words separately can have better retention than those who learn them together. As the findings

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by Llach, the orthographic synforms are the factors that confuse learners when identifying and memorizing words [6]. The reason why the control group had a better performance than the experimental group could be inferred from the instruction in the experimental group, which contained the contrast of similar words that confused the students. The experimental group was instructed with PowerPoints in which the nuances of every two similar words were highlighted in red contrastively, while similar words in the instruction given to the control group were randomly sequenced not on one page and without emphasis on the nuances. Thus, even though there were more efforts made in the experimental group for emphasizing the nuances to students, they still could not remember the words as well as those with the instruction that avoided contrasting orthographically similar words.

In the current study, the worksheets for the students to memorize the vocabulary were taken back and the students' notes were observed. It is found that many students in the control group matched the separated similar words on the worksheet by themselves, which means although the instructor did not mention the similarity between some words, the students can explore the similarity and nuances by themselves. Based on the findings by Lally et al., students could memorize anagrams more accurately than dissimilar words [5]. The result of the current study suggests that teachers should avoid giving overmuch instruction for the similarity of words. Instead, students should be given opportunities to explore the similarities and nuances between orthographically similar words by themselves. Otherwise, the overmuch input from the teacher would bring negative effects that lead to confusion.

Pedagogical implications to future teaching strategies include that teachers are not suggested to emphasize similar forms of vocabulary. Language teachers can provide students with similar words to memorize as tasks. However, overmuch instructions are counterproductive, such as the emphasis on the similarity and nuances between similar words. Instead, teachers should encourage students to explore and discover the similarities and nuances by themselves while memorizing the words, which could facilitate their short- and long-term retention outcomes. Future studies are suggested to investigate the students' perceptions of their experience of memorizing similar words either with or without teachers' explicit instruction.

Although results showed insightful findings of vocabulary learning strategies, limitations are represented in this study. Firstly, the size of the sample is not large enough, which means the result may not well generalize the students in other EFL contexts. Secondly, the authors only focused on the effectiveness of memorizing orthographically similar vocabulary, ignoring the influence of phonologically similar words. As evidenced by Meade, there is a positive correlation between phonological memory and orthographic vocabulary learning, which means that students with advanced phonological competence have better abilities to memorize the spelling of the target lexical words, and vice versa [13]. Therefore, further study should take phonological skills into consideration. Thirdly, since the participants have known most of the words' meanings in the pretest, the difference in improvement due to different instructions between the two groups cannot be significant as expected.

6. Conclusion

This study lies in examining the effectiveness of two kinds of vocabulary instructions by contrasting orthographically similar words. Results of the present research demonstrated that contrasting orthographically similar vocabulary would hinder students' vocabulary learning, resulting in students' confusion when comparing orthographically similar words. In this research experiment, the control group showed higher academic performance than the students in the experimental group in both the intermediate and the delayed post-test, which indicated that students in the control group had better short-term retention and long-term retention of the target words compared to the experimental group. These findings further illustrated the ineffectiveness of overmuch instruction in teaching orthographically similar words, which would contribute to confusion among students. Hence, it gives

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inspiration for teachers and educational practitioners to teach orthographically similar vocabulary without much emphasis on the similarity of lexical pairs.

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Appendix

[1] Sample Test for Pre-test, Immediate Test, and Delayed-post test: https://ks.wjx.top/vm/r89TT5p.aspx
[2] Powerpoint for Experimental Group: https://kdocs.cn/l/cjtdAXGOz5mI
[3] Powerpoint for Control Group: https://kdocs.cn/l/cgPy8HiuEGyw
[4] Worksheet for Experimental Group: https://1drv.ms/w/s!AvIK8FWJs5KRgh-Ct-Rlh2AefXrl
[5] Worksheet for Control Group: https://kdocs.cn/l/chJQjTBm0skH