The Influence of Different Forms of Lexical Annotation on the Incidental Vocabulary Learning of Chinese Students based on Multimedia Technology

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Abstract. The development of multimedia technology makes English learning more and more simple. This paper mainly studies the influence of four different annotation forms, namely Chinese, English, Chinese + pictures and English + pictures. The results showed that the Chinese annotations were more effective than the English annotations in promoting incidental vocabulary learning. The combination of text and picture annotation is more conducive to incidental vocabulary learning than the textonly annotation. Among the four kinds of annotations, the combination of Chinese and pictures is the most effective for incidental vocabulary learning. Those with higher English proficiency are significantly better than those with lower English proficiency in using annotations to learn vocabulary and maintain word memory.

Keywords: Multimedia environment, Annotation, Vocabulary learning, Impact

1. The introduction
Comment is referring to the bilingual study, in order to promote reading comprehension and definition of unfamiliar words or explain, usually located in the margin or the bottom of the page, the form of annotation is no longer limited to the text form, but becomes more diversified and visual, such as using animation or video annotation, adding sound in the annotation and so on. This makes comments easier to control, easier to use, and easier to read coherently [1-3].

However, the existing research still has the following deficiencies:
1) The results of similar studies are quite different and there is no consensus on a certain issue. While native language annotations are more effective for lower level learners. What kind of annotation can promote incidental vocabulary learning is worth further study.
2) There is a lack of research on combinatorial annotation in the multimedia environment. The testing tool is also flawed in that it does not consider the use of words in tests that write the meaning (the meaning of the target word in English or in the native language) and identify definitions (choose from four options to match the definition of the target word). However, the identification definition test adopts the form of multiple choices, which will lead to random guessing, thus affecting the test validity.

Therefore, such as which language is adopted, in what environment, in what form and at what level of learners. These four annotation forms include: Chinese annotation, English annotation, Chinese +...
picture combination annotation and English + picture combination annotation.

2. The problems studied in this paper
This paper mainly studies three problems:
1) Do Chinese annotations and English annotations have different impacts on incidental vocabulary learning?
2) Does the combination of words and pictures have different effects on incidental vocabulary learning than pure words?
3) Do annotations have different effects on incidental vocabulary learning for learners with different English levels?

3. Research methods

3.1. Research object
The subjects were first-year non-English major undergraduates who had just entered a college, and they were divided into ordinary classes and experimental classes according to their college entrance examination scores and placement test scores [4-7]. We selected a total of 104 students from each large class in the ordinary class and the experimental class, including 53 students (30 males and 23 females) in the ordinary class and 51 students (19 males and 32 females) in the experimental class.

3.2. Research design
According to the annotation classification standard of Segler(2001), we randomly divided the 24 target words in the reading materials into 4 groups, with 6 target words in each group. The four groups of words respectively adopt four different annotation forms, namely Chinese annotation, English annotation, Chinese + picture combination annotation and English + picture combination annotation. The reading materials are made into multimedia with a flash, and the target words are highlighted. When the mouse cursor moves to the target word, the comments of the target word appear around; When the target word is removed, the comment disappears. The English or Chinese explanations in the notes refer to the international authoritative dictionaries, and try to reduce the length of the text, because if the text is too long, it will increase the memory burden of the subjects and affect the test results. Pictures are found on the Internet according to the meaning of the target word. All subjects completed the same reading task and were exposed to all four notes.

3.3. Test materials
The reading material for the test was Grimm's fairy tale the seven ravens. There are 936 words in this article, 95% of which are in the range of 1000 to 2000 words in common use.

The English teacher of the experimental class selected 41 difficult words (excluding proper nouns) from the text, and asked the students of another experimental class who did not participate in the formal test to write down the Chinese or English definitions of these words, and selected the test target words according to the following criteria:
1) Words that more than 5% of students know are not considered;
2) Words that are easy to guess meaning from root or affix are not considered;
3) include both the easiest nouns to learn and the most difficult verbs and adverbs to master;
4) Only consider the words that appear only once in the text, so as to exclude the influence of frequency factor.

Finally, a total of 24 target words were selected, including 10 verbs, 10 nouns, 3 adjectives and 1 adverb. Then, we use words in the range of 1000-2000 to replace other difficult words other than the target words in the paper, so as to avoid the interference of other difficult words and affect the research validity.
3.4. Testing tools and scoring
The vocabulary test consists of two tasks: one is to distinguish meaning (hereinafter referred to as "meaning") and write the meaning of all 24 target words in Chinese or English; The second is the choice of words to fill in the blanks (hereinafter referred to as "fill in the blanks"). Which test participants identify the ability of word meaning, according to the context is divided into two groups, each group of 10 sentences, choose one from 12 candidate words, and in the blanks with proper form to fill in the corresponding sentence, each word can be used only once, at most two groups need to fill in the total 20 words (the 20 words according to the four kinds of comments from 24 target word form stratified sampling to select).

4. Results and analysis
In order to investigate the influence of language and pictures on incidental vocabulary learning, we first carried out 2(Chinese, English) ×2(with pictures and without pictures). The results are shown in table 1:

| Control content | Pre-test |  | Post-test |  |
|-----------------|----------|----------------|----------|
| Group           |          | Test group | Control group | Test group | Control group |
| The average score | 2.780 | 2.540 | 3.24. | 3.050 |
| Standard deviation | 0.474 | 0.497 | 0.427 | 0.438 |
| T value | 0.986 | 1.508 |
| P value | 0.325 | 0.117 |

The data in table 1 shows that the post-test has been improved compared with that in the pre-test. In this dimension, and the English learning ability of all subjects was improved to different degrees after the experiment.

Table 2. Professional t test of different factors for arts students and science students.

| College | Average value | Standard deviation | t       | P      |
|---------|---------------|---------------------|---------|--------|
| Test group |               |                     |         |        |
| Science student | 16.556 | 1.991 | 0.98 | 0.327 |
| Liberal arts student | 16.808 | 2.423 | 1 |  |
| Control group |               |                     |         |        |
| Science student | 23.087 | 2.822 | 0.57 | 0.564 |
| Liberal arts student | 23.286 | 2.992 | 8 | |

And the data in table 2 can show that the subjects in the experimental group showed a large improvement. The students in the experimental group generally hold a positive attitude towards English learning teaching, which indicates that the practice of English learning teaching can arouse the interest and enthusiasm of non-English majors in English learning, stimulate their innovative thinking and critical thinking ability, and effectively improve the English learning ability of non-English majors.

Table 3. Cranach turning coefficient of the degree of questionnaire conformance.

| Cranach’s Alpha | Cranach’s Alpha Based On Standardized Items | N | of |
|-----------------|---------------------------------|----|----|
| 0.708           | 0.716                            | 25 | |

Through the table 1 and table 2, table 3 comparison and analysis, thus, after systematic learning and training, the experimental group subjects students are learning to master English in basic procedures and steps, learned to analyze the grammatical structure of the original, and learned some English learning professional knowledge, bilingual ability and language ability significantly improved, English learning ability are improved to some extent.

5. Conclusion
This study shows that annotation can promote vocabulary incidental learning and word retention, which has a positive guiding effect on vocabulary learning and is also a problem that should be seriously considered when compiling textbooks and reading materials. In this study, when the subjects
received the double stimulation of words and pictures, the annotated information could be connected in many aspects, and the vocabulary memory would be more profound. Therefore, in vocabulary teaching, while paying attention to the role of annotations in incidental vocabulary learning, teachers should adopt different guidance methods according to the individual differences of students to meet the needs of students at different levels. In addition, teachers should pay attention to the review and consolidation of new words, consciously activate learned words; promote the memory of words, which is more important for students with lower English level.

References
[1] L. Mao, Y. Zhang. Research on the influence of computer hypermedia annotations on incidental vocabulary acquisition in English reading[J]. International Journal of Emerging Technologies in Learning, 2017, 12(8):95-104.
[2] Shaban Barimani Varandi, Faezeh Faezi. The Role of Dimensions of Lexical Repertoire in Reading Comprehension and Incidental Vocabulary Acquisition[J]. Theory & Practice in Language Studies, 2013, 3(11):19-26.
[3] Cakmak, Fidel, Ercetin, Gulcan. Effects of gloss type on text recall and incidental vocabulary learning in mobile-assisted L2 listening[J]. Recall, 30(PT.1):24-47.
[4] Ertürk, Zeynep ?zdem. The Effect of Glossing on EFL Learners? Incidental Vocabulary Learning in Reading[J]. Procedia - Social and Behavioral Sciences, 232:373-381.
[5] YANG Lin, HE Fang. Elastic Management of Land Use in Urban-rural Fringe Based on Principles of Dissipative Structure[J]. Scientia Geographica Sinica, 2007.
[6] WANG Hui. The Effects of Captions on Chinese EFL Students'Incidental Vocabulary Acquisition[J]. Media in Foreign Language Instruction, 2005.
[7] Liu J. The effects of glossing on incidental vocabulary learning through reading-based oral tasks[J]. 2018, 8(3):221-241.