

**THE USE OF SEMANTIC WORD MAPPING IN
VOCABULARY TEACHING**

RESEARCH ARTICLE

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THE USE OF SEMANTIC WORD MAPPING IN VOCABULARY TEACHING

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Abstract: The research investigated the use of semantic word mapping technique in vocabulary teaching. The research investigated the evidence that this technique was useful to use in vocabulary teaching. The researcher formulated two hypotheses, namely null hypothesis and alternative hypothesis. The research method was a pre experimental research with one group pre-test and post-test design. The sample of the research was 32 out of 40 students of class VIII E. The data were collected by objective tests and analyzed by paired t-test and effect size formula using Cohen's index. After analyzing the research data, the null hypothesis (H_0) was rejected, while alternative hypothesis (H_a) was accepted. The t absolute (4.16) was bigger than t critical (1.697) by degree of freedom 31. The effect size is categorized as large effect since the r value was 0.95 that was bigger than 0.80. The conclusion was the use of semantic word mapping in vocabulary teaching, a pre-experimental study on the eighth grade students of SMP Negeri 5 Pontianak in Academic Year 2015/2016 was significant and has large effect.

Key words: Semantic Word Mapping, Vocabulary Teaching, Vocabulary Meaning

Abstrak: Penelitian ini menginvestigasi kegunaan tehnik Semantic Word Mapping dalam pengajaran kosakata. Peneliti merumuskan dua hipotesis, yaitu hipotesis nol dan hipotesis alternative. Metoda penelitian yang digunakan adalah penelitian pre eksperimen dengan satu grup pre-test dan post-test. Sampel penelitian ini adalah 32 siswa dari 40 siswa kelas VIII E. Data diperoleh dengan menggunakan objektif tes dan dianalisis menggunakan uji-t berpasangan dan ukuran efek menggunakan rumus indeks Cohen. Setelah menganalisis data penelitian, hipotesis nol (H_0) ditolak, sedangkan hipotesis alternatif (H_a) diterima. Nilai t hitung (4.16) lebih besar daripada t tabel (1.697) dengan derajat kebebasan 31. Ukuran efek dikategorikan sebagai efek besar karena nilai r nya adalah 0.95, lebih besar dibandingkan 0.80. Kesimpulannya adalah penggunaan tehnik Semantic Word Mapping dalam pengajaran kosakata, sebuah penelitian

pre-eksperimen pada murid kelas 8 SMP Negeri 5 Pontianak pada tahun akademik 2015/2016 adalah penting dan sangat efektif.

Kata Kunci: Semantic Word Mapping, Pengajaran Kosakata, Makna Kata

Vocabulary is a requirement to create sentences in language learning. They pay an important role. Therefore, to acquire a new language, the first thing to do is learning the vocabulary. Wilkin cited in Sanusi (2009) claims that without vocabularies, speakers cannot convey the meaning and communicate with each other in a particular language.

The significance of vocabulary has been stressed in any curriculum, but teachers often do not give it the weight it deserves (Klink & Loveland, 2015). When teachers teach English for earlier level, they need to teach vocabulary. It can enhance their second language acquisition. In a specific explanation, vocabulary divides in to some categories; one of them is vocabulary meaning. Students cannot understand a language if they do not have knowledge of vocabulary meaning. In addition, it is important to recognize words in order to understand a language. It is realized that words in English are very different from words in Bahasa Indonesia in term of forms, sounds, and meanings.

Unfortunately, most teachers fail to introduce vocabulary. They do not know what the best method to teach vocabulary meaning, while teaching English as a foreign language requires the use of effective learning method. According to Richards and Rodgers cited in Brown (1994), they state that virtually all language teaching methods make the oversimplified assumption that what teachers do in the classroom can be conventionalized into a set of procedures that fits all contexts. Brown (1994) says, “techniques are the specific activities manifested in the classroom that are consistent with a method and therefore in harmony with an approach as well.”

One of best technique relate to this phenomenon is semantic word mapping. This idea did not come by itself, but it was inspired by plenty past researches. Ng'ang'a (2003) in his research attended on a semantic analysis using self-organization map. He has proved that concept map is useful to teach students semantic course. That is why it is possible to focus on the same subject with different feature of map. Self-organizing map features the use of color-based area, where semantic words mapping emphasize the relationship of key words in form of pictures. Furthermore, Cain, (2001) attempted on a study conducted at Newchurch Community Primary School in Warrington showed a variety of improvements in pupils' learning after Mind Mapping was introduced. Evidence includes improved concentration, staying on task for longer periods of time, improved questioning and answering during class discussions and improved independence. Not only that, a research by D'Antoni & Pinto Zipp (2005) found that, from a pool of 14 physical therapy students, 10 out of 14 agreed that the Mind Map technique enabled them to better organize and integrate the material presented in their course. Based on those couple of past researches, both have proven the benefit of using mapping strategy. It improves concentration and understanding, but in larger subject like a course, not in a small part of course like vocabulary.

Semantic word mapping is a technique in vocabulary teaching that uses the graphic organizer to describe the words in context. It also refers to WordNet and Cyc. Semantics is considered as a property of language, whereas meaning is often

defined in terms of use and thus, semantic mapping is persuasively usable to teach words meaning in new languages. Thornbury (2002) says, "Acquiring a vocabulary requires not only labeling but categorizing skills". Semantic word mapping is a good technique to teach students the meaning of vocabulary by organizing the words in context, since the purpose of semantic word mapping is not only to understand the meaning of the words, but more about to understand how to relate the words to other.

METHOD OF RESEARCH

In accordance with the problems, the appropriate method to use in this research was pre-experimental design or single group pretest and posttest design. To experiment means to actively change x and to observe the response in y (Moore & McCabe, 1993). This design is written $O_1 \times O_2$, which indicates a pretest is given to all subjects; they are given the experimental treatment and the posttest. The writer has applied a pre-experimental design, which the finding data were described based on the substantive matter of the research purposes and there was only one group as experiment group that been given pretest and posttest.

Population

The population of this research was the eighth grade students of SMP Negeri 5 Pontianak in year 2014/2015. There were four classes of this grade; VIII A, VIII B, VIII C and VIII D with around 40 students of each class. Therefore, the total population of this research was 160.

Sample of Research

Sample is a small proportion of the entire population. Concerning this, the writer selected one class of the cluster of population as the sample of this research. Cluster sampling can be considered a more specific type of stratified sample. Regarding with the design of this research, the writer has chosen the group of experiment by selecting one class that was categorized as the lowest vocabulary mastery class among the others by having a consultation with the teacher at the school. After applying this sampling technique procedure, VIII D was selected as the sample of this research which consisted of 36 students.

Procedures of Collecting Data

1. Try out
 - a. Selecting the students as the participant of the try out
 - b. Conducting try out
 - c. Analyzing the test item (Level of Difficulty and Discriminating Power)
 - d. Analyzing the Coefficient Reliability of the test
 - e. Concluding the result of try out
 - f. Conducting the next try out (if necessary) as the revision of the test items.
2. Pretest and Posttest
 - a. Conducting the pre-test

- b. Scoring and tabulating the results of pretest
- c. Conducting the treatment activities.
- d. Conducting the post-test
- e. Scoring and tabulating the post-test
- f. Analyzing the score results of pre-test and post-test
- g. Concluding the results of research findings

Technique of Collecting Data

The writer provided the measurement technique with testing equipment to measure the students' vocabulary mastery. The used instrument to collect the data was a test. The writer has used the objective test as tool of collecting data. The objective test consisted of defining the meaning of words, which arranged in multiple choices.

The test becomes less valid as a measurement of advanced addition because as it addresses some required knowledge for addition, it does not represent all of knowledge required for an advanced understanding of addition. The knowledge requirement of this research is interpreting the words/phrases based on the context of the semantic word mapping that students make. Therefore, testing should occur with vocabulary items that are controlled for familiarity, length, and associative features (Macedonia, 2015). To have clear description on the validity of the test in accordance with the purpose of this research, the writer has given the specification of the test of vocabulary building as follows:

Table 1
Table of Specification

Objectives	Questions Number	Total Items
Referring the Meaning	No. 1,4,6,11,13	5
Synonym	No. 5, 7,10,18,20	5
Antonym	No. 8,14,15,16,17	5
Guessing From Context	No. 2,3,9,12,19	5
Total		20

Table of specification is needed before the test is given. It sometimes referred to as test blue print and is a table that helps teachers align objectives, instruction and assessment (Alade&Omoruyi, 2014).

Technique of Data Analysis

Technique of data analysis is necessary in order the results of test related to the problems of this research. There were two analyses employed by the researcher, they were:

T-test analysis

1. Difference of the mean score of post-test and pre-test

$$\mathbf{Md} = M_2 - M_1$$

Legends:

Md = Mean difference score of student

$\sum d$ = Sum of difference score of students

N = Number of student

2. Standard Deviation

$$\mathbf{SD} = \sqrt{\frac{\sum d^2 - \frac{(\sum d)^2}{N}}{N - 1}}$$

Legends:

SD = Standard Deviation

$\sum d$ = a sum of difference score

N = Number of student

3. t-test

$$\mathbf{t} = \frac{\mathbf{md}}{\mathbf{SD} \sqrt{\frac{1}{N_2} + \frac{1}{N_1}}}$$

Legends:

t = t-test

Md = mean of difference score

SD = Standard Deviation

$\sqrt{\quad}$ = The root of

N = Number of student

Effect Size

After having y-value, the writer analyzed the effect size. The effect size is just the standardized mean difference between the two variables. It is useful because it provides an objective measure of the importance effect. There are many ways to obtain the effect size, for example, Pearson's correlation, regression, annova, and Cohen's index. The researcher has used Cohen's index that was formulated as follow:

1. Cohen's Index Formula

$$\mathbf{d} = \frac{M_1 - M_2}{\sqrt{\frac{SD_1^2 + SD_2^2}{2}}}$$

Legends:

M1 = Mean of first observation.

M2 = Mean of second observation.

S1 = Standard deviation of pre-test.

S2 = Standard deviation of post-test.

2. Effect Size Formula

$$r = \frac{d}{\sqrt{d^2 + 4}}$$

Legends:

d = Cohen's index

r = Effect-size coefficient.

However, the result determined how far the effect size was. According to J. Cohen cited in Becker (2000, p. 3), He categorizes the result as 0.2 for small effect, 0.5 for medium effect, 0.8 for large effect.

RESEARCH FINDINGS

The use of semantic word mapping in vocabulary teaching, a pre-experimental study on the eighth grade students of SMP Negeri 5 Pontianak in Academic Year 2015/2016 was significance.

Table 2
The Difference of Students' Pre-Test and Post-Test Score of Experimental Group

No.	Code	Score		d	d2
		Pre-Test	Post-Test		
1	Student 1	25	55	30	900
2	Student 2	50	50	0	0
3	Student 3	35	50	15	225
4	Student 4	60	65	5	25
5	Student 5	20	20	0	0
6	Student 6	40	50	10	100
7	Student 7	30	65	35	1225
8	Student 8	50	65	15	225
9	Student 9	45	60	15	225
10	Student 10	30	70	40	1600
11	Student 11	50	55	5	25
12	Student 12	40	25	-15	225
13	Student 13	30	40	10	100
14	Student 14	35	75	40	1600
15	Student 15	40	80	40	1600
16	Student 16	25	25	0	0
17	Student 17	30	60	30	900
18	Student 18	55	40	-15	225
19	Student 19	30	60	30	900
20	Student 20	60	70	10	100
21	Student 21	65	60	-5	25
22	Student 22	30	80	50	2500
23	Student 23	45	60	15	225

24	Student 24	45	60	15	225
25	Student 25	40	60	20	400
26	Student 26	35	75	40	1600
27	Student 27	40	65	25	625
28	Student 28	60	80	20	400
29	Student 29	70	70	0	0
30	Student 30	40	60	20	400
31	Student 31	40	65	25	625
32	Student 32	40	80	40	1600
Total(Σ)		1330	1895	565	18825
Mean		41.56	59.22		

Based to the statistic, mean score of pretest increased from 41.56 to 59.22 in the post-test. It also showed t value 4.18. Since the degree of freedom (df) of the test was 31 (the number of the students who take the test – 1), the t critical at 95% confidence interval (0.05 level) is 1.697. It made 4.18 (t absolute) > 1.697 (t critical) which showed that there was a significant difference between pre-test and post-test. Alternative Hypothesis (Ha) which claimed “the use of semantic word mapping in vocabulary teachin is significant” was accepted. Meanwhile, Null hypothesis which claimed “the use of semantic word mapping in vocabulary teaching is not significant” is rejected.

Discussion

The use of Semantic Word Mapping technique was significant in vocabulary teaching in SMP Negeri 5 Pontianak. The writer successfully proved that the teacher in the school can use this technique in vocabulary teaching. The treatment took two meetings. This duration was considered based on the teaching in the syllabus. This treatments were done in order to apply the technique. The pre-test and post-test showed a difference in form of number. The mean of the pre-test was 41.56 while the post-test was 59.22. There were 6 students who pass in the pre-test, and there were 22 students who pass in the post-test (in standard score 60). It showed a significant difference before and after the treatment.

To satisfy the research, there must be an analysis of the students' scores. The researcher used paired t-test formula in order to find the value of t absolute. The result was 4.18. Meanwhile the t critical by degree of freedom 8 was 1.697. Since the value of t absolute was bigger than t critical, the null hypothesis was rejected, and alternative hypothesis was accepted. Furthermore, the r value was 0.95. According to the table description of effect size, r value which is bigger than 0.80 is categorized as large effect.

The above result shows that this technique is highly recommended to be used. However, there are some strengths that can be discussed. First of all, this technique helps students to put vocabulary in context. This is better than learning isolated vocabulary. Chirst& Wang (2010) claims that knowing a word's meaning includes knowing what the word refers to and being able to limit the use of the

word to actual examples. When students learn vocabulary, they also have to learn how to use it. The other benefit is that this technique arrange students to make a sentence properly. Grammar is implicitly taught. It puts them away from a fear of grammatical error. In the other hand, there is a thing should be considered. The time consuming and teachers' creativity are serious issues. If the teachers are not able to manage the time properly, they run out of time, in fact it can postpone other materials that should be taught at that time. Teachers' creativity are important. If teachers are too lazy to create a good slide presentation which help students to differentiate the part of speech belonging to the particular color, the technique may not be working sufficiently. As long as the teachers can maintain the problems, this technique helps students to understand vocabulary better. In conclusion, based on the findings, it has been proved statistically and theoretically that Semantic Word Mapping can be used in vocabulary teaching and has large effect.

CONCLUSION AND SUGGESTION

Conclusion

Based on the data analysis, the writer has proven that Semantic Word Mapping is good to use in vocabulary teaching. The concept about contextual meaning and learning grammar implicitly covers what students need in learning vocabulary. However, this research shows a beneficial impact for those who will propose a research related to vocabulary teaching. Many beliefs claim learning vocabulary is a matter of learning its meaning and how to apply it. It seems to be true since this research has trusted data to advance the theories that support this research. In short, teaching vocabulary meaning by using Semantic Word Mapping in junior high school is precise.

Suggestion

After conducting the research, the researcher has some suggestions for further research and the teachers who are going to use this technique which are shown as follows: a) Teachers are suggested to use this technique in vocabulary teaching in order to teach students about the use of vocabulary. b) Teachers are suggested to teach vocabulary in use since it teaches students the knowledge of small pieces of part of speech. It can guide them to make a grammatical sentence. c) It is recommended to conduct another research related teaching vocabulary in use by using this technique. It has been known that this technique works to improve students' vocabulary, but there is no research have investigated if the technique also possibly used to teach vocabulary in use. The researcher also suggests to conduct the research in senior high school or university level, since the need of grammatical sentences in writing takes more serious concerns than in the junior high school.

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