

## PROMOTING COAL MINING ENGINEERING STUDENTS' VOCABULARY USING SEMANTIC MAPPING

**Maria Puspa Sari, S.Pd., M.Pd.<sup>1</sup>**

*Program Studi Teknik Pertambangan Batubara Politeknik Akamigas Palembang*

### Abstract

*The problem of this study was the effectiveness of promoting coal mining engineering students' vocabulary using semantic mapping at Polytechnic of Akamigas Palembang. Therefore, the object of this study is to describe and analyze whether or not it is effective to promote coal mining engineering students' vocabulary using semantic mapping at Polytechnic of Akamigas Palembang. A pre-experimental method was used by the writer in this research. The design was pre-test post-test design. The population of the study was all the first semester of coal mining engineering students. The total number of the first semester students was 56 students. The writer used convenience non-random sampling as the technique of sampling. Class A was chosen in this case. To analyze the data, SPSS was used in this study. Matched T-test was the formula used in this research. Since the df was 27 (28-1) with 5% level of significance, t-table was 1.697. After calculating the matched t-test, it was found that t-obtained was higher than t-table. So, this study proved that it is effective to promote coal mining engineering students' vocabulary using semantic mapping at Polytechnic of Akamigas Palembang.*

**Keyword:** coal mining engineering students, vocabulary, semantic mapping.

### A. Background of the study

It is known that English is an international language which has been received by countries all over the world. It is spoken in many countries as the first language, second language or foreign language. Jeremy Harmer (2001:1) states that English is not the language with the largest number of native or 'first' language speakers but it has become a lingua franca. He says a language as a lingua franca if it is widely adopted for communication between two speakers who have different native language and one or both speakers are using it as a 'second language'. Moreover, it is used for communication in meeting business or other activities among government all over the world. Moreover, English is widely used for science, new invention in field of modern technology, pharmaceutical, medical, etc.

At colleges, English is a lesson. Even, it is also a major in university level. It is taught from junior high college until university as a foreign language in Indonesia. Automatically, students are required to master English in order to face the globalization era. In order to master English, there are four language skills in English which must be mastered by the students, namely listening, speaking, reading and writing. To master all the four language skills, students have to master vocabulary knowledge (BSNP, 2007:11). Vocabulary is an important component in English. It has an important role because students cannot communicate and explain what they want to say fluently if they do not master vocabulary well. Moreover, they cannot understand

what they read because they do not know the meaning of many words in the text. When they are listening, they cannot write the words they listen because they do not know the words formation. And how students are able to make writing if they do not know many words they want to use. Therefore, we cannot say that vocabulary is not really important in teaching English. Having enough vocabulary knowledge is a vehicle to communicate fluently. Moreover, language is like a human being, structure is skeletons while vocabulary is meat. In conclusion, students are not able to communicate well if they are weak in vocabulary knowledge.

Kweldju (2001:35) states that there are some students said their main problems was about vocabulary or grammar. It is possible if there are many complaints from teacher of English that their effort is not balanced by students' vocabulary mastery. There are some factors which cause students have weak vocabulary. According to Wenden (in Brown, 2000: 130), learner strategies are the key to learner autonomy. Moreover, facilitation of the autonomy is one of the most important goals of language teaching. For this reason, teachers need to apply learning strategies which is appropriate for students in order to motivate students in learning to achieve the learning goal. In Indonesia, especially in Palembang, there are some vocational colleges. At this kind of college, the students will more focus on their field. The writer tries to research about students' vocabulary of Polytechnic of Akamigas Palembang. This college is a vocational high college majoring mining engineering program. As we know that every

students in this kind of college will follow training. Even, some of them will follow training in abroad, for example in Malaysia, Singapore, etc. Therefore, English is very important for them. They must have good vocabulary knowledge in order to speak English fluently. We can imagine if their vocabulary is under average, how they can communicate while English is a very important thing in mining engineering. According to Oxford (2001: 41), there is one learning strategy which creates a visual image of words or phrases. The strategy is named semantic mapping.

In conclusion, this research will aim to promote coal mining engineering students' vocabulary using semantic mapping.

## B. Research problem

The problem of this research is formulated as follows:

1. Is it effective to promote coal mining engineering students' vocabulary using semantic mapping at Polytechnic of Akamigas Palembang?

## C. Literature review

In this section, the writer will explain (1) concept of vocabulary, (2) concept of teaching, (3) concept of semantic mapping, (4) The advantages of semantic mapping and (5) the procedure of teaching using semantic mapping.

### 1. The Concept of Vocabulary

Vocabulary is one important aspect in learning English. According to Hornby (1995:1331), there are three definitions dealing with vocabulary. First, vocabulary is the total number of words in a language. Second, vocabulary is all the words known to a person or used in a particular book, subject, etc. Third, vocabulary is a list of words with their meaning, especially one that accompanies a textbook in a foreign language.

Moreover, Cameron (2001:72) says that vocabulary has become the center of teaching and learning a foreign language in recent years. It shows us somehow vocabulary is really interesting in teaching and learning English as a foreign language.

From the explanation above, it can be said that vocabulary has a very important role in learning English. In conclusion, we need to give a high priority to vocabulary because vocabulary learning is one thing which must be done for learning and using grammar.

### 2. The Concept of Teaching

Teaching is a 'must' which must be done by all teachers. Teaching is a process of transferring teachers' knowledge to the students. According to Brown (2000:7), teaching means "showing or

helping someone to learn how to do something, giving instructions, guiding in the study of something, providing with knowledge, causing to know or understand". Then, he says that "teaching is guiding and facilitating learning, enabling the learner to learn, setting the condition for learning".

In conclusion, teaching may be defined as telling, transferring, and giving information or instruction to the learner or students, enabling the learner to know by gaining the knowledge or experience. A teacher should know how to teach the students effectively in order to achieve the learning goal. And a teacher also should know that every students have different skill in learning because they are different each other.

### 3. The Concept of Semantic Mapping

Semantic mapping is one strategy which is a part of memory strategy. According to Oxford (2001:61), this strategy involves concepts and relationships on paper to create a semantic map, a diagram in which the key concepts (stated in words) are highlighted and are linked with related concepts via arrows or lines. And Bromley (in Riskianti, 2004:9) states "semantic map is a graphic representation of categories of information and their relationship to each other". Moreover, Gunning (1992:163) still cited in Riskianti (2004:9) defines that semantic mapping is one way to organize an information using graphic based on categories. It may be used for the concepts of vocabulary topics and background.

From the definition above, it can be said that semantic mapping is a visual strategy which use graphic for vocabulary expansion and extension of knowledge by displaying or showing in word categories which related to one another. Semantic mapping is an adaptation of concept definition mapping but builds on students' prior knowledge or schema. While it draws on prior knowledge it recognizes important components and shows the relationships among the components in the graphics. Oxford (2001:62) states that semantic mapping also gives a format of note-taking which is acceptable. Moreover, she says that in an exercise using semantic mapping, there is no one right answer because different students will have different approaches or ways to cluster ideas. This is a very interactive process and should be modeled by the teacher first. The steps involved in semantic mapping are: write the concept word on the board, explain the steps involved and have students think of as many words as they can for the concept word, write the list on the board or overhead and have students copy it, and finally in groups have students put the words into categories.

In conclusion, the students can make semantic maps to cluster related concepts visually and make the concepts easier to remember the words, the meaning and also the formation of the words.

#### 4. The Advantages of Semantic Mapping

Semantic mapping is a strategy for organizing information. It helps in giving structure or order. It can help people to see the relation among the concepts and it can show the various way that information can be organized and categorized in more general or more specific categories. In learning vocabulary, the graphic of semantic helps the students associate and organize words into appropriate categories. Students can classify the words easier. It is an important way for students to remember the meaning of the words easily in learning vocabulary.

According to Oxford (2001:41), semantic mapping involves meaningful imagery, grouping, and discussions; it clearly shows how certain the group of words relate to each other. It means that semantic mapping can give a meaningful imagery, grouping, and even discussion to show how the words are related. Moreover, Oxford states that there are four reasons why relating the verbal with the visual is very useful to language learning. Firstly, the brain's storage capacity for visual information exceeds its capacity for verbal material. Secondly, transferring information to long-term memory through visual images is the most efficiently packaged chunks of information. The third, images may be the most potential device to aid recall of verbal material. And the last, there is a large number of learners who have a preference for visual learning. According to Brown (1994:293), the strategy of semantic mapping, or grouping ideas into meaningful clusters, helps the reader to provide some order to the disorder and early draft of it can be perfectly acceptable. Since every text must be contain of words, if it can be apply for reading, it must be able to apply for increasing vocabulary. It shows us how it is a very useful strategy for language learning.

For these reasons, the writer tries to teach vocabulary through semantic mapping in order to give the effective way for students to learn vocabulary easily. The writer hopes this strategy can increase students' achievement, especially in learning vocabulary.

#### 5. The Procedure of Teaching Using Semantic Mapping

According to Zaid (1995:6), the following steps are introduced in presenting maps for teaching vocabulary in this research:

- Step 1 : Introduction the topic. The teacher will introduce the concepts to be mapped. Then, she will write the keyword for it on the whiteboard, overhead transparency or chart paper.
- Step 2 : Brainstorming. The teacher ask the students to tell what other words which appear to their mind when they think of the keyword which is given by the teacher. Teacher will encourage them to volunteer as many words as they can. It can be done orally or students may write their list and share them.
- Step 3 : Categorization. The teacher will categorize the words, discussing why certain go together. If the new words you planned to teach are not suggested, present them and discuss them. Encourage students to supply category names.
- Step 4 : Personalizing the map. Create the class map and put it on a large sheet of paper. So that, the class can refer to it and add it.
- Step 5 : Post-assignment synthesis. Extend the map. Ask students to discover, additionally new words related to the keyword. And add this to the chart.

#### D. Hypotheses

In this research, there will be two kinds of hypotheses, (1) alternative hypotheses and (2) Null hypotheses.

Ha : It is effective to promote coal mining engineering students' vocabulary using semantic mapping at Polytehcnic of Akamigas Palembang.

Ho : It is not effective to promote coal mining engineering students' vocabulary using semantic mapping at Polytehcnic of Akamigas Palembang.

#### E. Research contribution

This research wil contribute to the improvement of human resource in coal mining engineering and will benefit engineering students in achieving their ambition.

#### F. Research methodology

In this section, the writer will present (a) method of research, (b) operational definitions, (c) population and sample, (d) research variables, (e) technique for collecting the data and (f) technique for analyzing the data.

##### 1. Method of research

This study was conducted through the true experimental method. Hatch and Lazaraton (1991:95) say that "true experimental studies do use control groups and they also assess and/or control for differences between groups prior to the start of the experiment". It means that there will be two kinds of group. They are

experimental group and control group. The treatment will be given to the experimental group only. But, both group will have the same pre-test and pos-test.

So, the design used in this experiment was the randomized pretest-posttest control group design. See figure below:

<b>E</b>	<b>R</b>	<b>T<sub>1</sub></b>	<b>X</b>	<b>T<sub>2</sub></b>
<b>C</b>	<b>R</b>	<b>T<sub>1</sub></b>		<b>T<sub>2</sub></b>

Means:

R : The sample were taken randomly

E : Experimental Group

C : Control Group

T<sub>1</sub> : Pre-test

X : Treatment

T<sub>2</sub> : Post-test

2. Population and sample

The population of this study is all the first semester students of coal mining engineering study program. It consists of two classes consisting 56 students. Since there are only two classes, so all of the population automatically become the sampe of this study.

3. Research variables

The independent variable of this study is semantic mapping. The dependent variale of this study is coal mining engineering students' vocabulary.

4. Technique for collecting the data

The data will be collected by conducting pre-test and post-test which will be given to all sample.

5. Technique for analyzing the data

The data of this research will be analyzed using SPSS 20 using T-Test formula.

### G. Findings and interpretation

From the data gained by the researcher, it was found that students post-test scores were much higher than their pre-test scores. It was considered that students' vocabulary mastery was in the 'very high' level. Semantic mapping is one way to organize an information using graphic based on categories. It may be for the concepts of vocabulary topics and background. Moreover, after being taught using semantic mapping, students were able to associate and organize words into appropriate catgories. Students could classify the words easier. It was an important way for the students to remember the meaning of the words easily in learning vocabulary. Then, the students were also motivated in learning to increase their vocabulary mastery through semantic mapping.

From the explanation above, it has been proven that semantic mapping was effective to increase students vocabulary mastery.

### H. Suggestions and conclusions

The result of this reseacrh was the result of t-obtained and t-table with 5% level of significance for one-tailed test. The result of t-obtained was higher than t-table. In applying semantic mapping, the writer considered the condition of the students. Firstly, the students were explained about the strategy. Then, the writer applied the strategy as the treatment after giving them pre-test. Finally, after giving the treatment, the students were given the post-test.

The result of this study showed that the students pre-test scores were higher than their pre-test. Moreover, the t-obtained was also higher than t-table. Therefore, it absolutely revealed that it is effective to promote coal mining engineering students' vocabulary using semantic mapping.

Some suggestions were prepared for students, lecturers and the institution. Students and lecturers are highly suggested to use semantic mapping in learning English as ithas been proven that semantic mapping is an effective way to increase learners' vocabulary. Institutions are also suggested to be more care about their lecturers and students. It is very recommended that college also ensure that their students have wide vocabulary. Providing good facilities for learning process is the real investment.

### I. REFERENCES

- Brown, H. Douglas. 2000. Principles of Language Learning and Teaching: Longman.
- Brown, H. Douglas. 1994. Teaching by Principles:. Prentice Hall Regents.
- Celce-Murcia, Marianne. 1991. Teaching English as a second or foreign language: Heinle & Heinle Publisher.
- Edge, Julian. 1993. Essentials of English language teaching Longman Group UK Limited.
- Harmer, Jeremy, 1995. The practice of English language teachin. Longman.
- Kemmis, Stephen and Robert L. 1998. The action research planner (3rd ed). Victoria: Deakin University
- Madya, Suarsih. 2002. Developing standard for EFL in Indonesia as part of the EFL teaching reform, TEFLIN Journal, Vol. 3 (2).
- Nunan, David. 1991. Language teaching methodology: A textbook for teachers. London: Prentice Hall International. (UK) Ltd.
- Richards, Jack, C & Theodore S, Rodgers. 2001. Approaches and methods as language teaching. London; Cambridge University Press.