

Teaching Electrical Engineering Terms Using Pictures

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Abstract

This thesis is aimed at finding out: (1) whether the application of pictures is effective or not to build students' vocabulary at Electrical Department of SMKN 2 Palopo. (2) the students' response towards the application of pictures to build students' vocabulary at Electrical Department of SMKN 2 Palopo. This research used pre-experimental method where the treatment was conducted in six meetings. Furthermore, the population of this research was the eleventh year students of SMKN 2 Palopo in academic year 2022-2023. There was only one class with 28 students. In determining the sample of this research, the researcher used total sampling technique. The researcher took all students as sample and the number of sample was 28 students. The finding of this research shows that the application of pictures is effective in building the eleventh grade students' vocabulary of SMKN 2 Palopo. It was proven by the fact that there was a significant difference between the students' mean score of the pretest and the posttest. In the pretest, the students' mean score is 70.71 and the students' mean score in posttest is 93.14. Moreover, it also could be seen by comparing the result of t-test and t-table where t-test is higher than t-table ($9.67 > 2.093$). It means that the hypothesis is received ($t_t > t_0$). Then, the eleventh grade students of SMKN 2 Palopo have positive response on the application of pictures in building students' vocabulary. It was proven by looking their responses to the statements of the questionnaire. In questionnaire, the statement no 2 and 7 are related to pictures as a strategy can create an exciting learning process.

Keywords: *Teaching vocabulary; Electrical engineering term; Pictures.*

Introduction

One of the important elements of English that needs to be developed is vocabulary. Vocabulary is useful especially for understanding the English text, even the simple one. Without knowing most of the words, the students will find some difficulties to cope with the text. Furthermore, vocabulary is considered playing a central role, because through vocabulary we can communicate ideas, emotions, and desires. It can express ideas effectively and efficiently. In addition, vocabulary includes in all skill previously. It cannot only communicate ideas better but also can actually think through ideas and problems with greater accuracy, clarity, and precision. In other words, it must be admitted that with vocabulary, language any form of mental and physical, creativities, and activities can be communicated and conveyed. One reality in some schools is that the students still cannot convey their ideas in English well. It is believed that one problem that they have is related to their vocabulary. However, it is impossible for the student to speak English fluently without having enough vocabulary although they understand the patterns.

The mastery of term in the profession that someone working is very important. For example for the electrical engineers, they need to know about some terms in electrical engineering. Therefore, it is very important to find out the way of teaching vocabulary of students in electrical engineering terms in SMKN 2 Palopo.

There are many techniques that teacher can use in teaching vocabulary, but not all of the techniques can be used. The writer should be careful in choosing the best technique. So the writer wants to use picture to teach vocabulary. picture is any kind of material that taken from the real world not especially created for the purpose of language teaching. This might include language based on reality such as magazine, advertisement, newspaper or graphics and visual sources such as maps, pictures, symbols and charts. It is the framework where in which those who are learning are facilitated in their connecting what is learned to the real world. This method can be used to introduce some new vocabularies for the students at engineering class. In addition, English for Specific Purposes (ESP) is a learner-centered approach to teaching English as an additional language, which focuses on developing communicative competence in a specific discipline, such as accounting, agrology, business, education, engineering, IT technology, academic writing and learning and included electrical engineering. Students are also exposed to academic culture and real world communication practice. In this case the ESP approach can be used collaboratively with picture in order to make the introduction of vocabulary on specific profession will be easier and fun. Based on the explanation above, the writer is interested to do a research with the title "Teaching Electrical Engineering Terms Using Pictures at Electrical Department at the Eleventh Grade of SMKN 2 Palopo".

Method

In this research, the researcher applied a pre experimental method. The design research was:

Design of the research

O1 X O2

Source: (Amriani, 2016)

Where:

O1 : Pre-test

X : Treatment

O2 : Post-test

The population of this research was the eleventh grade students of SMKN 2 Palopo in academic year 2022-2023. There was only one class with 28 students. In determining the sample of this research, the researcher used total sampling technique. The researcher took all students as sample and the number of sample was 28 students.

The Procedure of Collecting Data

Procedure of collecting data in this research consisted of two namely giving test and administering questionnaire. In this research, the researcher gave treatments in 6 meetings. Each meeting consisted of 80 minutes. The procedures of this research were:

Giving pretest

The pretest was vocabulary test especially noun form, the test was in 25 numbers and students had to finish it in 30 minutes, it was given to the students to measure their basic ability before giving treatment. The vocabulary test included with the electrical terms in English.

Giving treatment

The treatment was conducted in six meetings. In every meeting, the researcher gave different theme of the vocabulary of noun in giving treatment. The steps each meeting as follows:

a. First meeting

In this meeting, the researcher said greeted and asked the students' condition, and then she presented the purpose of the meeting. The researcher gave the students picture worksheet with list of vocabulary Electrical Engineering about "Magnetic": Each student had different pictures of vocabulary list. After that, the researcher asked the students to find out the meaning of vocabularies in their list. Then, the researcher gave students instruction to find a partner and take turns saying one of the items from their gave one list. If the other students did not have that item on their list then they wrote it on their get one side. After that, the students asked to switch partners and continued to compare their gave one list. After a certain amount of time, had the class come back together and discuss the activity, then the researcher gave evaluation. The last, the researcher concluded the materials and then inform the students about the next material for the next meeting.

b. Second Meeting

In the second meeting, the researcher also said greeted and asked the students' condition, and then she presented the purpose of the meeting. Then asked about the last materials especially the vocabulary. The researcher gave the students pictured worksheet with list of vocabulary Electrical Engineering about "Magnetic Electricity": Each student had different pictures of vocabulary list. After that, the researcher asked the students to find out the meaning of vocabularies in their list. Then, the researcher gave students instruction to find a partner and take turns saying one of the items from their gave one list. If the other students did not have that item on their list then they wrote it on their get one side. After that, the students asked to switch partners and continued to compare their gave one list. After a certain amount of time, had the class come back together and discuss the activity, then the researcher gave evaluation. The last, the researcher concluded the materials and then inform the students about the next material for the next meeting.

c. Third Meeting

In the third meeting, the researcher also said greeted and asked the students' condition, and then she present the purpose of the meeting. Then ask about the last materials especially the vocabulary. The researcher gave the students pictured worksheet with list of vocabulary Electrical Engineering about "Magnetic Field part 1": Each student had different pictures of vocabulary list. After that, the researcher asked the students to find out the meaning of vocabularies in their list. Then, the researcher gave students instruction to find a partner and took turns saying one of the items from their gave one list. If the other students did not had that item on their list then they wrote it on their get one side. After that, the students asked to switch partners and continued to compare their gave one list. After a certain amount of time, had the class come back together and discuss the activity, then the researcher gave evaluation. The last, the researcher concluded the materials and then inform the students about the next material for the next meeting.

d. Fourth Meeting

In the fourth meeting, the researcher also said greeted and asked the students' condition, and then she presented the purpose of the meeting. Then asked about the last materials

especially the vocabulary. The researcher gave the students pictured worksheet with list of vocabulary Electrical Engineering about "The Magnetic Field Part 2": Each student had different pictures of vocabulary list. After that, the researcher asked the students to find out the meaning of vocabularies in their list. Then, the researcher gave students instruction to find a partner and take turns saying one of the items from their gave one list. If the other students did not had that item on their list then they wrote it on their get one side. After that, the students asked to switch partners and continued to compare their gave one list. After a certain amount of time, had the class come back together and discuss the activity, then the researcher gave evaluation. The last, the researcher concluded the materials and then inform the students about the next material for the next meeting.

e. Fifth Meeting

In the fifth meeting, the researcher also saidgreeted and asked the students' condition, and then she presented the purpose of the meeting. Then asked about the last materials especially the vocabulary. The researcher gave the students pictured worksheet with list of vocabulary Electrical Engineering about "How to Make Magnet": Each student had different pictures of vocabulary list. After that, the researcher asked the students to find out the meaning of vocabularies in their list. Then, the researcher gave students instruction to find a partner and take turns saying one of the items from their gave one list. If the other students did not have that item on their list then they wrote it on their get one side. After that, the students asked to switch partners and continued to compare their gave one list. After a certain amount of time, had the class come back together and discuss the activity, then the researcher gave evaluation. The last, the researcher concluded the materials and then inform the students about the next material for the next meeting.

f. Sixth Meeting

In the sixth meeting, the researcher also saidgreeted and asked the students' condition, and then she presented the purpose of the meeting. Then asked about the last materials especially the vocabulary. The researcher gave the students pictured worksheet with list of vocabulary Electrical Engineering about "Form of Magnets": Each student had different pictures of vocabulary list. After that, the researcher asked the students to find out the meaning of vocabularies in their list. Then, the researchergave students instruction to find a partner and took turns saying one of the items from their gave one list. If the other students did not have that item on their list then they wrote it on their get one side. After that, the students asked to switch partners and continued to compare their gave one list. After a certain amount of time, had the class come back together and discuss the activity, then the researcher gave evaluation. The last, the researcher concluded the materials and then inform the students about the next material for the next meeting.

Giving Post- test

After finishing the treatment, the researcher gave post-test in vocabulary test form. The post-test was in vocabulary test especially noun form, the test was a 25 numbers and students had to finish it in 30 minutes, it was given to the students to measure their achievement after giving treatment.

Distributing Questionnaire

The researcher distributed questionnaire after the post-test. The student was agiven 30 minutes to complete the questionnaire.

Result

The Students' Score in the Pretest and the Posttest

Table 1. Students' score in pretest and posttest

No	Intial	Score	
		Pre-test	Post-test
1.	TRG	72	96
2.	ALA	68	92
3.	EFO	80	100
4.	ALY	72	100
5.	MSN	72	96
6.	ADK	72	100
7.	MNA	72	100
8.	SKL	64	80
9.	MNZ	72	88
10.	APR	52	80
11.	IRF	72	92
12.	ASF	60	92
13.	HRS	80	100
14.	MHD	80	80
15.	TGU	64	84
16.	LGY	72	80
17.	JPP	72	92
18.	HDP	64	96
19.	MUI	72	100
20.	RAA	72	96
21.	FAW	68	100
22.	ADA	68	96
23.	JDP	72	88
24.	ALS	72	84
25.	IRM	88	100
26.	IRJ	72	100
27.	RNI	68	100
28.	RJS	68	96

Based on table 6, we can see that before giving the treatment by using pictures, there is no students get "Excellent", only 1 student get "Very good", there is 3 students get "Good" and most of the students namely 19 students get "average" classification. There is 4 students who obtained fair classification, 1 student obtained "poor" classification, and it means that the students' vocabulary is still needed to be improved before treatment.

The classification of the frequency and percentage of the result students' score in the pre-test can be seen in the table below.

Table 2. Students' score in pre-test

No	Classification	Score	Frequency	Pretest percentage %
1.	Excellent	96-100	0	0
2.	Very good	86-95	1	3.6
3.	Good	76-85	19	10.7
4.	Average	66-75	4	67
5.	Fair	56-65	1	14.29
6.	Poor	46-55	0	3.6
7.	Very poor	0-45	0	0
Total			28	100%

Based on table 2, we can see that before giving the treatment by using pictures, there is no students get "Excellent", only 1 student get "Very good", there is 3 students get "Good" and most of the students namely 19 students get "average" classification. There is 4 students who obtained fair classification, 1 student obtained "poor" classification, and it means that the students' vocabulary is still needed to be improved before treatment.

The classification of the frequency and percentage of the result students' score in the post-test can be seen in the table below.

Table 3. Students' score in post-test

No	Classification	Score	Frequency	Pretest percentage %
1.	Excellent	96-100	16	57.14
2.	Very good	86-95	6	21.43
3.	Good	76-85	6	21.43
4.	Average	66-75	0	0
5.	Fair	56-65	0	0
6.	Poor	46-55	0	0
7.	Very poor	0-45	0	0
Total			28	100%

Table 3 shows the students' score classification in post-test. The data above describe that in post-test all of the students get under good classification. There is no student classified as average, fair, poor and very poor. It means that the students' vocabulary ability is improved after the treatment.

The Mean Scores and Standard Deviation of the Students' Pre-test and Post-test.

After calculating the result of the students' pre-test and post test, the mean score and standard deviation of both tests are presented in the next table:

Table 3. The Mean Score and Standard deviation of Students' Pre-test and Post-test

Type of Test	Mean Score	Standart Deviation
Pre-Test	70.7143	6.71
Post-Test	93.1429	7.29

Table 8 shows the mean score of the students pre-test was 70.71 and the mean score of post-test was 93,14. Standard deviation of pre-test was 6.71 and the standard deviation of post-test was 7.29. It means that using pictures can build the students' vocabulary at Electrical Department of SMKN2 Palopo in teaching vocabulary

The t-test Value of Students' Achievement

Table 4. The t-test students' achievement

Variable	p-Value	N-1	A
X2-X1	.000	27	0.05

Based on the analysis of the result above, it could be observed that the scores of students who have been taught the present continuous tense is more effective. The table above indicated that the result of $p=.000$ while $\alpha=0.05$. It could be concluded that α was higher than p . Therefore, the alternative hypothesis (H_1) was accepted and null hypothesis (H_0) was rejected. From the analysis, the researcher concludes that there was a significant difference between pre-test and post-test by using pictures in building students' vocabulary at SMKN 2 Palopo. In other words, using pictures could be used to build the students' vocabulary ability. The result of statistical analysis for level of significance ($\alpha=0.05$) with degree of freedom (df) = $N-1$, where $N = 17$. The value of (α) was higher than ($0.05 > .000$). It could be concluded that, null hypothesis (H_0) was rejected and alternative hypothesis (H_1) was accepted.

Discussion

After calculating and analyzing the data at the findings, the researcher presents the discussion of students' data. This section presents the result of data analysis of students' enhancement in learning vocabulary by using pictures and relates it to the theory in chapter II. The researcher presents the detail discussion based on the findings above. The result of students' of pre-test is still low. In this case the writer could establish that most of the students were poor classification, we can see that before giving the treatment by using pictures, there were still many students got average and fair classification. There were no students who obtained excellent classification; it means that the students' vocabulary is very low before treatment. In pre-test, the minimum score is 52.00 while the maximum score is 88. In pre test there were so many mistakes had done by the students in all several of items of questions. For example the students could not identify some specific term of electrical in English. Therefore, through the activity of using pictures they can directly see through the worksheet with picture the things while they are learning how to mention those electrical terms in English. They students are interested during the learning process. According to those explanations, it has been a must for the English learner to enrich their vocabulary to communicate in English well which is an international language that has a significant role in the various fields of activities, and wide influences in the world. Nevertheless, based on the data at the findings above, the result of this research in pretest shows that vocabulary mastery of the students in SMKN 2 Palopo is still low. It could be seen in their achievement in the pre-test. The students' vocabulary ability is improved after the treatment, it can be seen

by the findings above shows that there is no students achieve under good classification. The students mean score in post-test is 93.14. In post-test, the minimum score is 80 while maximum score is 100.

By using SPSS program version 20, the writer got and used t-test to find out the significance of the research. The value of (α) was higher than (p) ($0.05 > .000$). It could be conclude that, null hypothesis (H_0) was rejected and alternative hypothesis (H_1) was accepted. Based on the comparison score between pre-test and post-test result, it can be seen that in the pre-test, there were many students got the average and fair classification no one got excellent category. In the post-test there was significant increasing of students' score. No one got under good classification. It implies that the students' vocabulary ability improved after giving treatment. This research found that the students' mastery in vocabulary is improved after the treatment by using pictures. This study is supported by Hutchinson and Waters (1987: 19) stated that using pictures is a conception of teaching and learning that helps teachers relate subject matter content to real world situations and motivates students to make connections between knowledge and its applications to their lives as family members, citizens, and workers and engage in the hard work that learning requires. In addition, this study proves that the strategy learning with pictures can enrich the students' vocabulary during the treatments because it is directly show the specific terms in electrical term as their focus in their department. This is in with the ideas of Zahorik (1995, 14 - 22) stated that there are five elements of using pictures as follows: 1. Activating Knowledge 2. Acquiring knowledge 3. Understanding knowledge 4. Applying knowledge 5. Reflecting knowledge. Using picture is a direct method with contextual content approach. The pupils can see directly the things in the surrounding. In the use of these strategies, the pupil gets real experience while the teacher will be easier to explain the things. As a result of its use, maximum interaction occurs between the pupils and the teacher. This develops their constructive capacities in accordance to their interest, attitudes, capacities, abilities, need and mental level of the pupils. In the application of the treatment by using pictures, the students were asked to find the term in architecture. The data from the questionnaire show that the students give positive response towards the teaching and learning vocabulary through pictures. Most of the students agree that the pictures can help them in learning and understand the material especially about electrical engineering. The students give positive responses to the questions about the advantages of pictures in learning vocabulary at SMKN 2 Palopo.

This research also has some limitations, such as the use of pictures is still limited to the using of pictured worksheet. It is recommended for the next researcher to explore more about the use of pictures. This study is also limited to the electrical engineering terms which are focused on the pictures given to the students; it is still needed to teach more specific terms in electrical engineering and other subjects. Referring to the discussion above, it could be concluded that the use of picture approach can build the students' vocabulary ability for the eleventh grade students of SMKN 2 Palopo. Furthermore, based on the students' response in questionnaire, it also might be concluded that the use of pictures can be an interested strategy in teaching and building vocabulary

Conclusion

Based on the findings and discussion at the previous chapter, the researcher can conclude some points below:

1. The use of pictures is effective in building students' vocabulary of the eleventh grade students of SMKN 2 Palopo. It was proven by the fact that there was a significant difference between the students' mean score of the pretest and the posttest. In the pretest, the students' mean score is 70.71 and the students' score in posttest is 93.14. Moreover, it also could be seen in the statistical test results show that $P = 0.00$. It is lower than α . It means that the alternative hypothesis is received.
2. The eleventh grade students of SMKN 2 Palop have positive response on the use of pictures in building students' vocabulary. It was proven by looking their responses to the statements of the questionnaire. In questionnaire, the statement no 2 and 7 are related to the use of pictures as a strategy can create an exciting learning process.

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