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THE EFFECT OF ICT BASED-ACTIVITIES ON JUNIOR SECONDARY STUDENTS' VOCABULARY MASTERY

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ABSTRACT

Teaching vocabulary through information and communication technology tools or ICT is now becoming a new trend in English language teaching. The main objective of the present research was to investigate the effects of teaching vocabulary using information and computer technology (ICT) on vocabulary learning of junior secondary school students. To achieve this purpose, thirty one second grade students of a junior secondary students were selected to be participants. Fifteen students in one class were chosen as the experimental group and sixteen students in another class were chosen as the control group. These students were given a pre-vocabulary test in order to measure their vocabulary knowledge. Then one class (experimental group) received ICT-based instruction while the other was given to the traditional method group (control group). Treatment length was two sessions. After that, both groups were given an immediate post-vocabulary test. The data obtained by t-test and considering the improvement of students' English vocabulary after treatment, that students who used ICT tools to learn highly new vocabulary, learned a significantly larger number of words than those in the control group. After pre-test and post-tests, the results of the study revealed that the ICT group carried out better than the traditional method group. The conclusion is that utilizing ICT media can improvestudents' vocabularies mastery on Junior High Schools students.

Keywords*: teaching vocabulary, information and communication technology (ICT)*

INTRODUCTION

Vocabulary is one of the most obvious components of language and one of the first things applied linguists turned their attention to (Richard, J.C, 2001). Through vocabulary, people can express their thoughts and opinion about everything. That's why teaching vocabulary to the students is very significant.

Teachers sometimes are facing problems when dealing with teaching vocabulary. He/she doesn't know how to select the words to teach and how to teach them, especially for beginner level. A general principle in the past has been stated that it is easier to teach more concrete words for lower levels and gradually become more abstract.

The purpose of this study is to find out the effectiveness of teaching vocabulary by new technology or information and communication technology (ICT) on vocabulary learning and

its comparison with traditional modes of learning on second grade students of a private junior secondary school in Bandung. To achieve the purpose of the study, the researcher formulated a research question that is 'Does teaching vocabulary through ICT have any significant effect on vocabulary mastery of junior secondary students?'.

Considering to the important role played by ICT in learning vocabulary, the researcher developed a null hypotheses; teaching vocabulary through ICT does not have any significant effect on vocabulary learning of junior secondary students.

Practically, the result of this research can be useful for English teachers. They will be able to use Information and Communication Technology (ICT) as media in teaching and learning process. The significant of the study is expected to motivate the teachers in using the media more correctly and efficiently after understanding the effect of using Information and Communication Technology (ICT) media to improve students' vocabulary mastery. For the students, it is better to motivate them in mastering and understanding the english vocabulary effectively.

LITERARY REVIEW

a. English Vocabulary Mastery Development

To understand a text, one must understand the words that represent the ideas or concepts. Studies confirm the high correlation (0.6 to 0.8) between vocabulary knowledge and reading comprehension (Baumann & Kame'enui, 2004). we can improve vocabulary learning and address the gap by actively and systematically teaching vocabulary to our students (Pearson et al., 2007; Zwier s, 2007).

According to Hulstijn (2003;349), there are two approaches to learn vocabulary. They are implicit learning paradigm and explicit learning paradigm. In implicit learning paradigm, words can be develop in normal way by repeated experience in many different kinds of language contexts with reading as the main source of input. It can also be means as the process of acquiring vocabulary and grammar through meaning focused communicative activities such as reading and listening. While in explicit learning paradigm, contexts is the main source for acquiring vocabulary, besides learners also need extra help to build up enough vocabulary and develop the strategies to manage with the vast reading context (Coady,1997).

In explicit learning paradigm, the approaches are divided into two catagories; explicit instruction and strategy instruction. In explicit instruction, students should be taught vocabulary by using various means including direct memorization techniques. (Coady,1993; Nation, 1990, 2001). However, there is more concern with low level learners who do not have enough vocabulary to read extensively. Nation (2001) suggested that high frequency (2.000 words level) and low frequency level should be treated differently. High frequency level can be attained by direct teaching such as teacher explanation or peer teaching, direct learning such as using word cards, while in low frequency level, students should be teach in more varied way, such as through music, video or animation.

b. Information and Communication Technology (ICT)

As a media of education, ICT can provide many solution for teachers. As any teachers

know, whenever a teacher presenting a new topic with a small or large number of new words, students are supposed to learn, understand and memorize those words. However, many teachers also realized that there is only small chance to make students learn all the necessary, at best, they will learn them by heart mechanically, parrot them back at us and write some test and then probably forget the new vocabulary. To activate the new vocabulary and to use the new words in the context, the teachers need some new techniques which will be able to interact and satisfy the students who live in the era of ICT.

As one of the tool in teaching vocabulary , ICT has some significant benefits. It has the capability to control presentation, increase variety and creativity, provide feedback on learning activity, and it can also adapt easily with any materials. When presenting a new word, students should be given an interesting materials to attract attention. Unlike books and dictionaries which have fixed presentation, computer can combine visual with listening materials, texts with graphics and pictures even movies. For the lower level learners, these learning activities are interesting and challenging. Instead of reading and memorizing, students can directly involve into the activity. Through watching videos, students are introduced with many new vocabularies in a fun way. Those vocabularies are presented directly in the real context with the real images. So students will be easily remember it.

Multimedia is a great tool not only for learning vocabulary , but also for reading comprehension, just like some of the research presented above has suggested. There's a positive effect that produce from multimedia when it deals with reading comprehension, according to Busch (2003: 278), from the great advantage that online readers have over traditional printed readers: the possibility to improve computerized texts with glosses in multimedia format. This is probably the reason why most studies dedicated to a computer-based approach to reading have focused on the usefulness of glosses in different formats to increase reading comprehension and vocabulary retention. Several researchers have argued for the positive effects that hypermedia has for second language readers, because a text can be made more comprehensible for them by annotating it with multiple types of media glosses (Sakar and Ercetin, 2004: 28).

However, the use of ICT activities in language learning should possess a number of pedagogical criteria: a) the learning activities should provide opportunities for learners to notice the word form and access its meaning as well as connect the two; b) at least two types of linguistic information, visual and aural, should be presented; c) the program should incorporate or be linked to electronic dictionaries or lexical concordances; d) explicit focus should be put on the target items so that learners can rehearse, manipulate or recognize the lexical information (Ma, 2009).

METHODOLOGY

- **Research design**

This study is an experimental research to investigate the effects of teaching vocabulary using information and computer technology (ICT) on vocabulary learning of junior secondary students. An experimental manipulation is the creation of group that reflect different categories of one unifying dimension such as class sizes. Another example is to create two different methods of learning such as learning vocabulary through information and communication tech-

nology or through traditional method (Malik & Hamied, 2016: 46)

- **Research site and participant**

The participants of this study are two classes of junior secondary school students of a junior secondary school in Bandung. Fifteen students in one class were chosen as the experimental group and sixteen students in another class were chosen as the control group.

- **Data collection technique and procedure**

These students will be given a pre-vocabulary test in order to measure their vocabulary knowledge. Then one class (experimental group) will receive ICT-based instruction while another is given to the traditional method group (control group). Treatment length will be two sessions. After that, both groups are given an immediate post-vocabulary test at the end of the topic. A pre-test was administered to students of both groups in order to measure the vocabulary knowledge of students. One of two intact classes is conveniently chosen to receive the special treatment (experimental group) and the other class is taught in the traditional method (control group).

Treatment will be two weeks for ICT group. After second session, both groups are given the immediate post test. It takes 25 minutes for students to answer the questions of this exam. The questions of pre-test and post -test are similar. The period of instruction for both groups is same that is two weeks.

- **Data analysis**

The data are obtained by t-test. The researcher compares the result of the test before and after treatment (ICT-based activities). Wether the students who used ICT-based activities to learn new vocabularies, learned a significantly larger number of words than those in the control group or it is no effect on the use of ICT-based activities on vocabulary mastery. The Improvement of students' English vocabulary after treatment is also considered to prove the effectiveness of the model learning and teaching English vocabularies application.

FINDING AND DISCUSSION

Findings

After assigning the two intact classes into two groups (control and experimental), theywere given a vocabulary test to examine the possible initial differences between the two groups regarding their vocabulary knowledge before introducing the specific treatment for the ICT group (the experimental group). From the scores of students both experimental group and control group, we could make the central tendency of the group.

Table 1. Central tendency

Statistics

		Pre Test of Vocabulary Test	Post Test of Vocabulary Test
N	Valid	31	31
	Missing	0	0
Mean		20.68	28.84
Median		20.00	29.00
Mode		20	29
Sum		641	894
Percentiles	25	17.00	25.00
	50	20.00	29.00
	75	25.00	34.00

We can see from the table above that the scores of post-test is higher than the scores of pre-test. It means that the treatment of teaching vocabulary has positive effect on the mastery of vocabulary. However, we will investigate which method has more significant effect in vocabulary mastery wether ICT based teaching or traditional one.

Table 2. Descriptive Statistics of pre-test

	Group	N	Mean	Std.Deviation	Std.Error Mean
Pre-test Scores	Experimental	15	20,60	8,210	2,120
	Control	16	20,75	5,235	1,309

For the vocabulary test given at the beginning of the study, the mean scores for the experimental and control groups were (20,60) and (20,75), relatively. Besides, the standard deviation for the control group was somewhat higher than that of the experimental group (SD experimental group = 8,210, SD control group= 5,235.

Treatment was two weeks for ICT group. In the first meeting, the teacher used power points and LCD projector in presenting the material. The second meeting was using internet in exploring the materials. After second session, both groups were given the immediate post-test. It took 25 minutes for students to answer the questions of this exam. The questions of pre-test and post-test were similar.

After the treatment, post-treatment vocabulary test was given to the students of both groups. The descriptive statistics are provided in Table 3. In fact, learners' performance in the experimental group (Mean =30,33) far outweighed that of the control group (Mean =27,44) in immediate post-test of vocabulary test.

Table 3. Descriptive Statistics of post-test

	Group	N	Mean	Std.Deviation	Std.Error Mean
Post-test Scores	Experimental	15	30,33	6,043	1,560
	Control	16	27,44	6,501	1,625

The mean of experiental group which is treated with ICT especially on the post-test is higher than the mean of control group which is treated with traditional method.

However, this difference of means needed to be checked for statistical significance. After the experimental group received the treatment, another independent samples t-test was executed to compare the experimental and control groups in terms of their vocabulary learning after introducing the specific treatment to the experimental group and placebo for the control group.

Table 4. t - test

Group Statistics

	ICT and Non ICT Based Learning	N	Mean	Std. Deviation	Std. Error Mean
Pre Test of Vocabulary Test	ICT Based Learning	15	20.60	8.210	2.120
	Traditional Learning	16	20.75	5.235	1.309
Post Test of Vocabulary Test	ICT Based Learning	15	30.33	6.043	1.560
	Traditional Learning	16	27.44	6.501	1.625

Table 5. Dependent variable: post-test of vocabulary test

Tests of Between-Subjects Effects

Dependent Variable: Post Test of Vocabulary Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	430.777[a]	2	215.388	7.738	.002
Intercept	905.302	1	905.302	32.522	.000
Learning * Vocabulary1	430.777	2	215.388	7.738	.002
Error	779.417	28	27.836		
Total	26992.000	31			
Corrected Total	1210.194	30			

a. R Squared = .356 (Adjusted R Squared = .310)

It means that teaching ICT-based vocabulary had been advantages in the improvement of students' vocabulary ability for the experimental group with the value of F=7,738 with the probability values 0.002 < 0.05, and thus the first null hypothesis is rejected. It means that ICT- based activities has significant effect on vocabulary mastery.

The Improvement of students' English vocabulary after treatment
Control Group

	Pre-test	Post-test	Point of Improvement
Minimum score	13	17	4
Maximum score	29	36	7
Mean (Avarage)	20,75	27,44	6,69

Experimental Group

	Pre-test	Post-test	Point of Improvement
Minimum score	6	13	7
Maximum score	33	37	4
Mean (Avarage)	20,60	30,33	9,73

From the tables above , we can see the point of improvement of each group. By comparing the pre-test and post-test seemed occurred improvement in English vocabularies mastery, as we can see on the average score is increasingly reach 9,73 points. This improvement score is quiet significant comparing with the control group which is traditional instructions. It is to prove the effectiveness of the model learning and teaching English vocabulary using ICT.

DISCUSSION

The study compared the effect of teaching vocabulary using ICT on learning vocabulary of junior secondary students. For the purpose of conducting the study, thirty one second grade students of junior secondary school students participated in this study. Two intact classes were selected by the researcher. One class was conveniently chosen as the experimental group and the other class was chosen as the control group. After pre-test and post-tests, the results of the study revealed that the ICT group carried out better than the traditional method group. This indicates that the experimental group learned vocabulary better than the control group.

The result of this research shows that the improvement of English vocabularies achievement occurred significantly which is caused by the model treatment created above, as we can see on the post-test from the pre-test. As what have been proved by statistical calculation through SPSS program, for the experimental group with the value of F=7,738 with the probability values 0.002 < 0.05, and thus the first null hypothesis is rejected. It means that ICT-based activities has significant effect on students' English vocabulary mastery.

The findings of the study show that ICT produces a creative learning environment and it offers more opportunities to develop critical thinking skills. ICT makes knowledge acquisition more accessible and concepts in learning areas are understood and vocabulary learning is facilitated. ICT can create new, open learning environments and its instrumental role is in shifting the emphasis from a teacher centered to a learner-centered environment; where teachers move from being the key source of information and transmitter of knowledge to becoming a collaborator and co learner; and where the role of students changes from one of passively receiving information to being actively involved in their own learning.

CONCLUSION

Conclusion

The Model of Learning and teaching English Vocabulary creatively based on utilizing ICT media improves the students' English Vocabulary mastery in Junior High Schools. Teaching ICT-based vocabulary had been advantages in the improvement of students' vocabulary abil-

ity for the experimental group with the value of F=7,738 with the probability values 0.002 < 0.05, and thus the first null hypothesis is rejected. It means that ICT- based activities has significant effect on vocabulary mastery.

By comparing the pre-test and post-test seemed occurred improvement in English vocabularies mastery, as we can see on the average score is increasingly reach 9,73 points. This improvement score is quiet significant comparing with the control group which is traditional instructions. It is to prove the effectiveness of the model learning and teaching English vocabulary using ICT.

Looking at the result of the post-test on experiental and control group, there is an improvement of students' English vocabulary mastery on each group. Both methods ICT-based teaching and traditional method have effected the students' English vocabulary mastery. There is no waranty that ICT alone can produce positive educational outcome anymore than the library books or the text books. It is the creativity and the innovativeness of the teachers that can make ICT reach its full potential in benefiting the learners and the process of teaching and learning.

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