

# THE EFFECT OF PUZZLE GAME ON STUDENTS' VOCABULARY ACHIEVEMENT FOR NON-ENGLISH DEPARTMENT STUDENTS

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## ABSTRACT

*The objective of this research is to find out is there any significant of Puzzle Game On Students' Vocabulary Achievement For Non-English Department Students. This research was conducted by using Experimental Research. The subject of this research was from Potensi Utama University which consisted of 30 students for information system and 30 students for informatics engineering. The instrument for collecting quantitative data was a pre-test with a total of 20 questions and a post-test of 20 questions. The Researcher calculated data by using SPSS 22. Based on the analysis, student achievement increases in each test. In the experimental class the score of pre-test was 62.67 and for the score of post-test was 76.83. In the control class of pre-test score was 58.5. T-count was greater than t-table ( $0.234 > 0.05$ ) and Sig. (2-tailed) 0.000 smaller than alpha: 0.05. Based on quantitative result  $H_a$  was accepted and  $H_o$  was rejected. It was concluded there is an effect of puzzle of game on students' vocabulary achievement for non-English department students.*

**Keywords:** Puzzle Game, Vocabulary Achievement

## ABSTRAK

Tujuan dari penelitian ini adalah untuk mengetahui adakah yang signifikan dari Puzzle Game Pada Prestasi Kosakata Siswa Pada Siswa Non-Bahasa Inggris. Penelitian ini dilakukan dengan menggunakan Penelitian Eksperimental. Subjek penelitian ini adalah dari Universitas Potensi Utama yang terdiri dari 30 mahasiswa untuk sistem informasi dan 30 mahasiswa untuk teknik informatika. Instrumen untuk mengumpulkan data kuantitatif adalah pre-test dengan total 20 pertanyaan dan post-test dari 20 pertanyaan. Peneliti menghitung data dengan menggunakan SPSS 22. Berdasarkan analisis, prestasi siswa meningkat di setiap tes. Di kelas eksperimen skor pre-test adalah 62,67 dan untuk skor post-test adalah 76,83. Di kelas kontrol skor pre-test adalah 58,5. T-hitung lebih besar dari t-tabel ( $0,234 > 0,05$ ) dan Sig. (2-tailed) 0,000 lebih kecil dari alpha: 0,05. Berdasarkan hasil kuantitatif  $H_a$  diterima dan  $H_o$  ditolak. Disimpulkan ada pengaruh puzzle game terhadap prestasi kosa kasiswa untuk mahasiswa jurusan non-Inggris.

**Kata kunci:** Game Puzzle, Prestasi Kosakata

## 1. INTRODUCTION

Language is a tool used by humans to communicate with one another. Humans can do language both verbally and non-verbally. The spoken language that humans use it to talk directly to other individuals or groups. As for language The non-spoken language is a language that use symbols, body language and others. We can get language from the surrounding environment and the outside environment. There are many types of languages in the world, the more we know the type of each language, the greater the knowledge we know. Because one of the functions of language is a tool for obtaining messages or information. Like as English, we already know that English is one of the most

widely used international languages throughout the world, so it's no wonder English has become one of the most common subjects in Indonesia. Then how can we know a language? we can start learning a language by studying each vocabulary. Vocabulary we can get from anywhere, such as listening to foreign songs, watching TV, the internet and so on, the more vocabulary we get, the more knowledge about that language.

### **The Understanding of Vocabulary**

Vocabulary is one of the ways known in learning a language, especially English. Vocabulary is a language arrangement that contains information about the meaning of a meaning and how to use language, a short and practical wording in making a sentence. Dasara in learning a language is learning vocabulary from a foreign language. Vocabulary can also be interpreted as the number in a language, the more vocabulary we know, the more knowledge we have from a language. In learning foreign languages we must know the vocabulary.

### **Teaching Vocabulary**

There are many ways that we can do to be able, starting from reading, writing and listening.

#### **1. Reading**

In learning vocabulary, we can add vocabulary by reading stories or information from the internet, tv or books

#### **2. Writing**

in addition to reading, we can also add vocabulary by writing, for example: writing information that we get from books, TV, or the internet. Then we write a conclusion by taking notes or writing difficult words from and writing the meanings.

#### **3. Listening**

Not only by reading and writing, we can also add language vocabulary by listening. Example: listening to a foreign song that we like, but we don't know the meaning of the song. We can write the meaning of the song we listen to from the radio, cellphone, or others. From the three ways above, it can be concluded that there are many ways to increase vocabulary in learning a language. With this third method, we can easily memorize, and remember the vocabulary. And we can practice it in our daily lives.

### **Media in Teaching Vocabulary**

The media was a way to facilitate the learning of vocabulary. in this case the media used is crossword.

The steps taken are as follows:

1. Before starting to conduct research in advance researchers introduce what it is crossword.
2. researchers provide questions about the crossword, to find out whether the students have understood it.
3. researchers provide a pre-test by giving a few questions about computer science using crossword.
4. researchers provide a post-test by giving a few questions about English using crossword.
5. After the pre-test and post-test have been carried out, the researcher gives a questionnaire to students to find out whether the crossword can affect their learning interest in learning English vocabulary.

### **Game**

Game was a way that can make a person or group more interested or not bored in learning activities. Not only in the school environment, the campus environment can also be applied games

so that students were not too serious in learning and can understand the learning. games can also reduce feelings of stress which some students have tired of at work and end up feeling tired and sleepy in learning. Games can increased the desire of students in learning, which students were bored and lack understanding. thatwas the reason why researchers gived game so that students were not bored and can be interested in learning, especially English.

### **The Understanding of Crossword Puzzle**

Crossword puzzles, often abbreviated as TTS, are a word game in the form of boxes and usually contain horizontal and descending questions. The aim of the game is to fill the boxes with letters, form certain words or phrases, by completing clues that lead to certain answers. besides crossword puzzles is a game that can add insight knowledge. crosswords can help students' interest in learning. because crosswords can be done by anyone, including adults.

## **2. RESEARCH METHODOLOGY**

### **Research Design**

This research design of this research was experimental research in quantitative approach and classified by using two groups, group namely experimental group and control group. one of the group would given a treatment. Researcher was established possible cause and effect between dependent and independent variable. The researcher intended was to describe the effect of crossword puzzle game toward students' vocabulary achievement for non-English students compared with the students' score before being taught by using crossword puzzle game and after being taught by using crossword puzzle game. This research was classified as pre experimental design because it had not control variable. In this research, the researcher just put one group and used pre-test and post-test to see the results of the test.

### **Population**

Population was subjects that have some qualities and characteristics chosen to be learned and to be concluded by the researcher. Based on that statement above, the population of this research is second semester Information System and informatics engineering. In this class of system information, there are consists 30 students, and for informatics engineering there are consists 30 students.

### **Sample**

The sample ws a portion of the population to be examined, usually the sample is the most specific part to be examined and given a conclusion. Before researcher determined sample of this research, researcher used purposive sampling because she had already know the characteristics of the class which would be used as sample based on observation. Purposive sampling could be very useful for situations where you need to reach a targeted sample quickly. In this research, the researcher had taken two classes as a sample. The sample in this research was the students' of Information System and Informatics Engineering in PotensiUtama University.

### **Treatment**

After conducting the pre-test, researchers provide care to students. Researchers provide post-test as a treatment by using crosswords in which the crossword is given keywords for crosswords and or by using other tests. Researchers teach vocabulary using crossword puzzles. The crossword material is used to teach vocabulary, to improve their vocabulary performance. The crossword game helps students understand and memorize vocabulary more easily. Students can answer with teacher's instructions. this can make students more enthusiastic, happy and interested in learning English. When the learning process using crossword puzzles is done, the students no longer feel bored or are not interested in understanding English lessons.

### **Research Instrument**

Research instrument was a way to collect, examine, investigate a problem, collect, process, analyze and present data systematically to solve a problem or test a hypothesis, whatever the way to do it is: interviews, questionnaires, documentation, tests etc. Test was an instrument or procedure designed to measure the student's ability. In this research, the instrument used by test. In this study, the instrument was the instrument was carried out using 30 pre-test questions and 25 post-test questions. The test built by use several scores. Before the actual test was given, the researcher conducted a trial test for the same student with the same test. In the pre-test questions were gave without keywords and the post-tests are give keywords in the crossword puzzle or with random word puzzles. Pre-tests was give into measure their abilities before providing treatment; meanwhile the post-test was given after giving treatment. This test was to find out the purpose of students to improve vocabulary achievement.

### **Technique of Data Collection**

There are two types of tests that researchers will do: pre-test and post-test. Pre-tests are given in the experimental class and in the classroom control to find out how far students understand the vocabulary before receiving treatment. The post-test is only given to the experimental class. Post-tests were given to find out the vocabulary understanding they obtained after treatment. Before the researcher gives a pre-test, the researcher analyzes the instrument to find out whether the instrument used in this study is valid and reliable before it is used to collect data.

### **Technique of Analyzing Data**

After collecting data, the next step taken by researchers is to analyze the data. Data is collected and will be used by the T-test. T-test is used to find out whether there are differences between the results of students' vocabulary achievement using Crossword Puzzles. In this study, data obtained from pre-test and post-test using SPSS T-Test 22.0. This researcher does not use manual calculations. All data collected and calculated using the SPSS 22.0 program in this case used a sample T-test. Because researchers want to know is there any influence from the crossword game in teaching vocabulary achievement. First, the researchers conducted a pre-test. After conducting the pre-test, the researcher provides treatment. Researchers are taught by using crossword puzzles in teaching vocabulary. And then after treatment, the students were tested again. Finally, the average of the two tests was compared to find out that there were significant differences.

## **3. RESEARCH FINDING AND SUGGESTIONS**

### **Data**

This research aim to determine the difference between the students Information System as an Experimental class and Informatics engineering as a Control Class of PotensiUtama University taught by Crossword puzzle game. in addition, this study also aim to determine the effect of Crossword game on student vocabulary mastery for Non-English Department. The data in this study included the initial score data (pre-test) and thefinal score data (post-test) of experimental class and control class.

Table 1.Data of Experimental Class:

No.	Initial Name	Pre-Test	Post-Test	Gained Score
1	A	65	80	15
2	AD	70	80	10
3	BP	70	75	5
4	DA	60	85	25
5	DAR	55	80	25
6	DKS	50	65	15
7	DR	50	60	10
8	DSS	60	80	20
9	DPH	70	80	10
10	HA	60	70	10
11	HRP	65	75	10
12	IPN	75	85	10
13	LOL	50	75	25
14	MD	70	90	20
15	MIA	70	80	10
16	MF	65	70	5
17	MRF	50	65	15
18	MRP	70	75	5
19	NA	60	75	15
20	NC	70	75	5
21	NS	50	70	20
22	PE	75	80	5

23	PR	55	65	10
24	PS	65	70	5
25	RA	60	75	15
26	RG	60	75	15
27	S	75	95	20
28	SAT	45	75	30
29	SM	80	95	15
30	TA	65	85	20
<b>Total Score</b>		1880	2305	420
<b>Mean Score</b>		62.67	76.83	

Score in Experimental class above, the researcher found that the total score 1880 have to score in pre-test also, it showed that in mean of pre-test was 62.67. And in post-test, the total score was 2305 with the mean was 76.83. In the post-test, it showed that the highest score was 95 and the lowest score in post-test was 65. From the result of the students' score in pre-test and post-test, it could be concluded there was an effect of puzzle game on students' vocabulary achievement.

Table 2.Data of Control Class :

No	Initial Name	Pre-Test
1	A	55
2	AB	50
3	AAK	60
4	AN	60
5	AR	55
6	ARS	55
7	ARW	55
8	B	70
9	BFE	70
10	BAR	60
11	EYG	50
12	DEA	45
13	FN	60

14	FSN	55
15	GRL	55
16	I	55
17	JL	45
18	MAM	50
19	MDF	50
20	MAR	65
21	MSA	75
22	MB	65
23	MFH	60
24	MWL	60
25	PNP	65
26	RAH	65
27	RA	55
28	RP	70
29	RW	60
30	SH	60
Total Score		1755
Mean Score		58.5

Score in Control class above, The mean of the total pre-test score was 58.5. And in post-test, the total score was 1755 with the mean was 58.5. In the post-test, it showed the highest score was 75 and the lowest score in post-test was 50. From the result of the students' score in pre-test and post-test, it could be concluded that there was an effect of puzzle game on students' vocabulary achievement.

### Hypothesis Testing

Table 3.T-Test Pre-test

Class		N	Mean	Std. Deviation	Std. Error Mean
Score	Eksperimental	30	62.83	9.162	1.673
	Control	30	58.50	7.445	1.359

Based on the "Group Statistics" output table above, the data of experimental and control group was 30 students. The mean value of experimental group is 62.83 and for control group was

58.50. It can be concluded that there were differences in the average outcome between experimental group and control group.

Table 4. Continue

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.067	.156	2.010	58	.049	4.333	2.155	.019	8.648
			2.010	55.671	.049	4.333	2.155	.015	8.652

Based on the table output, of Sig. Levene's was  $0.156 > 0.05$ . It can be concluded that the data variance between control group and experimental group was the same (homogeneous). Based on the "Independent sample test" output table in the "Equal variances assumed" section the sig.(2-tailed) was  $0.049 < 0.05$ , then as the basis for decision making in the independent sample t-test, it can be concluded that  $H_0$  was rejected and  $H_a$  was accepted. It can be concluded that there were significant (real) differences between the average student in experimental group and control group

Table 5. T-Test Post-test

Class	N	Mean	Std. Deviation	Std. Error Mean
Score Eksperimental	30	76.83	8.355	1.525
Control	30	64.17	6.309	1.152

Based on the "Group Statistics" output table above, the data of experimental and control group was 30 students. The mean value of experimental group was 76.83 and for control group was 64.17. It can be concluded that there were differences in the average outcome between control group and experimental group. Based on the table output, of Sig. Levene's was  $0.234 > 0.05$ . It can be interpreted that the data variance between experimental group and control group was the same (homogeneous).



Table 7. Continue  
Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2- tailed)	Mean Differ- ence	Std. Error Differen- ce	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variance s assumed	1.449	.234	6.627	58	.000	12.667	1.911	8.841	16.493
			6.627	53.957	.000	12.667	1.911	8.835	16.499

Based on the “Independent sample test” output table in the “Equal variances assumed” section the sig.(2-tailed) was  $0.000 < 0.05$ , then as the basis for decision making in the independent sample t-test, it can be concluded that  $H_0$  was rejected and  $H_a$  was accepted . Thus it can be concluded that there were significant (real) differences between the average student in experimental group and control group.

### Research Finding

The objective of this research was to know is there any significance difference vocabulary achievement between students who were taught by using crossword puzzle. This research was conducted at PotensiUtama University in Medan. In information system and informatics engineering consist was 30 students which had been chosen as the sample of this research. They were divided two groups. One of group was the experimental group and the other was control group. The instrument of this research was used to collect the data by the researcher. They were in the form of scores on English vocabulary achievement test, namely pre-test in both of groups.

### Discussion

Discussion of research findings contains important points from the calculation of data analysis to hypothesis testing. Data were obtained from the pre-test and post-test scores in the experimental class and the control class. The pre-test score data in both groups was to determine the students' vocabulary achievement before treatment. Data obtained from students achievement scores from the vocabulary achievement test. They were the value of the pre-test and post-test experimental and control group. The average value for the experimental group was 62.83 (pre-test) and 76.83 (post-test). The average value for the control group was 58.50 (pre-test) and 64.17 (post-test).

## 4. CONCLUSIONS

The result of this research indicated that there were :

1. There was effect of crossword puzzle on students' vocabulary for non- English department student's.

2. There were significant differences score of the students' vocabulary achievement before and after being taught by using crossword puzzle game. The total score after being taught by using crossword puzzle game is higher than before.
3. there were significant differences between the value of the pre-test and post-test students who were taught by using crosswords.

## 5. SUGGESTIONS

The suggestions for this research could be applied for :

1. For Students, chose learning media by using crossword puzzle would give an affect for the concentration of students in the teaching and learning process. Learning media could be used to facilitate communication between teacher and students. The use of appropriate media made students more interested in material being taught. Students also have higher motivation to learn better. Therefore, teachers must choose the learning media that was appropriate for their students.
2. For Teachers, teachers could be applied this game to make a relaxing and fun, so students didn't felt sleepy and bored. Teachers must emphasize the rules of the game, so the game runs well. Teacher need to be prepared for the time, and modify the rules in crossword puzzles depending on the level students.
3. For Other Researchers, it could be an additional reference. In addition, it was hoped that this research could be added from various perspectives to contribute more. There was still many other media that could be learned to determined the effect of crossword puzzle that could be applied to students in teaching learning process.

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