

THE EFFECTIVENESS OF USING WORD RACE GAMES TO HELP JUNIOR HIGH SCHOOL STUDENTS IMPROVE ENGLISH VOCABULARY (A QUASI-EXPERIMENTAL STUDY DONE IN THE NINE- GRADE OF JUNIOR HIGH SCHOOOL)

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ABSTRACT

The research paper entitled “The Effectiveness of Using Word Race Games to Help Junior High School Students Improve English Vocabulary”. The purpose of this research was to know whether there is significant difference or not between using word race game and conventional method. The researcher conducted this research at MTs YPI Al-Islam. The method was used in this research is quasi-experimental with population is nine-grade of MTs YPI Al-Islam and the sample were 25 students of IX A as the experimental class and 25 students of IX B as the control class. For collecting data, the researcher used pre-test and post-test and questionnaire. The result of this result shown pre-test means score of the experimental class was 53,6 and the means score of the control class was 56,6. After giving treatments, post-test shown the means score of the experimental class was 76,4 and the means score of control class was 57,2. the Null Hypothesis (Ho) is rejected and the Alternative Hypothesis (Ha) is accepted, this means there is significant difference in result between treatment by using word race games and by using conventional method in improving vocabulary to the nine-grade of MTs YPI Al-Islam. The researcher analysed questionnaire data and found that almost all students preferred using word race games to improve their English vocabulary. This suggests that word race games can effectively improve students' English vocabulary at MTs YPI Al-Islam's nine grade level.

Keywords: *Games, Word Race Games, Vocabulary*

ABSTRAK

Makalah penelitian berjudul “Efektivitas Penggunaan Permainan Word Race untuk Membantu Siswa SMP Meningkatkan Kosakata Bahasa Inggris”. Tujuan penelitian ini adalah untuk mengetahui apakah terdapat perbedaan yang signifikan antara penggunaan permainan word race dengan metode konvensional. Peneliti melakukan penelitian ini di MTs YPI Al-Islam. Metode yang digunakan dalam penelitian ini adalah quasi-eksperimental dengan populasi kelas sembilan MTs YPI Al-Islam dan sampelnya adalah 25 siswa kelas IX A sebagai kelas eksperimen dan 25 siswa kelas IX B sebagai kelas kontrol. Untuk mengumpulkan data, peneliti menggunakan pre-test dan post-test serta kuesioner. Hasil penelitian menunjukkan nilai rata-rata pre-test kelas eksperimen adalah 53,6 dan nilai rata-rata kelas kontrol adalah 56,6. Setelah diberikan perlakuan, post-test menunjukkan nilai rata-rata kelas eksperimen adalah 76,4 dan nilai rata-rata kelas kontrol adalah 57,2. Hipotesis Nol (Ho) ditolak dan Hipotesis Alternatif (Ha) diterima. Ini berarti terdapat perbedaan hasil yang signifikan antara perlakuan menggunakan permainan lomba kata dan metode konvensional dalam meningkatkan kosakata siswa kelas sembilan MTs YPI Al-Islam. Peneliti menganalisis data kuesioner dan menemukan bahwa hampir semua siswa lebih suka menggunakan permainan lomba kata untuk meningkatkan kosakata bahasa Inggris mereka. Hal ini

menunjukkan bahwa permainan lomba kata dapat secara efektif meningkatkan kosakata bahasa Inggris siswa di kelas sembilan MTs YPI Al-Islam.

Kata Kunci: Permainan, Permainan Lomba Kata, Kosakata

INTRODUCTION

Vocabulary according to Schmitt and McCarty (1997, p.6) as cited in Fadhila (2016) quibble that vocabulary has a influential role for students in increasing English skills. For example, in listening, vocabulary allows students to understand what the other people are saying. Based on the researcher experience during teaching in teaching practicum at MTS YPI Al-Islam students struggle in learning English in class due to several factors, and the most prominent is the lack of vocabulary mastered by students so that they understand less than the material taught in the class. The lack of vocabulary in students occurs due to limited learning time, so students do not have enough time to explore and acquire vocabulary in learning the material delivered by their teacher. In addition, students' lack of motivation in learning vocabulary individually or self-taught also affects the lack of vocabulary in the class. To solve the problems above, the researcher has one technique to improve students vocabulary mastery that is using game.

Game according to Hadfield (1998:4) as cited in Rahayu (2023) is an activity with rules, a goal, and an element of fun. Researcher uses games to help students increasing their English vocabulary, because students can increase their vocabulary in a fun way. This is supported by Octaviani, et al. (2019) who states that Games are any games or activities that include the entire class sitting in a circle, recycling language, and incorporating an element of amusement. It indicates that by using the game in teaching English, the students' vocabulary can be maximally expanded; also, the students will learn English excitedly, enjoyably, and with interest. Therefore, based on the explanation above and several studies that support this paper, the researcher is interested to conduct a research entitled "The Effectiveness of Using Word Race Games To Help Junior High School Students Improve English Vocabulary"

METHOD

Research Design

The research method in this study is quantitative method using a quasi-experimental design. The researcher chooses this method because as noted by Fatah (2019), quasi-experimental methods are very useful for answering assessment questions about the efficacy and impact of programs (Barry & Herman, 1997). In this research methodology it will determine whether using Word Race Games can help students improve their English vocabulary or not. Below is the quasi-experimental design according to Creswell (2012):

Table 3.1 Quasi-Experimental Research Design

Pre- and Post-test Design		Time	
Select Control Group	Pretest	No Treatment	Post-test
Select Experimental Group	Pretest	Experimental Treatment	Post-test

Population and Sample

1. The Population

Population according to Arikunto (2013:173) as cited in Amri (2016) is all subjects in the research. The population in this research is nine-grade students from MTs YPI Al-Islam, consisting of 2 class, having 32 students' each. So, the total is 64 students'.

2. The Sample

The research sample consist of two nine -grade class, that is 9A and 9B class. class 9-A as an experiment class consists of 32 students which was receive treatment by using Word Race Games, and class 9-B as a control class consists of 31 students which was

not receive treatment. The total sample that the researcher will use is 50 students, 25 students from class 9-A which was receive treatment and 25 students from class 9-B which was not receive treatment.

Research Instruments

The subject of this research involves two group or two class. This research applies 3 instruments to collect data, that is pre-test before treatment, post-test, and questionnaire after it. The pre-test and post-test given to the control group and experimental group. The pre-test seeks to assess students' English vocabulary. And the post-test attempts to assess pupils' students' English vocabulary after the treatments. While the questionnaire researcher given after the post-test.

Data Analysis

1. The Test

The data processed using a t-test for independent groups to determine the results. The independent t-test formula and calculation are as follows:

Here is the formula of t-test for pre-test and post-test design according to Arikunto (2006, p.306):

1. Calculate X_1
2. Calculate X_2
3. Calculate ΣX_1^2
4. Calculate ΣX_2^2
5. Calculate $(\Sigma X_1)^2$
6. Calculate $(\Sigma X_2)^2$
7. Obtain the number of scores in each group.
 N_1 = the number of scores in group 1
 N_2 = the number of scores in group 2
8. Enter the values obtained steps 1-7 into the formula for the t-test:

$$t = \frac{X_1 - X_2}{\sqrt{\frac{\Sigma X_1^2 - \frac{(\Sigma X_1)^2}{N_1}}{N_1 + N_2 - 2} + \frac{\Sigma X_2^2 - \frac{(\Sigma X_2)^2}{N_2}}{N_1 + N_2 - 2}}} \cdot \left(\frac{1}{N_1} + \frac{1}{N_2} \right)$$

Where:

- X_1 = the mean of the scores of the first group
 X_2 = the mean of the scores of the second group
 ΣX_1^2 = the sum of the squares of the first group
 ΣX_2^2 = the sum of the squares of the second group
 $(\Sigma X_1)^2$ = the squares of the sum of the scores of the first group
 $(\Sigma X_2)^2$ = the squares of the sum of the scores of the second group
 N_1 = the total number of scores in the first group
 N_2 = the total number of scores in second group

Interpret the result of the computation

2. The Questionnaire

For the questionnaire, the researcher uses the formula as follows:

$$P = \frac{F}{N} \times 100\%$$

Where: P = Percentage

F = Frequency of Each Questionnaire

N = Number of Responden

After getting the result of percentage for calculating the questionnaire, the researcher categorized it into the standard validity as follows:

Table 3.2 The Interpretation Criteria

No	R%	Criteria
1	0	None
2	1-25	Small number of
3	26-49	Nearly half of
4	50	Half of
5	51-75	More than half of
6	76-99	Almost all of
7	100	All of

RESULT AND DISCUSSION

Result

The table below is the data scores of pre-tests which collected by the researcher:

Table 4.1 The Data Scores of Pre-tests

No	Experimental Class		Control Class	
	Sample	X1	Sample	X2
1	Student 1	55	Student 1	50
2	Student 2	55	Student 2	70
3	Student 3	50	Student 3	85
4	Student 4	55	Student 4	45
5	Student 5	80	Student 5	65
6	Student 6	50	Student 6	60
7	Student 7	40	Student 7	65
8	Student 8	45	Student 8	60
9	Student 9	65	Student 9	20
10	Student 10	55	Student 10	55
11	Student 11	50	Student 11	50
12	Student 12	45	Student 12	55
13	Student 13	45	Student 13	45
14	Student 14	40	Student 14	70
15	Student 15	45	Student 15	65
16	Student 16	60	Student 16	50
17	Student 17	75	Student 17	65
18	Student 18	40	Student 18	55
19	Student 19	60	Student 19	50
20	Student 20	75	Student 20	35
21	Student 21	70	Student 21	60
22	Student 22	45	Student 22	60
23	Student 23	60	Student 23	75
24	Student 24	40	Student 24	45
25	Student 25	40	Student 25	60

According to the table above, the experimental class's highest pretest score was 80, achieved by one student, while the lowest score was 40, obtained by four students. In the control class, one student received the highest score of 85, while one student had the lowest score of 20. The mean score in the experimental class was 53.6. From the data above, the researcher used the t-test procedure to compute the students' pre-test scores. To make the computation easier, the data scores from the pre-test were collated and organized in the table below:

Table 4.2 The Computation of Pre-test Data

No	Experimental Class			Control Class		
	Sample	X ₁	X ₁ ²	Sample	X ₂	X ₂ ²
1	Student 1	55	3025	Student 1	50	2500
2	Student 2	55	3025	Student 2	70	4900
3	Student 3	50	2500	Student 3	85	7225
4	Student 4	55	3025	Student 4	45	2025

5	Student 5	80	6400	Student 5	65	4225
6	Student 6	50	2500	Student 6	60	3600
7	Student 7	40	1600	Student 7	65	4225
8	Student 8	45	2025	Student 8	60	3600
9	Student 9	65	4225	Student 9	20	400
10	Student 10	55	3025	Student 10	55	3025
11	Student 11	50	2500	Student 11	50	2500
12	Student 12	45	2025	Student 12	55	3025
13	Student 13	45	2025	Student 13	45	2025
14	Student 14	40	1600	Student 14	70	4900
15	Student 15	45	2025	Student 15	65	4225
16	Student 16	60	3600	Student 16	50	2500
17	Student 17	75	5625	Student 17	65	4225
18	Student 18	40	1600	Student 18	55	3025
19	Student 19	60	3600	Student 19	50	2500
20	Student 20	75	5625	Student 20	35	1225
21	Student 21	70	4900	Student 21	60	3600
22	Student 22	45	2025	Student 22	60	3600
23	Student 23	60	3600	Student 23	75	5625
24	Student 24	40	1600	Student 24	45	2025
25	Student 25	40	1600	Student 25	60	3600
Σ		$\Sigma X_1 = 1340$	$(\Sigma X_1)^2 = 1,795,600$	Σ	$\Sigma X_2 = 1415$	$(\Sigma X_2)^2 = 2,002,225$
$X_1 = \frac{\Sigma x_1}{N_1} = \frac{1340}{25} = 53,6$				$X_1 = \frac{\Sigma x_2}{N_2} = \frac{1415}{25} = 56,6$		

From the table above the researcher gets:

X_1 = the mean of the scores of the first group = 53,6

X_2 = the mean of the scores of the second group = 56,6

ΣX_1^2 = the sum of the squares of the first group = 75,300

ΣX_2^2 = the sum of the squares of the second group = 84,325

$(\Sigma X_1)^2$ = the squares of the sum of the scores of the first group = 1,795,600

$(\Sigma X_2)^2$ = the squares of the sum of the scores of the second group = 2,002,225

N_1 = the total number of scores in the first group = 25

N_2 = the total number of scores in second group = 25

From the data above, the researcher computed the data using t-test formula, the steps are:

Step 1: Calculate the $\bar{X}_1$ (the sum of mean of experimental class)

$$\bar{X}_1 = \frac{55+55+50+55+80+50+40+45+65+55+50+45+45+40+45+60+75+40+60+75+70+45+60+40+40}{25} = \frac{1340}{25} = 53.6$$

Step 2: Calculate the $\bar{X}_2$ (the sum of mean of control class)

$$\bar{X}_2 = \frac{50+70+85+45+65+60+65+60+20+55+55+45+70+65+50+65+55+50+35+60+60+75+45+60}{25} = \frac{1415}{25} = 56.6$$

Step 3: Calculate ΣX_1^2 (the sum of square of experimental class)

$$\begin{aligned}\Sigma X_1^2 &= 55^2 + 55^2 + 50^2 + 55^2 + 80^2 + 50^2 + 40^2 + 45^2 + 65^2 + 55^2 + 50^2 + 45^2 + 45^2 + 40^2 + 45^2 + \\ &\quad 60^2 + 75^2 + 40^2 + 60^2 + 75^2 + 70^2 + 45^2 + 60^2 + 40^2 + 40^2 \\ &= 3025 + 3025 + 2500 + 3025 + 6400 + 2500 + 1600 + 2025 + 4225 + 3025 + 2500 + \\ &\quad 2025 + 2025 + 1600 + 2025 + 3600 + 5625 + 1600 + 3600 + 5625 + 4900 + 2025 + \\ &\quad 3600 + 1600 + 1600 \\ \Sigma X_1^2 &= 75,300\end{aligned}$$

Step 4: Calculate ΣX_2^2 (the sum of squares of control class)

$$\begin{aligned}\Sigma X_2^2 &= 50^2 + 70^2 + 85^2 + 45^2 + 65^2 + 60^2 + 65^2 + 60^2 + 20^2 + 55^2 + 50^2 + 55^2 + 45^2 + 70^2 + 65^2 + \\ &\quad 50^2 + 65^2 + 55^2 + 50^2 + 35^2 + 60^2 + 60^2 + 75^2 + 45^2 + 60^2 \\ &= 2500 + 4900 + 7225 + 2025 + 4225 + 3600 + 4225 + 3600 + 400 + 3025 + 2500 + \\ &\quad 3025 + 2025 + 4900 + 4225 + 2500 + 4225 + 3025 + 2500 + 1225 + 3600 + 3600 + \\ &\quad 5625 + 2025 + 3600 \\ \Sigma X_2^2 &= 84,325\end{aligned}$$

Step 5: Calculate $(\Sigma X_1)^2$ (the squares of the sum of the scores of the experimental class)

$$\begin{aligned}(\Sigma X_1)^2 &= (55 + 55 + 50 + 55 + 80 + 50 + 40 + 45 + 65 + 55 + 50 + 45 + 45 + 40 + 45 + 60 + 75 + \\ &\quad 40 + 60 + 75 + 70 + 45 + 60 + 40 + 40)^2 \\ &= (1340)^2 = 1,795,600\end{aligned}$$

Step 6: $(\Sigma X_2)^2$ (the squares of the sum of the scores of the control class)

$$\begin{aligned}(\Sigma X_2)^2 &= (50 + 70 + 85 + 45 + 65 + 60 + 65 + 60 + 20 + 55 + 50 + 55 + 45 + 70 + 65 + 50 + 65 + \\ &\quad 55 + 50 + 35 + 60 + 60 + 75 + 45 + 60)^2 \\ &= (1415)^2 = 2,002,225\end{aligned}$$

Step 7: Calculate the Df (sum the number of experimental and control class)

$N_1 = 25$ (the number of Experimental Class)

$N_2 = 25$ (the number of Control Class)

$$Df = N_1 + N_2 - 2$$

$$Df = 25 + 25 - 2 = 48$$

Step 8: Enter the values obtained in steps 1-7 into the formula for the t-test

$$\begin{aligned}t &= \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{\Sigma x_1^2 - \frac{(\Sigma x_1)^2}{N_1}}{N_1 + N_2 - 2} + \frac{\Sigma x_2^2 - \frac{(\Sigma x_2)^2}{N_2}}{N_1 + N_2 - 2} \right) \cdot \left(\frac{1}{N_1} + \frac{1}{N_2} \right)}} \\ t &= \frac{53.6 - 56.6}{\sqrt{\left(\frac{75,300 - \frac{(1340)^2}{25}}{25 + 25 - 2} + \frac{84,325 - \frac{(1415)^2}{25}}{25 + 25 - 2} \right) \cdot \left(\frac{1}{25} + \frac{1}{25} \right)}} \\ &= \frac{53.6 - 56.6}{\sqrt{\left(\frac{75,300 - \frac{1,795,600}{25}}{48} + \frac{84,325 - \frac{2,002,225}{25}}{48} \right) \cdot \left(\frac{2}{25} \right)}}\end{aligned}$$

$$\begin{aligned}
&= \frac{53.6 - 56.6}{\sqrt{\left(\frac{75,300 - 71,824 + 84,325 - 80,089}{48}\right) \cdot \left(\frac{2}{25}\right)}} \\
&= \frac{-3}{\sqrt{\left(\frac{3,476 + 4,236}{48}\right) \cdot \left(\frac{2}{25}\right)}} \\
&= \frac{-3}{\sqrt{\left(\frac{7,712}{48}\right) \cdot \left(\frac{2}{25}\right)}} = \frac{-3}{\sqrt{(160.66) \cdot \left(\frac{2}{25}\right)}} \\
&= \frac{-3}{\sqrt{12.85}} = \frac{-3}{3.58} = -0,837 \\
\text{T-test Value} &= -0,837
\end{aligned}$$

Step 9: Interpret the result of computation

With the degree of freedom / $Df = N_1 + N_2 - 2 = 25 + 25 = 50 - 2 = 48$, at $p = .05$ of two tailed, critical value of t is 2.021. As the value of t is lower than the t -table ($-0,837 < 2.021$) the Null Hypothesis (H_0) is retained and the Alternative Hypothesis (H_a) is rejected, stating that the result of the pre-test the researcher gave treatment to the experimental class.

The table below is the data scores of post-tests which collected by the researcher:

Table 4.3 The Data Scores of Post-tests

No	Experimental Class		Control Class	
	Sample	X1	Sample	X2
1	Student 1	90	Student 1	65
2	Student 2	95	Student 2	65
3	Student 3	55	Student 3	95
4	Student 4	45	Student 4	40
5	Student 5	90	Student 5	80
6	Student 6	60	Student 6	20
7	Student 7	100	Student 7	55
8	Student 8	60	Student 8	50
9	Student 9	85	Student 9	70
10	Student 10	60	Student 10	65
11	Student 11	60	Student 11	25
12	Student 12	65	Student 12	35
13	Student 13	60	Student 13	60
14	Student 14	50	Student 14	60
15	Student 15	70	Student 15	75
16	Student 16	70	Student 16	70
17	Student 17	80	Student 17	55
18	Student 18	100	Student 18	65
19	Student 19	100	Student 19	60
20	Student 20	100	Student 20	40
21	Student 21	90	Student 21	55
22	Student 22	50	Student 22	30

23	Student 23	100	Student 23	85
24	Student 24	95	Student 24	55
25	Student 25	80	Student 25	55

Following data collection, the researcher used the t-test procedure to compute the students' pre-test scores. To make the computation easier, the data scores from the pre-test were collated and organized in the table below:

Table 4.4 The Computation of The Post-Test Data

No	Experimental Class			Control Class		
	Sample	X ₁	X ₁ ²	Sample	X ₂	X ₂ ²
1	Student 1	90	8100	Student 1	65	4225
2	Student 2	95	9025	Student 2	65	4225
3	Student 3	55	3025	Student 3	95	9025
4	Student 4	45	2025	Student 4	40	1600
5	Student 5	90	8100	Student 5	80	6400
6	Student 6	60	3600	Student 6	20	400
7	Student 7	100	10000	Student 7	55	3025
8	Student 8	60	3600	Student 8	50	2500
9	Student 9	85	7225	Student 9	70	4900
10	Student 10	60	3600	Student 10	65	4225
11	Student 11	60	3600	Student 11	25	625
12	Student 12	65	4225	Student 12	35	1225
13	Student 13	60	3600	Student 13	60	3600
14	Student 14	50	2500	Student 14	60	3600
15	Student 15	70	4900	Student 15	75	5625
16	Student 16	70	4900	Student 16	70	4900
17	Student 17	80	6400	Student 17	55	3025
18	Student 18	100	10000	Student 18	65	4225
19	Student 19	100	10000	Student 19	60	3600
20	Student 20	100	10000	Student 20	40	1600
21	Student 21	90	8100	Student 21	55	3025
22	Student 22	50	2500	Student 22	30	900
23	Student 23	100	10000	Student 23	85	7225
24	Student 24	95	9025	Student 24	55	3025
25	Student 25	80	6400	Student 25	55	3025
Σ		$\Sigma X_1 = 1910$	$(\Sigma X_1)^2 = 154,450$	Σ	$\Sigma X_2 = 1430$	$(\Sigma X_2)^2 = 89,750$
$X_1 = \frac{\Sigma x_1}{N_1} = \frac{1910}{25} = 76,4$				$X_2 = \frac{\Sigma x_2}{N_2} = \frac{1430}{25} = 57,2$		

From the table above the researcher gets:

X_1 = the mean of the scores of the first group = 76,4

X_2 = the mean of the scores of the second group = 57,2

ΣX_1^2 = the sum of the squares of the first group = 154,450

ΣX_2^2 = the sum of the squares of the second group = 89,750

$(\Sigma X_1)^2$ = the squares of the sum of the scores of the first group = 3,648,100

$(\Sigma X_2)^2$ = the squares of the sum of the scores of the second group = 2,044,900

N_1 = the total number of scores in the first group = 25

N_2 = the total number of scores in second group = 25

From the data above, the researcher computed the data using t-test formula, the steps are:

Step 1: Calculate the $\bar{X}_1$ (the sum of mean of experimental class)

$$\begin{aligned}\bar{X}_1 &= \frac{90+95+55+45+90+60+100+60+85+60+60+65+60+50+70+70+80+100+100+100+90+50+100+95+80}{25} \\ &= \frac{1910}{25} = 76.4\end{aligned}$$

Step 2: Calculate the $\bar{X}_2$ (the sum of mean of control class)

$$\begin{aligned}\bar{X}_2 &= \frac{65+65+95+40+80+20+55+50+70+65+25+35+60+60+75+70+55+65+60+40+55+30+85+55+55}{25} \\ &= \frac{1430}{25} = 57.2\end{aligned}$$

Step 3: (the sum of square of experimental class)

$$\begin{aligned}\sum X_1^2 &= 90^2+95^2+55^2+45^2+90^2+60^2+100^2+60^2+85^2+60^2+60^2+65^2+60^2+50^2+70^2+ \\ &\quad 70^2+80^2+100^2+100^2+100^2+90^2+50^2+100^2+95^2+80^2 \\ &= 8100+9025+3025+2025+8100+3600+10000+3600+7225+3600+3600+ \\ &\quad 4225+3600+2500+4900+4900+6400+10000+10000+10000+8100+ \\ &\quad 2500+10000+9025+6400 \\ \sum X_1^2 &= 154,450\end{aligned}$$

Step 4: Calculate $\sum X_2^2$ (the sum of squares of control class)

$$\begin{aligned}\sum X_2^2 &= 65^2+65^2+95^2+40^2+80^2+20^2+55^2+50^2+70^2+65^2+25^2+35^2+60^2+60^2+ \\ &\quad 75^2+70^2+55^2+65^2+60^2+40^2+55^2+30^2+85^2+55^2+55^2 \\ &= 2500+4900+7225+2025+4225+3600+4225+3600+400+3025+2500+ \\ &\quad 3025+2025+4900+4225+2500+4225+3025+2500+1225+3600+3600+ \\ &\quad 5625+2025+3600 \\ \sum X_2^2 &= 89,750\end{aligned}$$

Step 5: Calculate $(\sum X_1)^2$ (the squares of the sum of the scores of the experimental class)

$$\begin{aligned}(\sum X_1)^2 &= (90+95+55+45+90+60+100+60+85+60+60+65+60+50+70+70+80+ \\ &\quad 100+100+100+90+50+100+95+80)^2 \\ &= (1910)^2 = 3,648,100\end{aligned}$$

Step 6: $(\sum X_2)^2$ (the squares of the sum of the scores of the control class)

$$\begin{aligned}(\sum X_2)^2 &= (65+65+95+40+80+20+55+50+70+65+25+35+60+60+75+70+55+ \\ &\quad 65+60+40+55+30+85+55+55)^2 \\ &= (1430)^2 = 2,044,900\end{aligned}$$

Step 7: Calculate the Df (sum the number of experimental and control class)

$N_1 = 25$ (the number of Experimental Class)

$N_2 = 25$ (the number of Control Class)

$$Df = N_1 + N_2 - 2$$

$$Df = 25 + 25 - 2 = 48$$

Step 8: Enter the values obtained in steps 1-7 into the formula for the t-test

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{\sum x_1^2 - \frac{(\sum x_1)^2}{N_1}}{N_1 + N_2 - 2} + \frac{\sum x_2^2 - \frac{(\sum x_2)^2}{N_2}}{N_1 + N_2 - 2} \right) \cdot \left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

$$t = \frac{76.4 - 57.2}{\sqrt{\left(\frac{154,450 - \frac{(1910)^2}{25}}{25 + 25 - 2} + \frac{89,750 - \frac{(1430)^2}{25}}{25 + 25 - 2} \right) \cdot \left(\frac{1}{25} + \frac{1}{25} \right)}}$$

$$= \frac{76.4 - 57.2}{\sqrt{\left(\frac{154,450 - \frac{3,648,100}{25}}{48} + \frac{89,750 - \frac{2,044,900}{25}}{48} \right) \cdot \left(\frac{2}{25} \right)}}$$

$$= \frac{76.4 - 57.2}{\sqrt{\left(\frac{154,450 - 145,924}{48} + \frac{89,750 - 81,796}{48} \right) \cdot \left(\frac{2}{25} \right)}}$$

$$= \frac{19.2}{\sqrt{\left(\frac{8,526 + 7,954}{48} \right) \cdot \left(\frac{2}{25} \right)}}$$

$$= \frac{19.2}{\sqrt{\left(\frac{16,480}{48} \right) \cdot \left(\frac{2}{25} \right)}} = \frac{19.2}{\sqrt{(343.333) \cdot \left(\frac{2}{25} \right)}}$$

$$= \frac{19.2}{\sqrt{27.46}} = \frac{19.2}{5.24} = 3.664$$

T-test value = 3,664

Step 9: Interpret the result of computation

With the degree of freedom / $Df = N_1 + N_2 - 2 = 25 + 25 = 50 - 2 = 48$, at $p = .05$ of two tailed, critical value of t is 2.021. As the value of t is bigger than the t -table ($3.664 > 2.021$) the Null Hypothesis (H_0) is rejected and the Alternative Hypothesis (H_a) is accepted, stating that there is significant difference in result between treatment by using word race games and by using conventional method in improving vocabulary to the nine-grade of MTs YPI Al-Islam after giving treatments.

The result of questionnaire can be shown in the table below:

Table 4.6 The Data of Questionnaire

No.	Questions	Responses	
		Yes	No
1	Do you know what "English Vocabulary" is? (Apakah anda tau apa itu "Kosakata Bahasa Inggris"?)	22 (88%)	3 (12%)
2	Did you know that "English vocabulary" is important for learning? (Apakah anda mengetahui bahwa "Kosakata Bahasa Inggris" penting untuk pembelajaran?)	25 (100%)	0 (0%)

3	Do you know about Word Race Games? (Apakah anda mengetahui tentang Word Race Games?)	13 (52%)	12 (48%)
4	Have you ever learned English by using Word Race Games? (Pernahkah anda belajar Bahasa Inggris dengan menggunakan Word Race Games?)	9 (36%)	16 (64%)
5	Is learning English using Word Race Games new to you? (Apakah belajar Bahasa Inggris dengan menggunakan Word Race Games adalah hal yang baru untuk anda?)	25 (100%)	0 (0%)
6	After studying with Word Race Games, do you enjoy learning English by using Word Race Games? (Setelah belajar dengan Word Race Games, apakah anda menikmati pembelajaran Bahasa Inggris dengan menggunakan Word Race Games?)	24 (96%)	1 (4%)
7	Is learning vocabulary by using Word Race Games fun? (Apakah pembelajaran kosakata dengan menggunakan Word Race Games menyenangkan?)	25 (100%)	0 (0%)
8	Is it really interesting to improve your English vocabulary with Word Race Games? (Apakah menambah kosakata Bahasa Inggris dengan Word Race Games sangat menarik?)	25 (100%)	0 (0%)
9	Are there any difficulties in learning English vocabulary using Word Race Games? (Apakah ada kesulitan dalam belajar kosakata Bahasa Inggris menggunakan Word Race Games?)	6 (24%)	19 (76%)
10	Does vocabulary by using Word Race Games become easier? (Apakah pembendaharaan kosakata dengan menggunakan Word Race Games menjadi lebih mudah?)	22 (88%)	3 (12%)
11	After learning English vocabulary with Word Race Games, does your vocabulary increase? (Setelah belajar kosakata Bahasa Inggris dengan Word Race Games, apakah kosakata anda bertambah?)	24 (96%)	1 (4%)
12	Does learning English vocabulary using Word Race Games need to be implemented in your class? (Apakah pembelajaran kosakata Bahasa Inggris menggunakan Word Race Games perlu diterapkan di kelas anda?)	24 (96%)	1 (4%)

Discussion

From the result of the pre-test computation in findings it's found that the score in the experimental class was 53,6 and the score in the control class was 56,6. While the KKM (Minimum Complution Criteria) or target score of English langusage in nine-grade of MTs YPI Al-Islam was 75. The result of the pre-test is lower than target score, then the researcher gave treatment to raised the scores.

From the result of the post-test computation it's found that the score in the experimental class was 76,4 and the score in the control class was 57,2. While the KKM (Minimum Complution Criteria) or target score of English langusage in nine-grade of MTs YPI Al-Islam was 75. The result of the post-test in the experimental class was higher than KKM or target score after treatment by using word race games, while the result in the control class was higher but not significant and still lower than KKM or target score because no treatment.

CONCLUSSION

Based on the research findings from Chapter IV, it is possible to draw conclusions that employing word race games is an excellent way to develop students' English vocabulary. According to the findings of the study, there was a substantial difference in post-test scores between the experimental and control classes. The post-test experimental class had a higher mean score than the control class. The Null Hypothesis (Ho) is rejected, whereas the Alternative Hypothesis (Ha) is accepted. Stating that there is a significant difference between employing word race games and conventional methods to boost pupils' English vocabulary in the ninth grade of junior high school.

It can be seen on questionnaire that almost all of students like learning English with word race games. It was shown by the result of the questionnaire that improving English vocabulary in nine-grade of Junior High School students is effective. It can be conclude that student's response were positive, that word race games was very helpful for students improving English vocabulary, because students can easily improving vocabulary with fun way. Therefore, the use word race games was effective to improve students' English vocabulary at the nine-grade of MTs YPI Al-Islam.

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