

## THE EFFECTIVENESS OF INFOGRAPHIC IN TEACHING READING COMPREHENSION

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### Abstrak

Penelitian ini dilakukan untuk mengetahui keefektifan infografis dalam pengajaran pemahaman membaca dan seberapa signifikan keefektifan infografis dalam pemahaman membaca siswa di SMA N 01 Lumar. Bentuk penelitian ini adalah Pre-Experimental Study dengan one-group pre-test and post-test design. Populasi dalam penelitian ini adalah siswa kelas X SMA N 01 Lumar Tahun Pelajaran 2020/2021. Sampel penelitian ini adalah X IPA I yang dipilih dengan teknik cluster random sampling. Teknik pengumpulan data yang digunakan dalam penelitian ini adalah pengukuran. Alat penelitian ini adalah tes. Peneliti meminta kepada validator dan melakukan uji coba terhadap tes sebelum tes diberikan kepada sampel untuk mendapatkan validitas tes. Pilihan ganda yang terdiri dari 20 item dalam penelitian ini digunakan untuk mendapatkan data setelah penerapan infografis. Data dianalisis dengan menggunakan SPSS 26. Hasil penelitian ini menunjukkan bahwa infografis efektif dalam pengajaran pemahaman membaca dan terdapat pengaruh perbedaan yang cukup signifikan. Disarankan kepada peneliti selanjutnya menyajikan sajian infografis yang bagus dan menarik.

**Kata Kunci:** Infografis, Mengajar Pemahaman Membaca, Penelitian Pre-Experimental

### Abstract

This research was conducted to investigate the effectiveness of infographic in teaching reading comprehension and how significance the effectiveness of infographic are in students reading comprehension at SMA N 01 Lumar. The form of this study was a Pre-Experimental Study with a one-group pre-test and post-test design. The Population of the research was students at Tenth Grade Students of SMA N 01 Lumar in the Academic Year of 2020/2021. The sample of this research was X IPA I selected using a cluster random sampling technique. The technique of data collection applied in this research is measurement. The tool of this research was a test. The researcher ask the validator and conduct the tryout to the test before the test was given to the sample to get the validity of the test. The multiple-choice that consists of 20 items in this research were used to get the data after implementation of the infographic. The data was analyzed by used SPSS 26. The results of this research showed that the infographic was effective in teaching reading comprehension and there is a modest significant difference effect. Suggested to the future researcher presents the great and interesting in infographic presentation.

**Keywords:** *Infographic, Teaching Reading Comprehension, Pre-Experimental Research.*

## INTRODUCTION

Reading is fundamental for students to gain more knowledge. One of the important language skills is reading because without this skill learners cannot obtain various information acquired through reading textbooks, novels, newspapers, and magazines Anita, *et al.* (2020). Reading is very important in the development of science because to transfer knowledge is mostly by reading. Reading is also an interaction between the reader and the writer Aunurrahman, *et al.* (2020).

Reading comprehension is where the readers can understand the text. Reading comprehension is the ability to comprehend written text with meaning Aunurrahman, *et al.* (2020). According to Woolley (2011:15) “reading comprehension is the process of making from the text. The readers need to be able to comprehend what they are reading that involves the process grammatical structures, vocabulary, and meaning

Teaching reading in English is challenging because the readers need to be able to comprehend what they are reading that involves the process of grammatical structures, vocabulary, and meaning. Furthermore teaching reading is challenging because it is hard to look for the best way to increase students reading comprehension with students' different intellectual.

One of many things that education prepared for globalization is curriculum 2013. Therefore learning is achieved implemented in the world that has benefits for life”. Curriculum 2013 asks students to be more critical to comprehend text to open up students' insight.

Based on an interview with an English teacher at SMA N 01 Lumar, the teacher has implemented a few media in teaching reading. However, according to the teacher, the media used is still not efficient to get all students involved in the process of learning and teaching activities in reading comprehension, even some of the students look passive and do not get anything after reading.

Media helps the teacher improve students' reading comprehension in teaching reading, an infographic is an effective media to help the teacher in teaching reading comprehension, education has been used the infographic as a visualization of literacy media. According to Ferreira (2014:12) “an infographic or information graphic is a type of picture that elaborates data with a design that can help individuals and organizations concisely communicate messages to their audience”. Infographic is one of the types of media that mixing the data and text with design, helps people and organizations to concisely tell the message to their audiences.

This study aims to find out the effectiveness of infographic in teaching reading comprehension to the tenth grade students of SMA N 01 Lumar and to find out how significance the effectiveness of infographic in teaching reading comprehension to the tenth grade students of SMA N 01 Lumar.

Studies show that the utilization of modern technologies in classrooms allows learners to learn faster with better function and with more satisfaction from their class attendance ( Naparin.

H & Saad. B.A 2017). The attraction of infographics seems to be inherent within their nature since people are drawn to visualization, colors, and images of the infographics itself. An infographic can transfer knowledge about some topic faster and more effectively than pure text however, this condition is depending on the quality and presentation of the infographic.

The result of the journal that been conduct by Mahdah Ridaillah (2018) entitled “The Effect of Infographics on Students’ Writing Summary Skill” The Research that aims to obtain empirical data about the effect The infographic on this student's writing summary resulted that the infographic showed a significant effect on the summary writing skills of the eleventh-grade students’ of MAN 2 Bogor.

Based on the phenomena above it be necessary to conduct research entitled: “The Effectiveness Of Infographic In Teaching Reading Comprehension At SMA N 01 Lumar”. Hopefully by doing this research can be a solution to the problem in teaching reading comprehension.

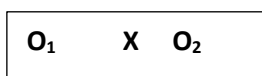
## **METHODOLOGY**

### **Research Design**

The researcher employed a pre-experimental study design. According to Ary *et al*, (2010:302) “Pre Experimental study does not have a random assignment of a subject to groups or to another strategy to control extraneous variable”. The researcher has used a pre-experimental design in this study is by one group pre-test and post-test design the researcher was given the pre-test before the treatment and post-test were gave after treatment, In this research, the researcher focused used one class to evaluate the students reading comprehension that class of the experiment is X I IPA. The researcher gave the pre-test before the treatment to the X IPA I class and teaching reading comprehension to the X IPA I class used infographic, next after the treatment the researcher gave the students the post to the X IPA I to find out the result whether the infographic effective in students reading comprehension and to find out how significant the effect of infographic in students reading comprehension.

### **One Group Pre-test and Post-test Design**

Where :



$O_1$  : Pre Test

**O<sub>2</sub>** : Post Test

**X** : Treatment

*Adopted from cohen et al (2018:407)*

### **Population and Sample**

The population in this research was X Class at SMA N 01 Lumar. The sample was X IPA 1 that consist 15 students and selected used cluster random sampling. According to Fraenkel (2012:96). Cluster sampling is a sampling technique to select a sample that is not based on the individual but rather is based on the group.

### **Technique of Data Collection**

The researcher was applied the measurement technique when collecting the data. The measurement technique in this research was to measure students' achievement in reading comprehension by using an infographic. According to Hadari Nawawi (2015: 101) "measurement technique is a way of collecting quantitative data to determine the level or degree of certain aspects compared to certain norms as a relevant unit of measure". The measurement was given twice to the students' pre-test and post-test. The purposes of the measurement are to investigate the effectiveness of the infographic and to find out the significant difference in students reading comprehension before and after the treatment.

### **Tool of Data Collection**

To conduct the research, the tool that was used in this research is a multiple-choice test. According to Nana Sudjana (2017:35) "The multiple-choice format can be used to assess a wide range of learning outcomes across all cognitive levels". The researcher applied a multiple-choice test that consist of 30 items that was validated by the researcher by asked the validator and conduct the tryout. The kind of multiple-choice in this research was the multiple-choice test with five options. The students asked the answer question by choosing the letter a,b,c,d, or e. the test was conducted for pre-test and post-test.

The researcher conduct the tryout for the multiple-choice to the X IPA II class that not be a sample in this research before gave the pre-test and post-test to the sample. The researchergave the same questions for a pre-test and post-test and randomize the questions.

### **Technique of Data Analysis**

The researcher used descriptive quantitative to analyzed the data. Descriptive quantitative were used to described and presented the data, while the inferential statistic strived to make

inferences and predictions based on the data gathered. It means that in this research the descriptive statistic was used to inference the data gathered to determine the hypotheses accepted or rejected, to analyze the data, the researcher used computer software SPSS Version 26, while the following formula is going to be used in a manual approach:

**Research Procedures**

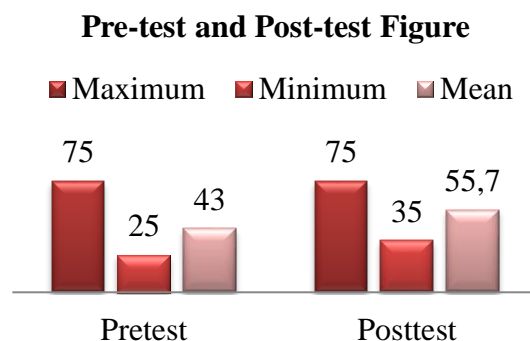
The procedures in this research was involved three steps namely pre-field step, fieldwork step, and data analysis stage. The researcher asked the permission from to the headmaster of the school, and prepared the instrument and infographic. And the researcher choose the class that was took for sample in this research used cluster random sampling. And conduct the tryout to validated the test.

The researcher was gave the pre-test as the first step in the collecting the data. After the pre-test was gave to the sample the researcher gave the treatment with teaching reading comprehension used infographic twice then gave the post-test to find the result of the treatment used infographic. After all the data collected the researcher was calculated the data used SPSS Version 26 to find out the: (a) individual score of pre-test and post-test, (b) mean score, (c) standard deviation, (d) normality test, (e) t test, (f) hypotheses testing and (g) effect size.

**Findings and Discussion**

The data that been analyzed was consist into pre-test and post-test. The result of of pre-test was 645 that was collected from 15 students. The min score of pre-test was 75 and max score was 25. The mean score of pre-test was 43 with standard deviation 15,1. The students was still not hard to understanding the questions because they were had less vocabulary in English.

The result of the post-test showed that total score was 835, min score was 75 the the max score was 35, the mean score of post-test was 55,7 and the standard deviation 10,7. After the implementation of infograhic the students already understand to analyzed what is the questions means. The comparison between the pre-test and post-test can be seen in the figure bellow:



**Figure 4.1**

The figure above showed that the students' mean score of the post-test was higher than students' mean score of the pre-test. The value of the difference between the pre-test and the post-test mean score was. 12,7, Therefore, It can be concluded that the treatments gave a significant difference in students reading comprehension.

Standard deviation represents the deviation of the values of a set of data from its average or mean. If the standard deviation is lower, it means that the values are very close to their average. Otherwise if the standard deviation is greater, it means that the values are far scattered from the average value. In this research, the researcher employed SPSS Statistic 26 to calculated the students' standard deviation. In table 4.1. The data showed that the Standard Deviation of the pre-test was 15.1 and the post-test was 10.7. It can be concluded that the standard deviation of the pre-test higher than the post-test. Therefore, the student's score in the pre-test was far from the average value. Meanwhile, the student's score in the post-test was far from the average value after implemented the infographic in teaching reading comprehension.

To proved that the data of pre-test and post-test was distributed normal this study was applied the t-test paired sample as the normality test. The Shaphiro-Wilk test was found that the data was normal distributed. Proved by the normality test table down bellow:

**Table 4.2 Normality Test**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	D	Sig.
Nilai Pretest	.181	15	.200*	.924	15	.219
Nilai Posttest	.164	15	.200*	.970	15	.860

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the Normality Test Table above it can be concluded that, the value of Asymp. sig value 0.860 > 0.05 then the value is normally distributed. Refers to the test of normality

calculation, data assumed in a normal distribution, a parametric statistic that is t-test would be used in this research.

After normality test conducted the researcher calculated the T-Test. The data distribution was found as the normal distribution which made the researcher decided to use paired samples t-test to the hypotheses of the first research question. The diction making would be based on the paired samples t-test result of significance value (sig) compared to the value. If the value significance from the paired samples t-test was higher than the  $\alpha$  (0.05), the Null Hypothesis was accepted. The result of computing the data into SPSS version 26 was shown as follow:

**Table 4.3 T-Test Paired Sample Test**

	Paired Differences				t	Df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference				
				Lower				Upper
Pair 1 Pretest - Post Test	-12.667	5.936	1.533	-15.954 -9.379	-8.264	14	.000	

If the 2 (tailed) < 0.05 the there is a significant effect, if 2 (tailed) > 0.05 then there is no significant effect. From the table 4.3 above the 2-tailed > 0.05 (0.00 > 0.05) it is means that there is significant effect between pre-test and post-test. The result of T-Test proved that the  $H_a$  was accepted and  $H_0$  was rejected. It is means that infographic was effective in teaching reading comprehension.

The last was the result of effect size that also result that answer the second research wuestion in this study. In analyzing how significant the effectiveness of the treatment is, the researcher has used the formula of Cresswell's effect size. It was calculated manually. By acknowledging the value of the data calculation it would yield the answer to the second question of this research. The result of the effect size (ES) is described down below:

$$ES = \frac{\bar{X}_2 - \bar{X}_1}{SD}$$

$$ES = \frac{55.7 - 43}{10.7 + 15.1}$$

$$ES = \frac{12.7}{25.8}$$

$$ES = 0.49$$

From the calculation of the effect size (ES) above, it showed that the score was 0.49. it means that the effect size in this research categorized modest effect. According to Cohen et al (2011: 617-618) stated that “the effect size value which less than 0.51 was categorized as modest”.

### **Discussion**

Based on research findings, the researcher would like to discuss the data gathered from the research. For easy reference, the researcher restated the research problems of this research are "is infographic media effective in teaching reading comprehension to the tenth-grade students of SMA N 01 Lumar in the Academic year of 2021/2022?" and " how significant is the effectiveness of infographic media in teaching reading comprehension to the tenth-grade students of SMA N 01 Lumar in the Academic year 2021/2022”.

To answer the research problems and test the hypotheses whether it is accepted or rejected, the researcher analyzed the individual score, mean score, standard deviation, and normality test, Then Analyzed the statistically significant difference between pre-test and post-test. The data were analyzed by using paired sample t-test to test the hypotheses. From the result of the analysis, the findings are as follows: First, the data was found normal, Hypotheses testing is found that the infographic was effective in teaching reading comprehension to the Tenth Grade Students of SMA N 01 Lumar in the Academic year of 2021/2022” proved with  $H_0$  accepted and  $H_a$  rejected. The result of the effect size that the researcher counted manually showed that the effect size was categorized as the modest effect.

Based on the research findings above It can be concluded that the data were normally distributed, the infographic was given a significant difference it can be seen in the result of the T-test that (2-tailed)  $< 0.05$  and infographic were effective in teaching reading comprehension proved with the result of the hypothesis testing. Hypothesis testing determines the effectiveness of the infographic that has been tested in this research. According to Ary et al (2010:178) “hypotheses testing is important to confirm the data analysis” so that it can be concluded that hypotheses testing is the test that determines the result of the problem in the research, Prove with journals that been conduct by Veazie. J Petter (2015) entitle “Understanding Statistical



hypotheses Testing” the journal that aims to give the understanding of hypotheses testing showed that hypotheses testing is a statistically significant result.

The effect size was categorized as a modest effect, which means that the result of the effect size meet the effective standard of this research, where the effective standard of this research is was where the effect size more than 0.21. According to Cohen *et al* (2011:617-618) “Effect size 0,21->1.00 categorize effective”. Although the effect size in this research was Categorize as modest, the infographic still provides good practical value so it does not only require a high effect size to prove a media is useful or not. This is supported by the journal that been conduct by Joseph A Durlak (2019) entitled “Journal of Pediatric Psychology”, the research that aims to offer guidelines regarding the selection, calculation, and interpretation of effect sizes (ES) showed that “large” effects are always more important than “small” or “medium” ones is unjustified. It is not only the magnitude of effect that is important, but also it is a practical or clinical value that must be considered.

The effect of the infographic showed that the infographic practically helped students to think critically in identifying the relationships between the text and the questions.

## **Conclusion**

Based on the discussion in chapter IV of this research it was found infographic was not effectively proved with the result of the effect size in this research was 0.49 which means categorized modest effect in teaching reading comprehension to the Tenth Grade Students of SMA N 01 Lumar in the Academic Year of 2021/2022. And there is a significant difference in this research proved with the result of the T-test that been counted used SPSS 21 showed that 2-tailed  $> 0.05$  ( $0.00 > 0.05$ ) which means that there is a significant effect between the result of pre-test and post-test. The researcher concluded that the infographic gave a positive effect on teaching and learning activity, It is proved from the mean score of pre-test was 43, and the mean score of post-test was 55.7. Infographics help the teacher made students interesting in English class. The problem of the research that made the result of the research showed infographic has modest effect was students hard to analyze the meaning of each word because students had less vocabulary.

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