The Effectiveness of Graphic Organizer Strategy to Improve Reading Comprehension in Eleventh Grade Students at SMA Pancasila Ambulu

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Abstract

Reading comprehension is an important point that needs to be considered in reading activities, namely the ability of students to understand the meaning of the contents of a reading text a whole. Graphic organizer strategy, namely as a graphic diagram or chart that represents the relationship directed by the verb thinking skills associated with the importance of students' reading comprehension. This strategy is effective to help students achieve their reading competence because using graphic organizers that focus on critical and creative thinking elements can help students better grasp the meaning of a text. This study followed a simple research design called pre-experimental research, specifically a static group comparison design. The participants were students from SMA Pancasila Ambulu, with 24 students from 11th Science A and 27 students from 11th Science B. The results revealed that the post-test scores of both the experimental and control groups were significantly different, with a level of significance of ≤ 0.05. This led to rejecting the null hypothesis (Ho) and accepting the alternative hypothesis (Ha). The experimental group scored 90.41 on the post-test, while the control group scored 37.37. This shows a significant difference in reading comprehension levels between students who learned using interactive graphic organizers and those who were taught with student worksheets.

Keywords: Reading Comphrehension, Graphic Diagram.

INTRODUCTION

Reading comprehension is a multifaceted cognitive process that involves two primary skills. The mastery of vocabulary and main ideas, and the ability to engage in critical thinking about verbal concepts (Rubin in Somadyo, 2011). The main objective of reading is to understand the text, which is known as comprehension. This process involves making sense of words, sentences, and the entire text. It is a crucial aspect of reading because it enables readers to obtain the necessary information from the text. Reading is not just about reciting words; it involves constructing an understanding of the text. Developing good comprehension skills takes time and practice, and students must be trained to actively participate in the learning process to enhance their abilities.

English is a mandatory subject in high school, as peer the curriculum of each school. Consequently, it is one of the subjects included in the national exam. Recent national exams have shown that students' proficiency in comprehending learning materials, particularly those related to reading, is below the expected standard. Students often feels confusion when faced with reading materials. They tend to avoid looking up difficult words in the dictionary and may not pay sufficient attention to the text. Instead, they may simply focus on familiar elements or any pictures that are present in the text. As a result, they may lack curiosity and fail to fully comprehend the text. Therefore this research aims to improve student achievement in reading comprehension. For improving students' reading achievement, teacher need to use appropriate strategies in teaching reading. (Bouchard, 2005) believes that using graphic organizers is a highly effective method for facilitating student learning. Graphic organizers provide a visual representation of the structure of reading texts and are an appropriate and valuable tool for structured teaching. Hibbard and Wagne in Purwaningsih (2013) reveal a graphic organizer strategy as a visual representation, such as a chart or diagram, can illustrate the relationship between thinking skills and the significance of reading comprehension for students. This implies that by using graphic organizers, students can visually organize reading texts based on key concepts. A graphic organizer is essentially a chart that depicts the relationships between terms, facts, and ideas in a learning task.

According to Burke (2003), the use of graphic organizer strategy is a beneficial tool for students to identify and analyze the characteristics of text, allowing them to approach reading materials more strategically. As a result, teachers can use graphic organizers to help students achieve higher levels of reading comprehension. Graphic organizers that focus on critical and creative thinking elements can enhance students' ability to comprehend and interpret the meaning of a text. Furthermore, graphic organizers can help students break down content into smaller, more manageable units, increasing their focus on the material. This strategy provides a new language for classroom communication and enables a deeper understanding of the content that teachers aim to convey.

The focus of this study is to explore how the use of graphic organizers can enhance reading comprehension. Reading comprehension is a critical skill that requires time and effort to develop, and it can also expand one's English vocabulary by describing objects and events in English. The graphic organizer strategy is beneficial in helping students identify the main ideas and details in a text, as well as recognize patterns of comparison, contrast, and sequences of events. This strategy can make it easier for students to locate information in a passage and improve their overall reading comprehension.

METHOD

This study at SMA Pancasila Ambulu aimed to see if teaching students with graphic organizers or student worksheets made a big difference in their reading skills. They used a research design called pre-experimental research, specifically the static group comparison design. The participants in this study were selected purposively based on an interview with the English teacher and their scores on a reading test. The sample included 24 students from 11th Science A and 27 students from class 11th science B at SMA Pancasila Ambulu.

In this study, two methods will be employed to gather data: tests and documentation. The test will contain 30 multiple-choice questions and will be constrained by a 45-minutes-time frame. The utilization of multiple-choice questions is advantageous because it enhances students' comprehension of the text, as all the provided choices are closely linked to the text's content. During the test, students will be presented with four options to select from, facilitating the development of effective question-answering skills through the process of eliminating potential answers.

Table 1 Spesification of Test

No.	Indicators	Sub Indicators	Number of Questions
1.	Identify a topic in the text.	Students can determine the correct answer to question about a particular topic of narrative text or the text is in the form of narrative text.	1, 13, 29
2.	Identify detail information from text and find the text details.	Students can determine, and know the right answers to questions about specific detailed information contained in the text.	2, 3, 4, 7, 8, 9, 10, 14, 15, 18, 19, 22, 26, 30
3.	Identify the main idea of the paragraph.	Students can choose or determine the right answer to the question in the main idea of the paragraph contained in the narrative text.	5
4.	Determine the primary issues and underlying causes for the occurrences within the narrative text.	Students can find out the main problems that occur in the text.	6
5.	Identify the moral message contained in the text.	Students can determine the correct answer to the question about the moral message contained in the text.	11, 16, 20, 23, 27
6.	Identify the meaning of words from narrative text stories.	Students can determine the correct answer to the question about the meaning of certain words contained in the text.	12, 24, 28
7.	Identify the purpose of the narrative text story.	Students can determine and know the purpose of the story text.	17
8.	Identify the place where the events occur in the narrative text story.	Students can determine the correct answer to the question about the place of occurrence of certain events contained in the text.	21

| 9. | Identifying the causes and effects of conflicting events in narrative text stories. | Students can determine the correct answer to the question about the causes and effects of conflicting events in the text. | 25 |

The procedure of the research can be described as follows:

1. Develop a instructional plan.
2. During the first meeting, the experimental group, which comprises the class taught with the graphic organizer strategy, will receive instruction.
3. In the next session, the researcher will teach the control group without using a graphic organizer strategy.4. Administer a post-test to both the experimental and control groups.
5. Employ the t-test form to analyze the post-test outcomes, assessing the significance of the mean difference.

Quantitative data analysis techniques are widely used in research where data can be measured or numbered. The data can also be processed with statistical techniques and processed.

1.   Validity of the Test

Fraenkel & Wallen (2001:88) suggest that when selecting or developing a research instrument, validity is the most crucial factor to consider. Arikunto (2010:211) also notes that validity is a measure that indicates the extent to which an instrument is valid. If a research instrument is invalid, it will be useless. A highly valid instrument has a high level of validity, while a less valid instrument has a low level of validity. This means that an instrument can be considered valid if it accurately measures what it is intended to measure.
The correlation formula is as follows:
=IF(B27>B28;"v";"t")
=CORREL (G3:G26;AF3:AF26)
Total = 0,57852 (Experimental Class or XI IPA A)
Total = 0,752215 (Control Class or XI IPA B)
The result of validity test therefore any question valid is number 1 6 16 27 from experimental class and 3 4 6 7 8 12 18 19 22 24 28 30 from control class.

2.   Reliability of the Test

Reliability refers to the consistency of a measurement tool when it is used repeatedly on subjects under the same conditions. A research study is considered reliable if it produces consistent results for the same measurement, which is essential for determining the effect of one variable on another. Reliability is also a requirement for the validity of a test. If a test is not reliable, it cannot be used automatically (Gay, 2019). This research study used the Analysis, Scale, Reliability formula in SPSS version 16.0 to calculate reliability, specifically using Alpha Cronbach's method. The reliability coefficient, which ranges from 0-1, expresses high and low reliability. As for Alpha Cronbach's reliability formula:

$$r_x = \left(\frac{n}{n-1}\right)\left(1 - \frac{\sum \sigma_t^2}{\sigma_t^2}\right)$$

Picture 1 Formula of reliability

Notes:
rx   = Reliability
n   = Number of question items
$\sum \sigma_t^2$ = The number of variance scores of each item
σ_t^2 = Total variant
Range of Alpha Cronbach's Value:
1. Alpha Cronbach's < 0,50 = Low Reliability
2. Alpha Cronbach's > 0,70 = Sufficient Reliability
3. Alpha Cronbach's > 0,80 = Strong Reliability
4. Alpha Cronbach's > 0,90 = Perfect Reliability
5. Alpha Cronbach's < 0,50 alpha < 0,70 = Moderate Reliability

3.   Independent T-Test

The test scores were split into two groups: the experimental group and the control group. For this study, we looked at how well both groups did on a reading comprehension test using a formula called the t-test. We used the Independent Sample T-Test to see if the way students learn reading, either with a graphic organizer

strategy or student worksheets, made a difference. This research used data analysis with the independent sample t-test. According to Ghozali (2015), the purpose of the Independent Sample of the T-Test is to compare the averages of two unrelated groups. The t-test formula (t-test) is as follows:

Picture 2 Formula T-Test

$$t = \frac{\overline{X1} - \overline{X2}}{\sqrt{\frac{(n_1-1)S_2^1+(n_2-1)S_2^2}{N1+N2-2}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

Information:

t	= t value count
t	= t value count
XI	= group one average (experimental group)
X2	= group two average (control group)
n1	= number of sample group one
n2	= number of sample group two
$S\frac{1}{2}$	= group 1 variant
$S\frac{2}{2}$	= group 2 variant

The guidelines for Paired Sample T-Test are as follows:
1. If the score Sig. (2-tailed) < 0,05, then the Hypothesis null is rejected, and Hypothesis alternative is accepted.
2. If the score Sig. (2-tailed) > 0,05, then the Hypothesis null is accepted, and Hypothesis alternative is rejected.
The steps for analyzing using Paired T-test formula by SPSS16 are as follows:
1. Open SPSS
2. Make the table of post-test that would be analyzed by the t-test
3. Click variable view
4. Write the column name in the 1st row by (variable from control class)
5. Write the column name in the 2nd row by (variable from experiment class)
6. Click data view -> input both data x dan y
7. Click analyze -> compare mean - independent sample t-test
8. Click the arrow on (inputted variable of control class) - enter it into the group variable box
9. Click the arrow on (inputted variable of experiment class) - enter it into the group variables box
10. Click define groups – write code 1 in the group 1 - write code 2 in the group 2 - continue – ok

RESULTS AND DISCUSSION

The results after the posttest for both groups were very similar. As a result, the final step involves using the posttest to figure out if there's a big difference in reading understanding between students who were taught using a graphic organizer strategy and those who learned with student worksheets.

Table 1 Group Statistics

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Hasil	1	24	90.41	4.84469	.98892
	2	27	37.37	18.25071	3.51235

The table above shows that the mean score of post-tests in experimental group is 90.41 and the mean score of posttests in control group is 37.37.

Table 2 Result of the independent T-test.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil	Equal variances assumed	23.564	.000	13.799	49	.000	53.04630	3.84412	45.32126	60.77134
	Equal variances not assumed			14.538	30.072	.000	53.04630	3.64891	45.59497	60.49762

Table 2 illustrates that the significance level registers as 0.000, which is below the significance level of 0.005. This result indicates the rejection of the null hypothesis (Ho) and the acceptance of the alternative hypothesis (Ha). It can be said that there is a siignificance difference in students' reading comprehension between the control and experimental groups exists within the post-test. Furthermore, the experimental group, which received instruction through the graphic organizer strategy, achieved a higher average score than the control group. Specifically, the mean score was 90.41 for the experimental group and 37.37 for the control group. Therefore, the acceptance of Ha and the rejection of Ho are warranted. Evidently, the application of the graphic organizer strategy yields a positive influence on students' reading comprehension.

This research was conducted at SMA Pancasila Ambulu, involving class XI IPA A and XI IPA B. The study identified a significant difference in reading comprehension between students instructed through a graphic organizer strategy and those taught using student worksheets. This deduction was drawn by assessing the mean scores obtained from the post-test results of both the experimental and control groups. The experimental group achieved an average score of 90.41. An independent t-test displayed a significant disparity of 0.000, which is significantly less than ≤ 0.05, indicating the rejection of the null hypothesis. As a result, it can be inferred that the implementation of a graphic organizer strategy proves to be an effective approach for enhancing students' reading comprehension abilities.

After examining the research background, it was discovered that many students struggle with low levels of understanding when reading. They often feel confused about the material and are reluctant to open the dictionary to look up unfamiliar words. Additionally, students tend to lack focus and may only pay attention to familiar elements or pictures in the text. Therefore, this research is significant in addressing these issues and finding solutions to improve students' reading comprehension skills.

Several researchers support the use of a graphic organizer approach for teaching reading comprehension, and their findings align with the results of this study. The research conducted by Gustina Hermawati (2020) stated that many students were struggling to achieve the minimum standard of learning success and were not paying sufficient attention to the texts they were reading. This study aimed to improve students' reading comprehension by utilizing a graphic organizer technique. Classroom action research (CAR) was conducted, and data were collected through reading tests, observation, field notes, and interviews. The findings showed that using the graphic organizer technique resulted in an improvement in students' reading comprehension. The average scores on the reading test increased from 61, 67, and 71.25 in cycle one to 78.75 in cycle two. Furthermore, using graphic organizers had a positive effect on students' confidence and engagement in the teaching and learning process, as well as their ability to comprehend texts effectively.

Previous studies have shown that utilizing a graphic organizer strategy is an effective approach to teaching reading comprehension. Based on the results of this experimental study, the writer also found that the graphic organizer strategy can be effective in improving students' reading comprehension skills.

CONCLUSION

The post-experiments carried out in both the experimental and control groups demonstrated statistically significant results, with p-values below the predefined level of significance ≤ 0.05. The average scores of experimental group increase than compared to the control group. As a result, the (Ho) was rejected, and the alternative (Ha) was confirmed. The average post-experiment score among the experimental group was 90.41, whereas it reached 37.37 in the control group. These findings suggest a significant difference in reading comprehension between students who were exposed to the graphic organizer strategy and those who were taught using student worksheets. Therefore, it can be concluded that the utilization of the graphic organizer strategy has a positive impact on students' reading comprehension abilities.

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