GRAPHIEN: English

The Effectiveness of Using Discovery Learning in Teaching Writing Descriptive Text to the Tenth-Grade Students of SMA N 5 Purworejo

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Abstract. This research objective to describe students' writing ability in descriptive text and to find out whether or not using the discovery learning is effective in teaching writing descriptive text to the tenth-grade students of SMA N 5 Purworejo in the academic year 2023/2024. This research used a quasi-experimental design. The population of this research was all the tenth-grade students of SMA Negeri 5 Purworejo. The research sample consisted of tenth-grade students in X-7 as the experimental class and students in X-2 as the control class. Both classes consist of 30 students who were chosen by purposive sampling. To collect the data, the researcher used writing tests. The data analysis technique used quantitative analysis to find means of pre-test and post-test. The research findings show that the post-test in the experimental class with a mean score of 74.80 is higher than the mean of the post-test score of 61.77. Based on the hypothesis test described, the result of Sig. (2-tailed) is 0.000. Being compared with the significance level (0.05). It shows that Sig. (2-tailed) was lower than 0.05 (0.000 < 0.05). As a result, the alternative hypothesis (Ha) is accepted. In addition, the discovery learning method effectively taught writing descriptive text to the tenth-grade students of SMA Negeri 5 Purworejo in the academic year of 2023/2024.

1. Introduction

English is a global language utilized for global communication. Acquiring English language proficiency enables individuals to communicate effectively and establish significant connections. English is introduced as a compulsory foreign language in Indonesia, starting from the sixth year of elementary school (SD) and continuing from the first year of junior high school (SMP) to the third year of senior high school (SMA). English may be mandatory for some semesters at university under certain circumstances.

English education typically encompasses four fundamental language proficiencies: writing, speaking, listening, and reading. The acquisition of writing skills is considered one of the indicators of English language learning for students. Writing is a crucial English ability that is currently exerting a substantial influence. Writing is the aptitude for articulating concepts, reflections, and emotions. Writing enables students to engage with books to acquire supplementary knowledge, cultivate inventive abilities, and comprehend human behavior across other cultures [1]. The purpose of writing is to allow students to articulate their thoughts fluently, utilizing the structures of language they have acquired. However, the process of developing proficient writing skills can present difficulties. Due to this circumstance, students must grasp that several factors contribute to producing writing of superior quality, including grammar, structure, content, actual composition, and objectivity.

In the context of senior high school education, it is anticipated that students possess the ability to effectively articulate and construct a coherent written composition and a concise essay across several textual genres, including descriptive, narrative, recount, method, and report. Every sort of text possesses distinct qualities that students need to acquire proficiency. In order to effectively compose a text,

students need to understand the text's generic structure and grammatical elements comprehensively. In this study, the researcher specifically examines descriptive text.

Students seeking to provide a physical description of a person, place, or item require a descriptive text. It encompasses the five organs of the human body. Hence, it is imperative to explore effective strategies for enhancing students' comprehension and proficiency in English writing, fostering a sense of ease and enjoyment in composing descriptive texts.

Conventional instructional approaches in the classroom lead to reduced student motivation and a monotonous learning experience [2]. The results generated hesitation in specific students regarding the acquisition of English, as they perceived it as difficult and had concerns about committing mistakes. In order to cultivate students' passion for writing and mastery, teachers should employ attractive teaching methods to foster impactful learning. The exploration-based learning approach is well-suited for instructing writing proficiency, specifically for the *Kurikulum Merdeka*. The exploration-based learning paradigm promotes student engagement in the instructional and educational process, transforming it from a passive to a dynamic and innovative endeavor [3]. Students are expected to engage in inquiry and exploration to uncover concepts, principles, or answers to complicated problems. The utilization of the discovery learning paradigm holds considerable importance as it can enhance students' engagement in actively exploring resolutions to the presented issues. The discovery learning method enhances interest, focus, and eagerness to study among students who previously lacked the drive to acquire knowledge [4]. Applying discovery learning to teaching descriptive text will improve students' writing skills.

2. Method

The methodology used in this research was quantitative. Quantitative research is a research methodology that employs mathematical techniques to investigate phenomena such as numerical data and statistical analysis. The quantitative approach involves the examination of a concept through establishing certain assumptions and utilizing data collection to either validate or challenge these assumptions [5]. The researcher decided to employ experimental methods. Experimental research is conducted scientifically by employing two sets of variables. Experimental research is a form of inquiry that centers on examining the impact of various interventions on individuals within controlled environments [6].

This study was conducted from January 3rd to January 31st, 2024, during the second semester in the academic year of 2023/2024. The researcher carried out the study for five meetings. The initial session consisted of a pre-test. The treatment administration occurred from the second to the fourth session, with the last session as a post-test. The study was conducted at SMA Negeri 5 Purworejo, located at Jl. Magelang KM. 7, Loano, Purworejo Regency. The research was carried out among students in the tenth grade at SMA Negeri 5 Purworejo. The researcher employed the purposive sampling strategy to select two classes of tenth-grade students from SMA N 5 Purworejo as the sample. Class X-7 was designated as the experimental group, while class X-2 was the control group.

The data collection instrument employed in this study consisted of an English writing test. Before administering the treatment, the researcher administered a pre-test to both classes, classifying X-2 as the control group and X-7 as the experimental group. This pre-test aims to assess the proficiency of English writing in producing descriptive text. The researcher administered the treatment after doing the pre-test. The treatment was administered in both groups. The experimental class uses discovery learning as a pedagogical approach to instruct descriptive text, whereas the control class utilizes conventional teaching methods. The post-test is the concluding phase following the pre-test and treatment.

Once the data has been collected, the researcher analyzed it using statistical calculations to address the problem formulation relevant to the analysis conducted. This study aimed to assess the effectiveness of employing discovery learning as a teaching method for teaching tenth-grade students

at SMA N 5 Purworejo in the academic year 2023/2024 in the domain of writing descriptive text. In order to conduct data analysis, the researcher employed two distinct methodologies: descriptive analysis and inferential analysis.

3. Findings

Descriptive Analysis

The study employed descriptive analysis to assess the effectiveness of utilizing discovery learning as a teaching method for descriptive writing. The researcher used statistical computations to assess the student's abilities in this study. Descriptive analysis encompasses several statistical measures, such as the mean, median, mode, range, variance, and standard deviation. The researcher assessed English writing competence using the following criteria:

Table 1. The Criteria of Score

Value	Grade	Level of Achievement
80-100	A	Excellent
66-79	В	Good
56-66	C	Sufficient
40-55	D	Fairly sufficient
<39	E	Poor

(Source: Arikunto, 2013, p. 245)

Data was collected using students' test results from the pre-test and post-test of the experimental class. The researcher employed the discovery learning method to teach descriptive text in the experimental class. The table below displays the pre-test results for the experimental class.

Table 2. The Results of Pre-test in Experimental Class

14016	Z. The R			Lapon				
			Aspect					
Name	Organization	Content	Grammar	Mechanic	Vocabulary	Score		
Student 1	10	8	10	12	14	56		
Student 2	11	11	8	12	12	54		
Student 3	5	5	6	6	10	32		
Student 4	15	14	10	12	14	55		
Student 5	10	8	5	10	11	44		
Student 6	12	11	12	12	14	61		
Student 7	17	15	12	15	15	74		
Student 8	12	11	6	10	10	49		
Student 9	12	10	11	12	14	59		
Student 10	10	8	5	12	12	48		
Student 11	14	12	10	12	14	62		
Student 12	12	12	10	12	12	58		
Student 13	10	8	6	12	11	47		
Student 14	12	11	8	12	11	54		
Student 15	12	10	8	12	12	56		
Student 16	12	12	8	12	14	58		
Student 17	10	6	8	12	10	46		
Student 18	15	14	10	12	15	66		
Student 19	18	15	15	14	15	77		
Student 20	12	10	8	12	12	54		
Student 21	5	5	6	11	11	38		
Student 22	11	8	6	12	12	49		
Student 23	6	8	5	12	10	41		
Student 24	11	10	6	12	11	50		
Student 25	12	11	8	12	14	57		
Student 26	10	8	10	12	14	54		
Student 27	12	11	8	12	12	55		
Student 28	12	11	6	12	14	55		
Student 29	14	12	11	12	15	64		
Student 30	11	6	6	10	11	43 1616		
Total score	Total score							
Min	Min							
Max						77		
Mean						53,87		

Based on the table above, the data shows that the highest score on the pre-test in the experimental class was 77, while the lowest score on the pre-test was 38. The total score of the pre-test was 1616.

The mean score of the pre-test was 53.87. In comparison, the table below shows the post-test results for the experimental class.

Table 3. The Results of Post-test in Experimental Class

14010	2. III K			ın Exper		
			Aspect			
Name	Organization	Content	Grammar	Mechanic	Vocabulary	Score
Student 1	18	18	15	15	18	84
Student 2	18	18	15	15	17	83
Student 3	12	12	18	12	11	55
Student 4	18	17	12	12	17	76
Student 5	17	15	12	12	14	70
Student 6	18	18	15	15	15	81
Student 7	18	18	15	15	17	83
Student 8	18	15	14	12	15	74
Student 9	18	18	15	15	17	77
Student 10	18	15	12	12	15	72
Student 11	18	15	14	14	17	78
Student 12	17	15	14	14	17	77
Student 13	12	12	10	14	14	62
Student 14	17	14	12	15	15	73
Student 15	18	17	14	15	15	79
Student 16	17	15	14	15	17	78
Student 17	15	14	12	14	15	70
Student 18	18	18	14	15	17	82
Student 19	18	18	15	17	17	88
Student 20	17	15	12	14	17	76
Student 21	17	15	12	14	15	73
Student 22	17	15	12	14	15	73
Student 23	14	11	10	12	14	61
Student 24	17	15	15	15	17	79
Student 25	15	14	12	15	14	70
Student 26	15	15	14	12	15	73
Student 27	17	17	14	12	15	75
Student 28	17	15	12	15	17	76
Student 29	17	15	12	17	17	78
Student 30	17	12	10	14	15	68
Total score						2.244
Min						61
Max						88
Mean						74.80

Based on the table above, the data shows that the highest score on the post-test in the experimental class was 88, while the lowest score on the post-test was 61. The total score of the post-test was 2.244, and the mean score was 74.80. The interpretation of students' English writing ability in experimental class is shown in the following table based on the classification of student achievement from Arikunto.

Table 4. The Percentage of the Experimental Class's Pre-test and Post-test Results

Score	Grade	Level of	Pre	Pos	t-test	
		Achievement	Frequency	Percentage	Frequency	Percentage
80-100	A	Excellent	0	0%	6	20%
66-79	В	Good	3	10%	20	67%
56-65	C	Sufficient	9	30%	3	10%
40-55	D	Fairly sufficient	16	53%	1	3%
<39	E	Poor	2	7%	0	0%
	Tota	al	30	100%	30	100%

The table shows the results of the experimental class. In the pre-test, there were no students (0%) belonged to the excellent category, 3 students (10%) belonged to the good category, 9 students (30%) belonged to the sufficient category, 16 students (53%) belonged to the fairly sufficient category, 2 students (7%) belonged the low category. In the post-test, there were 6 students (20%) belonged to the excellent category, 20 students (67%) belonged to the good category, 3 students (10%) belonged to the sufficient category, 1 student (3%) belonged fairly sufficient category, and there were no students (0%) belonged to the low category.

Table 5. The Results of the Pre-test in the Control class

			Aspect			
Name	Organi zation	Conten t	Gram mar	Mecha nic	Vocab ulary	Score
Student 1	12	10	6	12	12	52
Student 2	12	15	12	12	14	65
Student 3	11	11	12	12	15	61
Student 4	14	8	10	10	12	54
Student 5	11	8	6	10	14	49
Student 6	14	12	12	11	12	61
Student 7	5	5	5	5	11	31
Student 8	6	5	5	6	5	27
Student 9	10	8	5	6	12	41
Student 10	14	14	10	12	12	62
Student 11	14	15	12	15	15	71
Student 12	10	11	8	10	15	54
Student 13	10	8	5	6	11	53
Student 14	5	5	6	6	8	30
Student 15	15	14	11	12	14	66
Student 16	8	5	5	5	8	31
Student 17	10	6	5	6	10	37
Student 18	11	8	11	12	10	52
Student 19	10	8	11	12	12	53
Student 20	5	5	5	5	6	26
Student 21	10	8	12	12	11	53
Student 22	15	12	12	12	12	63
Student 23	5	5	6	6	6	28
Student 24	5	5	5	6	5	31
Student 25	10	10	5	8	12	50
Student 26	5	6	5	5	10	32

Student 27	15	14	12	14	15	70
Student 28	11	6	5	10	12	44
Student 29	10	12	8	11	12	53
Student 30	6	5	8	6	11	35
Total score						1435
Min						26
Max	•					71
Mean	•					47,83

Based on the table above, the data shows that the higher score on the pre-test in the control class was 71, while the lowest score on the pre-test was 26. The total score of the pre-test was 1.435, and the mean score of the pre-test was 47.83. In contrast, the table below shows the post-test results for the control class.

Table 6. The Results of Post-test in Control Class

				St III COIIII		
Name	Organization	Content	Aspect Grammar	Mechanics	Vocabulary	Score
	ation	ent	mar	nics	ılary	
Student 1	18	15	12	10	15	70
Student 2	15	15	15	15	17	67
Student 3	14	12	15	14	17	72
Student 4	15	12	6	11	12	56
Student 5	11	6	10	12	12	51
Student 6	12	11	6	12	10	51
Student 7	10	6	5	11	10	42
Student 8	15	15	12	12	14	68
Student 9	15	12	6	12	12	57
Student 10	17	15	15	12	15	74
Student 11	15	14	15	14	14	82
Student 12	15	14	8	12	14	73
Student 13	17	12	10	14	15	68
Student 14	11	12	8	12	12	55
Student 15	17	15	11	12	15	70
Student 16	10	8	6	10	11	45
Student 17	11	8	6	10	12	47
Student 18	10	12	8	14	15	59
Student 19	17	15	12	15	14	73
Student 20	11	8	5	10	8	42
Student 21	15	15	12	15	12	69
Student 22	14	15	15	15	17	76
Student 23	11	10	12	12	12	57
Student 24	12	8	11	12	12	55
Student 25	12	8	10	12	11	53
Student 26	11	6	5	6	11	39
Student 27	17	14	10	14	17	72
Student 28	17	14	12	12	14	65
Student 29	18	18	12	15	15	78
Student 30	17	15	12	11	12	67
Total score	1.853					
Min						39
Max						78
Mean						61.77

Based on table 6, the data shows that the highest score on the post-test in the control class was 76, while the lowest score on the post-test was 39. The total score of the post-test was 1.853, and the

mean score was 61.77. The interpretation of students' English writing ability in the control class is shown in the following table based on the classification of student achievement.

Table 7. The Percentage of the Control Class's Pre-test and Post-test Results

Score	Grade	Level of	Pre	-test	Post-test		
	Achiev	Achievement	Frequency	Percentage	Frequency	Percentage	
88-100	A	Excellent	0	0%	1	3%	
66-79	В	Good	2	7%	14	47%	
56-65	C	Sufficient	6	20%	5	17%	
40-55	D	Fairly sufficient	12	40%	9	30%	
<39	E	Poor	10	33%	1	3%	
	Tot	al	30	100%	30	100%	

The table above shows the results of the control class. In the pre-test, there were no students (0%) belonged to the excellent category, 2 students (7%) belonged to the good category, 6 students (20%) belonged to the sufficient category, 12 students (20%) belonged to the fairly sufficient category, and 10 students (33%) belonged to the low category. In the post-test, there were 1 student (3%) belonged to the excellent category, 14 students (47%) belonged to the good category, 5 students (17%) belonged to the sufficient category, 9 students (30) belonged to the fairly sufficient category, and 1 student (3%) who belonged to the low category.

Furthermore, the researcher analyzed the data using statistical calculations. The researcher performed descriptive statistics computations for the experimental and control classes using IBM SPSS 22 as encouragement. The SPSS results are shown in the table below.

	Descriptive Statistics											
	N	Range	Min	Max	Sum	Mean	Std. Deviation	Variance				
Post-test Control	30	43.00	39.00	82.00	1853.00	61.7667	11.89518	141.495				
Post-test Experimental	30	33.00	55.00	88.00	2244.00	74.8000	7.06326	49.890				
Valid N (listwise)	30											

Figure 1. Descriptive Analysis of Experimental and Control Class

Inferential Analysis

After employing descriptive analysis, the researcher used inferential analysis. The researcher used the independent sample test to determine which hypothesis would be accepted. The researcher used IBM SPSS 22 calculations to test the hypothesis. The results of the hypothesis test were shown in Figure 2.

	Independent Samples Test											
	Levene's Test for Equality of Variances				t-test for Equality of Means							
						Sig.	Maar	Ot 1 5	Interv	onfidence al of the erence		
		F	Sig.	t	df	(2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper		
Score	Equal variances assumed	10.540	.002	5.577	58	.000	14.067	2.522	9.018	19.115		

Equal variances are not assumed.	5.577	49.053	.000	14.067	2.522	8.998	19.135
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Figure 2. Test of Hypothesis Using SPSS

Based on the figure 2, the Sig. (2-tailed) is 0.000. The implementation of the numbers says that if Sig. (2-tailed) < 0.05 means that the data were significant. On the table, the Sig. (2-tailed) was lower than 0.05 (0.000 < 0.05). This meant a significant difference was between the post-tests of the experimental class and those of the control class. Therefore, the researcher concludes that Ha is accepted and Ho is rejected. It means that the use of discovery learning effectively teaches writing descriptive text to the tenth grade at SMA Negeri 5 Purworejo in the academic year of 2023/2024.

4. Discussion

The results of students' writing ability

Based on the pre-test results, the researchers analyzed the writing findings in tenth-grade students of SMA Negeri 5 Purworejo in the academic year of 2023/2024, with the highest score in the pre-test experimental class being 77 and the lowest score in the pre-test being 38. The pre-test mean score was 53.87; the pre-test median was 55; the pre-test mode was 54; the pre-test range was 39; the pre-test standard deviation was 9.66235; and the variance pre-test was 93.361. The pre-test total score was 1616. Meanwhile, based on the post-test findings in the experimental class, the highest post-test score was 88, and the lowest was 61. The mean score of the post-test was 74.80; the median was 76; the post-test mode was 73; the post-test range was 33; the post-test standard deviation was 7.06326; and the variance was 48.890. The post-test total score was 2.244. According to the mean score computation, the mean of the post-test was higher than that of the pre-tests (74.80>53.87).

Additionally, from the 30 samples, which were analyzed based on the classification of the students' achievement, the post-test in the experimental class showed that 7 students (20%) belonged to the excellent category, 20 students (67%) belonged to the good category, 3 students (10%) belonged to the sufficient category, 1 student (3%) belonged to the fairly sufficient, and 0 student (0%) belonged to the low category. The mean score of the pre-test was 53.87, which belonged to the fairly sufficient category. Students get treatment from the researcher after completing a pre-test. Following that, the students conducted a post-test, with a mean score of 74.80 which belonged to the good category. It means that there is an improvement in students' achievement after getting treatment from the researcher.

The highest pre-test score of control class was 71, and a lowest pre-test score was 26. The pre-test mean score was 47.83; the pre-test median was 52; the mode pre-test was 53; the range pre-test was 45; the standard deviation was 14.04447, and the variance is 197.247. The total pre-test score was 1435.

Meanwhile, based on the post-test findings in the control class, the highest post-test score of 76, and the lowest post-test score of 39. The mean score of the post-test score was 61,77; the median post-test score was 66; the mode post-test score was 70; the range post-test score was 43; the standard deviation post-test score was 11,89518; and the variance was 141.495. The post-test total score was 1853. According to the mean score computation, the mean of the post-test was higher than the mean of the pre-test (61,77>47,83).

Additionally, from the 30 samples, which were analyzed based on the classification of the students' achievement, the post-test in the control class showed there were 1 student (3%) belonged to the excellent category, 14 students (47%) belonged to the good category, 5 students (17%) belonged to the sufficient category, 9 students (30%) belonged to the fairly sufficient category, and 1 student (3%) belonged to the poor category.

The mean score of the pre-test was 47.83, which belonged to the fairly sufficient category. Students get treatment by providing material without a discovery learning from the researcher after

completing a pre-test. Following that, the students conducted a post-test, with a mean score of 61.77, which belongs to the sufficient category. It means that there is an improvement in students' achievement after getting treatment but not higher than the students' achievement in the experimental class.

The effectiveness of using discovery learning in teaching writing descriptive text to the tenth grade students of SMA Negeri 5 Purworejo

Based on the result of data analysis above, it could be concluded that by using discovery learning method in teaching writing descriptive text was effective. It has been proved by analyzing from the differences of data results. Between two scores of post-test, the post-test which had been given the treatment and post-test which had not given the treatment, and also by analyzing the hypothesis test.

The researcher used a hypothesis test to determine the significance of the data. The data was calculated by the researcher using IBM SPSS 22. Based on the hypothesis test computation, it shows that the t_{value} is higher than the t_{table} (5.577 > 2.0003). As a result, the alternative hypothesis (Ha) is accepted. In other words, using a discovery learning was effective in teaching writing descriptive text to the tenth grade students of SMA N 5 Purworejo in the academic year of 2023/2024. This findings was compared to the research conducted by Prawerti [8]. According to the results of her study, the kind of method where the students discover the materials by themselves without being taught by the teacher before. Discovery means from nothing to get something which they never know before. It emphasizes on the students' full participation through observation, classification, measurement, prediction, determination, and inferring until they discover their own concept. The previous study claim was confirmed by the result of analysis shows that discovery learning method is more effective than direct method to teach writing [8].

5. Conclusion

There is the effectiveness of students' ability to write descriptive texts after being taught using discovery learning, rather than the ability of students who are taught without using discovery learning method to write descriptive texts. It is proven from the analysis of the mean score and hypothesis test. The use of discovery learning is effective as a method for teaching writing. By applying discovery, learning can run with the help of the teacher as guides and motivators in each learning process, starting from activities explaining topics, asking questions, formulating hypotheses, carrying out investigations, making observations, organizing or analyzing, and presenting the investigation results. Also, the students can easily formulate activity topics and present the results of investigations in the form of written descriptions.

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