

THE EFFECT OF DISCOVERY LEARNING ON STUDENT'S LEARNING OUTCOMES IN READING COMPREHENSION TO THE ELEVENTH GRADE STUDENTS AT SMA NEGERI 1 BUNGKU TENGAH

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ABSTRACT

The objective of this research is to investigate the effectiveness of using discovery learning on students' learning outcomes in Reading Comprehension to the eleventh grade students at SMA Negeri 1 Bungku Tengah. This research used a quasi-experimental research design. There are two groups, namely the experimental group and the control group who received a pre-test and post-test. The population of this study was class XI students of SMA Negeri 1 Bungku Tengah. The research sample used a simple random sampling technique. Class XI MIA 5, totaling 32 students, was the experimental group and Class XI MIA 1, totaling 32 students, was the control group. The experimental group was given treatment while the control group was not. The test results showed that the average score of the experimental group on the post-test was 79.75 greater than the average score of the control group on the post-test of 52.62. These results also show that the t-count of 2.53 is higher than the t-table of 1.670 and the hypothesis is accepted. In conclusion, the use of discovery learning method can improve students's learning outcomes in reading comprehension of the eleventh grade students of SMA Negeri 1 Bungku Tengah.

Key Words: Discovery Learning; Learning Outcomes; Reading Comprehension

INTRODUCTION

The 21st century is a condition that can be characterized by science and technology that is developing very quickly and more sophisticated. Technology makes the internet experience quite extraordinary developments. The 21st generation must be able to understand the development of technology and the internet with the increasing use of the internet or blogs. Learning in the 21st century is a learning transition where the curriculum developed leads schools to change the learning approach from teacher-centred to student-centred. This is in accordance with future demands where students must have the ability to think and learn. These skills include problem solving, critical thinking, collaboration, and communication skills. Curriculum 2013 also trains students to be more independent, creative and innovative. Students not only get information and material from the teacher, but are also trained to actively seek information outside the classroom. The curriculum changes that occur have the same goal as the previous curriculum, which is to improve education.

English learning is very important in education even though in curriculum 2013, English subjects have been abolished in elementary schools. There are many benefits that will be felt if students learn this language, which can continue their education abroad, add insight and experience, increase intelligence, and more easily understand technology. English consists of four skills that students must know, namely speaking, reading, writing, and listening. Reading have a very important position in Curriculum 2013 because reading is considered a basic skill that is the basis for learning in all subjects. Reading in Curriculum 2013 aim to make students have good reading skills, literature, critical, and able to apply their understanding in various contexts. The role of reading also supports the achievement of expected competencies in each subject as well as success in understanding and facing the challenges of an increasingly digital and globalized modern world.

In the English learning process, students must have experienced a problem in learning. This problem can lead to less than optimal student learning outcomes. The researcher found some problems in learning English, especially Reading. Students become lazy to read because of the lack of vocabulary they know in English. In addition, students' low memory can also hinder students in understanding reading texts. This can make it difficult for students to answer questions asked by the teacher. The difference in pronunciation and writing in English words is also one of the difficulties for students, so this affects students' motivation in reading and learning outcomes.

There are several ways to solve the problem. Good facilities are very influential in the running of the learning process. In addition, teachers can also use some more creative models or methods in the teaching process. According to Permendikbud Number 22 of 2016 on Process Standards uses three learning models that are expected to shape scientific and social behavior and develop curiosity. The three models are: (1) Discovery/Inquiry Learning model, (2) Problem-based Learning (PBL) model, (3) Project-based Learning (PJBL) model. In addition to the 3 models listed

in Permendikbud Number 22 of 2016, teachers are also allowed to develop learning in the classroom by using other learning models, such as Cooperative Learning which has various methods and techniques such as Jigsaw, Numbered Head Together (NHT), Make a Match, Think-Pair-Share (TPS), Example non Example, Picture and Picture, and others. In this research, the researcher only choose one learning method that is Discovery Learning.

Discovery learning is a learning concept discovered by psychologist Bruner in 1961. He proposed a very influential cognitive instructional model learning theory known as discovery learning, which is learning through own experience, trying to find solutions to problems and accompanying knowledge, producing knowledge that is truly meaningful. Permendikbud stated that Discovery Learning method is understanding concepts, meanings, and relationships through an intuitive process to eventually come to a conclusion. Discovery occurs when individuals engage primarily in the use of their mental processes to discover some concepts and principles. Discovery is done through observation, classification, measurement, prediction, determination, and inference. The above process is called cognitive process while discovery itself is the mental process of assimilating concepts and principles in the mind.

Based on this statement, the researcher concludes that discovery learning is a method that trains students to be more active in the learning process. This method can encourage students to observe, think, and find solutions to problems. Several studies that have been conducted have found that the Discovery Learning method successfully improves student learning outcomes. So in this research, the researcher used Discovery Learning as a method to see if it can improve student Learning Outcomes in Reading Comprehension to the eleventh grade in SMA Negeri 1 Bungku Tengah.

METHOD

This research applied a quantitative method. Moreover, for the design, the researchers applies Quasi-experimental design. This research consisted of two groups, namely the experimental and the control group. The research design was a Posttest Only Control Group Design, by using pre-test and post-test in the experimental group and the control group. The experimental class is the class that is treated with the Discovery Learning method to determine students' cognitive learning outcomes while the control class is the class that is not treated.

RESULTS AND DISCUSSION

The researcher presents data obtained through pretest and posttest. The researcher gave a pre-test to the experimental group and control group. The pretest was given to measure students' initial knowledge before being given treatment. After being given a pretest and treatment, then the researcher gave a posttest to the experimental group and control group to find out whether Discovery Learning method can improve student's learning outcomes in reading

comprehension. The type of test used in the pretest and posttest is multiple choice consisting of 25 items

Table1 - Student's Score on Pretest in Experimental Group

No	Initials	Correct	Incorrect	Max. Score	Standard Score
1	AH	16	9	25	64
2	AAL	17	8	25	68
3	AFR	18	7	25	72
4	A	16	9	25	64
5	DA	15	10	25	60
6	FA	17	8	25	68
7	FSH	18	7	25	72
8	H	17	8	25	68
9	IS	17	8	25	68
10	JK	15	10	25	60
11	MF	17	8	25	68
12	MJ	19	6	25	76
13	MAN	16	9	25	64
14	MB	18	7	25	72
15	MHY	19	6	25	76
16	MRL	18	7	25	72
17	MR	19	6	25	76
18	MS	17	8	25	68
19	MTR	16	9	25	64
20	MZ	15	10	25	60
21	RR	16	9	25	64
22	SAP	17	8	25	68
23	S	13	12	25	52
24	SZH	18	7	25	72
25	YT	19	6	25	76
26	YN	16	9	25	64
27	YR	19	6	25	76
28	ZR	18	7	25	72
29	ZNA	17	8	25	68
30	H	17	8	25	68
31	I	14	11	25	56
32	SSK	17	8	25	68
TOTAL					2164
MEAN					67,62

Table 2- Student's Score on Pretest in Control Group

No	Initials	Correct	Incorrect	Max. Score	Standard Score
1	AI	12	13	25	48
2	AF	15	10	25	60

3	AJS	9	16	25	36
4	BS	19	6	25	76
5	DW	17	8	25	68
6	DDG	12	13	25	48
7	FL	17	8	25	72
8	FZ	16	9	25	76
9	FT	20	5	25	80
10	GAR	12	13	25	48
11	HFG	18	7	25	72
12	JK	16	9	25	64
13	MRD	12	13	25	48
14	MF	16	9	25	64
15	AS	18	7	25	72
16	MRA	18	7	25	72
17	M	17	8	25	68
18	MS	15	10	25	60
19	NCH	18	7	25	72
20	NA	9	16	25	36
21	NAR	15	10	25	60
22	NQ	9	16	25	36
23	RIA	18	7	25	72
24	RA	12	13	25	48
25	RD	16	9	25	76
26	SILN	17	8	25	72
27	SAP	17	8	25	72
28	SI	21	4	25	84
29	S	9	16	25	36
30	VR	15	10	25	60
31	YF	19	6	25	76
32	AAA	14	11	25	56
TOTAL				1988	
MEAN				62,12	

After giving a pretest to measure the basic knowledge of students' reading comprehension and having done the treatment. The researcher gave a posttest to the experimental group and control group. Posttest and pretest have the same type, but different questions. After comparing the results of the two groups, the researcher found that there was a difference in the mean score of the experimental group and control group. After calculating the mean score of the experimental group pretest it is 67.62. It can be concluded that the experimental group's pretest score is still low. The score of the experimental group is 67.62 and the score of the control group is 62.12. The difference is around 5.5, but this score is not significant because there are still several tests that need to be done.

Table 3- Student's Score on Posttest in Experimental Group

No	Initials	Correct	Incorrect	Max. Score	Standard Score
1	AH	18	7	25	72
2	AAL	19	6	25	76
3	AFR	20	5	25	80
4	A	19	6	25	76
5	DA	18	7	25	72
6	FA	22	3	25	88
7	FSH	19	6	25	76
8	H	20	5	25	80
9	IS	19	6	25	76
10	JK	19	6	25	76
11	MF	22	3	25	88
12	MJ	20	5	25	80
13	MAN	19	6	25	76
14	MB	20	5	25	80
15	MHY	22	3	25	88
16	MRL	21	4	25	84
17	MR	21	4	25	84
18	MS	20	5	25	80
19	MTR	19	6	25	76
20	MZ	21	4	25	84
21	RR	20	5	25	80
22	SAP	20	5	25	80
23	S	22	3	25	88
24	SZH	20	5	25	80
25	YT	21	4	25	84
26	YN	19	6	25	76
27	YR	20	5	25	80
28	ZR	23	2	25	100
29	ZNA	18	7	25	72
30	H	19	6	25	76
31	I	17	8	25	68
32	SSK	19	6	25	76
TOTAL					2552
MEAN					79,75

Table 4- Student's Score on Posttest in Control Group

No	Initials	Correct	Incorrect	Max. Score	Standard Score
1	AI	11	14	25	44
2	AF	10	15	25	40
3	AJS	17	8	25	68
4	BS	15	10	25	60
5	DW	13	12	25	52
6	DDG	11	14	25	44
7	FL	16	9	25	64

8	FZ	17	8	25	72
9	FT	18	7	25	72
10	GAR	10	15	25	40
11	HFG	14	11	25	56
12	JK	9	16	25	56
13	MRD	8	17	25	44
14	MF	12	13	25	48
15	AS	14	11	25	56
16	MRA	15	10	25	60
17	M	14	11	25	48
18	MS	9	16	25	36
19	NCH	9	16	25	36
20	NA	14	11	25	56
21	NAR	10	15	25	40
22	NQ	14	11	25	56
23	RIA	11	14	25	44
24	RA	15	10	25	60
25	RD	9	16	25	36
26	SILN	14	11	25	56
27	SAP	13	12	25	52
28	SI	14	11	25	56
29	S	14	11	25	56
30	VR	15	10	25	60
31	YF	14	11	25	56
32	AAA	15	10	25	60
TOTAL					1684
MEAN					52,62

After comparing the results of the two groups, the researcher found that there was a difference in the average scores between the experimental group and the control group after being given treatment. The experimental group's score was 79.75 and the untreated control group's score was 52.62. This shows a score difference of 27.13. The mean score of the experimental group and control group on the pretest were 67,62 and 62,12, respectively, when compared to the mean score of the experimental group and control group on the posttest which were 79,75 and 52,62. It is indicates that the posttest score of the experimental group was higher than the score of the control group. Therefore, the experimental group's score improve after received treatment.

1. For the experimental group :

$$\begin{aligned}
 \Sigma x^2 &= \Sigma X^2 - \frac{(\Sigma X)^2}{N} \\
 &= 6256 - \frac{(388)^2}{32} \\
 &= 6256 - \frac{150544}{32} \\
 &= 3440 - 4704,5
 \end{aligned}$$

$$= 1551,5$$

2. For the control group :

$$\begin{aligned}\Sigma y^2 &= \Sigma Y^2 - \frac{(\Sigma Y)^2}{N} \\ &= 11280 - \frac{(-228)^2}{32} \\ &= 11280 - \frac{51984}{32} \\ &= 11280 - 1624,5 \\ &= 9655,5\end{aligned}$$

By looking at the results above, it can be presented that the square deviation score of the experimental group is 1551,5 and the square deviation of the control group is 9655,5.

Furthermore, the researcher computed the t-count value using the t-test formula as presented below:

$$\begin{aligned}t &= \frac{Mx - My}{\sqrt{\frac{\Sigma x^2 + \Sigma y^2}{Nx + Ny - 2} \left(\frac{1}{Nx} - \frac{1}{Ny} \right)}} \\ t &= \frac{12,12 - (-7,12)}{\sqrt{\frac{1551,5 + 9655,5}{32 - 2} \left(\frac{1}{32} - \frac{1}{32} \right)}} \\ t &= \frac{19,24}{\sqrt{\frac{11207}{62} \left(\frac{1}{32} - \frac{1}{32} \right)}} \\ t &= \frac{19,24}{\sqrt{(180,75)(0,32)}} \\ &= \frac{19,24}{\sqrt{57,84}}\end{aligned}$$

$$t = \frac{19,24}{7,60}$$

$$t = 2,531$$

The purpose of hypothesis testing is to determine whether the research hypothesis is accepted or rejected. If the t-count is higher than the t-table then the hypothesis is accepted or there is a significant influence in the learning process. To determine whether the hypothesis is accepted or rejected, the researcher performs the following calculations:

$$\begin{aligned} \text{Degree of freedom (df)} &= N_x + N_y - 2 \\ &= 32 + 32 - 2 \\ &= 62 \text{ (between 60 - 120)} \end{aligned}$$

$$\text{Level of significant} = 0.05$$

$$60 = 1.671$$

$$120 = 1.658$$

$$I = t_{\min} - (t_{\min} - t_{\max}) \frac{df_1 - df_{\min}}{df_{\max} - df_{\min}}$$

$$= 1.671 - (1.671 - 1.658) \frac{62-60}{120-60}$$

$$= 1.671 - (0.013) \frac{2}{60}$$

$$= 1.671 - (0.013) (0.033)$$

$$= 1.671 - 0.000429$$

$$= 1.670$$

The results of the data analysis show that the t-count is 2.53. Then, using a significance level of 0.05 with degrees of freedom ($df = 62$), the researcher found that the t-count (2.53) was greater than the t-table (1.670). This shows that the hypothesis in this research was successful or accepted. In short, the method used in this research (Discovery Learning) can improve student's learning outcomes in reading comprehension at SMA Negeri 1 Bungku Tengah.

CONCLUSION

After the researcher gave treatment for 6 meetings, the researcher gave a posttest to the experimental and the control groups. The result of the post-test of the experimental group was 79.75 and the control group was 52.62. The mean score of the experimental group students had a rapid improve from 67.62 to 79.75. Then, the mean score of the control group was 62.12 which had a slight improve to 52.62.

The results of the data analysis show that the t-count is higher than the t-table. This shows that the hypothesis is accepted and also indicates that the reading comprehension of experimental group students using the discovery learning method after treatment has improved. Using the discovery learning method in the student learning process is effective in improving students' reading comprehension of texts, especially descriptive texts. Simanjuntak & Silalahi (2022) concluded that learning using the Discovery Learning model proved effective in improving students' science process skills and learning outcomes. In learning, student activity during the learning process is very important. The more active students are, the more effective learning will be. This is by Bell's (1978) statement, that students have the opportunity to be actively involved in learning. Facts show that students' participation in learning increases when the concept discovery stage is used.

The researcher observed that the discovery learning method not only helped students' reading comprehension but also improved students' vocabulary. In addition, the discovery learning method also has some disadvantages, such as the researcher needs additional time to implement this method. In addition, the large number of students also made it difficult for the researcher to explain because the students were noisy.

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