Scientific Approach Influence on Students' Reading Comprehension of Eighth Grader Students

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ABSTRACT

The objective of this research was to see if there is an influence of using Scientific Approach on students' reading comprehension of eighth grader in one of junior high schools in Cilegon. This research is a quantitative research by implementing quasi-experimental design and used a purposive sampling technique to take the sample. In collecting the data, the instrument that was used in this research was test in the form of multiple-choice questions. The test was divided into two parts, which are pre-test and post-test. The researcher implemented the treatment, which was scientific approach in experimental class, and conventional approach in control class. The findings of the data analysis showed that experimental class answered better on reading comprehension than control class. It is proven by the difference of value mean score in experimental class (85.10) and control class (73.7). It was indicated by the result of independent t-test computation result of post-test score that showed t_{count} is more than t_{table} (4.06 ≥ 2.00). It is then concluded that Ha (alternative hypothesis) was accepted. Therefore, it can be concluded that the using of scientific approach on students' reading comprehension gives an influence to the eighth grader students.

Keywords: *Influence; Reading Comprehension; Scientific Approach*

INTRODUCTION

Reading is one of the important skills that should be mastered by students. Grellet (2010: 7) states that reading is a constant process of guessing and what one brings to the text is often more important that what is found. It means students do not only read the sentences of the text, but

they have to get some clues or ideas to comprehend the meaning of the text by relating to their background knowledge.

To sum up the statements above, reading can be defined as a skill that involves the processes which engage the readers to interact with the texts so that they can construct meaning and grasp information from the texts.

Reading in a foreign language, in this case English, is considered to be difficult for most Indonesian students. This is supported by numerous researches that show the skill of Indonesian students in reading English texts was very low (Syatriana; Hamra; Mardiana; Kweldju; as cited in Hamra, 2010: 28). One of them comes from Salikin, Bin-Tahir, Kusumaningputri & Yuliandari (2017: 88). They conclude in their journal that learners who tend to read simple English texts can be said as the learners who were lacking English experiences. Suryanto (2017: 203) also adds that a spoken culture that is more dominant in society seems becoming a determining factor on the students' low habit in reading.

Some readers only know how to read words without being able to understand the meaning of the text. They cannot receive the information which the text gives and do not able to decide what information they need. In other words, their skill to comprehend a text is poor. Therefore, comprehension process is one of the important processes which built interaction between reader and text. Harris and Graham (2007: 2) also state that knowing how to read words has ultimately little value if the student is unable to construct meaning from text.

A pre-observation conducted by the researcher in SMP YPWKS Cilegon showed that the students' capability in comprehending English text was poor. When they were asked a question, they answered they did not know some words, in result, it was difficult for them to understand the text. Eventually, it led them to face difficulty in reorganizing the information from the text. It can be concluded that students had difficulty in comprehending the text.

To solve the problem, teachers should use a method or an approach which is suitable with the students' condition. One of those approaches is scientific approach. As it is widely known, scientific approach is introduced by Indonesian Education and Culture Ministry (KEMENDIKBUD) along with the publication of Curriculum of 2013. In this curriculum, scientific approach becomes the main approach which will be applied in the teaching learning activity. "Every lesson should use scientific approach in order to improve students' creativity, (Kemendikbud, 2014: 42) through its five learning phases, they are: observing, questioning, experimenting, associating, and communicating." Therefore, the researcher was interested in carrying out a research entitled "Scientific

Approach Influence on Students' Reading Comprehension of Eighth Grader Students".

RESEARCH METHODOLOGY

This research used Quantitative approach and Quasi Experimental design. As said by Creswell (2012), "Quantitative methods involve the processes of collecting, analyzing, interpreting, and writing the results of a study (or research)." Ary, et al (2010: 316) states, "Quasi experimental design is similar to randomly in that they involve manipulation of an independent variable but differ in that subject are not randomly assign to the treatment group".

One of the quasi-experimental designs was the Pretest-Posttest Non-Equivalent control group design. The design involved two groups; experimental group and control group. The experimental group (later called the experimental class) was taught using scientific approach, while the control group (later called the control class) was taught using conventional approach or without applying scientific approach. The population in this research was the eighth grade students of SMP YPWKS Cilegon in academic 2019/2020, which consisted of six classes. In conducting the research, the researcher took two classes as the sample; they are grade VIII E as the control class and VIII F as the experimental class; each class consisted of 30 students and they were 60 students in total.

Test was used as the instrument in this research, and was divided into two; there were Pre-test and Post-test. The form of test was in multiple-choice questions. To know whether the instrument was valid and reliable or not, the researcher analyzed it by conducting a try out. Try out was given to other class, which was not the sample of this research. From 50 items test of tryout, some items were chosen as the instrument of the test. The choosing of the instrument was done by considering validity and reliability.

Pre-test and post-test were administered in order to see the comparison between both classes in the pre-test and post-test. The scores of pre-test and post-test were then used as the comparator between control and experimental class. The chronological order was as follows:

1. Pre-test: In this step, the researcher gave the pre-test to both of the classes, the control and experimental class before they were getting the treatment. The pre-test scores were then analyzed to determine whether there was an increase in their learning when they were using conventional approach.
2. Treatment: After the pre-test, the treatment was applied to the experimental class.

3. Post-test: After the researcher conducted the treatment, the students were getting the post-test. The results of the post-test were then compared to the result of pre-test. Then, the researcher described the comparison in learning process before and after applying the treatment.

In scoring the objective test, each correct answer is counted one point using the formula:

$$S = \frac{R}{N} \times 100$$

Where:
S   = Score
R   = Total number of correct answer
N   = Total number of items

FINDINGS AND INTERPRETATION

Findings

The descriptive statistics was used to analyze the data of pre-tests from both classes. The following table is the results of descriptive statistical analysis.

Table 1: The result of descriptive statistical analysis

No.	Result	Pre-test		Post-test	
		Exp.	Con.	Exp.	Con.
1	Mean	75.5	72.3	85.10	73.7
2	Sample	30	30	30	30
3	Min. score	45	50	70	50
4	Max. score	95	95	100	90
5	Range	50	45	40	30
6	Standard deviation	10.7	10.95	11.8	8.95
7	Variance (SD^2)	114.49	119.90	139.24	80.10
8	Sum	2180	2175	2555	2205

The description of the data collected shows that the students' reading comprehension improves. It is also proved by the mean score rate of the students' pre-test and post-test of experimental class was 75.7 to 85.10, while the mean score rate of pre-test and post-test of control class was 72.3 to 73.7. The difference score between both classes was 11.40. Nonetheless, the score in experimental class was higher than the score in control class. In other words, the use of scientific approach gave better influence in learning reading than conventional method. The table below shows the normality of pre-test and post-test of experimental and control class.

Table 2: Summary of Normality Pre-test
in Experimental and Control Class

Group	Experimental	Control
Interval	10	9
Mean	75.5	72.3
Standard Deviation	10.7	10.95
X^2_{count}	0.842	0.689
X^2_{table}	11.070	11.070
Criteria	**Normal**	**Normal**

The result of normality pre-test in experimental class showed that the x^2_{count} score was 0.842. The value of df = k-1 (7-1 = 6) with significance a 0.05 (5%). The table in x² (chi-square table) with df = 6 was 11.070. Because $x^2_{count} \leq x^2_{table}$ = 0.842 ≤ 11.070, it can be concluded that the data on the pre-test in experimental class was normally distributed. In other words, the data on the pre-test in control class was normally distributed.

Table 3: Summary of Normality Post-test
in Experimental and Control Class

Group	Experimental	Control
Range	30	40
Interval	8	6
Standard Deviation	8.96	11.8
X^2_{count}	2.0911	6.325
X^2_{table}	11.070	11.070
Criteria	**Normal**	**Normal**

Table 4: Result of Homogeneity Test of Experimental Class
and Control Class

Instrument	Class	Fcount	Ftable
Pre-test	Experimental and Control	1.023	4.183
Post-test	Experimental and Control	1.316	4.183

Based on the table above:
Pre-test   = Fcount ≤ Ftable   = 1.023 ≤ 4.183
Post-test   = Fcount ≤ Ftable   = 1.316 ≤ 4.183

The result of the sample homogeneity of pre-test was 1.023, and the result of the sample of post-test was 1.316. Then, it was obtained by comparing the value of the highest variance and the lower variance with significance level of 0.05 for df = 29 with Ftable = 4.183. It can be

concluded that the data of pre-test and post-test in control and experimental classes were homogeneous.

According to the statistical calculation, the null hypothesis (Ho) was rejected, and the alternative hypothesis (H_a) was accepted. Therefore, it can be concluded that there was an influence of using scientific approach on students' reading comprehension at the eighth grade of SMP YPWKS Cilegon.

Interpretation

This research aimed to find out the influence of using Scientific Approach on students' reading comprehension at the eighth grade of SMP YPWKS Cilegon. This research was conducted from August 5th until August 28th 2019. This research was done by quasi-experimental with purposive sampling, where the researcher used two classes, which was VIII F as the experimental class, and VIII E as the control class. Both classes consisted of 30 students. In this research, experimental class was given the treatment by using scientific approach, while control class was taught using conventional approach as comparator. Each class came from the same condition except the treatment.

By using scientific approach, the students could comprehend reading easier through the five phases of scientific approach. It was believed that learning by using scientific approach was more effective that the non-scientific, (Kemendikbud, 2013: 6). Besides, reading could be more interesting with observing and experimenting activities which were applied in scientific approach.

The researcher used test as the instrument. The aim of the instrument was to gain the data of students' reading comprehension. They were two kinds of test; first was pre-test and second was post-test. Before the test was distributed to the students, a try-out test was given to a different class from experimental and control class to identify the validity and reliability of the test.

The try-out test consisted of 50 multiple-choice items. From the result of try-out test, the validity and reliability of the test items could be measured for pre-test and post-test question. The result shows 10 invalid items, and 40 valid items. Thus, the valid items were divided and used for the pre-test and post-test. Then, pre-test was given to students before conducting the treatment to experimental class.

The research lasted for five meetings. The researcher used the first meeting to conduct the pre-test in experimental class (VIII F) and control class (VIII E). The aim of pre-test was to know the prior knowledge of the students' reading comprehension before the students received the treatment. The result of pre-test showed most students had trouble to

answer the pre-test. In few minutes of discussion after the pre-test, the students said that they found it difficult to answer question based on text. This problem was the evidence that students had problem in reading comprehension.

In the second to the fourth meetings, the researcher conducted the treatment of using scientific approach in experimental class. Meanwhile, the researcher taught only using lecturing or conventional approach in control class. In these meetings, the researcher gave materials about social function, generic structures, and language features about descriptive text. In the experimental class, the researcher applied the scientific approach in every meeting of treatment. Begin with observing phase, the researcher led the students to pay attention to the topics and evoked students' knowledge about the topic. Then in questioning phase, the researcher gave chances for students to ask about the topic. In return, sometimes the researcher asked questions to trigger a small discussion right before the students got into exploring phase. In exploring phase, the students independently did an exploration about the topic that they had observed. For example, the students tried to identify the social function and language features of a random descriptive text, which the researcher prepared for them. Every students had an equal chance to explore with their seatmates. Next, the researcher led the students to associating phase. In this phase, the students make summary of their discussion and present it in front of the class. The last phase is the communication phase. In this phase, the researcher asked students to do an exercise. Then, the students shared their problems in learning about the topic and discussed it together. All of these phases were applied to the experimental class.

In the last meeting, which was after the treatment, the post-test was given to experimental and control class. The highest score in experimental class was 100, and control class was 95. It showed that the most improvement came from the experimental class. Based on the data and the testing of hypothesis, the result of the calculation was tcount ≥ ttable (4.06 ≥ 2.00). It indicated that Ho was rejected and Ha was accepted.

Both experimental and control class showed that there was an improvement of the score after giving the treatment. However, the score in experimental class showed that there was more improvement than in control class. The improvement difference was caused by different treatments that both classes received. Based on this, the researcher assumed that using scientific approach had an influence on students' reading comprehension.

CONCLUSION

Based on the findings and interpretation above, the researcher would like to conclude that the use of scientific approach is effective in teaching reading comprehension at the eighth grade. It can be seen from the difference in the post-test result between the students who were given a treatment by using scientific approach, and students who were not taught by using scientific approach. The mean score in the post-test of experimental class was 85.10 while control class was 73.7. It showed that the students' post-test score in experimental class was higher that the students' post-test score in control class.

This finding is also supported by the result of independence t-test. Based on the result, it is found that t-count was higher that t-table (4.06 > 2.00). The result on post-test was 4.06, while on t-table with the level significance 0.05 was 2.00. Therefore, the null hypothesis (Ho) was rejected and the alternative hypothesis (Ha) was accepted. The acceptance of the alternative hypothesis means that the use of scientific approach gave an influence in teaching reading comprehension at the eighth grade of SMP YPWKS Cilegon.

In conclusion, the five phases of scientific approach, which are observing, questioning, associating, experimenting, and communicating gave an influence in the teaching and learning process, where it results a higher improvement than the conventional approach.

SUGGESTION

Based on the findings above, the researcher would like to give some suggestions regarding to the research:
1. For teachers: Based on the result of the research that has been done by the researcher, it is suggested, especially for teachers who have not yet applied the scientific approach in the teaching and learning process. It is better for teachers to build a good interaction with students while applying the five phases of scientific approach.
2. For students: To get an optimal influence of scientific approach, students should be more active during the learning process. Students should try to read as much as possible to improve better comprehension in reading.
3. For further researchers: It is suggested for further researchers to conduct a research by implementing scientific approach and they can choose their research with using other skills.

Notes: This article is written based on the writers' undergraduate thesis at University of Sultan Ageng Tirtayasa.

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