

## The Effectiveness of The Cooperative Integrated Reading and Composition (CIRC) and Preview Question Read Reflect Recite Review (PQ4R) on Reading Comprehension Skill

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### Abstract

This research aimed to describe the effectiveness of the CIRC and PQ4R models on the reading comprehension skills of the fifth semester students of the PGSD study program. This study used quasi-experimental design with pretest-posttest nonequivalent group design. This study used two experimental groups and one control group. The population of this study was the fifth semester students of PGSD Study Program. This research used simple random sampling technique. To determine the effectiveness of learning CIRC and PQ4R, the data were analyzed using t-test and Anava. The results of this study indicated that CIRC learning was effective in reading comprehension of the fifth semester of PGSD Study Program with a significant level of  $0.006 < 0.05$ . PQ4R learning was also effective in reading comprehension of students in the fifth semester of PGSD Study Program with a significant level showing  $0.000 < 0.05$ . There were a difference in effectiveness of CIRC and PQ4R learning in reading skills on the fifth semester students of PGSD study program with a significance level of  $0.000 < 0.05$ .

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**Keywords:** learning model, CIRC, PQ4R, reading comprehension

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### 1. Introduction

Reading is one of the most important language skills at all levels of education. For students, reading is a demand for students to be able to understand lecture materials. Students gain insight through reading and can develop their own potential while forming a literacy society to be able to compete in the global era. This is also what makes language so important to be taught from low-level education to the level of Higher Education.

At the College level, Indonesian Language courses become compulsory

subjects. One of the objectives is to equip students with skills in reading or to understand Indonesian language textbooks. One of the reading skills emphasized in college is reading comprehension skill. Reading comprehension skill for students is very necessary to find out the content of each lecture. University students are always confronted with literature and required to read books and references from various sources. Bormouth (Zuchdi, 2012, p. 8) states that comprehensive ability is a set of generalized knowledge acquisition skills, which enable people to obtain and realize

information obtained as a result of written language reading.

According to eg, Brannon (Tracy, 2006, p.70) that "Empirical research has been shown that the purpose for reading influences of readers' cognitive is the process of reading and strategies employed, which in turn influences the amount of text information recalled ". This means, empirical research has shown that certain reading goal is to influence the cognitive process of the reader within the time they has been spent in reading and in the strategies they used, and it will affect the amount of information text that is remembered.

Although the fact that reading is difficult for some people, learning of reading is still neglected. Some educators assume that it can be done independently by students without having to go through the process of coaching and training. Even though the ability to read will not run optimally if it is not accompanied by activity or programmed training (Ratna Wulan, 2009). This means that to enhance the intensity of the process of reading practice, it needs a variety of strategies or learning models. Reading activities is able to train students to remember, understand the contents of the text, and also obtain information so that students' reading comprehension skills can be improved according to the capacity of the students they should be.

Kunjana (2009: iii) stated that even though students had long received Indonesian language material even since they were in the elementary school, however, until they were in college, their language proficiency in Indonesian is still very alarming.

Reading comprehension learning requires a right model to carry out an easier teaching and learning activities. The selection of learning models is necessary to

achieve some cognitive processes and skills so that readers can understand the meaning of a text they have read. Cooperative learning is a learning model or strategy characterized by cooperative tasks, goals, and structure of rewards, and requires students to be actively involved in discussions, debates, tutoring, and teamwork. (Dyah, 2014, p.104). Cooperative learning is different from other strategies. This difference can be seen from the learning process which emphasizes more on the process of cooperation in groups. The goal of this model is not only to achieve academic ability, but also to train students in working together to understand the text. The cooperative model used in this study is the Cooperative Integrated Reading and Composition (CIRC) and the Preview Question Read Reflect Recite Review (PQ4R). The researcher chooses both models because those basically aim to improve students' skills in understanding the contents of the reading. Slavin (2010, p.33) suggests that the most important goal of the cooperative learning model is to give students the knowledge, concepts, abilities, and understanding they need to be able to become happy members of society and give contributions to others.

Slavin (2010, p.202) reveals that the main purpose of CIRC is to use cooperative teams to help students learning reading comprehension skills that can be widely applied. In CIRC, students work in pairs to identify story elements. In addition, with the integration of the activities of the process of writing and reading comprehension in a text. CIRC is to design, implement, and evaluate conventional learning. The steps of CIRC according to Slavin (1986, pp. 26-27) are as follows: (1) reading in pairs, (2) writing the story by using grammar of the story, (3) reciting the words aloud, (4) understanding

the meaning of the words, (5) retelling, and (6) spelling.

PQ4R stands for Preview Question Read Reflect Recite Review. The PQ4R model is one part of the elaboration strategy so that it is suitable to be used to help students remember what they read. PQ4R also shows the mind behavior that students use which influences what they learn including memory and metacognitive. The steps of the PQ4R model are to read at a glance quickly to find the main ideas / learning objectives to be achieved (Preview), students make questions from the main ideas found by using what words, why, who, and how (Question), students read and respond / answer the questions that have been prepared previously (Read), Simulate / inform the material that is on reading material (Reflect), students make the essence of the entire discussion of the lessons learned (Recite), students read the essence that they make from the details of the idea the point that is in his mind and the student re-reads the reading material, if he is still unsure of the answer (Review). The use of the PQ4R method strengthens reading and makes students learn independently and has a strong grip on their understanding during learning (Omoteso, 2013, p.242).

PQ4R is designed to deal with reading material in the form of books and is intended for study purposes. This model allows students to study systematically with the help of appropriate and efficient work steps. Hayes (1992, p. 48) states that the PQ4R strategy can be applied in schools to use substantial textual material and can be used with individual students, small groups, and the whole class. In addition, he stressed that using PQ4R, students will gain experience with their strategies can apply when they study on their own.

This research was about reading comprehension based on Barrett Taxonomy

where the lecturer develops questions according to the level of reading comprehension expected by students. Based on Barrett's Taxonomy there are five levels that have been described and explained above. The ability to read comprehension includes details of abilities consisting of the ability to (1) Liability Comprehension, (2) Reorga-nization, (3) Inferential Comprehension, (4) Evaluation, (5) Appreciation.

The main objectives of CIRC and PQ4R are by using cooperative teams to help students understanding the text that widely applied. The implementation of the CIRC and PQ4R models involves students working together in pairs to identify aspects of reading comprehension so that learning will be more effective. Therefore, the CIRC and PQ4R models are expected to be able to create an effective reading comprehension learning of the fifth semester students of the PGSD STKIP Muhammadiyah Sorong.

This study aimed to (1) knowing the effectiveness of cooperative learning model Cooperative Integrated Reading and Composition (CIRC) on reading comprehension skills of fifth semester students of PGSD STKIP Muhammadiyah Sorong Study Program, (2) knowing the effectiveness of type cooperative learning models Preview Question Read Reflect Recite Review (PQ4R) on reading comprehension skills of fifth semester students of STKIP Muhammadiyah Sorong PGSD Study Program, and (3) knowing differences in the effectiveness of cooperative learning models Cooperative Integrated Reading and Composition (CIRC) and Preview Question Read Reflect Recite Review (PQ4R) on reading comprehension skill of fifth semester students of PGSD STKIP Muhammadiyah Sorong program. The results of this study are also expected to

add empirical insight about the Cooperative Integrated Reading and Composition (CIRC) model and the Preview Question Read Reflect Recite Review (PQ4R) especially in reading comprehension learning to improve the learning atmosphere so that reading comprehension activity becomes very enjoyable in accordance with PAKEM (Active, Creative, Effective and Enjoyable Education). In addition, the teacher can apply the CIRC and PQ4R learning models. For researchers, researchers are expected to be able to apply the knowledge that has been obtained from the lecture bench to be beneficial for the continuity of education, especially in the language education area.

## 2. Method

This study used a quantitative approach with a type of quasi-experimental research (quasi experiment). The design used in this study was Nonequivalent Control Group pretest-posttest Design. The researcher wants to compare the two models whose effectiveness is not yet known to the learning model. The data was collected by using comprehension reading tests which is used to measure reading skills in the form of a descriptive test of 10 questions.

The data analysis techniques in this study were descriptive statistics and inferential statistics. Descriptive statistics were used to describe the condition of students towards the ability to read comprehension both before and after learning in all three classes, and the inferential statistics were used to test the research hypothesis.

Before inferential statistical tests, the analysis prerequisite tests were carried out, which consist of a normality test and a homogeneity test. Normality testing was

done by the Kolmogorov-Smirnov method. The normality test was used to find out the data is normally distributed or not, while the homogeneity test was used to find out whether the data comes from a homogeneous population or not. Test for homogeneity using Levene's Test. Data is said to be normally distributed and homogeneous if the significance value is  $> 0.05$ . Tests for normality and homogeneity using SPSS 22 for windows.

Hypothesis testing in this study used the t-test (t-test) and anova test. The t test (t-test) was used to test whether there were differences in effectiveness between the two models used for the experiment, while the anova test was conducted because there were two the independent variables that will be tested for its effectiveness.

## 3. Result and Discussion

### Descriptive Analysis

Descriptive analysis was used to describe the data. The data obtained in this study were scores of reading comprehension skill obtained from the results of the pretest and posttest on the control and experimental group. Pretest or initial test is a test of comprehension reading skill given to the control group and the experimental group before the treatment applied.

Statistical techniques which included mean, midpoint (median), mode, standard deviation, variance, minimum score and maximum score were used to describe the pretest and posttest data of the experimental and control classes. The results of the descriptive analysis on the average score of reading comprehension skills of the experimental class 1, experiment 2 and the control class can be seen in the diagram in table 1.

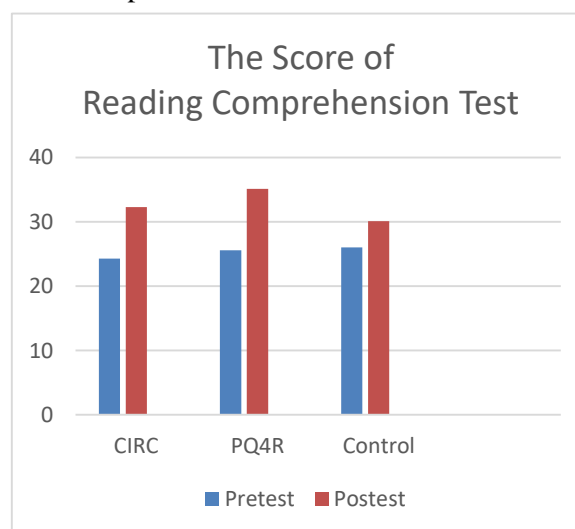
**Table 1. Table of Pretest and Posttest Score of Reading Comprehension Skill**

	Pretest			Posttest		
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Mean	24,2727	25,6000	26,0333	32,3030	35,3333	30,1000
Deviation standard	3,51135	2,51849	3,76447	2,51849	2,33021	3,56564
Minimum score	18,0000	19,0000	21,0000	27,0000	30,0000	24,0000
Maximum score	31,0000	32,0000	32,0000	38,0000	39,0000	38,0000
The number of students	25	23	25	25	23	25

Based on Figure 1, it can be seen that there was an increase in the average score of the control group and the experimental group. In the control group, the average score at pretest was 72.18; while the average score at post-test is 77.46. The increase in the average score in the control group was 5.28. In the experimental group, the average score at the pretest was 72.71; while the average score at posttest is 88.44. The increase in the average score in the experimental

group was 15.73. Thus, the increase in the average score of the experimental group was higher than in the average score of the control group with a difference in the average score between the two groups was 10.45.

The average score of students' reading comprehension skills in experimental class 1, experiment 2 and control class can be seen in the diagram in figure 1

**Figure 1. Diagram of Pretest and Posttest Score on Reading Comprehension**

Based on figure 1, it can be seen that the CIRC experimental group had an average pretest score of 24,2727; and 32,3030 in posttest score with gain score of 8.0303. The PQ4R experimental group had an average pretest score of 25.6000 and 35.1333 in posttest score with gainscore of 9.5333. While the control group had an average value of pretest of 26,0333 and 30,1000 in posttest with gainscore of 4,0667. If it is compared among the three groups, the PQ4R

experiment group had higher score average than the two others.

### **Prerequisite Analysis Result**

Before testing the hypothesis, the prerequisite test that must be fulfilled was the normality and homogeneity test for each group. The following are the results of analysis of normality and homogeneity tests in Table 2.

**Table 2. The Result of Normality on Pretest of Reading Comprehension**

No.	Groups	Sig	Result
1.	Control	0,153	Normal
2.	Experiment I	0,821	Normal
3.	Experiment II	0,215	Normal

Table 2 shows that the data on the pretest of reading comprehension skill of the three groups had a significance value greater than 0.05, which means the data are normally distributed.

**Table 3. The Result of Normality on Posttest of Reading Comprehension**

No.	Groups	Sig	Result
1.	Control	0,664	Normal
2.	Experiment I	0,539	Normal
3.	Experiment II	0,977	Normal

Table 3 shows that the posttest data of reading comprehension skill of the three groups had a significance value greater than 0.05, which means the data are normally distributed.

**Table 4. Homogeneity Test Results**

	Levene Statistic	df1	df2	Sig.
Pretest	0,228	2	90	0,797
Posttest	2,879	2	70	0,061

Table 4 shows that the results of the pretest and posttest homogeneity test analysis for experimental 1, experiment 2 and control group had a significance value > 0.05, which means homogeneous.

### Hypothesis Test Results

After the analysis prerequisite test results, which were the normality and homogeneity tests have been fulfilled, it

showed that the data are normally distributed and homogeneous. Furthermore, the analysis carried out is a hypothesis test.

### The First Hypothesis Result

Hypothesis test results of reading comprehension skill in experimental I and control group can be seen in table 5.

**Table 5. T-test Result of Reading Comprehension Between Experimental I and Control Group**

	Group	N	Mean	T	Sig.
Pretest	Ex I	33	24,272	1,921	0,059
	Control	30	26,033		
Posttest	Ex I	33	32,303	2,853	0,006
	Control	30	30,100		

The significance value obtained of the t-test analysis was 0.006. The significance value is less than 0.05. While the value of t-count is  $2.853 > t$  table value 0.059. So, it can be concluded that there are significant differences in the use of the CIRC model and

conventional learning on comprehension reading skills.

Thus, it can be concluded that CIRC learning is effective in reading comprehension skills. This result also is



supported by comparing the increase of the pretest and posttest average score in the experimental group I and the control group. In the experimental group I, the pretest average score was 24.272 and the posttest average score was 32.303. The increase in the average reading comprehension skills in the experimental group I was 8.031. While the increase in the control group, the pretest average score was 26.033 and the posttest

score average score was 30.100. The increase in the average reading comprehension skills in the control group was 4.067.

### The Second Hypothesis Result

The results of hypothesis testing writing skills in the experimental II are compared with the control group can be seen in table 6.

**Table 6. T-test Result of Reading Comprehension Between Experimental I and Control Group**

	Group	N	Mean	t	Sig.
Pretest	Ex II	30	25,600	-0,442	0,440
	Kontrol	30	26,033		
Posttest	Ex II	30	35,133	6,472	0,000
	Kontrol	30	30,100		

The significance values of the t-test analysis was 0,000. The significance value is less than 0.05. While the value of t-count is  $6.472 > t \text{ table } 0.440$ . So, it can be concluded that there are significant differences in the use of the PQ4R model and conventional learning on comprehension reading skills. In other words, PQ4R is effective for reading comprehension. This result was also supported by comparing the increase of the pretest and posttest average score in the experimental II and the control group. In the experimental II group, the pretest average score was 25.600 and the posttest average

score was 35.133. The increase in the average reading comprehension skill in the experimental group II was 9.533. While the increase in the control group, the pretest average score was 26.033 and the posttest score average score was 30.100. The increase in the average reading comprehension skills in the control group was 4.067.

### The Third Hypothesis Result

The results of the hypothesis of differences in the CIRC and PQ4R models in reading comprehension can be seen in table 7.

**Table 7. The T-test Results of Reading Comprehension Between Group of Experimental I and Experimental II**

	Group	N	Mean	t	Sig.
Pretest	Ex I	33	24,273	-1,435	0,156
	Ex II	30	25,600		
Posttest	Ex I	33	32,303	-4,616	0,000
	Ex II	30	35,133		

Reading skills is one of the most important language skills at all levels of education and has an influence on student development. In experimental research, prior to the treatment of the assessment of the research group, the students' reading comprehension pretest was carried out.

Measurement of reading comprehension of students was carried out through a description test of 10 items given before the three groups followed the learning. Giving pretest aimed to find out the initial skills of students before being given treatment as well as to ensure that the initial situation of the

experimental group and the control group is the same (homogeneous).

Slavin (1996, p. 201) states that all cooperative learning methods share the idea that students work together to learn and are responsible for each other who learns and themselves. In addition, the team's success is also a goal that must be achieved together. Improvement of students' reading comprehension skills is suspected because of the influence of the stages of the CIRC learning model. The application of CIRC learning involves comprehensive activities to identify aspects of the reading text.

During learning, the lecturer groups students into small groups consisting of male and female students with heterogeneous levels of ability. Each group consists of 3-4 students. Suprijono (2010, p. 54) states that students are responsible for their own learning and try to find information to answer questions faced with themselves. Students can achieve learning goals only when they work together so that team success is also a goal that must be achieved together.

The lecturer gave the reading text to be discussed among the group member which was directed by the Lecturer. The lecturer explained the purpose of reading, introducing new vocabulary, repeating vocabulary, discussing the text after the students have finished reading. Students read the text silently and then alternately read the reading texts aloud with their partners, taking turns for one paragraph. While other students as listeners correct every mistake made by the reader.

The lecturer gave an assessment of the student's performance by going around and listening as the students read to each other. Students provided related questions about the parts of information contained in the reading and main ideas of each paragraph of the reading text. Students were given difficult words contained in the reading text. Students read the words correctly and practice reciting a list of words with their teammates. After reading the text, students discussed the reading with their group friends, then

summarized the main points of the reading and retell it with their own language both in oral and written language. Students corrected each other's spelling of words, continued in this activity the students helped each other.

At the end of the activity, the lecturer gave the students a posttest of reading comprehension skills. In this test students were expected not to help each other. The posttest was intended to assess the magnitude of the increase in students' reading comprehension skills after getting different treatments. Furthermore, the pretest and posttest scores were analyzed using the t-test.

The results of the t-test showed that the CIRC model was effective on reading comprehension skills. The statement is in line with the results of the research put forward by Gupta (2014) that the experimental group conducting cooperative learning type CIRC scored better in reading texts compared to the control group that using conventional learning. Besides of the statement of Mahdu Gupta and Jyoti Ahuja above, the results of Zainuddin (2015) study concluded that there was a significant effect of the application of the CIRC model on descriptive reading learning better than conventional learning methods. The research conducted by Yeh and Yi-Fang (2007, p.83) also shows that prior student knowledge and the CIRC model had a positive impact on achievement in reading comprehension and other language skills. Students' reading comprehension skills experience an increase in class scores because of the effectiveness of the stages of the PQ4R learning model.

The PQ4R model was applied for reading comprehension learning because it can help students remember what they read and help the learning process of reading comprehension. At the beginning of learning, students formed groups of 2-3 people each. Groups were formed based on student seating. The seating position had been arranged by the lecturer by equalizing the ability of each student, so that each group consists of good and less students. In line with that, Hayes explained (1992, p.48) that the PQ4R strategy can be applied and can be



used with individual students, small groups, and the whole class. Then each group is given a reading to be discussed, then given a Worksheet and reading text by adopting the steps outlined by Slavin (2011, p.257) with the description of the treatment in the PQ4R experiment as follows.

In the process of reading, students are asked to skim the reading text given. This had to be done because in the PQ4R model the first step that must be taken is to skim what will be read with the guidance of the lecturer. The next step was to make a question. The teacher gave an example of a few question words that can be used, including what, who, where, when, why, and how. The lecturer presented a reading consisting of several paragraphs. Students could use the question words just like what had been revealed. Questions were made by students and it was determined that one group had to make two questions. In this time, lecturers only as facilitators. Most student-made questions were similar and required simple answers and do not include the contents of the text. After completing the tasks, the questions written on the paper sheet were stored first and then the worksheet and the text were reopened.

The lecturer reiterated that students should concentrate more on their reading. After students were finished, occasionally the teacher went around to see the work of students. When the lecturer went around, there were some students who showed their work and asked whether the work is correct or not. The lecturer looked at it briefly and gave a description again about making questions because in using keywords to make questions was not right, they were allowed to answer questions that match the contents of the paragraph. The next step was for the lecturer to assign students to rewrite the text or points of the text according to the text that had been read.

Appropriate questions and answers can help students to rewrite the discourse that is read. Reviewing is done by reading the overall discourse and the accuracy of the answers to the questions that have been

formulated. At the end of the lesson the teacher wants the group representatives to read what he has written.

At the end of learning, the lecturer asked students to have a posttest of reading comprehension skills. Posttest was intended to determine the magnitude of the increase in students' reading comprehension skills after getting different treatments. Furthermore, the pretest and posttest scores were analyzed using the t-test. The t-test shows the PQ4R model was effective against students' reading comprehension skills. The research conducted by Wahyuningsih (2012) shows that prior knowledge and the PQ4R model are effective towards achievement in reading comprehension of students. In line with other studies conducted by Widiyanti (2014, p.35), it states that the PQ4R group scores more reading texts better than the control group that uses conventional learning. The PQ4R method is a process of adding in detail so that new information will become more meaningful, therefore coding is easier and more certifying.

In the first second, and third hypotheses test, it was found that each CIRC and PQ4R learning model was effective on reading comprehension skills. Then the third hypothesis was tested to find out the difference of the effectiveness between CIRC and PQ4R. The analysis that used was Anava to determine the differences of the effectiveness of the two treatments on the dependent variable which was reading comprehension skills. The effectiveness of the CIRC and PQ4R models on students' reading comprehension skills can be seen as the average score of the pretest and posttest reading comprehension skills of students in both experiments. The average score of pretest and posttest reading comprehension skills in the CIRC group were higher than those in the PQ4R model and the PQ4R group was higher than the contron group that applied conventional learning.

Another thing which reinforces was that the CIRC learning model compared to the PQ4R model is equally not significant so the use of the two models is balanced in the

reading comprehension skills of students is the result of anava analysis. It was said that the CIRC model and PQ4R model is balanced / equally effective on reading comprehension skills because there was no significant difference.

Basically, the CIRC and PQ4R models both had effective stages on reading comprehension skills. The both model had a pair reading phase and retells from the reading. In the CIRC model there were six stages, namely reading in pairs, writing the story in question and grammar of the story, reciting words loudly, interpreting words, retelling, and spelling. In this model, students were assigned to a heterogeneous learning team, so that students can work together on learning such as in reading in pairs, identifying elements of the main story and can re-express the contents of the reading. Agreeing with Stevens's opinion (Calderon, 1998, p.155) states that the CIRC model had shown a consistent positive effect from the reading program on student achievement, especially in the steps of reading comprehension and metacognitive. Rapp (1991, p. 55) said that one of the most important aspects of the component of the CIRC reading series is the provision of meaningful, cooperative activities during follow-up when the teacher works with one of the reading groups. Based on the analysis and previous descriptions, it is reinforced that the CIRC model and the PQ4R model are effective on students' reading comprehension skills because there are no significant differences.

#### 4. Conclusion

The Cooperative Integrated Reading and Composition (CIRC) learning model is effective on reading comprehension. This was proved by a significant increase in the average score of the experimental group I after using the CIRC model, which is from 24.2727 to 32.3030. The average increase in experiment I was 8.0303. Independent sample t-test results in experiment I obtained significance values obtained were 0.006 or lower than 0.05 so that the use of the CIRC

model was effective on reading comprehension skills of semester V PGSD study program STKIP Muhammadiyah Sorong, West Papua.

The Preview Question Read Reflect Recite Review (PQ4R) learning model is effective in reading comprehension. This was proved by a significant increase in average score of the experimental group II, from 25.6000 to 35.1333. The average increase in experiment II was 9.5333. The Independent sample t-test results in experiment II obtained the significance value of 0,000 or lower than 0.05 so that the use of the PQ4R model is effective on reading comprehension skills in the PGSD study program in Semester V of STKIP Muhammadiyah Sorong.

There are differences in the effectiveness of Cooperative Integrated Reading and Composition (CIRC) and Preview Question Read Reflect Recite Review (PQ4R) which is significant for reading comprehension skills. This can be proven by Anava test that the experimental group I yielded an average score of 24.2727 and posttest 32.3030 with gainscore of 8.0303. The experimental group II had an average pretest value of 25.6000 and a posttest average value of 35.1333 with gainscore of 9.5333. While the control class produced an average pretest value of 26,0333 and posttest average value of 30,1000 with gainscore of 4,0667. So, the CIRC learning model and the PQ4R learning model are effective because the results have no significant differences. If it was viewed from the average reading comprehension skill, the result of PQ4R group was higher than the CIRC group, and the CIRC group was higher than the control group.

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