ATLANTIS PRESS
Advances in Social Science, Education and Humanities Research, volume 203
International Conference on Life, Innovation, Change, and Knowledge (ICLICK 2018)

The Effectiveness Of Using Cooperative Learning Model From Broken Triangle, Square, Heart Type Towards The Students' Cognitive Learning Outcome

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Abstract*—This research aims to know the effectiveness of using cooperative learning model from broken triangel/square/heart type to the students' cognitive learning outcomes. The research used quasy eksperimental design particularly nonequivalent control group design. The population was 40 students from Class III SDN 5 Tengadak. Nonprobability sampling was used as the sampling technique covering the design of saturated sampling. The data were collected through direct observation (observation sheets), measurement (test sheets) and indirect communication (questionnaire). The result of observations obtained 100% fulfillment for teachers and students' participation. From the analysis, it was found that cooperative learning used had high effectiveness on students' cognitive learning outcome or scored 0,87 as could be seen from the effect size which stated that if ES>0.8 then the category was high. In addition, the result of hypothesis testing on the posttest from experimental class and control class were 2.988 for tcount and 2.024 for ttable at a significant level 0.05 which meant that tcount>ttabel (2,988>,024).The questionnaire result showed 100% fulfillment from teacher and students' participation. In conclusion, there were significant differences of students' cognitive learning outcome between the experimental class and the control class.

***Keywords*—Cooperative Learning; BrokenTriangle/Square/Heart; Cognitive Learning Outcome**

I. INTRODUCTION

Education directs students to learn anything that has not been studied yet to be studied and comprehended. It demands teachers to think creatively in using learning model so that students will get easier in understanding the materials during the learning process. One of alternative learning models used is broken triangel/square/heart type of cooperative learning. This model is considered creative and attractive. This is sometimes called puzzle.

This model used triangles/squares/heart media which are cut into pieces of cards. There is a statement in each card created. This model is usually used in essay form. This model is considered helpful to increase students' cognitive learning outcome and to attract students' interest to study.

From the result of pre-observation done in August 2, 2007, it was found that students tended to be passive in the learning process. Students tended to wait for teacher's explanation in which the teacher himself dominated the class in the learning process. This way discouraged the students so that they tended to make noise because there was no interest anymore for studying. This affected students' cognitive learning outcome.

This was really contrary to the desired expectations and should not be allowed to continue. One thing to do to solve the problem was applying learning model that had never been applied there. One alternative used was broken triangel/square/heart type of cooperative learning.

Based on the previous problem and in the effort of increasing students' cognitive learning outcome, the researcher was interested in conducting the research entitled "The Effectiveness of Using Cooperative Learning Model from Broken Triangel/Square/Heart Type towards the Students' Cognitive Learning Outcome".

II. RESEARCH METHOD

The research method used was experimental research in the form of quasy eksperimental design. This research used nonequivalent control group design. The population in this research was students from Class 3A and 3B SDN 5 Tengadak. The sample involved in this research was students from Class 3A and 3B SDN 5 Tengadak.The sampling technique used was saturated sampling. The data were collected from direct observation, measurement teachnique, and indirect communication. The data were gathered through observation sheet, testing, and questionnaires. The data analysis was used to analyze the observation result, the test result which was divided into scoring and prerequisite test (normality test, homogeneity test and hypothesis test), effectiveness, gain index and questionnaire result.

Figure 1
Nonequivalent Control Group Design

O_1	**X**	**O_2**
O_3		**O_4**

(Sugiyono, 2015:116)
Note :
X : Learning process using broken triangel/ square/ heart learning model
O_1 dan O_2 : Pretest Score
O_3 dan O_4 : Posttest Score

III. RESULT AND DISCUSSION

The result of observation gotten from both teacher and students were 100 % very good. This proved that broken triangel /square/heart learning model was well done. The result of observation can be seen from the table 1:

Table 1
Obeservation result of Teacher and Students

Observation	Meeting I	Meeting II
Teacher	100%	100%
Students	100%	100%

Furthermore, normality test calculation used statistical SPSS 21.0 as could be seen from table 2 as follow:

Table 2
The Result of Normality Test

Exp. Class	Control Class
Pretest	Pretest
0,158>0,05	0,318>0,05
Normal	Normal
Posttest	Posttest
0,759>0,05	0,305>0,05
Normal	Normal

In addition, homogenity test calculation also used statistical SPSS 21.0 as could be seen in table 3 as follow:

Table 3
The result of homogenity test

Test Type	Note
Pre exp dan cont.	0,450>0,05 Homogen
Post exp dan cont.	0,527>0,05 Homogen
Pre dan post exp.	0,701>0,05 Homogen
Pre dan post cont.	0,488>0,05 Homogen

The calculation of hypothesis test was divided into some parts. The first one was the difference of pretest result between experimental class and control class as could be seen in Table 4 as follow:

Table 4
The Difference of Pretest Result Exp dan Cont Class

Class	Max	Min	Average
Experiment	76	43	57,05
Control	81	43	57,60

t_{count}	dk	t_{table}
0,046	38	2,02439

The second one was the difference of posttest result from experiment class and control class as could be seen in Table 5 as follow:

Table 5
The Difference of Posttest Result Exp dan Cont Class

Class	Max	Min	Average
Experiment	100	76	91,35
Control	90	57	68,55

t_{count}	dk	t_{table}
2,988	38	2,02439

The third one was the difference result of pretest and posttest in the experiment class as can be seen from Table 6 as follow:

Table 6
The difference Result of Pretest and Posttest in Experiment Class

Exp Class	Max	Min	Average
Pretest	76	43	57,05
Posttest	100	76	91,35

t_{count}	dk	t_{table}
22,129	19	2,09320

The fourth one was the difference result of pretest and posttest in the control class as could be seen from Table 7 as follow:

Table 7
The difference Result of Pretest and Posttest in Control Class

Con. Class	Max	Min	Average
Pretest	81	43	57,60
Posttest	90	57	68,55

t_{count}	dk	t_{table}
4,294	19	2,09320

The calculation of effectiveness based on the effect size criteria was 0.87 that was considered high. The result of hake gain index could be seen in table 8 as follow:

Table 8
The Result of Hake Gain Index

Class	HGI	Category
Experiment	0,798	High
Control	0,251	Low

The result of students' response was aimed at knowing the students' response towards the learning model being applied. The result of students' response from questionnaire showed that the result was 100% and was categorized very good.

IV. DISCUSSION

Teaching process in experiment class ran smoothly. This was proved by the result of observation sheet that obtained maximum 100% percentage. The previous researcher used the same learning model at Class XE in three times observation cycle. The final stage of the cycle obtained the average score 78.00 that was considered successful.

In relation to students' cognitive learning outcome elaborated in Bloom Taxonomy and revised by Anderson and Krathwohl (in Duda, 2017:42-48), it was said that memorizing (C-1) was an effort to recall the knowledge from memory in the past. Comprehension (C-2) was related to building an understanding from many sources such as message, reading materials, and communication situation. Applying (C-3) covered the use of prochedure or certain ways to do any exercise or to solve any problem.

Then the result of hypothesis test was as follow. The result of pretest in experiment class and control class showed that t_{count} was smaller than t_{table} namely (0,046<2,02439) so that H_o was accepted which meant that there was no difference on students' learning result. Based on the hypothesis test, there was no difference on students' learning result between experiment class and control class.

Meanwhile the previous researcher, Citra Abadiah Magdela (2014) under the same learning model stated that the result of pretest in experiment class and control class which showed no difference was caused by similarity of getting the same initial condition namely there was no treatment done. It could be concluded that the initial research did not result in satisfying outcome because the initial condition of the class to be studied still had the same cognitive ability so that there was of high necessity to give different treatment to get the expected result.

The difference of posttest result in experiment class and control class showed that the value of t_{count} was higher than that of t_{table} namely (2,988>2,02439) so that H_a was accepted which meant there was difference on students' learning outcome. Referring to the test result, there was difference in students' learning outcome between the experiment class and the control class after giving the treatment.

The previous researcher using the same learning model namely Budi (2015) stated that the result of posttest in experiment class and control class obtained 2,024 for t_{count} value and 1,669 for t_{table} value so that it could be said $t_{count} > t_{tabel}$ meaning that there was differences in students' cognitive learning outcome between experiment class and control class.

Based on the research result of the previous researcher, it could be concluded that there was a significant difference in students' cognitive learning outcome after giving treatment in this case the learning model of broken triangel/square/heart in the experimet class with the one from the control class which just applied conventional method.

The different result of pretest and posttest in the experiment class showed a higher value of tcount than the t_{table} namely (22,129>2,09302) so that H_a was accepted which mean that there was a difference in students' learning outcome. Referring to hypothesis test result, this research showed that after giving treatment, there was differences in students' learning outcome especially from experiment class.

The previous researcher using the same learning model namely Citra Abadiah Magdela (2014) stated that the result of pretest in experiment class got average score 15,08 while the average score in posttest was 21,82 which meant that there was a siginificant difference in students' cognitive learning outcome. It could be concluded that after the students in experiment class had been given the learning model of broken triangel/ square/heart, there was a significant differences in their cognitive learning outcome between the pretest and posttest.

The difference result of pretest and posttest in control class showed that the tcount value was higher than the t_{table} value namely (4,294>2,09302) so that H_a was accepted which meant that there was differences in students' learning outcome but the difference was not significant.

Citra Abadiah Magdela (2014) also stated that the result of pretest in control class got average score 14,33 while in posttest the average score was 17,44. Despite the differences in pretest and posttest from the control class, there seemed to be not significant compared to the experiment class. This meant that applying conventional method gave no significant differences in students' cognitive learing outcome like the broken triangel/square/heart model did in the experiment class.

The calculation of effectiveness resulted in :

$$ES = \frac{100-90}{11,43} = 0,87$$

The value of effect size was 0,87. It was categorized high if seen from the table of effect size criteria. The result of hake gain

index in experiment class was 0,798 while in control class it was 0,251. Then, it could be concluded that the implementation of new learning model in the experiment class was considered higher and therefore successful.

The students' response towards the broken triangel/square/heart learning model was 100% which was categorized very good. The learning model gave positive impact in the experimental class.

In addition, Magdela (2014) stated that students' response towards broken triangel /square/heart model was positive in which all students agreed with this learning model and were interested in following the learning process using this learning model.

V. CONCLUSION

Based on the research result and discussion, it could be conluded that there was a significant difference of applying broken triangel /square/heart in students' cognitive learning outcome in class III of SDN 5 Tengadak in the material "Aku suka bergaul dengan anak baik". The teaching and learning process ran smoothly using this cooperative learning model.

It was proved by the result of observation to the teacher and the students resulting in 100% fulfillment. There were no significant differences of learning outcome in pretest from experimental class and control class. It was proved by the result of t-test showing that tcount was smaller than ttable namely (-0,05<2,02439) which meant that there was no significant difference.

There was significant difference in students' learning outcome in the posttest from experimental class and control class. It was proved by the result of t-test showing that tcount was higher than ttable namely (2,988>2,02439) which indicated significant difference. There was also significant difference of pretest and posttest in the experimental class regarding the students' learning outcome. It was proved by the result of t-test showing that tcount was higher than ttable namely (22,129>2,09302) indicating a significant difference. There was also different result of students' learning outcome in pretest and posttest from the contro class. It was proved by the result of t-test showing that tcount was higher than ttable namely (4,294>2,09302) indicating less significant difference than that from the experiemental class..

The use of broken triangle/square/heart learning model was considered very effective to increase students' cognitive learning outcome. This was proved by the calcualtion of effect size as many as 0,87 that was considered high. Students' response towards the implementation of this learning model was 100% very good as could be seen from the questionnaire distributed to them. Therefore, it could be concluded that broken triangel/square/heart learning model was very well accepted by the students in the experimental class.

Suggestion

Before applying this learning model, it is important to think over the time allocation and students' charactertics so that the implementation of this method runs effectively. Giving direction to the students to cooperate well during the teaching process and asking them to share ideas in group are also needed during the research.

The broken triangel/square/heart learning model can also be applied to the other subjects. It is also recommended to do further in-depth research regarding the effectiveness of broken triangel/square/heart learning model towards the students' cognitive learning outcome to the other materials. The result of this research can be used as a reference as well as comparison for the next research.

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